



Department
for Education

The effects of menopause transition on women's economic participation in the UK

Research report

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Executive summary

Introduction

This report discusses **the effects of the menopause transition on women's economic participation in the UK**. It critically reviews the English language evidence base from 1990 to the end of March 2016, covering 104 publications. The research questions the report sets out to answer based on this evidence are:

1. To what extent is menopause transition a problem for working women (and women who have left the workforce)? What is the nature and scale of the problem in the workplace and the wider labour market?
2. How do the symptoms of menopause transition, attitudes of workers experiencing the menopause transition, and the attitudes of employers impact on women's economic participation (relative to men of the same age)?
3. How can women employees experiencing the menopause transition be better supported?
4. Can the economic costs of the menopause transition on women's economic participation be quantified? If so, how?
5. What are the key evidence gaps relating to the menopause transition and the workplace and/or labour market?

These questions are extremely important because of the ageing female workforce in the UK. The average age of natural menopause in industrialised countries is 51, so more working women than ever before will experience the menopause transition. Transition refers to the time in women's lives when they are moving towards the menopause, when their periods stop permanently. But there are no universally accepted definitions for the reproductive stages of a woman's life, including the menopause itself and menopause transition. This creates confusion and makes studies difficult to compare.

The report draws on evidence from across the world. We searched using variations on 'work', 'employment', 'unemployment', 'redundancy', 'economic', 'productivity', 'capabilities', 'perform', 'menopause', 'perimenopause', 'climacteric' and 'premenopause' in all relevant combinations. In total, 28 different platforms, including Business Source Premier, Scopus, Web of Science, the Equality and Human Rights Commission website, the Chartered Institute of Management website and the International Menopause Society website, were searched. The table below gives more details of the evidence we located.

Details of the evidence base

	Empirical studies	Non-empirical grey literature	Systematic reviews	Systematic reviews and empirical studies
Percentage	64%	16%	15%	5%
Primary data	74%			
Secondary data	22%			
Both	4%			
Quantitative	60%			
Qualitative	22%			
Both	18%			
Cross-sectional	70%			
Longitudinal	29%			
Mixed design	1%			
From US or Australia	39%			
From mainland Europe	22%			
From rest of world	20%			
From UK	19%			

The strength of evidence differs according to the specific area being considered.

The extent to which menopause transition is a problem for working women (and those who have left the workforce)

The evidence base suggests menopause transition is not a uniform experience. A wide range of **physical and psychological transition symptoms** are associated with transition, including hot flushes and night sweats, changes in menstrual flow and regularity and depression. There is uncertainty about whether these symptoms are caused by changing hormone levels during transition, or by a '**domino effect**', where one symptom (eg, hot flushes) causes another (eg, insomnia or fatigue).

Evidence for the **biopsychocultural approach** to the menopause also suggests the effects of other changes for women in mid-life are difficult to separate from the effects of transition symptoms. These changes include children leaving home or taking on the care for elderly relatives. In addition, research using this approach emphasises other dimensions of a woman's life, like her attitude to ageing or her lifestyle. This evidence underlines the need to understand symptoms in a broader psychological and social context. **One of the main findings is cultural variations in reporting of symptoms**, as established by large and robust studies.

There is evidence on both **the positive and negative effects of menopause transition on working women**, although more exists for the latter. Negative impacts of symptoms on economic participation identified in the evidence base include lower productivity, reduced job satisfaction and problems with time management. Estimates vary as to the number of women experiencing symptoms of menopause transition which affect them negatively at work. Different conclusions are also drawn about the negative effects of symptoms on work, and the extent of the difficulties women experience in the workplace is not always reported.

We identified **few studies about women being unable to look for a job, reducing their working hours, identifying negative effects on their careers, or leaving or losing jobs due to transition**. There were **none examining transition-related effects on finding a job or on women's wages**. This does not mean these connections do not exist; rather that they are not discussed in the evidence base.

A small number of studies suggest a positive relationship between transition and work. Some indicate transition can be beneficial for working women or at least has no negative effects. Others conclude that women in employment, especially those in more senior positions, report fewer symptoms and a later menopause or say work helps them cope with their symptoms. This evidence suggests possible variations by job type.

How the symptoms of menopause transition, attitudes of workers experiencing it and employers' attitudes affect transition

Evidence about the effects of specific symptoms on women's workplace performance and experience is not consistent. These studies mainly focus on one symptom only (like sleep disturbances) or a group of associated symptoms (such as hot flashes and night sweats). Nonetheless, the evidence suggests **significant numbers of working women experience problems at work as a result of individual symptoms**. Hot flashes are the focus of most of this research.

Women's coping strategies range from concealing or managing symptoms to disclosing difficulties to others at work and asking for support. A small amount of

quantitative evidence indicates Hormone Replacement Therapy can alleviate symptoms affecting work.

Some aspects of work can make symptoms worse – especially hot or poorly ventilated environments, formal meetings and deadlines. The evidence also paints a consistent picture of women in transition feeling those around them at work are unsympathetic or treat them badly, because of **gendered ageism**.

Women often do not speak up about transition-related difficulties at work as a result, especially to men and/ or younger colleagues. But **no evidence compares male and female workers in mid-life**, so we can not be sure that these findings about symptoms and other workplace experiences are specific to women.

What employers can do to better support women in transition

The evidence is more consistent about appropriate employer interventions. It recommends changing organisational cultures; compulsory equality and diversity training; providing specialist advice; tailored absence policies; flexible working patterns for mid-life women; and fairly low cost environmental changes. The overall emphasis is on **a variety of approaches to menopause transition at work**, to cater for women's differing experiences. But **only a very small amount of evidence exists about actual workplace interventions** to support women in transition or the effectiveness of these interventions.

What the government can do to better support women in transition

Very few publications discuss this topic. Suggestions include: further advice to employers; training for medical and social care professionals so they are more aware of and sympathetic to the effects of menopause transition; awareness raising campaigns for mid-life women; and more research. It is likely that the most effective government intervention would be working with employers to provide transition-related advice.

Quantifying the economic costs of the menopause transition for women's economic participation

The economic cost of menopause transition includes two types of costs:

- **Extensive margin costs** are associated with women leaving work or losing their jobs because of 'bothersome' transition symptoms.
- **Intensive margin costs** are associated with women staying at work and trying to cope with problematic symptoms.

These costs are borne by women themselves, their partners and families, their employers and wider society. **Some are easier to estimate than others** – eg, lost wages when a woman leaves her job versus her reduced self-esteem due to leaving work. **Some costs are a direct result of transition symptoms** – such as lost wages due to quitting work. **Others are indirect** – like lost promotion opportunities.

Overall, **evidence for the costs of the effects of the menopause transition on women's economic participation is limited**. Available data suggest most women in the UK do not leave work due to transition. Some US data measure aspects of intensive margin costs, like lost productivity because of transition symptoms. But these data are not easily generalisable to the UK, because of psychocultural differences between the two contexts. The US data also has methodological problems which affect its quality. **No UK data exist for extensive or intensive margin costs.**

Key evidence gaps relating to menopause transition, the workplace and the labour market

These are:

- **A robust business case for employer intervention, especially in the UK.** This would be strengthened by cost estimates relating to women in transition and studies of how their managers and colleagues feel about and react to them.
- **Comparisons of mid-life working women and mid-life working men.**
- **Effectiveness and cost of workplace interventions focusing on transition.**
- **How women in low-paid and/ or manual jobs experience transition at work.**
- **The relationship between transition and the wider UK labour market.**

1. Introduction

This chapter outlines:

- why this review is important
- its aims and research questions
- our methodology and its limitations
- the competing definitions of menopause transition and related terms in the evidence base

Why this review is important

Policy context

Following the roundtable held by the Women's Business Council, the recent report by the former Business Champion Ros Altmann (2015) on older workers in the UK¹ established it is increasingly important to understand how menopause transition affects women's economic participation. Ministers for Women were keen to understand more about the impact of longer working lives on women experiencing the menopause

Women are working in greater numbers than ever before. In the UK, between January and March 2017, just over 70% of women were in paid employment (Office for National Statistics/ ONS 2017). Women make up 47% of the UK workforce (Griffiths, Cox, Griffiths and Wong 2006; Kopenhagen and Guidozi 2015).

Women also outnumber men in many areas of the UK labour market, like administrative, secretarial, caring, leisure, healthcare and sales and customer service occupations, and the professions (ONS 2013; Sarrel 2012).

Older women's economic participation

Women are also now working to later in life than in the past. In the UK there are around 4.3 million women aged 50 and over in employment (ONS 2015). Their employment participation rate rose by 3.2 percentage points between 1994 and 2014 (ONS 2015) and this age group accounted for 72% of the growth in women's employment during the same period (ONS 2015; Trades Union Congress/ TUC 2014).

¹ This wide-ranging report is based on "discussions within [an expert] Business Taskforce ... findings from conversations with employers, employees, and jobseekers, numerous information gathering meetings plus available research" (Altmann 2015, page 7).

The biggest increases in employment rates over the last 30 years have been for women aged 60-64 (from 18% to 41%) and for women aged 55-59 (from 49% to 69%). Over the same time period the employment rate gap between women and men aged between 50 and 64 fell from just under 28% to 11% in 2015 (Department for Work and Pensions/ DWP 2015).

Elsewhere in Europe, recent Eurostat evidence also indicates increasing employment rates for women aged between 55 and 64 (Griffiths, Ceausu, Depypere, Lambrinouadaki, Mueck, Pérez Lopéz, van der Schouw, Senturk, Simoncini, Stevenson, Stute and Rees 2016). There is a similar trend in Australia (Jack, Riach, Bariola, Pitts, Schapper and Sarrel 2016).

The following factors help explain this trend in the UK:

- women's increased financial need during the recent economic downturn, meaning they may need to work for longer to make ends meet
- employers' efforts to retain skilled workers
- increases in the state pension age²
- the abolition of the default retirement age³
- an ageing population

Increased rates of employment among women aged 50 and above mean more working women than ever before will experience the menopause. Several studies suggest the average age of natural menopause is 51 in industrialised countries, and the median for moving into the perimenopause is 47.5 (Ballard, Kuh and Wadsworth 2001; Griffiths *et al.* 2006; Griffiths and Hunter 2014; Hunter and Rendall 2007; Public and Commercial Services Union/ PCS; TUC 2014; Wroolie and Holcomb 2010)⁴. About 1% of women also experience premature menopause - before age 40 (Coulam, Adamson and Annegers 1986⁵, cited in Wroolie and Holcomb 2010, page 144).

On balance then, we can expect that up to 47%⁶ of the UK workforce - ie, all female workers - will experience menopause transition during their working lives. Evidence also

² The [Pensions Act \(2014\)](#) stipulates a phased increase in the state pension age to 67.

³ As of April 2011, employers can not issue notification of retirement when an employee turns 65 (Advisory, Conciliation and Arbitration Service 2011). In theory, individuals are therefore free to work as long as they wish (Beck and Williams 2015).

⁴ The source for these estimates is McKinlay, Brambilla and Posner's (1992) analysis of longitudinal Massachusetts Women's Health Study data (n=2570).

⁵ This paper does not deal with the workplace and is outside our date parameters, so is not part of our evidence base. Coulam *et al.* derive the 1% estimate from a group of 1856 women born between 1928 and 1932, 9 of whom experienced premature menopause. This study is 30 years old and does not seem to use a representative sample, so we can not assume the findings apply universally. However, its longitudinal design and large sample size are key strengths, and it is widely cited.

⁶ Women do of course move in and out of employment during their adult lives, so this is the highest possible estimate based on current data.

suggests paid employment contributes to better psychological health amongst older women, providing self-esteem and social support (Griffiths *et al.* 2006; Sarrel 2012). It is therefore important that they are able to work for as long as they wish to.

Aims of this review

This report discusses the effects of the menopause transition on women's economic participation in the UK. It critically reviews the English language evidence base from 1990 to the end of March 2016.

Research questions

The research questions this review attempts to answer based on current evidence are:

1. To what extent is the menopause transition a problem for working women (and women who have left the workforce), and if so, what is the nature and scale of the problem in the workplace and the wider labour market?

We review the evidence answering this question in **chapter 2**.

2. How do the symptoms of menopause transition, attitudes of workers experiencing the menopause transition, and the attitudes of employers impact on women's economic participation (relative to men of the same age), specifically in terms of:

- *experience, treatment and support in the workplace (by different organisations, managers, colleagues etc.)*
- *perceptions of ability*
- *productivity (actual and perceived) and performance*
- *career prospects*
- *continued employment (versus redundancy or loss of employment)*
- *time off*
- *remuneration?*

We review the evidence answering these questions in **chapter 3**.

3. How can women employees experiencing the menopause transition be better supported?

We review the evidence answering this question in **chapter 4**.

4. Can the economic costs of the menopause transition on women's economic participation be quantified? If so, how?

We review the evidence answering these questions in **chapter 5**.

5. What are the key evidence gaps relating to the menopause transition and the workplace and/or labour market?

We review the evidence answering this question in **chapter 6**.

Methodology

Our search terms were variations on ‘work’, ‘employment’, ‘unemployment’, ‘redundancy’, ‘economic’, ‘productivity’, ‘capabilities’, ‘perform’, ‘menopause’, ‘perimenopause’, ‘climacteric’ and ‘premenopause’, using all relevant combinations. In total, 28 different platforms, including Business Source Premier, Scopus, Web of Science, the Equality and Human Rights Commission website, the Chartered Institute of Management website and the International Menopause Society website, were searched. **We prioritised publications for inclusion in the evidence review** in the following order:

- systematic reviews of previous publications and grey literature published outside of standard academic and/ or commercial channels
- empirical publications using data collected in the UK
- empirical publications using data collected in culturally similar English-speaking countries (the US and Australia)
- empirical publications using data collected in culturally similar European countries (eg, the Netherlands and Sweden)
- empirical publications using data collected in other European countries
- empirical publications using data collected in the rest of the world.

For empirical studies, we assessed how strong the evidence was according to:

- the limitations identified by authors themselves
- our own expertise in quantitative and qualitative methodologies⁷
- the criteria in the Civil Service Rapid Evidence Assessment Toolkit for quantitative research and the Critical Appraisal Skills Programme criteria for qualitative research.

Systematic reviews were evaluated by methodology and coverage, and the grey literature by methodology and policy relevance. For example, where a grey publication referred to empirical data but provided no details of the relevant study, this was identified as reducing its credibility. A number of these are practitioner-oriented (eg, aimed at managers), so their broader applicability and suitability for audience were also considered. Our assessment was guided by impact questions where possible – ie, which interventions reduce the effects of the menopause transition on women’s economic participation? But evidence in this category only forms 5% of the total.

⁷ In the evidence base, quantitative or numerical data are usually collected through closed questions with fixed responses, or produced by counting the number of times certain themes appear in qualitative data. Qualitative data, expressed in words, are usually gathered using open questions with no fixed set of answers. This allows respondents to speak in their own words.

When reviewing these publications, we summarised what each said related to research questions 1-4. We also recorded:

- whether the publication specified particular menopausal stages
- whether it included other groups like men, pre-menopausal women or post-menopausal women for comparison purposes
- details of method/s used, sampling and data analysis techniques for empirical work
- country of origin for empirical work
- coverage and methodology for systematic reviews
- strengths and weaknesses identified by the authors
- strengths and weaknesses identified by the team
- whether a publication needed to be read by an additional team member
- whether a publication should be included in this report.

We reviewed **104 publications** overall for this report⁸, 64% of which are empirical studies. Of the empirical studies, 74% are based on primary data; 60% use quantitative data; and 19% are based on data from the UK (see Table 1). Full details of all publications appear in Appendix 2.

⁸ At times we refer to other publications to clarify points made in various chapters – eg, McKinlay *et al.* (1992) on normal menopause transition. These publications do not fall within the scope of the project and were not reviewed as part of the evidence base.

Table 1: Details of the evidence base

	Empirical studies	Non-empirical grey literature	Systematic reviews	Systematic reviews and empirical studies
Percentage	64%	16%	15%	5%
Primary data	74%			
Secondary data	22%			
Both	4%			
Quantitative	60%			
Qualitative	22%			
Both	18%			
Cross-sectional	70%			
Longitudinal	29%			
Mixed design	1%			
From US or Australia	39%			
From mainland Europe	22%			
From rest of world	20%			
From UK	19%			

Limitations of this methodology

These are as follows:

- We reviewed **evidence in English only**.
- We **excluded books, dissertations and theses** due to their length and the limited time available.

- **7 publications were not accessible by any means**, and so are not reviewed here⁹.
- **We only reviewed evidence about the time up to a woman's last menstrual period (LMP)** where menstrual irregularity and other symptoms appear. In some cases this evidence also covers the 12 months after the LMP. We exclude evidence which focuses only on the stage after the LMP, or on pre-menopause when it refers to the whole of a woman's reproductive life.
- **Comparing empirical studies was challenging** because they use different methods, assess different symptoms and measure different workplace outcomes. Jack *et al.* (2016) make a similar point in their systematic review.
- **Studies reporting the impact of menopause transition symptoms on work usually rely on women self-reporting symptoms and their effects.** These self-report data may be affected by flaws in women's recall.
- **Definitions of the stages in a woman's reproductive life in the evidence base are based on a medical-biological model**, focussing on her menstrual cycle. This is understandable but the biopsychocultural approach emphasises the need to understand reported symptoms in a broader psychological and social context. We discuss this approach in chapter 2.
- **Not all the evidence we reviewed defines the terms it uses.**
- **The evidence reviewed does not use consistent terminology.** Across studies, the same term is used to refer to different reproductive stages and different terms are used to mean the same stage. We outline this issue in more detail next.

Defining the menopause transition

The evidence base uses the term 'reproductive stages' when discussing menopause transition. Common terms for these stages include: menopause, pre-menopause, perimenopause, climacteric and post-menopause. We included variations on all terms in our searches to ensure comprehensive coverage of the evidence base.

But there are no universally accepted definitions for these stages. This creates confusion for the media, health and social care providers, researchers and mid-life women alike (International Menopause Society/ IMS; Memon, Jonker and Qazi 2014). Equally, not all the publications we reviewed defined the terms used. Table 2 summarises the different definitions we found and their sources.

⁹ These are Gallagher (1999); Greendale, Derby and Maki (2011); Hunter and Liao (1995); Lee (2000); Sarrel (1991); Shafazand (2010); and Sreedevi (2015).

Table 2: Definitions of reproductive stages

Reproductive stage	Definitions and sources
Menopause	<p>The point when menstruation stops for good. Can only be identified 12 months after a woman's LMP. No other reliable biological measure of the end of her reproductive capacity exists (Ballard <i>et al.</i> 2001; Chou, Yuk and Pang 2014; Fisher 1994; IMS; Gartoulla, Bell, Worsley and Davis 2016; Hunter and Rendall 2007; Jack, Pitts, Riach, Bariola, Schapper and Sarrel 2014; Kittell, Mansfield and Voda 1998; Memon <i>et al.</i> 2014; Mishra and Kuh 2006; PCS; Taechakraichana, Na Nakornpanom and Limpahayom 1997; Wroolie and Holcomb 2010). Menopause happens naturally for many women but can be triggered by surgical removal of the ovaries, treatment for diseases like breast cancer or conditions like epilepsy (Duijits, van Egmond, Spelten, van Muijen and Anema 2014; Hunter and Rendall 2007).</p>
	<p>The point where a woman has not menstruated for 12 months (Griffiths <i>et al.</i> 2006).</p>
	<p>"Culturally [menopause] is an umbrella term for the range of symptoms [a woman] can experience just before, during and after her last period" (PCS).</p>
Pre-menopause	<p>The years immediately before the menopause (World Health Organisation/ WHO).</p>
	<p>The whole of a woman's reproductive life until her LMP (Ballard <i>et al.</i> 2001; Chou <i>et al.</i> 2014; Gartoulla <i>et al.</i> 2016; IMS; Jack <i>et al.</i> 2014; Memon <i>et al.</i> 2014).</p>
Menopause transition	<p>The stage before the LMP when women experience changes in their menstrual cycle (Wroolie and Holcomb 2010; Griffiths and Hunter 2014). Characterised by flow or cycle length change (early transition) or two periods being skipped completely with an interval of 60 days (late transition). Definition established by Stages of Reproductive Health Workshop (STRAW).</p>
Perimenopause	<p>The stage just before menopause when periods become irregular and other symptoms appear, and the first year after the LMP (Ballard <i>et al.</i> 2001; Hunter and Rendall 2007; Kittell <i>et al.</i> 1998). Definition established by WHO.</p>

	The period leading up to the LMP (Fisher 1994).
	The year immediately before the LMP and the year afterwards (Reynolds 1997).
	Taking place around or near the menopause (Wright 2005).
	Women are perimenopausal if they have had irregular periods for 12 months (Taechakraichana <i>et al.</i> 1997).
	The stage – on average 6 years - when a woman experiences both irregular periods and other menopause symptoms. Means the same as menopause transition (Griffiths <i>et al.</i> 2006).
Climacteric	Means the same as menopause transition. The period of women’s lives when they move from the reproductive phase to the non-reproductive phase. Incorporates the shorter perimenopause. Begins with changes in ovarian function 10-15 years before menopause and continues for another 10 years (Taechakraichana <i>et al.</i> 1997; Ballard <i>et al.</i> 2001).
Post-menopause	Dates from the LMP (Ballard <i>et al.</i> 2001; Kittell <i>et al.</i> 1998).
	Dates from the point when a woman has not had a period for 12 months (Griffiths and Hunter 2014; Hunter and Rendall 2007; Taechakraichana <i>et al.</i> 1997).

2. To what extent is the menopause transition a problem for women at work and in the wider labour market?

This chapter outlines:

- the inconsistent evidence around menopause transition symptoms
- the inconsistent evidence for the effects of transition on work
- the limited evidence for a positive relationship between transition and economic participation

Symptoms of the menopause transition

The evidence base identifies **a very wide range of symptoms as characteristic of menopause transition**. These can broadly be divided into **physical** and **psychological** symptoms. Physical symptoms include irregular and/ or heavy periods, hot flushes¹⁰ and night sweats, sleep disturbances, headaches and weight gain. Psychological symptoms include depression and anxiety, irritability and mood swings, loss of confidence and difficulty in concentrating or memory problems. Appendix 3 provides a full breakdown of the symptoms reported in the evidence base.

In terms of the relationship between menopause transition and economic participation, **these symptoms pose a series of difficulties for women in the workplace**. Loss of sleep, for example, can reduce ability to concentrate and stay focused. Heavy periods or hot flushes are physically distressing and can be embarrassing in front of colleagues and managers. Irritability and mood swings could mean that a woman's relationships with others at work are affected by her uncharacteristically erratic behaviour. As well as impacting on their performance at work, symptoms might mean women are absent from work more frequently. Very severe symptoms may mean women can not work at all.

Menopause transition is also represented in the evidence as an **experience which differs from woman to woman**. For example, analysis by Burton, Pransky, Conti, Chen and Edington (2004), based on a large but self-reporting survey of US female employees in a financial services organisation, found that that individuals had different combinations of symptoms.

Equally, the **evidence base does not categorise these symptoms consistently**; sleep disturbances, for instance, are labelled as physical in some studies and as psychological in others. Neither is it consistent on the symptoms which transition can produce.

¹⁰ Often referred to as hot flashes in US literature.

The domino effect

Some studies suggest symptoms are not always the direct consequences of hormonal changes during menopausal transition. Instead a '**domino effect**' may occur, where one symptom causes others. So hot flushes and night sweats are sometimes said to cause insomnia. Insomnia itself is identified as leading to irritability, fatigue and poorer cognitive function (de Araújo Moraes *et al.* 2012; Griffiths *et al.* 2006; Griffiths and Hunter 2014; Taechakraichana *et al.* 1997; Utian 2005; Xu, Thurston, Matthews, Bryce, Hays, Kapoor, Ness and Hess 2012).

Both headaches and insomnia are identified as affecting concentration, whereas insomnia can be caused by anxiety or depression (de Araújo Moraes *et al.* 2012; Griffiths *et al.* 2006; Wright 2005). Hot flushes have been said to lead to stress or depression, and vice versa (Duijits *et al.* 2014). They might be accompanied or preceded by other symptoms like dizziness, anxiety and headaches (Wroolie and Holcomb 2010). Other studies say weight gain leads to loss of confidence and to sleep apnoea¹¹ (de Araújo Moraes, da Fonseca, de Moraes, Bagnoli, Portella, Abreu and Baracat 2012; Wright 2005).

Overall, though, the evidence suggests a wide range of symptoms characterise menopause transition. It also indicates their **negative effects on mid-life women's quality of working life and performance at work**, whatever the origins of these symptoms. As we discuss in more detail later in this chapter, these negative effects can include:

- reduced engagement with work
- reduced job satisfaction
- reduced commitment to the organisation
- higher sickness absence
- an increased desire to leave work altogether.

The evidence suggests that transition symptoms might also have negative effects on:

- time management
- emotional resilience
- ability to complete tasks effectively.

¹¹ A specific form of sleep disturbance where breathing either pauses or becomes shallower for short periods of time. It causes regular waking at night.

The biopsychocultural approach

Some studies emphasise the importance of a '**biopsychocultural**'¹² approach to understanding the menopause transition (eg, Jack *et al.* 2014; Griffiths and Hunter 2014; Hunter and Rendall 2007; Kittell *et al.* 1998; Morris and Symonds 2004; Mishra and Kuh 2006). This criticises the dominant medical-biological model, where menopause is understood as a hormone deficiency disease and all symptoms are seen as the result of declining hormone levels.

In studies using the biopsychocultural approach, **symptoms are understood in the wider psychological and social context of a woman's life** including her lifestyle, whether and when she has had children, the climate where she lives, her attitude to ageing and cultural issues like the role and status of older women in that society. The approach suggests women identify and experience symptoms differently as a result.

This approach also highlights the many other changes that can occur for women during mid-life, such as children leaving home or starting to care for elderly relatives. Given the lack of studies directly comparing mid-life women to mid-life men, it can therefore be difficult to decide whether symptoms are menopause-related, related to mid-life more generally or a combination of both.

Cultural differences and migration

Specific biopsychocultural findings include **variations in symptom reporting between women from different cultures**. For example, US data from a large-scale, robust, longitudinal project – the Study of Women's Health Across the Nation (SWAN) - suggest African-American women are most likely to report hot flushes, followed by Hispanic women, then white women. Women of Chinese or Japanese ethnicity are least likely to report this symptom (Hunter and Rendall 2007; Utian 2005). Taechakraichana *et al.*'s (1997) review of previous evidence also found a range of cultural differences in reported symptoms; from 0% of Mayan women reporting hot flushes to 80% of Dutch women.

Migration may be a factor in the variability of reported transition symptoms as well. For example, a study comparing Asian women in India, Asian migrants living in Birmingham in the UK and white women living in the same city found the Asian migrant women had a similar menopause experience to the white women (Gupta, Sturdee and Hunter 2006, cited in Hunter and Rendall 2007). But there is evidence to the contrary. For example a study by Mishra, Lee, Brown and Dobson (2002) found that Australian-born women reported their perimenopause lasted longer than did south-east Asian women living in Australia¹³ (cited in Mishra and Kuh, 2006).

¹² Sometimes referred to as the biopsychosocial approach.

¹³ Neither Gupta *et al.* nor Mishra *et al.* refer to work and so are not part of the evidence base. Gupta *et al.* recruited 153 women, divided equally between Asian migrants to the UK, white women and Asian women

Women's attitudes to the menopause

Evidence for the biopsychocultural perspective also emphasises that **many women resist the medical-biological model**. Here women may believe the physical and emotional changes of mid-life are caused by stress, say, rather than menopause transition. They may also see transition as an inevitable element of ageing, not something requiring medication. Other findings suggest menopause transition can be a neutral, even positive, experience, with women appreciating freedom from periods or pregnancy, or embracing the fact of ageing.

An example is Morris and Symonds' (2004, page 317) small-scale interview study (n=11) where "Women move[d] through a range of alternative interpretations including ideas of 'naturalness', and a welcoming of the end of menstruation" (also see Ballard *et al.* 2001; Griffiths *et al.* 2006; Griffiths and Hunter 2014; Hunter and Rendall 2007; Irni 2009; Kittell *et al.* 1998; Memon *et al.* 2014; Putnam and Bochantin 2009; Reynolds 1997, 1999; Wroolie and Holcomb 2010).

Overall, the biopsychocultural approach is common in the recent studies we reviewed. It argues that menopause transition occurs during a life-stage which is complicated by more than just a change in reproductive capacity. In particular, cultural variations in symptom reporting have been established by large-scale studies like the SWAN project.

The effect of menopause transition symptoms at work

Work performance overall

Just as the evidence for the range of symptoms linked to menopause transition is inconsistent, so is the evidence on the relationship between menopause transition symptoms and work. Sarrel (2012), Warren (2012), Rutanen, Nygard, Moilanen, Mikkola and Raitanen (2014a) and Rutanen, Luoto, Raitanen, Mansikkamäki, Tomás and Nygård (2014b) all refer to longitudinal data from Finland indicating that women's self-reported ability to work declines most dramatically at the age of 51¹⁴. As suggested in chapter 1, 51 is the average age when women reach menopause in industrialised

living in Delhi. They conducted interviews to gather quantitative and qualitative data. The Delhi sample was drawn up to match the migrant sample. This is a large sample for an interview-based study and the matched sampling strategy is another strength because it makes Gupta *et al.*'s comparisons more robust. Mishra *et al.* analyse responses from 8,466 mid-life women who answered surveys in 1996 and 1998. Their sample was randomly selected from a national database. These findings are credible because of the large, representative sample – meaning they apply to the wider population of mid-life women in Australia - and the longitudinal dimension.

¹⁴ These data were collected by Ilmarinen, Tuomi and Klockars (1997). Their study does not deal with the menopause and so is not part of the evidence base. 818 men and women, who stayed in the same occupation for the duration of the study, were surveyed three times on their work ability between 1981 and 1992. The longitudinal approach is an important strength of this study, as is the fact that all respondents stayed in the same occupation over eleven years.

countries. Sarrel and Warren both suggest this decline in self-reported ability to work is probably not coincidental because transition symptoms are likely to be most severe during this stage of a woman's life. However, this observation is speculative.

Several studies in the evidence base identify a negative relationship between menopausal symptoms and general performance at work. These include, in order of strength, Woods and Mitchell's (2011) US research, Griffiths, MacLennan and Hassard's (2013) British survey and Geukes, van Aalst, Nauta and Oosterhof's (2012) Dutch survey. Woods and Mitchell's study analyses longitudinal data gathered using several different methods, which makes it the most credible. However, it has a small, non-representative sample (n=184). In other words, the findings can not be assumed to apply beyond this group of women. The Griffiths *et al.* study recruited 896 respondents across 10 different organisations. But these women were all white-collar workers which again reduces the wider relevance of their findings. Finally, and despite being heavily cited in more recent work¹⁵, the Geukes *et al.* findings are affected by a small, non-representative sample of 208 respondents in two occupations.

In an Australian survey of women working at three universities (n=839), menopausal symptoms were experienced by 77% of respondents. However, these **symptoms only had a negative impact on work when they became more frequent and more bothersome**¹⁶ (Jack *et al.* 2014). We think these findings are important because they are broken down by frequency and severity. Negative workplace effects included reports of reduced job engagement, reduced organisational commitment and job satisfaction as well as a higher likelihood of wanting to quit work altogether.

Despite using a non-representative sample, Jack *et al.*'s study is also significant because these negative effects were not related to any other age-related effects on work or the biological menopausal status of the respondents. They assessed menopausal status by asking questions about women's menstrual cycles and then categorising them using a system developed by STRAW. Jack *et al.* report an association between respondents' self-reported menopause transition symptoms, symptom severity (bothersomeness) and frequency and workplace outcomes. This study emphasises the risks of identifying menopause transition using biological markers of menstrual status alone. Relying on these markers may substantially under-estimate the impact of symptoms on work engagement, job satisfaction, organisational commitment and intention to quit.

¹⁵ We think the heavy citation of these findings is because, as Sarrel (2012) points out, the Geukes *et al.* study employed both the Greene Climacteric Scale and the Work Ability Index to measure symptoms and work ability. Both these instruments have good psychometric properties. In other words, they have been proven to capture transition symptoms and ability to work accurately and consistently over time, as well as capturing any changes.

¹⁶ This is a frequently used term in the evidence base. It refers to the extent to which women experience symptoms as problematic.

Overall then there is some limited evidence for reduced performance at work as a result of menopause transition, although studies vary in quality.

Work performance by task and activity

Work impairment due to transition symptoms may also vary by task and activity. In the large Burton *et al.* (2004) US survey of all employees at a financial services organisation, 35% of women reporting symptoms to their doctor (n=1,340) suggested their work output was affected. In other words, they experienced reduced ability to complete tasks and to work to capacity. 40% of these women identified **teamwork and concentration as most affected by menopause symptoms**: 28% reported that their physical capacity, including being able to use work equipment or to repeat the same hand motions when typing, was affected; and 26% reported that their time management including starting work on time and doing normal hours was affected. However, this sub-set of women is not representative of any larger group of working women because their symptoms were severe enough to mean they had sought medical advice.

The scale of the problem

Evidence also varies as to how many women have symptoms which affect their economic participation during mid-life. Table 3 summarises the relevant findings. **Overall the evidence offers estimates of the number of women who are negatively affected by transition symptoms at work which vary from 10% to 53%**. Some of these studies are more robust than others - Mishra and Kuh (2006) and Griffiths and Hunter (2014) especially - but no clear pattern emerges.

Table 3: Findings for proportions of women who experience symptoms which affect work

Author/s and date	Approach	Findings	Limitations
Fisher (1994)	Reviews introduction of workplace menopause support group in US hospital.	Suggests 10-15% of women report severe symptoms, often coinciding with them occupying or moving into more senior roles at work.	No source given for estimate.
High and Marcellino (1994)	US survey (n=89)	30% reported negative effects of transition symptoms on work performance. Managers said depression was most problematic. Non-managers said irritability	Evidence is from cross-sectional study of a non-representative and small sample. No indication of response rate. Findings may not be relevant to working mid-life women today. Respondents all

Author/s and date	Approach	Findings	Limitations
		and mood changes were most difficult.	post-menopausal and so recalling the effects of transition some years later ¹⁷ .
Goonaratna, Fonseka and Wijewardene (1999)	Sri Lankan survey (n=403)	38% of employed respondents said symptoms made it harder to undertake work duties	Only 117 respondents were in employment. No measure of symptom severity. Cross-sectional design relying on post-menopausal women remembering perimenopausal symptoms.
Mishra and Kuh (2006)	Longitudinal UK study, representative sample (n=1,525)	Quality of life at work assessments for psychosomatic issues (nervous and emotional state, self-confidence, ability to make decisions and ability to concentrate) worsened as women moved from early to late menopause transition. Perimenopausal women experiencing irregular periods reported the greatest decrease. Perimenopausal women who had begun to take HRT and post-menopausal women reported increases.	Does not report on women in very early perimenopause or women who attain menopause late.

¹⁷ This study is very widely cited nonetheless. We suspect this is because it was one of the first to address the relationship between transition and economic participation.

Author/s and date	Approach	Findings	Limitations
Simon and Reape (2009)	US survey, professionals aged 35 and over. All members of National Association for Female Executives (n=961)	84% reported physical symptoms; 70% emotional symptoms. Of those reporting symptoms, 40% found them problematic in some area of their life, including work.	No isolation of work-specific effects of symptoms. Sample is not representative of association's 40,000 or more members. Response rate not recorded.
Griffiths, MacLennan and Wong (2010)	UK survey of women aged between 45 and 55 (n=912), working in 10 participating organisations. All peri-menopausal or had experienced menopause.	48% said it was 'somewhat or fairly difficult' to cope with work during menopause transition. Another 5% said it was 'very or extremely difficult'. Some thought about going part time – although had concerns about career impact - or quitting work altogether.	No specific evidence given for the findings about part-time work or thoughts of quitting. Sample not representative ¹⁸ . All respondents in non-manual jobs so findings only reflect the specific demands of this kind of work ¹⁹ .
Griffiths and Hunter (2014)	Systematic review, 64 previous studies	20-25% of women experience hot flushes and night sweats, sleep disturbances, tiredness and poor concentration. These have a negative	Symptoms not broken down by severity or frequency. Difficult to tell whether women with more bothersome and/or frequent symptoms experience more

¹⁸ In this study, all mid-life women employees across the same 10 organisations were asked to participate. Slightly revised findings from this data set were also published as Griffiths *et al.* (2013). Employers estimated varying response rates for these surveys, from 5% to 43%. The sample is therefore not representative.

¹⁹ Another survey, of women police officers in England (n=941), saw 59% reporting fatigue during menopause transition as causing the most difficulties at work (Griffiths *et al.* 2006). However, these data only capture one symptom as opposed to the more wide-ranging results reported above.

Author/s and date	Approach	Findings	Limitations
		effect on their working lives.	negative workplace effects.

Alternatives to self-report studies

A key problem with many of the studies of how transition symptoms affect work is that they rely on self-report measures of work performance, ability to work, and transition symptoms. These can be affected by problems with women’s recall. In comparison, **other studies report the results of experiments**, where researchers create artificial environments to study the relationship between specific symptoms and workplace performance.

Park, Satoh and Kumashiro (2008, 2010) asked women to complete a series of arithmetic tasks whilst running physiological tests. The participants with hot flushes did not demonstrate significantly worse performance in statistical terms, although those with worse flushes did find the tasks more stressful. Park *et al.* do not offer any information about their sample’s employment status, however, and their samples were very small (12 and 24 respectively).

In contrast, Weber, Rubin and Maki (2013) found women in early perimenopause in their sample (n=28) did less well on cognitive tests of memory, attention, motor skills, verbal fluency and visuospatial skills²⁰ than those in the late reproductive stage (n=34) or late perimenopause (n=41). However, this study did not identify any direct relationship between these women’s menopausal symptoms and their performance. Park *et al.* and Weber *et al.* suggest their findings are relevant to the real workplace, but this is debateable due to the artificial settings used in their studies.

Kleinman, Rohrbacker, Bushmakin, Whiteley, Lynch and Shah (2013) also try to avoid problems with self-report studies by using US secondary data²¹ on health insurance claims between 2001 and 2010. Their data capture 17,322 women with medically diagnosed symptoms of menopause transition and the same number without. The women with symptoms produced roughly 12.4% fewer ‘units of work’ per hour than those without symptoms. These units were captured in the health insurance database and had been measured objectively²². Women with transition symptoms were therefore less

²⁰ In this test the participants were asked to identify objects “that had been cut into pieces and rearranged” (Weber *et al.* 2013, page 513).

²¹ Secondary data already exist - in other academic publications and in government research outputs, amongst other sources.

²² The calculations reported in the Kleinman *et al.* paper were derived by dividing units of output per person per day by number of hours worked.

productive at work than those with no symptoms. This is the only non-self report study we found which identifies a direct relationship between menopause transition and reduced work performance by using objective measures of both.

The effects of menopause transition symptoms on the wider labour market

Turning to the wider labour market, only 6 publications suggest women experience difficulty in looking for work, reduce their working hours, feel their careers are affected, leave work or lose their jobs because of menopause transition symptoms. These can be summarised as follows:

- **Difficulty looking for work:** DiBonaventura, Wagner, Alvir and Whiteley (2012) analysed secondary data from an annual US survey using a representative sample of adults (n=41,184). The data they used included all women reporting transition symptoms during the preceding year (n=3,632). DiBonaventura *et al.*'s findings suggest that, where women have depression and other transition symptoms, they are 12% less likely to work than women who have transition symptoms other than depression. They speculate that “the presence of the depression could have resulted in the inability or unwillingness to seek employment”. Although this study uses a cross-sectional design, its large, representative sample is a key strength.
- **Reducing hours at work:** Im and Meleis (2001) interviewed 21 Korean perimenopausal and post-menopausal women migrants to the US. All respondents worked in low-paid and low-status manual jobs. Some said they had reduced their hours due to the physical symptoms of menopause. Others had changed jobs because they found their previous employment too difficult to manage with physical menopause symptoms. By way of contrast women reported ‘working harder’ to compensate or distract themselves where they experienced psychological symptoms: they did not change their working hours or their employment. However the respondents originally formed part of a larger convenience²³ sample, so the findings are largely anecdotal. They are not representative of either US women in these occupations or female Korean migrants.
- **Fear of redundancy:** The National Union of Teachers (NUT 2014a, 2014b) surveyed female members aged between 45 and 60 (n=3,079)²⁴. Over three-

²³ Researchers recruit convenience samples from the people who are closest to them and therefore the easiest to access. This is a fast and efficient sampling method but does not produce representative findings.

²⁴ This survey went out to all female members in this age group, although the reports do not record the response rate. The representativeness of the findings is therefore difficult to judge. The total membership of

quarters (78%) of respondents had not disclosed transition symptoms to their line managers for a variety of reasons. These included concerns about managers linking their situation to performance at work (67% of those who had not disclosed) and embarrassment (35%). Some of Jack *et al.*'s (2014) Australian women respondents, all of whom worked in universities and were aged between 25 and 75, said they believed transition could mean older women are more likely to be targeted for redundancy. These respondents also said they were reluctant to raise this gender-specific experience at work. They worried about a possible effect on their promotion opportunities or negative judgements being made about their capability at work. We return to this issue in chapter 3.

- **Leaving work altogether:** Daysal and Orsini's (2014) robust longitudinal analysis used secondary US data from the Medical Expenditure Panel Survey covering the period from 1999 to 2004. Their data sub-set included 21,732 female respondents aged between 40 and 55. They found women in the sample who had stopped taking Hormone Replacement Therapy (HRT) were 30% more likely to leave their jobs than those who continued with the treatment. The inference Daysal and Orsini draw from these data is that these women's symptoms interfered with their ability to work to such an extent that they had to quit their jobs altogether. Their study suggests "substantial benefits of HRT use to the short-term employment of middle-aged women" (page 1) for the six years investigated²⁵.
- **Losing one's job:** Paul's (2003) survey of TUC safety representatives (n=500)²⁶ saw 10% of respondents reporting female colleagues had lost their jobs following sickness absence or time off for treatments for menopause transition symptoms. Nearly one in twenty (4%) reported women losing their jobs following a hysterectomy or other types of surgically-induced menopause. But these findings are not based on data collected from working women themselves – the standard approach to research in this area - so they are not necessarily credible. Paul also gives no details of her response rate or the sampling technique she used, so we can not tell whether the sample was representative of the safety representative population. In the NUT (2014a, 2014b) survey (n=3,079), 13% of respondents reported that they or their colleagues had been told they would face capability

the NUT at the time of writing is 300,000 plus. Given that teaching is a female-dominated profession, this may suggest the response rate was quite low although the sample size is comparatively large for a survey.

²⁵ Jack *et al.* (2014) measure intention to quit one's job in their Australian university survey data and show this is related to frequency and severity of transition symptoms. However this measurement does not capture those who actually did quit their jobs. Griffiths *et al.* (2010) also say some of their UK respondents considered leaving work due to their symptoms, but do not provide further clarification.

²⁶ TUC safety representatives undertake various functions, including looking into any health, safety or welfare complaints made by their colleagues, undertaking regular health, safety and welfare inspections at their place of work and representing workers in talks with their employer on health, safety and welfare. As a result they are well placed to comment on difficulties experienced by working women related to menopause transition.

procedures - which can lead to dismissal - or had actually faced them as a result of transition symptoms

Overall the evidence suggesting the negative effect of transition symptoms on the wider labour market is scarce and in at least two cases unreliable (Im and Meleis 2001; Paul 2003). **We found no research into the negative impact of symptoms on finding work or on wages. More data are required in order to fully understand the relationship between menopause transition and the labour market.**

Positive accounts of the relationship between menopause transition and work

In contrast to negative accounts of the effects of physical and psychological transition symptoms on economic participation, the Social Issues Research Centre's (SIRC 2002) UK survey sees 50% of female respondents aged 50-64 (n=200) saying their capacity to work and develop their careers had increased since they entered menopause transition. Nearly 75% said their working life had either not changed or had improved during this period. This is a relatively small sample for a survey but it is representative of women in this age group. A smaller qualitative Australian investigation (n=30) into coping strategies used by menopausal women also saw some women report developing greater self-awareness with positive effects including being more assertive at work (Kafanelis, Kostanski, Komesaroff and Stojanovska 2009).

These positive findings are interesting because they are so different from those in the majority of studies. However, SIRC do not clarify how they defined either capacity to work or career development. In addition, it is possible that men of the same age experience similar things. Also only 30% of the small Kafanelis *et al.* sample worked, so their findings are very limited on that basis.

Other studies indicate that work might make menopause transition easier to cope with. Jack *et al.*'s (2016) wide-ranging and robust systematic review discusses several studies which suggest working women report fewer symptoms, reach natural menopause later and are better informed about this stage of their lives compared to those who do not work. However, other research found no such relationships. Managerial status and a white collar occupation have also been identified as having a positive influence on the effect of symptoms on work performance (eg, High and Marcellino 1994). Again though, the evidence for these connections is variable, as Jack *et al.* point out. Similarly, Im and Meleis's (2001) qualitative research with Korean-born respondents saw some women identify work as a coping device to manage psychological transition symptoms, as we established above.

Although scarce, these more positive accounts do counteract reports of the negative relationship between symptoms and work. But the findings may have more to do with the **'healthy worker effect'** than any connection between menopause transition and economic participation. In other words, where women have poor health overall, they are

less likely to work. This could mean studies of working women which indicate that transition has beneficial effects on work performance and ability to work, or that working women cope better with transition, are misleading (Griffiths *et al.* 2006; Daysal and Orsini 2014).

Equally, though, Reynolds (1999 – also see Moloney, Strickland, DeRossett, Melby and Dietrich 2006) remarks on the prevalence of “negative stereotypes about this life-stage that prevail in western culture”. She identifies “the unwarranted tendency to attribute all mid-life difficulties to hormonal change rather than life events” (page 354). Reynolds does not specify what these life events are, but as we suggested earlier they can include children leaving home or starting to care for elderly relatives. Her remarks seem to us to be in line with the biopsychocultural approach. They also indicate that **gendered ageism** - “the culmination of unfavourable attitudes on account of both gender and age combined” (Jack *et al.* 2014, page 16) – is widespread in terms of social attitudes to mid-life women.

Jack *et al.* (2016, page 93) also emphasise that “prior research illustrates that the menopause is not a uniform experience either in terms of symptomatology, or the principal work-related factors that influence that experience”. They point out that frequent symptoms do not necessarily translate into workplace difficulties, adding that negative outcomes at work are likely to be the result of a 'constellation' of menopausal symptoms rather than any individual symptom.

Chapter summary

- There is a wide range of **physical and psychological menopause transition symptoms**.
- Studies report on a possible **domino effect**, where some symptoms may cause others.
- Evidence for the **biopsychocultural model** of menopause transition suggests women's experience of transition varies according to their psychological make-up and their social context.
- There is **a lot of evidence of the negative impact of transition symptoms on work but it is inconsistent**. Evidence for the scale of this problem is also inconsistent.
- **Only a few studies investigate whether symptoms impact labour market outcomes** - eg, whether women are unable to look for work, reduce their working hours, feel their career prospects are affected, lose their jobs or leave their jobs. There are no studies of the effects of menopause transition on finding a job or on women's wages.
- **Some evidence suggests a positive relationship between transition and work, although this is scarce and may be due to the healthy worker effect**. But we should also bear in mind women's very diverse experiences of transition as well as negative stereotypes about the menopause.
- The available evidence comes from studies around the world. **Comparatively few studies were done in the UK**.

3. How transition symptoms, women's attitudes and employers', managers' and colleagues' attitudes affect women's economic participation

This chapter outlines:

- the inconsistent evidence for how specific transition symptoms affect work
- the inconsistent evidence for how specific aspects of work affect transition symptoms
- a small amount of evidence for two different approaches used by women to manage their symptoms at work
- the evidence for the effectiveness of HRT in this respect
- the evidence for the effect of employers', managers' and colleagues' attitudes on women's economic participation during transition

The evidence base does not paint a consistent picture of the effects of specific symptoms on women's economic participation. Studies usually focus on one symptom or symptoms which are associated with each other - like hot flushes and night sweats. Very few studies report a comprehensive list of symptoms as they affect work. This makes it difficult to summarise the overall situation. Where a comprehensive list is used, samples are not representative.

What the evidence does suggest, though, is that **significant numbers of women find individual symptoms associated with the menopause transition problematic at work.** For example, studies indicate that transition-related insomnia and fatigue, as well as cognitive problems around focus and mental processing, have a negative effect on self-reported workplace performance. Some qualitative research explores these experiences in more detail.

How specific physical symptoms affect work

Sleep disturbances

Some studies identify **sleep disturbances** as having the most detrimental effect on work of all transition symptoms. In Griffiths *et al.*'s (2006) robust but non-representative study of female police officers aged 40 and above in seven police forces in England (n=941), 282 were experiencing transition or recollecting their experiences. Amongst this group, 59% (n=166) reported tiredness as one of the main symptoms affecting work function. Griffiths *et al.* (2006: 33) suggest that "Women police officers represent a particularly interesting group in terms of the nature of their job requirements, and the fact that police

work has traditionally been a male-dominated occupation”. However, their findings about sleep disturbances are echoed in other studies encompassing women in a wide range of other occupations.

Indeed 50% of Griffiths *et al.*'s (2010, 2013) peri-menopausal or menopausal respondents²⁷, recruited from 10 UK organisations, singled out the negative effects of transition-related tiredness on work. Here they were asked to choose which symptoms caused problems at work from a list. Tiredness came joint second with memory problems²⁸. Likewise, Simon and Reape's (2009) non-representative survey of US women professionals aged 35 and over identified sleep disturbances as creating the greatest difficulties in this respect. Their respondents said loss of sleep meant they were less effective at work and more tired and irritable.

Other studies also report sleep disturbances as detrimental at work. De Araújo Moraes *et al.*'s (2012) robust systematic review of 61 previous studies on sleep disorders experienced by women during menopause suggests changes in sleep activity can affect ability to work and performance at work. Women interviewed for the website Healthtalk.org agree lack of sleep during transition causes concentration and prioritisation problems at work, and challenges in finishing tasks. Although the site gives no information about how these women were selected to participate in the research, the level of detail in the interviews and their biographies offers a strong sense of their personal experiences. It adds important qualitative richness to the evidence base. Lee's²⁹ (cited in Griffiths *et al.* 2006, page 10) data suggest women with transition-related sleep disturbances may experience tiredness at work which affects their productivity.

These transition-related sleep problems can be extremely serious. For example, Bolge, Balkrishnan, Kannan, Seal and Drake's (2010) US secondary data, taken from an annual survey using a representative sample of the population, captured responses from women who reported transition symptoms (n=1,446). One in ten (10%) reported having insomnia at least twice a week. A small proportion (2.4%) suffered from the more extreme Chronic Sleep Maintenance Insomnia with Night-Time Awakenings (CINA). Bolge *et al.* calculate that the 141 women with CINA self-reported 16% more impairment in workplace productivity than women without CINA.

These 6 studies all identify sleep disturbances during transition as creating difficulties at work, although they vary in methodology and quality as well as in the significance placed on this particular symptom and its workplace effects.

²⁷ Sample size is 912 in Griffiths *et al.* (2010) and 896 in Griffiths *et al.* (2013). The 2013 publication was slightly revised after peer review.

²⁸ As suggested in the previous chapter, this is not a representative sample, but it is reasonably large for a survey.

²⁹ We were unable to access this publication, so it does not appear in the evidence base. Griffiths *et al.* do not provide any further detail.

Hot flushes and night sweats

Empirical studies using self-report methods (Kronenberg 1990; Reynolds 1997, 1999) or longitudinal secondary data (Sarrel, Portman, Lefebvre, Lafeuille, Grittner, Fortier, Gravel, Duh and Aupperle 2015) and systematic reviews (Duijits *et al.* 2014) suggest **hot flushes** reduce work performance, concentration, attention to detail and the ability to learn.

One large, robust US study reports cross-sectional secondary data from a representative sample of the US population. It analyses responses from women aged between 40 and 64 (n=8,578), 65% of whom were in employment. Of this 65%, 18% of those experiencing hot flushes and other menopausal symptoms said their work performance was impaired, compared to 14% of women of the same age with no symptoms (Wagner, DiBonaventura, Shah, Alvir and Whiteley 2011a). The impairment data were collected using the Work Productivity and Activity Impairment³⁰ questionnaire. Using self-report questions, this scale measures impairment at work due to health problems during the previous seven days.

More recently, Gartoulla *et al.* (2016) conducted a robust cross-sectional survey (n=1,263) of Australian women aged between 40 and 65, recruited using a representative sample of the national electoral roll. Their data show that women reporting poor to moderate work ability were much more likely to report having menopausal hot flushes and **night sweats** (71% of 183) than those reporting good to excellent work ability (49% of 824). The women in the poor to moderate work ability group also reported more bothersome symptoms of this type. The self-report measure Gartoulla *et al.* used was taken from the Work Ability Index Questionnaire³¹.

In addition, women who have transition-related hot flushes report embarrassment or other difficulties in relationships with colleagues or clients because they are not in keeping with a professional image (Griffiths *et al.* 2006; Healthtalk.org; Kittell *et al.* 1998; Kronenberg 1990). The 56 respondents in Reynolds' (1997) largely qualitative UK study all self-reported hot flushes. Among the 38 who worked, some rating this symptom as causing high levels of distress said flushes made them feel dirty because they could not wash or change their clothes at work. Whilst not representative, Reynolds' findings do provide a detailed picture of women's experiences of hot flushes at work.

A small amount of evidence points to women isolating themselves at work or avoiding stressful situations due to hot flushes. Both Jack *et al.*'s (2014) empirical study of 839 Australian women working at 3 universities and Griffiths and Hunter's (2014) systematic review of 64 previous studies reach this conclusion. While understandable, we believe these reactions will have a negative impact on teamwork, communication and the quality

³⁰ This is a widely used scale and has good psychometric properties.

³¹ Also in common use and demonstrating good psychometric properties.

of a woman's working life. Moreover, the findings, whilst limited, are from robust publications.

Elsewhere, and as suggested in discussion of the **domino effect** in chapter 2, hot flushes and night sweats are sometimes reported as causing insomnia. In its turn, this causes tiredness, lack of energy, irritability and reduced cognitive function at work (de Araújo Moraes *et al.* 2012; Griffiths *et al.* 2006; PCS).

Overall, 14 studies – the largest number in this area of the evidence base - indicate hot flushes and night sweats create workplace challenges for women in transition, either directly or as part of the domino effect. This evidence comes predominantly from robust studies, including systematic reviews and empirical studies using various methods.

Migraines

In three systematic reviews and one empirical study, migraine headaches are identified as very common during perimenopause (Diamond 2007; Moloney *et al.* 2006; Moloney and Johnson 2011; Warshaw, Lipton and Silberstein 1999). When considering all adult migraine sufferers, and irrespective of whether migraines are associated with menopause transition, these studies point to migraines resulting in job loss, the fear of job loss or people leaving their jobs. Migraines also cause sickness absence, work impairment and lower productivity.

These studies all draw connections between menopause transition and migraines and suggest migraines have a detrimental impact on ability to work. But only Moloney *et al.*'s (2006) robust US longitudinal, mixed methods research with women aged 40 to 55 (n=53) links all three. Perimenopausal respondents reported feeling less productive during a migraine and sometimes had to call in sick. However, they also reported minimising their absence as much as possible in case they were fired.

As such, only 1 study indicates a direct connection between migraine, transition and the workplace.

How specific psychological symptoms affect work

Problems with decision making, concentration and memory

Some studies single out **problems with decision-making, concentration and memory** as the most problematic for women experiencing menopause in the context of work. In the most robust of these - Mishra and Kuh (2006) - women in late perimenopause consistently reported a significant decline in their ability to make decisions and concentrate at work compared to pre-menopausal women. This longitudinal UK study analysed data from a representative sample (n=1,525) of women surveyed annually between 1993 and 2000.

Another UK study also suggests that significant numbers of women find these symptoms difficult to manage at work. In Griffiths *et al.*'s (2010, 2013) survey, 51% of respondents said poor concentration had a negative impact on their performance at work. Almost the same number (50%) said the same thing about memory problems, although Griffiths *et al.* do not record the extent to which these two groups of respondents overlapped. These respondents said they worked harder to offset any detrimental effects on their performance.

Over two fifths (43%) of respondents in this data were classified as perimenopausal, so recall problems are less likely to be an issue here. However, as we have suggested already, the survey is limited by mixed response rates across the 10 organisations (ranging from 5% to 43%) and non-representative sampling. Griffiths *et al.* also do not provide data about the extent to which symptoms affected perimenopausal women specifically.

In the US, Woods and Mitchell's (2011) study, which used secondary data from the Seattle Midlife Women's Health Study (n=184), also found that difficulty concentrating was most commonly reported as creating problems at work during transition, alongside depressed mood. The mixed methods used in the original study and its longitudinal design are both key strengths of this study. Again though the sample was not representative.

Relatedly, women's qualitative accounts on the website Healthtalk.org also describe forgetfulness and poor concentration as affecting their confidence, authority and functioning at work. Wright (2005) agrees that what she calls 'fuzzy thinking' creates specific workplace difficulties where good recall is needed, such as in teaching or call centre jobs, but she provides no evidence for this claim.

Overall then 5 studies focus on the specific workplace effects caused by these transition-related cognitive difficulties. However they vary in quality and approach, with Mishra and Kuh (2006) being the most robust.

Irritability, mood swings and emotional outbursts

These psychological symptoms are isolated as especially problematic in other studies. Mishra and Kuh's (2006) UK study, discussed immediately above, reports irritability and mood swings as affecting non-managerial workers. Similarly, in Kittell *et al.*'s (1998) robust US qualitative study (n=61), interviewees talked about how transition-related **emotional outbursts** undermined their professional credibility, making them look as if they had no self-control. Healthtalk.org interviewees agreed **mood swings** make it harder to cope at work. Where senior women were interviewed for this website, they said mood swings affected their decision making, their feelings of being in control and of acting as an effective role model for others. There were additional comments about "losing patience and empathy", and paranoia that their performance was suffering and others would notice. In their review of relevant literature, Griffiths *et al.* (2006) also

suggest the psychological effects of sexual and emotional difficulties in a woman's life can spill over into work.

The Dutch women who self-reported the worst psychological and physical symptoms rated their performance at work more negatively in Geukes *et al.*'s (2012) survey data (n=208). However, the sample, as we suggested earlier, is small and does not represent any wider population of working women. This study is not robust.

In another non-representative survey of women recruited via a Well Woman clinic in China (n=442), respondents said work was especially affected by transition-related **irritability** as well as exhaustion (Chou *et al.* 2014). The majority (70%) of the respondents were working and 28% were categorised as perimenopausal. However, this study may have over-sampled women with gynaecological complaints including menopause transition symptoms. The data are not representative and are also affected by self-report.

As far as these psychological symptoms are concerned, then, 6 studies identify its specific workplace effects. However, again these vary in quality.

Depression

The evidence base only contains one study reporting on **depression** as a symptom of menopause transition and its effects on work. In their US study, Wagner, DiBonaventura, Alvir and Whiteley (2011b) use the same secondary data set as Wagner *et al.* (2011a), which we discussed earlier in this chapter. Wagner *et al.* (2011b) draw on a different subset of women reporting menopause symptoms in the preceding 12 months (n=3,632). Almost a third (32%) of this sample reported experiencing depression: 5% of the women with depression had also reported sickness absence in the previous seven days. This is compared to 3% of women with symptoms other than depression, and is statistically significant³². Women with depression also self-reported a much higher rate of presenteeism - 25% - versus 14% amongst women without depression during the same period. In other words, more women with depression went to work when they were not fit to do so because of concerns about taking sick leave.

The implications of Wagner *et al.*'s (2011b) study are that women who experience depression alongside other transition symptoms are more likely to take time off work and also to go to work when they are unwell. This is a robust study, but it was also the only one we located reporting evidence of this kind, and should be understood in that context.

³² This means the researchers are sure that the difference they have identified in their data actually exists.

How women manage transition symptoms at work

A small number of studies distinguish between **coping strategies** involving hiding or managing symptoms without notifying others and strategies where women are more open and ask for transition-related support from colleagues and managers. The 3 studies we found all use a qualitative approach. We suspect this is because such an approach allows respondents to report their experiences in their own words. It is also more likely to mean they can raise issues and concerns which the researchers had not predicted before collecting data.

Kittell *et al.*'s (1998) US interviewees, for example, stayed quiet about hot flushes at work unless they became visible to others. Even where a flush was obvious, these women reported dismissing enquiries or avoiding giving the real explanation. Overall, they were concerned about being seen as impaired if their symptoms were visible, due to prevailing stereotypes about mid-life women. These women also tried to keep negative or uncharacteristic emotions hidden, which led to them isolating themselves. Heavy or erratic periods were harder to conceal and respondents worried about blood showing on their clothes at work. They monitored their bleeding patterns, constantly checked their sanitary protection, wore sanitary protection just in case, used heavy duty sanitary protection, stashed fresh supplies in several places and chose dark garments for work as a result.

Similarly, in Putnam and Bochantin's (2009) analysis of an online message board entitled 'Menopause Relief at Work'³³, posters discussed negative comments about appearance; needing time off for doctors' appointments; the location of offices or desks; dealing with inflexible work schedules; temperature control; concerns about breaks; and the reactions of managers and colleagues to transition symptoms. Again, women asking for advice tended – like Kittell *et al.*'s respondents - to frame the menopause transition as a personal problem rather than something which can be made more difficult by workplace conditions and others' behaviour.

However, other posters encouraged a reframing of these challenges as organisational problems. For instance, one woman talked about a male colleague saying her hot flush-related sweat stains were offensive. He advised her to either stop wearing silk tops to work or to 'fix herself up' in the toilets. Another poster called this man's behaviour discriminatory, and told the original poster to raise this with her managers and the Human Resources (HR) department. This woman emphasised that others' negative reactions to transition symptoms constitute sex discrimination. Kittell *et al.* (1998) make a similar

³³ This study looked at 85 posts, written by 21 women, across 16 months. It provides rich and detailed qualitative data on this basis, and captures what are likely to be uncensored feelings about, experiences of and advice regarding transition at work. Posters are also likely to be from different countries and different occupational backgrounds.

point: that women suggesting they can self-manage symptoms at work may be counterproductive, because symptoms are not always manageable.

In fact, and based on data from a larger sample of posts to 'Menopause Relief at Work'³⁴, Bochantin (2014) suggests they represent tensions between conformity or resistance to workplace expectations, supportive versus unsupportive work environments and women embracing or rejecting a menopausal identity.

HRT as a coping strategy

HRT, of course, is also an individualistic coping mechanism, and it does not work for all women experiencing menopause transition. For example, of the 96 women who reported having used this treatment in the past in Griffiths *et al.*'s (2010, 2013) UK survey data, nearly half had discontinued it because of side effects (also see Lee and Taylor 1996).

But there is evidence that HRT enables some women to manage the effects of their symptoms on work. The most positive evidence comes from more than 50% of the UK respondents in the representative SIRC (2002) survey (n=200) who said it helped them to continue their careers. Similarly, in the Griffiths *et al.* (2013) survey, nearly 12% of the 127 taking HRT said they chose to take it only because of work; and nearly 58% said work was one key reason. Most users indicated HRT helped them to cope with work, although again 25% said the side effects were problematic³⁵.

Beyond the UK, Ariyoshi's (2008, 2009) Japanese participants received counselling about and treatment with HRT as part of a workplace intervention at a newspaper company. They self-reported that it reduced negative effects of symptoms on their productivity. Ariyoshi's findings are useful because they report pre- and post-intervention results, although no details are given of the survey method used in the study.

Looking at the issue in reverse, and following the publication of longitudinal results from the Women's Health Initiative Study (WHIS) and the Million Women Study in 2002 and 2003 which cast considerable doubt on its safety, very large numbers of women stopped taking HRT. But Daysal and Orsini's (2014) analysis of longitudinal US data (n=21,732) found women who stopped taking HRT after the WHIS warning were 30% more likely to quit their jobs, as we saw in chapter 2. In a smaller and less robust study, 89% of the 1,100 respondents in Cumming, Currie, Panay, Moncur and Lee's (2011) online survey, of whom roughly 25% were in transition, said their symptoms returned after stopping the treatment. Amongst this group, 74% reported these symptoms had worsened and 38% identified an impact on their ability to work.

³⁴ 1,325 posts from 18 women between mid-January 2007 and mid-June 2007 were captured.

³⁵ Side effects of HRT include nausea and headaches. Neither Griffiths *et al.* publication specifies whether these side effects were problematic at work specifically, or more generally.

Overall, 7 studies focus specifically on HRT as a coping mechanism in relation to work. They all indicate its benefits, the side effects notwithstanding. Studies in this group also suggest stopping the treatment may mean symptoms return and continuing to work becomes more problematic as a result. Most of these studies report data from large samples of women, but Daysal and Orsini's (2014) is the most robust.

How specific aspects of work make transition symptoms worse

The evidence base also suggests **menopause transition symptoms may become more bothersome and/ or more frequent as a result of various aspects of the workplace**. These are summarised below. We report them in order of frequency of appearance in the evidence base.

- **Inadequate ventilation, high temperatures, humidity and dryness** have a negative impact on the experience of hot flushes (Griffiths *et al.* 2006; Healthtalk.org; Jack *et al.* 2014; Kopenhagen and Guidozi 2015; Paul 2003; PCS; Putnam and Bochantin 2009).
- **Stress** related to workload, deadlines, responsibility, formal meetings – especially meetings involving senior colleagues - having to learn something new and/ or presentations is linked to frequency of hot flushes (Griffiths *et al.* 2006; Hunter and Rendall 2007; Kopenhagen and Guidozi 2015; Paul 2003; Park *et al.* 2008, 2010; Putnam and Bochantin 2009; Reynolds 1999).
- **Lack of access to appropriate toilet facilities, cold drinking water or quiet rest areas and not being able to take regular breaks** can make coping with heavy or irregular periods, hot flushes and transition-related fatigue difficult (Hammam *et al.* 2012; High and Marcellino 1994; Paul 2003; PCS; Putnam and Bochantin 2009).
- **Confined work spaces or crowding** can make the experience of hot flushes worse (Hammam *et al.* 2012; High and Marcellino 1994; Putnam and Bochantin 2009; Reynolds 1999).
- **Working with men, clients and younger colleagues** can cause mid-life women concern that they will not empathise or that symptoms will affect self-presentation (Healthtalk.org; Reynolds 1999).
- **Unsuitable uniforms, ties, suit jackets or other heavy, uncomfortable or cumbersome work-wear** can make the experience of hot flushes worse (Griffiths *et al.* 2006; Healthtalk.org).
- The **physical demands** of a job can make heavy periods harder to manage (Healthtalk.org; PCS).

Some aspects of work disproportionately affect women of any age. For example, evidence discussed in Folkard and Hill's (2002, cited in Griffiths *et al.* 2006) systematic review³⁶ of the relevant literature suggests that, compared to men, women do not cope well with shift work and night work especially. They report more chronic fatigue symptoms and have higher levels of sickness absence. A woman working shifts during menopause transition, then, may have an even higher sleep debt because of her age and her gender.

Kittell *et al.*'s (1998) large sample of US interviewees also described a vicious circle effect. Being at work often made them feel anxious *per se* due to the importance that they placed on "keeping up appearances" and having to conceal their menopause transition symptoms.

In Paul's (2003) survey of TUC safety representatives, work was identified by 22% of respondents as making the following transition-related symptoms worse. However, as suggested in chapter 2, this survey has a number of limitations, including the fact that it does not capture women's own accounts of working during menopause transition.

Symptoms reported included:

- hot flushes
- headaches
- tiredness
- lack of energy
- sweating
- anxiety/ depression
- mood swings
- irritability
- aches and pains
- loss of concentration/ memory
- dry eyes and dry skin.

How others' attitudes affect working women during transition

It is not just transition symptoms themselves which can make work more difficult to handle. The evidence base suggests managers' and colleagues' attitudes to women in transition play a role here.

³⁶ This chapter does not deal with menopause transition and is not included in our evidence base.

Lack of advice and support from employers

Pregnancy and returning to work after maternity leave are commonplace topics in HR policy and equality legislation. They are well understood and advice and support are readily available for working women and their managers. **The same is not true of the menopause.**

For example, only 3% of women in Jack *et al.*'s (2014) survey of women working at Australian universities (n=839) said their employers provided support or training on the menopause for managers³⁷. In Paul's (2003) survey, only 5% of safety representatives' employers provided information to staff about the menopause. Only 2% had menopause-specific health and safety provision. Here these safety representatives are speaking from their own experience as opposed to discussing the experiences of their female colleagues. These findings are therefore more robust than others from this study.

Both Paul (2003) and Matthews (2015) suggest employers tend to regard the menopause as a personal, private issue; and Matthews says there is little guidance for HR professionals on supporting women through this stage of their reproductive lives in contrast to pregnancy and maternity.

Altmann (2015) makes a similar point in her report on older workers. She suggests that, in the UK at least, training for line managers in dealing with staff experiencing the menopause is non-existent, although she provides no evidence for this claim. Altmann adds that, when performance at work is affected by other health issues, there is far more acceptance of and allowance made for this. Again though she does not cite any evidence for this argument. Relatedly, in Paul's (2003) survey, 45% of managers were reported to have no knowledge of menopause-related problems in the workplace.

Reluctance to disclose transition symptoms

As a result, although women all experience menopause transition differently, they are often **wary of disclosing symptoms at work** (Griffiths and Hunter 2014; Jack *et al.* 2014). The evidence around levels of disclosure at work certainly suggests these are very low.

Starting at the higher end of the estimates, in Griffiths *et al.*'s (2006) survey of 941 English women police officers, 33% had opened up to their managers about their transition symptoms. A quarter (25%) of Griffiths *et al.*'s (2010, 2013) respondents had done the same (n=896). These data also suggest women might be reluctant to give the real reason for transition-related sickness absence (also see Matthews 2015).

³⁷ These women all worked for the same 3 Australian universities, which may indicate that, even if such support and/ or training exists, most employees at these institutions are not aware of it.

Again in the UK, Reynolds (1999) notes that 28% of her mid-life respondents (n=29) had told no one at work about their hot flushes. Very few had talked to managers, occupational health (OH) nurses or workplace counsellors. The women who said they experienced the most distress also reported being the least likely to disclose this due to embarrassment or fear of being stereotyped. This study is interesting because it gathers qualitative as well as quantitative data and re-surveys respondents from Reynolds' (1997) earlier research. However, the sample is fairly small and it is not representative.

At the lower end, the NUT (2014a, 2014b) survey (n=3,079) of female teachers suggests just under 22% of respondents had disclosed transition symptoms to their line managers. The rest (78%) had not said anything. Specific reasons for non-disclosure, some of which were discussed in chapter 2, included:

- not wanting their line manager to think their performance had been or could be affected (67%)
- finding disclosure embarrassing (35%)
- having a male manager (24%)
- having a younger manager (23%)
- concerns about confidentiality (22%)³⁸.

In terms of talking to colleagues, just 52% of Griffiths *et al.*'s (2006) police officer participants said they had or would be willing to do this. Employment counsellor Fisher (1994) suggests, based on her experience, that women may even be reluctant to talk about their symptoms to other mid-life women where they feel their own symptoms are worse.

Overall then 9 publications report on women's reluctance to disclose menopause transition symptoms at work to either managers or colleagues. Although intended for different audiences and using different methods, these are all of good quality. Jack *et al.* (2014) suggest **gendered ageism** is to blame. They say this is often coupled with mid-life women thinking they are invisible when it comes to promotion decisions, feeling devalued and believing they need to manage their appearance to present an 'unproblematic body' at work. Similar points about managing the ageing female body in the workplace are made by Kittell *et al.* (1998), Morris and Symonds (2004) and Putnam and Bochantin (2009).

³⁸ Griffiths *et al.*'s (2006) women police officers also said that talking to male and/ or younger colleagues and managers was especially difficult, presumably because of concerns that these groups would be less likely to empathise.

Negative treatment from managers and colleagues

Staying with the theme of gendered ageism, evidence exists of **women being ridiculed, harassed and criticised by colleagues and managers** as a result of their menopausal symptoms – or just because they are aged 40 or over and therefore stereotyped as “hysterical”, “histrionic” or “menopausal-ish” (Healthtalk.org; Irni 2009; Moloney *et al.* 2006; NUT 2014b). In their robust US study, Moloney *et al.*'s (2006) mid-life US respondents (n=53) reported avoiding disclosure at work due to these stereotypes³⁹.

The NUT (2014b) survey shows women being put off disclosure after seeing other menopausal women being subjected to capability procedures and monitoring. Indeed only 18% of respondents thought there was a climate of openness in their workplace that allowed women to disclose their menopause status to management. The NUT report also quotes respondents in transition describing being bullied and disparaged, as well as some who were on long-term sick leave and unlikely to return to work. It does not provide much methodological detail, which makes the quality of the evidence difficult to judge. However, the survey recruited a large number of mid-life female respondents (n=3,079) and of course teaching is a female-dominated profession so the findings are useful in both respects.

Qualitative data collected by Reynolds (1999) and Morris and Symonds (2004)⁴⁰ suggest heavy menstrual bleeding and/ or hot flushes may be especially visible to colleagues and can mean that women are teased or mocked. Reynolds' respondents felt their teams no longer accepted them in the same way as a result. A specific example of disparagement is given by a perimenopausal respondent in one of Jack *et al.*'s (2014, page 19) interviews. She says

“So I spoke to my manager director about that saying, you know, it's really hot, although what happened is on really hot[,] hot days when even being down this end [of the office] didn't work and I asked to work at home with my air conditioning[.] I got a really bad response, I wasn't allowed to do [it], I had to come in. So sitting in a room with a fan in my face and, you know, the temperature creeping up to 32 degrees, it was really awful.”

Jack *et al.* (2014, page 17) also say that, in their data,

“women who worked in male-dominated areas [of these universities] such as science and engineering were more likely to emphasise the stigma associated

³⁹ In an interesting twist, though, these women also discussed how vomiting at work as a result of perimenopausal migraines – because it is visible – seemed to confirm how serious the headaches were in the eyes of their colleagues.

⁴⁰ Whilst this was a small sample (n=11), the data gathered were detailed and in-depth. The women also worked in several different occupations across a range of sectors. Morris and Symonds do not supply these women's ages. Instead, the respondents self-defined as being menopausal. The paper implies that they were all in their fifties.

with hormonal events, thus creating a silence around women's bodies ... Conversely, faculties such as arts or education that are predominantly female were more inclined to engage in informal discussions about menopause and the female experience. This does not denote that women were any more comfortable discussing menopause in a formal capacity at work than their science and engineering counterparts; however, it did suggest that women's bodies were certainly less stigmatised and silenced".

Griffiths *et al.* (2006) agree that negative reactions to women in transition are especially likely in male-dominated occupations like the police service or the army; and Healthtalk.org claims women are much less likely to raise their symptoms at all in these contexts for fear of seeming weak.

In less robust studies, Paul's (2003) survey data suggest 20% of women have negative experiences at the hands of their managers during transition. 35% were reported as being embarrassed to raise any difficulties with their manager; and 30% of managers were said to be critical of menopause-related sickness absence. The TUC (2014) also report that, at a 2011 seminar for union representatives, several gave accounts of supporting women in disciplinary cases based on poor performance or high sickness absence caused by their transition symptoms. We should treat these claims with caution though because the data do not come from mid-life women themselves.

Eleven publications, of varying quality, therefore suggest managers and other employees may display negative behaviour towards their mid-life female staff and co-workers. However, **we have not found any research directly comparing mid-life men to women going through menopause transition.** Some studies in the evidence base discuss men as well as women (Altmann 2015; de Araújo Moraes 2012; Diamond 2007; Duijits *et al.* 2014; Irni 2009; Moloney and Johnson 2011; Warshaw *et al.* 1999; Wollersheim 1993; Wroolie and Holcomb 2010). Still, none focus on how women are treated or experience the menopause transition at work relative to men of the same age.

Indeed in the employment tribunal *Carpenter v Business Link London* (ET/3200314/98, 10 August 1998), Ms Carpenter suggested her sickness absences were perhaps the reason for her selected being for redundancy and that these were caused by her menopause transition. Her other explanation was that she had been made redundant because of poor performance, again because of transition symptoms. However, the tribunal rejected her complaint of sex discrimination and stated that

"The effects of the menopause which the applicant said rendered her absent from work or less effective in work could be caused in both sexes by other physical conditions or by mental conditions. We therefore consider that these effects are not unique to women, albeit that menopause as a cause of them probably is" (cited in XpertHR 1999).

Still, as suggested above, we have no evidence which distinguishes between mid-life men and mid-life women when it comes to how they experience the workplace, how they are treated by colleagues and managers, how they rate their ability to work or their productivity at work, what their career prospects are, their continued employment, their absenteeism or their pay.

Some of the issues discussed in this chapter are of course unique to women – such as heavy periods. But **the lack of studies comparing men and women in these various respects is a significant evidence gap in understanding menopause transition in the workplace.**

Chapter summary

- Physical and psychological **symptoms of menopause transition can affect a woman's performance at work, her quality of working life and her levels of absence.**
- Studies tend to focus on one symptom or a group of associated symptoms, meaning **the overall picture is unclear.**
- A small amount of qualitative evidence suggests **coping strategies range** from attempts to conceal or manage symptoms to more open requests for support from colleagues and managers.
- There are some indications from quantitative research that **HRT can help** some women to manage their symptoms at work.
- **Certain aspects of work** (especially high temperatures or inadequate ventilation) **make symptoms worse.**
- **Others' attitudes play a role.** A consistent picture indicates that women in transition feel unsupported at work, are reluctant to disclose their symptoms and can be treated negatively because of their symptoms. This is because of gendered ageism.
- **No evidence exists to compare mid-life women to mid-life men in terms of the workplace.** This means we do not know whether the findings reported in this chapter are all unique to mid-life women or reflect attitudes to older workers in general.

4. How can employers and the government better support women experiencing the menopause transition?

This chapter outlines:

- recommendations for what employers can do to support women in transition, including three best practice case studies
- recommendations for government support for women in transition

Overall, **the evidence base is consistent on the recommendations it makes to employers** about supporting employees who are experiencing menopause transition. But **there is very little on specific workplace initiatives or their effectiveness**. We therefore do not know very much about what – if anything – employers are doing, or whether these interventions are successful. In terms of what the government should do, only a handful of studies focus on this issue.

The material reviewed in this chapter is taken from the whole evidence base, although trade union and other grey literature tends to provide more practical and policy-relevant conclusions⁴¹. Although unions can be perceived as having particular agendas in working on menopause transition, one of the most comprehensive systematic reviews we accessed recommends employers should read and act on union advice. Based on 75 previous studies, Jack *et al.* (2016) point to the consistent guidance provided by Paul (2003) on behalf of the TUC, UNISON (2011) and the NUT (2014a).

Jack *et al.* (2016) also emphasise that employers need to review the scope and framework of their “occupational health & safety ... and human resources ... policies, practices and activities, cognisant of national legal requirements to provide a safe, healthy and discrimination-free working environment for employees” (pages 93-94). Otherwise, as Business in the Community (2016)⁴² suggest, **female employees in the UK may bring cases for age or sex discrimination under the Equality Act (2010)**.

The first successful employment tribunal in this area was Merchant vs BT plc (ET/1401305/11, 27 February 2012). Ms Merchant was dismissed on the basis of incapability, having received a final warning for poor performance. However, she had previously given her manager a letter from her doctor. This said she was “going through

⁴¹ Trade unions also consider their own role in supporting working women in transition, but this information is not used here because it is beyond the parameters of our critical review.

⁴² This toolkit is titled *Women, Menopause and the Workplace*. It clearly outlines employers’ legal duties under the Equality Act. Although no methodology or evidence is discussed, it certainly provides “basic information about the symptoms of the menopause, advice for managers on how to encourage communication around health issues and practical workplace solutions which will help create a safer, more comfortable working environment for women experiencing the menopause”.

the menopause which can affect her level of concentration at times” (cited in Javaid 2012). However, Ms Merchant’s manager did not undertake any further investigations of her symptoms, which breached BT’s performance management policy. The tribunal upheld her claims of direct sex discrimination and unfair dismissal, saying her manager would never have adopted “this bizarre and irrational approach with other non-female-related conditions” (cited in Javaid 2012).

The Equality Act also establishes the importance of ‘**reasonable workplace adjustments**’ to ensure workplace equality, which can include transition-related requirements. Case study 1 outlines guidance produced by North Lincolnshire Council (2013) about adjustments for women experiencing menopause transition. We selected this as a case study because it is the only example of its kind in the evidence base. The advice given outlines changes employers may need to make in order to comply with the Act.

Case study 1: North Lincolnshire County Council

North Lincolnshire County Council’s Diversity team have produced guidance for their managers on “meeting specific needs and making reasonable adjustments in the workplace” (2013, page 1). In a section focusing on the menopause, the guidance suggests the following possible reasonable adjustments:

- “considerations [of] temperature control (for example provision of USB fan)
- position of work space
- use of flexible and home working
- easy access to appropriate toilet facilities
- dress code – consideration [of] uniform may be a factor e.g. a natural material like cotton is preferable to synthetic materials if an employee is experiencing hot flushes and sweating. Does the employee need one or more additional uniforms to change into during the working day?
- review of the way their job role is carried out (depending upon the job)” (page 7)

The guidance is accompanied by two toolkits. One outlines more than 50 examples of workplace adjustments and the second summarises 30 examples of impairments or issues - including the menopause – which are covered by the Equality Act. A template to tailor individual adjustment agreements is included, alongside other resources.

We now outline the guidance given to employers across the evidence base in more detail.

What employers can do: culture, training, specialist provision and policy

Organisational culture

The evidence base stresses **the importance of organisational cultures** – shared values, beliefs and norms - in which women feel supported and can discuss any transition symptoms affecting their working lives with managers and colleagues alike. Taking studies in order of strength, Griffiths *et al.*'s (2010) survey (n=912) and their semi-structured interviews with 61 women in different sectors and occupations found that practical and emotional support from colleagues, line managers and HR staff is important for women in transition.

Equally, Jack *et al.* (2014, page 31) conclude on the basis of their wide-ranging Australian university survey (n= 839) and interviews (n=48) that

“women preferred not to bring issues [related to the menopause transition] into the workplace, because they felt that unconscious bias may result in their careers being disadvantaged in some way, reinforcing a culture of silence”.

UK survey findings from women police officers (n=941) produce similar conclusions (Griffiths *et al.* 2006)⁴³.

Ariyoshi's (2008, 2009) discussion of an intervention programme in one Japanese company, including counselling and HRT, suggests the more open organisational environment which resulted was extremely helpful for women experiencing transition. In their short systematic review, Griffiths *et al.* (2016) agree that a workplace culture of openness about health problems in general – and the menopause specifically - is important.

Overall this evidence suggests managers need to encourage the development of shared organisational values, beliefs and norms within which menopause transition, like pregnancy, is acknowledged as a natural process and mid-life women are freely able to request adjustments to their working conditions. This means all staff need to be aware of what transition might entail.

Several studies also say women are more likely to speak up about symptoms where they feel they have empathetic colleagues or managers; and support from others is highly valued when women do disclose (eg, Griffiths and Hunter 2014; Griffiths *et al.* 2016; Jack *et al.* 2014; NUT 2014a, 2014b; Putnam and Bochantin 2009). As such, improving understanding of this gender-specific period of a woman's life and its possible effects in the workplace is seen as central to cultural change initiatives around transition.

⁴³ None of these studies are representative, but they do benefit from mixed methods in two instances and relatively large samples in all three.

Equality and diversity training

On a similar basis, **mandatory equality and diversity training covering gender and age, and the menopause specifically**, is frequently identified as something employers should introduce. The group most in need of such training is managers, so they can embody the open and supportive culture discussed above, and lead by example to other members of staff.

Evidence includes the 75% of the respondents in Griffiths *et al.*'s (2010, 2013) UK survey who suggested management awareness of transition issues would be helpful. In her report on older workers in the UK, Altmann (2015, page 25) cites a Chartered Institute of Personnel and Development (CIPD 2014) survey of 935 employers to the effect that only 46% of line managers in the UK are trained in managing age-diverse teams⁴⁴.

Breaking this down into specifics, Jack *et al.* (2014) recommend management training in sensitivity and listening skills. The TUC's (2014) mixed methods research study – including one survey with 5,000 plus respondents⁴⁵ – proposes that training needs to cover reasonable adjustments to account for menopause transition as outlined in case study 1. So does Kopenhagen and Guidozi's (2015) short systematic review of 17 previous studies.

Drawing on their survey of women police officers, Griffiths *et al.* (2006) say this training should include the challenges which men may face as they age, like prostate problems. Griffiths *et al.*'s (2016) systematic review of 22 previous studies suggests managers need to know that women might change their usual work habits because of symptoms or to manage symptoms, and therefore behave uncharacteristically. Similarly, Altmann's (2015) report on older workers recommends that performance reviews should take account of detrimental effects of menopause transition for women.

The evidence base also recommends **occupational health campaigns** in workplaces to increase staff awareness of the difficulties women might face during transition and to challenge any negative stereotypes. These campaigns could educate mid-life women themselves about managing their diets during transition, for example, or prepare them for the possible consequences of transition at work (Griffiths *et al.* 2013, 2016; Jack *et al.* 2014; National Association of Schoolmasters Union of Women Teachers/ NASUWT; Paul 2003; UNISON 2011).

Relatedly, the evidence suggests provisions are needed for mid-life women to receive confidential, tailored and specialist advice at work about their transition-related symptoms.

⁴⁴ The CIPD survey report itself makes no reference to the menopause.

⁴⁵ The report does not give many details about the various methods used.

Occupational health and other specialist provision

Griffiths *et al.*'s (2006) study of women police officers concludes that occupational health units should provide medical check-ups and advice for women in transition. They add that women should have confidential, direct access to these units without needing to be referred by managers. Paul's (2003) survey of TUC safety representatives agrees **menopause transition should be treated as an occupational health issue** like any other by employers (also see British Occupational Health Research Foundation/ BOHRF 2010; Griffiths *et al.* 2010; NUT 2014a, 2014b; TUC 2013).

Jack *et al.*'s (2016) comprehensive systematic review also argues that OH nurses can support women in transition and that Employee Assistance Programmes and counselling should be available on the same basis (also see Goldman 2010; Hammam 2012). HR staff, including diversity advisers, and union representatives, could offer some of this provision according to Paul (2003) and Griffiths *et al.* (2010).

Elsewhere, based on mainly qualitative questionnaires (n=56), Reynolds (1997) recommends particular approaches for workplace counsellors in supporting female clients with hot flushes, including: providing information and support to women about transition; helping them process their symptoms more effectively to reduce distress; and giving advice on relaxation techniques, diet and exercise. In a study based on a very narrow systematic review of 8 studies, Wright (2005) points to similar implications of menopause transition for workplace coaches, especially around diet and exercise advice.

Here then the evidence suggests a range of specialist support for working women in transition, some of which might be provided externally in smaller organisations. The overall emphasis is on confidentiality, privacy and access to relevant experts. Like the evidence reviewed in the two preceding sections, it is of variable quality. But, again, the overall message is both well-established and consistent.

Absence policies

Another theme in the evidence base is **the importance of a sickness absence policy which accommodates women experiencing menopause transition**. Again this kind of provision needs to be part of the kind of organisational culture discussed above, so it is regarded as no more unusual than a maternity leave policy.

In approximate order of strength, the TUC's (2014a) wide-ranging mixed methods study recommends such a policy, emphasising that no negative consequences should follow from any sick days a woman takes due to transition. Business in the Community's (2016) recommendations to managers argue that notations for repeated short-term sickness absences due to transition should also be avoided. Instead they recommend such absence is recorded as caused by an ongoing health issue. Drawing on the rich qualitative data she gathered, Irni (2009) makes similar suggestions in her interview-

based study (n=17⁴⁶) across three Finnish organisations in different sectors (also see Kopenhagen and Guidozi, 2015; PCS).

The 85 posts to the online forum 'Menopause Relief at Work' which Putnam and Bochantin (2009) analyse identified shared annual leave banks as a different solution. These banks involve workers: saving leave up to take in future years; having salary deducted for leave taken over their allowance; receiving additional salary where leave is not used up; or donating unused annual leave to a pool which others can use. Such schemes are also noted by Morris and Symonds (2014) on the basis of their qualitative interviews with 11 mid-life working women.

Seven publications in the evidence base therefore make a case for tailored absence policies to support women experiencing menopause transition. They employ different approaches to make this case, and none use representative samples. Nonetheless once again the message is consistent here.

Support groups

Open and supportive organisational cultures should also allow **the provision of informal support for mid-life women during menopause transition**. This can include women's workplace networks, online discussion forums and helpline numbers (Bochantin 2014; Goldman 2010; Griffiths *et al.* 2010, 2013; Hunter and Rendall 2007; Jack *et al.* 2014; Reynolds 1997, 1999). Case study 2 describes one such successful initiative, as described by the employment counsellor who established it⁴⁷.

Case study 2: Mary Hitchcock Memorial Hospital

Employment counsellor June Fisher (1994) discusses establishing a workplace support group in this hospital. The group consisted of four sessions with mid-life and younger women and supervisors, to educate them about what happens in menopause transition and its physical and emotional effects. The sessions also offered advice on managing symptoms via HRT, diet and exercise and allowed the women taking part to connect with each other. After the formal sessions ended, several group members continued to meet. A longer session was planned for anyone who was unable to attend these later meetings. Fisher also designed a public workshop for women, their families and anyone supervising mid-life women at work. This was very quickly oversubscribed, so sessions were recorded for people who could not attend.

⁴⁶ This is a small sample, but not atypical for a study of this kind.

⁴⁷ Fisher's account does not draw on any evidence other than her own description of the support group's development and its success. However, given that it appeared in a magazine aimed at HR professionals and workplace counsellors, it is appropriate for its audience.

Here 8 studies make the case for informal support groups at work for women experiencing transition. All are reliable, despite their different approaches.

Cultural change, specialist advice, transition-specific policies and informal support form one element of recommendations to employers. In case study 1, we also saw references to job role reviews as well as flexible working arrangements. A range of potential changes to working arrangements are highlighted in the evidence base, sometimes depending on the occupation being discussed.

What employers can do: flexible working arrangements and workplace adjustments

One example of occupation-specific arrangements comes from Cau-Bareille's (2011) qualitative research on French kindergarten teachers. She recommends reducing class sizes, reviewing school organisation and investigating the possibility of more team working as well as the specifics of teaching young children. These interventions would, she suggests, alleviate work-related fatigue which can be aggravated by menopause transition⁴⁸.

Although their sample is very small (n=9), Giron, Fonseca, Berardinelli and Penna (2012) raise similar issues in the form of specific stressors in hospital environments and heavy physical loads for nurses. They point to the likely impact of transition on female healthcare professionals, given already "exhausting workloads and a physically and psychologically strenuous routine" (page 746).

More generally, the evidence base recommends various ways to make working life more flexible for women in transition:

- **reducing workload**
- ensuring they are **not working excessively long hours**
- **capacity to rearrange formal meetings or presentations** if needed
- **allowing them to switch to different tasks** on bad days
- **allowing them to take breaks where needed**
- **allowing them to work flexible hours and/ or at home**, especially on bad days or when they have slept poorly

⁴⁸ As suggested in chapter 3, Cau-Bareille does not specify precisely how many respondents were involved in her project or how they were selected, so the quality of her findings is difficult to judge.

- **allowing them to take days off if required or to leave early**, perhaps to resume working later in the day or evening
- allowing them **time off** during the working day **to attend medical appointments** (BOHRF 2010; Business in the Community 2016; Griffiths *et al.* 2006, 2010, 2013, 2016; Jack *et al.* 2016; North Lincolnshire County Council 2013; PCS; Putnam and Bochantin 2009; TUC 2014).

Griffiths *et al.* (2006) recognise that making changes to roles and working hours is less straightforward than cultural change or the physical adjustments to workplace environments which we discuss next. However, women in transition may only need these flexible arrangements temporarily, as Griffiths *et al.* (2016) point out.

The evidence base here is of somewhat variable quality, but once more the overall emphasis on the need for flexible working patterns is both common and consistent.

What employers can do: changes to workplace environments

Changes to the physical working environment will be easier to make in a supportive workplace where women feel able to disclose their symptoms and how work might be making them worse. These changes should be identified by risk assessments around menopause transition (Griffiths *et al.* 2006, 2016; Jack *et al.* 2016; Paul 2003; PCS; TUC 2014). In the NUT (2014a, 2014b) survey, just over 10% of their respondents had asked for (mainly low-cost) environmental adjustments. However, more than half of these requests were rejected.

In order of frequency of mention, environmental changes recommended in the evidence base include:

- **access to fans, good ventilation** including windows which open and blinds that can be drawn, to allow women to cope better with hot flushes (Altmann 2015; BOHRF 2010; Fenton and Panay 2014; Griffiths *et al.* 2006, 2010, 2013, 2016; Griffiths and Hunter 2014; Healthtalk.org; Paul 2003, Reynolds 1999; North Lincolnshire County Council 2013; NUT 2014a, 2014b; TUC 2013, 2014).
- **ability to control temperature** via air conditioning or heating, again to alleviate difficulties caused by hot flushes (Griffiths *et al.* 2013, 2016; Griffiths and Hunter 2014; Kopenhagen and Guidozi 2015; North Lincolnshire County Council 2013; NUT 2014a, 2014b; Putnam and Bochantin 2009; Reynolds 1999; TUC 2013, 2014).
- **clean, well-equipped and comfortable toilet facilities** near work stations, with appropriate sanitary disposal bins and feminine hygiene products, for women experiencing heavy or irregular periods or urinary incontinence (Fenton and Panay 2014; Griffiths *et al.* 2013, 2016; Kopenhagen and Guidozi 2015; North Lincolnshire County Council 2013; NUT 2014b; Paul 2003; TUC 2013, 2014).

- **provision of cold drinking water**, also to allow better management of hot flushes (Fenton and Panay 2014; Griffiths *et al.* 2013, 2016; Kopenhager and Guidozi 2015; Paul 2003; TUC 2013).
- **lighter, non-synthetic workplace clothing or uniforms**, again to accommodate hot flushes (Altmann 2015; Healthtalk.org; North Lincolnshire County Council 2013).
- **quiet workplace rest areas**, so women in transition can relax when they need to (Griffiths *et al.* 2006; Healthtalk.org).
- **being able to move if an office is small and confined**, again in case of hot flushes (Jack *et al.* 2016; North Lincolnshire County Council 2013).
- **access to natural light**, which has been identified as having a positive effect on mood and the absorption of calcium during menopause transition (PCS), or light boxes if natural light is not easily available (Bochantin 2014; Paul 2003)
- **access to female-only showers** if possible, again because of hot flushes or heavy periods (Griffiths *et al.* 2006).
- **a reduction of exposure to noise** to help reduce fatigue (Cau-Bareille 2011).

Where adjustments affect other colleagues – eg, opening a window or lowering a thermostat - women need to be able to explain to colleagues in a shared work space why this is necessary. Again this reinforces the importance of a supportive organisational culture around menopause transition (Griffiths *et al.* 2016). Overall, a significant proportion of the evidence base – 22 studies, or 21% – makes a case for these environmental adjustments.

A final observation concerning what employers can do to better support mid-life women is that a **‘one size fits all’ approach to menopause transition in the workplace will not be effective**. This is because of wide variations in women’s experiences. The observation is made by Cumming *et al.* (2011) on the basis of their cross-sectional survey (n=1100), and in North Lincolnshire County Council’s (2013) guidance for managers, summarised in case study 1 above.

On the other hand, the women police officers responding to Griffiths *et al.*’s (2006) survey recommended that the improvements they asked for at work should be offered to everyone, regardless of gender or age. On this more general note, Assistant General Secretary of the NUT Amanda Brown suggests that

“We need to ... collectivise our approach to menopause. All women teachers will go through the change of life at some stage in their career and by making some practical workplace changes in recognition of this, we can bring benefits to everyone in the profession; whatever their gender or age” (cited in Matthews 2015).

Ariyoshi (2009) and Jack *et al.* (2014) also provide evidence that **male colleagues or line managers can benefit directly from workplace information and advice** about the menopause. In Ariyoshi's study, this helped a male worker to support his wife through her transition and reduced his stress levels as a result. It addressed a little-recognised effect on work arising outside work, and one which is not specific to women.

To conclude our discussion of what employers can do to support their mid-life female workers through menopause transition, case study 3 focuses on the retailer Marks and Spencer, where a wide-ranging approach has been introduced. This initiative is one important reason why the retailer has featured in the Times Top 50 Employers for Women annually since 2011.

Case study 3: Marks and Spencer⁴⁹

Marks and Spencer have a well-being website for their employees called Your Wellbeing. This was developed in 2010 based on suggestions from their 85,000 employees across the world and includes targeted material for workers in Greece and India. Labour turnover and sickness absence have reduced significantly as a result, and the retailer won the Business in the Community 2013 Workwell award for the initiative.

The site hosts a Manage Your Menopause micro-site, which includes a video about and tips on coping with the menopause and information for line managers on supporting women through transition. The Marks and Spencer approach to the menopause also encompasses referrals to a specialist team within their Occupational Health and Employee Support services where necessary and robust policies covering menopause-related absence. This element of the initiative was driven by feedback from the retailer's national Business Involvement Group, the members of which are elected employee representatives. Marks and Spencer say their efforts have been very well received by their female employees, who make up 74% of their workforce.

As we suggested at the outset of this chapter, however, there is a lack of empirical evidence that the interventions outlined so far work. The evidence base only includes 4 studies of this kind – Ariyoshi (2008, 2009) on an initiative which combined counselling and HRT treatment in a Japanese newspaper company and Rutanen *et al.* (2014a, 2014b) on an exercise programme scheme in Finland. The Rutanen *et al.* project was also designed for working women per se as opposed to those working in one organisation. These studies used mixed methods and are methodologically robust. They

⁴⁹ Sources: Engage for Success; Business in the Community; Marks and Spencer (2011); Government Equalities Office (2013); Matthews (2015); Jack *et al.* (2016).

suggest positive results for both interventions. But much more evidence of this sort is needed, as Jack *et al.* (2016) conclude.

What the government can do

Again as suggested earlier, the evidence base has much less to say on this issue.

Providing advice to employers

NASUWT outline the UK legal context for considering the menopause as a workplace issue:

- Section 2 of the **Health and Safety at Work Act (1974)**: employers must ensure the health, safety and welfare at work of all employees
- **Workplace (Health, Safety and Welfare) Regulations (1992)**: establishes a duty on employers to make workplaces suitable for all employees
- **Management of Health and Safety at Work Regulations (1999)**: these require employers to undertake risk assessments and prevent employees being exposed to risks
- The **Gender Equality Duty under the Equality Act (2010)**: sets out an obligation to promote gender equality and eliminate discrimination

The Gender Equality Duty covers public sector organisations only. But of course the Act makes work-related discrimination on the basis of either gender or age illegal more generally, as *Merchant v BT plc* suggests.

On the basis of her survey of TUC safety representatives, Paul (2003, page 22) also calls on government bodies to “devote more attention to the menopause”. She argues that the Health and Safety Executive should provide advice to employers and employees. She adds that the government should also lead by example in its internal policies and procedures in this regard.

Raising medical and social care professionals’ awareness

Other research suggests **medical and social care professionals need to be more sympathetic, knowledgeable and supportive about menopause transition**, taking full account of women’s work experiences in treatment and support, and providing a range of recommendations to alleviate symptoms. Griffiths *et al.* (2006) cite a survey⁵⁰ in which most female respondents, all aged between 45 and 55, said their GP had spent 10 minutes or less diagnosing and advising them on menopause transition. These women

⁵⁰ This was reported on the Elixir News website in October 2005. The website archives do not date back that far, so we have been unable to locate the original article.

reported that their doctors had indifferent or unsympathetic attitudes to transition. Some of the mid-life women interviewed for Griffiths *et al.*'s (2010) qualitative research (n=61) said they needed more medical information from GPs when first diagnosed with menopause symptoms in particular.

Turning to recommendations for these professionals, and taking studies in order of strength, Moloney *et al.*'s (2006) wide-ranging mixed methods research (n=53) agrees healthcare professionals need to have more empathy for their menopausal patients and have a better grasp of transition symptoms as well as what can trigger them. Kittell *et al.*'s (1998) robust US interview data (n=61) lead them to similar conclusions about healthcare workers focusing on environmental adjustments at work as well as self-management practices for patients or clients in transition.

In Taiwan, Lin, Hsu, Loh, Lin, Lai, Chien and Lin (2011) surveyed care-givers (n=1,152) looking after women with intellectual disabilities. They assessed the knowledge these workers had of their clients' reproductive health issues. Lin *et al.* conclude that "health authorities should initiate education programs to improve the reproductive health knowledge of caregivers appropriately" (page 7). However, these findings are limited by a non-representative sample, the simple yes/ no format of the survey questions and the fact that no data were gathered from women with intellectual disabilities themselves.

In an older research paper, Reynolds (1997) suggests workplace counsellors should not limit their advice to self-care strategies like diet, exercise or HRT but include possible adjustments to external environments as well as allowing for other changes women face in mid-life. Reynolds (1999) then uses data from a sample of some of her previous respondents (n=28) to recommend that counsellors advocate for women at work around environmental adjustments like heating control and fans.

In the least robust study in this group, Hsu *et al.* (2009) use their analysis of qualitative interviews with a non-representative sample of perimenopausal Taiwanese women (n=21) to recommend that healthcare providers pay more attention to the varied reasons for sleep disturbances amongst their mid-life female patients. They add that any advice given should include sleep counselling rather than just prescribing drugs.

Overall, these data – whilst of variable quality - indicate that health and social care professionals need to have up to date and comprehensive information about the menopause because they are in a position to cascade knowledge. The findings also have implications for how these professionals are trained, including their continuing professional development.

Funding more research and raising awareness

On a different note, Paul (2003) and Altmann (2015) both suggest **the government should fund more research into the alleviation and management of transition symptoms**. Kittell *et al.* (1998) and Jack *et al.* (2016) agree that wider awareness of

menopause transition and its effects would be positive for working mid-life women, so those around them could understand what they are experiencing and support them better as a result.

Awareness raising around HRT specifically targeted at mid-life women, including the latest information about its risks and benefits, would also help them to make more informed choices about this treatment. We base this suggestion on the studies reviewed in chapter 3 on the advantages and disadvantages of HRT for working women in particular (eg, Ariyoshi 2008, 2009; Griffiths *et al.* 2010, 2013; Daysal and Orsini 2014) and the Saltpeter, Buckley, Liu and Saltpeter (cited in Pines 2013) analysis discussed in Appendix 4, which suggests women taking HRT enjoy better health for longer.

Legislative changes

Only two studies refer to legislative changes. Putnam and Bochantin (2009) mention making menopause leave a statutory right, just as maternity leave already is in many countries including the UK. However this possibility only appeared in 1 of 85 posts in their Internet discussion forum data. The TUC (2014) say UK employment tribunal fees should be abandoned and also recommend changes to the Equality Act to allow claims based on more than one type of discrimination. **The evidence base therefore does not provide a foundation for any changes to UK law.**

Having reviewed the limited evidence around government initiatives to support working women in transition, the evidence reviewed in chapters 2 and 3 about women's experiences of transition at work and the recommendations to employers discussed in this chapter, **we believe the most effective government intervention could focus on transition-related guidance to employers.** Advice of this kind might have the most effect in, first, occupations where women predominate, including administrative and secretarial work and caring, leisure, healthcare, sales and customer service jobs, as discussed in chapter 1; and, second, male-dominated occupations like the army, the police service and engineering, as discussed in chapter 3.

Chapter summary

- Employers can better support women workers experiencing transition by developing **more supportive organisational cultures**, introducing **mandatory equality and diversity training** around age and gender, **ensuring specialist provision** is available, implementing **policies around transition-related absence** and encouraging **informal women's support networks**.
- **Flexible working arrangements** can also help women during this period of their lives.
- A number of (often low-cost) **adjustments to the workplace environment** can be made, **to alleviate the experience of hot flushes at work especially**.
- **There is much less evidence on what governments can do**, but some studies argue for more advice to employers, better training for medical and social care professionals, awareness raising and more research.
- Our evaluation of the wider evidence base leads us to conclude that **the government could focus on providing employers with guidance on the menopause transition** and how it can affect mid-life women.

5. Quantifying the costs of menopause transition for women's economic participation

This section outlines:

- a conceptual model of the costs which need to be estimated for this purpose
- which cost estimates are addressed in the evidence base, and how these inform the cost of the menopause transition for the UK
- the costs the evidence base does not currently measure

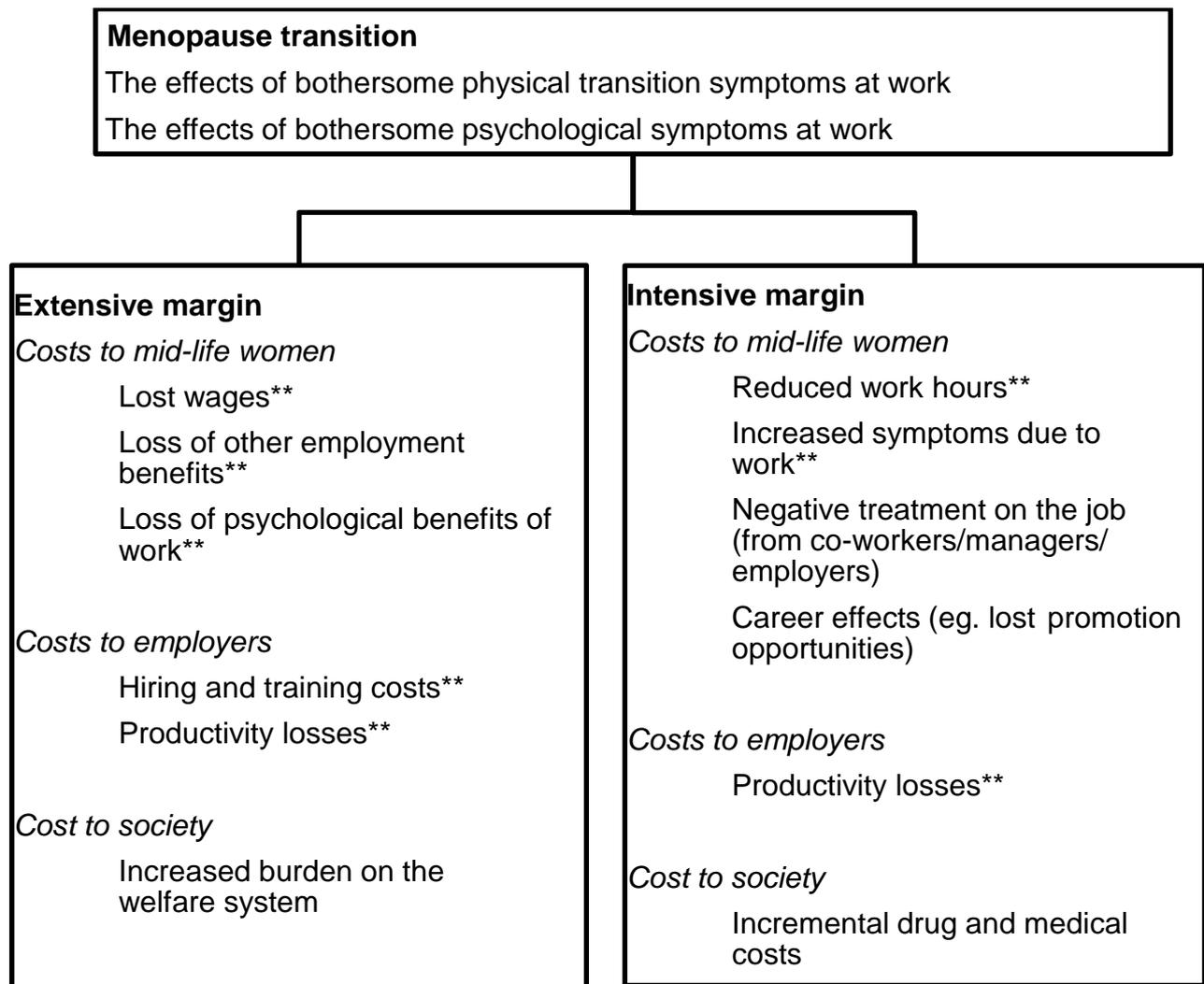
Modelling the effects of menopause transition on economic participation

As Jack *et al.* (2016, page 91) point out, the “economic burden’ for employers” which transition creates has begun to receive increasing attention. We believe this is due to the ageing female workforce worldwide. This chapter discusses how we can quantify the costs of the menopause transition which relate to women's economic participation.

The evidence suggests transition affects economic participation primarily because of symptom severity. Where these symptoms are bothersome, transition makes it more difficult for women to maintain their pre-transition workload. We distinguish between two potential consequences. First, some women may leave - or lose - their jobs earlier than they would have without bothersome symptoms. Using language borrowed from labour economics, we refer to this as a change along the **extensive margin of the labour force**. Second, some women will choose to remain in employment and cope with their symptoms. We refer to this as a change along the **intensive margin of the labour force**. These margins are illustrated in Figure 1.

Evidence for the economic cost of menopause transition can be divided according to these two margins. It is important to recognise that i) the costs associated with each margin will differ; and ii) existing evidence around the experience of transition for working women does not reflect either margin accurately. We return to the second point later in this chapter.

Figure 1: The costs of menopause transition for women's economic participation



The bottom panels of Figure 1 highlight key costs we expect to be present along each of the two margins. We also distinguish between costs experienced by mid-life working women in transition, their partners and other family members, employers and wider society. The double asterisks (**) indicate costs we see as a direct result of menopause transition along both margins, as opposed to the indirect or secondary costs it might generate.

Costs experienced by women along the extensive margin include lost wages and any other employment benefits (eg, future employer pension contributions or private health insurance). The total is the sum of these wages and benefits minus any support women receive due to unemployment (eg, Employment and Support Allowance or Jobseeker's Allowance) or retirement (drawing a pension). Less easy to quantify costs include loss of the self-esteem and social support derived from being in employment (Griffiths *et al.* 2006; Sarrel 2012). Moreover, transition-related discomfort will in all likelihood continue anyway, although it may be less severe after a woman has stopped working.

Costs experienced by women's partners and other family members may include them having to earn more to make up for lost wages or adapt to a lower household income. These costs might also include less concrete things like coping with women's transition symptoms at home (eg, mood swings or irritability).

The extensive margin costs to the employer includes the costs of hiring and training a replacement employee. It would also include any lost productivity due to the new worker's inexperience or because the employer no longer has access to the tacit knowledge possessed – and in all probability built up over time – by older women workers. Wider society might lose out because of increased demands on the welfare system, as well as not benefitting from the additional GDP which older women workers generate⁵¹.

The intensive margin includes costs experienced by women who stay in employment during transition. Some of these costs are easily quantified, such as a reduction in work hours (a permanent decrease in the number of hours worked or temporary decreases because of sick leave, lateness or medical appointments). The intensive margin also includes less easy to quantify costs like physical and/ or psychological discomfort at work or worsening symptoms due to work.

Women who stay in employment during transition may also be subject to negative treatment by employers, managers and co-workers as well as losing out in career terms (eg, not being promoted). Their partners and other family members may have to provide additional support to help women manage transition-related workplace challenges, as well as coping with the knock-on effects of their symptoms at home.

Employers will experience an intensive margin cost if transition symptoms mean their mid-life female employees are less productive. Finally, if women with transition symptoms seek medical attention so they can stay at work or improve their productivity, this represents an intensive margin cost to wider society.

Existing cost estimates

In the evidence base, only Daysal and Orsini (2014) quantify the effect of menopause symptoms on labour force participation along the extensive margin. For a large US sample (21,732 female respondents aged between 40 and 55), they found that women who discontinued use of HRT following the 2003 WHIS warnings about its risks were 30% more likely to leave their jobs than those who continued with the treatment. While this suggests a large effect, these estimates are only relevant for a small subgroup of the

⁵¹ Strictly speaking GDP includes lost wages and lost productivity, but we have isolated this cost as it is borne by wider society as opposed to mid-life women, their partners and family members or their employers.

overall US female population: women with symptoms severe enough to use HRT but who chose to stop HRT following the WHIS warning⁵².

Two large studies attempt to estimate intensive margin costs based on samples from the US labour force. Both provide estimates reflecting the average total cost, rather than symptom-specific costs, of transition. Kleinman *et al.* (2013) use secondary data for 2001-2010 concerning medical costs, work absence and demographic information for a large sample of working women: 17,322 diagnosed with transition symptoms and the same number without. The two groups were similar in other demographic respects. Kleinman *et al.* find that women with symptoms have 40.7% higher annual health spending, take 21.3% more sick days and have 10.9% lower productivity at work than those without. The estimated total annual cost of incremental health spending per woman with symptoms is \$2,042.

These findings suggest a large cost along the intensive margin, but should be treated cautiously. To reflect this cost accurately, we need to assume that women with symptoms are no more likely than women without symptoms to have other underlying conditions which may impact medical costs and productivity. This is not necessarily the case: therefore it is likely that these estimates overstate the cost of menopause transition symptoms.

Sarrel *et al.* (2015) use a similar cost estimation strategy to focus on the cost of untreated moderate to severe hot flushes and night sweats for working women. Their secondary data set covers health insurance claims for 1999 to 2011. In the study, 252,273 women were identified as having hot flushes and night sweats which had not been treated, and were compared to a group of the same size with no symptoms. Sarrel *et al.* find that, over a 12 month period, the group with these symptoms had \$1,346 (35%) higher direct costs in the form of healthcare resource and \$770 (83%) higher indirect costs in the form of lost productivity and sick days.

But these estimates have a similar problem to Kleinman *et al.*'s (2013): they rely on the assumption that the groups do not differ in terms of other underlying health conditions. If the group with hot flushes and night sweats was also more likely to have untreated illness unrelated to menopause, the cost estimates overstate the cost of hot flushes and night sweats. Sarrel *et al.*'s estimates are also only relevant for the sub-population of employed women in the US with health insurance who also have untreated hot flushes and night sweats. They can not be generalized to women who receive treatment.

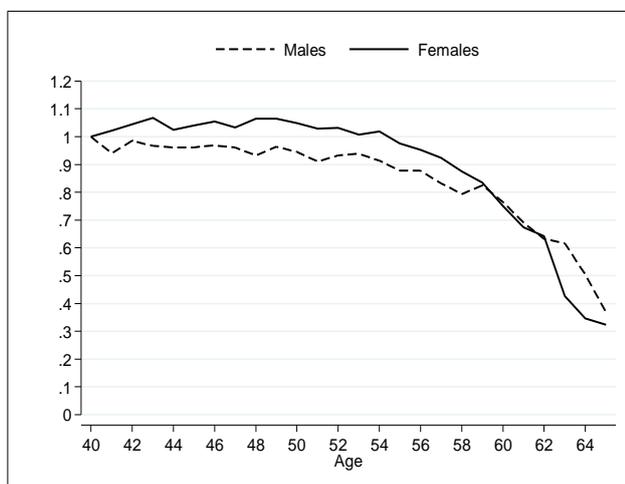
⁵² Overall, Daysal and Orsini estimated this figure as 5.3% of US women aged 40-55. This implies that the change in mid-life women's employment rate due to ceasing HRT treatment would be a 1.6 (0.53×0.30) percentage point decrease.

Counting costs for the UK

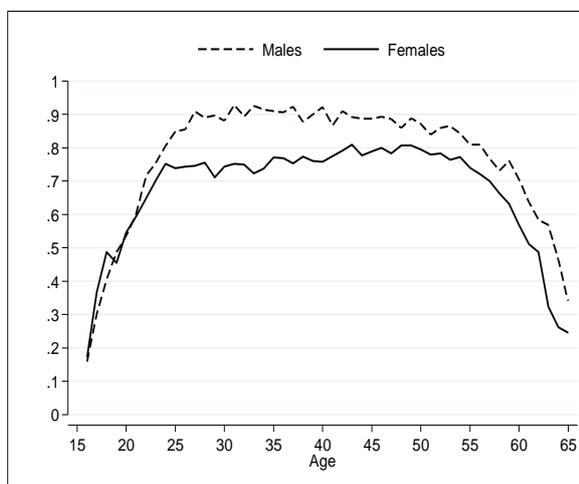
There is no work in the evidence base that estimates the cost of the menopause transition for women's economic participation in the UK.

We can however get a sense of how large the extensive margin might be by looking at aggregate labour force participation. If a significant number of women leave work due to menopause transition then we would expect to see a decrease in labour force participation for women aged 45–55 relative to men of the same age. We examine this in Figure 2 which depicts aggregate employment rates for men and women. The data come from the Labour Force Survey and reflect the UK labour force between January and March 2016 (ONS 2016).

Figure 2: UK employment rates for men and women
Employment rates from age 40 onward



Employment rates at all ages



In the left hand panel of Figure 2, we show employment for all ages. In the mid-20s age group there is a sharp divergence in employment rates between men and women, which only begins to close again in the early 40s age group. In the right hand panel we therefore focus on employment from 40 onward. Here we divide the employment rate for each age group by the employment rate at age 40, so the lines reflect gender-specific changes in employment from 40 onwards.

If a significant number of UK women leave employment due to menopause transition then we would expect to see another divergence in the right-hand panel lines between ages 45 and 55. However, employment rates for men and women remain remarkably consistent between these ages: if anything, the gap narrows. **This suggests that there is not a large extensive margin cost due to the menopause transition in the UK.**

We can also use previous estimates to approximate, albeit very cautiously, intensive margin costs for the UK. Kleinman *et al.* (2013) estimate the additional cost of sickness absence for women who have menopause transition symptoms at \$48 per woman in 2010 – or £35.50 in GBP at the time. Translating this using 2016 rates gives a total of

approximately £41.77 per head⁵³. Of the 1,742,000 working women aged between 50 and 54 (Department for Work and Pensions 2015), we could make a very conservative guess that 10% suffer from severe symptoms which affect work. As suggested in chapter 2, this is at the very lowest end of the estimates in the evidence base and gives us a total of 174,200 women. This gives a total of £7,276,334 ($174,200 \times £41.77$) additional absence-related costs for UK women with severe symptoms per year compared to women who do not have severe symptoms. But this is an extremely rough estimate and only accounts for absence costs due to severe symptoms. It does not account for many of the intensive margin costs outlined in Figure 1.

And we need to exercise caution in generalising estimates from US samples to the UK population anyway. Kleinman *et al.*'s (2013) calculations are based on US medical and drug costs, which may differ substantially from the UK. As we know from the biopsychocultural approach, societal differences may also affect either a) the experience of menopause transition at work and b) whether or how this experience is reported.

It should also be noted that the Kleinman *et al.* results are based on estimates for a non-representative portion of the US female labour force — women in employment offering health insurance. Women in lower-skilled and potentially more physically demanding employment may experience a greater impact on their productivity due to menopause transition. Although gathered from a very small and non-representative sample, Im and Meleis's (2001) data suggest women find the physical symptoms associated with transition make manual labour significantly more difficult. The ONS (2013b) also suggest more than 50% of women in the UK are employed in jobs classified as lower-middle to low-skilled. These occupations may well create specific difficulties for women in transition.

Overall, there is a lack of evidence quantifying extensive margin and intensive margin labour market costs. This is particularly true for the UK labour market. Indeed **there are several potential costs the evidence base does not quantify at all**, including:

- decreases in household income or costs borne by family members having to earn more income
- family members coping with mid-life women's symptoms at home and/ or supporting them concerning workplace challenges during transition
- symptom-related lateness to work
- lost productivity due to medical appointments during working hours
- women who reduce their working hours due to symptoms

⁵³ We have used the [Bank of England's inflation calculator](#) to arrive at the 2016 cost.

- organisational interventions, like the exercise classes reported in Rutanen *et al.* (2014a, 2014b)
- dynamic effects on career – eg, losing out on promotion opportunities
- increased symptoms due to work
- women feeling they are treated negatively by colleagues and managers as a result of transition.

Chapter summary

- Calculations of the economic cost of the menopause transition for female labour force participation need to consider both **the extensive⁵⁴ and intensive⁵⁵ margins of the labour force.**
- **Some of these costs are easier to quantify** (eg, lost wages due to leaving work) than others (eg, lower self-esteem as a result of leaving work).
- **Some are direct costs** of menopause transition (eg, lost wages), whereas **others are indirect** (eg, women being treated differently at work).
- **Existing studies for the US estimate potentially large costs** associated with menopause transition - but these estimates are only relevant for small subgroups within the population of mid-life women.
- **Estimation methods are also likely to over-state the effects of menopause transition on these costs.**
- **Comparing male and female labour market participation in the UK suggests that, if any extensive margin costs exist, they are small.**
- **US studies which measure elements of the intensive margin costs of transition are not easily generalisable to the UK and have other methodological problems.** There are no UK-specific data for these costs.
- **The evidence base neglects some costs completely** – eg, the costs of women being late to work because of their transition symptoms.

⁵⁴ costs associated with leaving work or losing jobs.

⁵⁵ costs associated with staying in work and trying to cope.

6. Evidence gaps relating to the workplace and the labour market

This chapter outlines:

- the relatively small size of the evidence base for the effects of menopause transition on women's economic participation
- gaps in this evidence base
- the limited attention to economic participation in the wider evidence base around transition

Although a lot more attention has been paid to the connection between menopause transition and work since 2010 (see Appendix 2), **there are still evidence gaps**. We summarise these below.

- **Few longitudinal studies.** We found only 20 studies using a longitudinal approach, from a total of 67 empirical studies. The predominance of cross-sectional studies, which capturing data at a single point in time, means cause and effect relationships between menopause transition and economic participation are difficult to identify. Many cross-sectional studies also have fairly small and unrepresentative samples, which limits their generalisability to wider populations of women (Griffiths *et al.* 2006; Sarrel 2012).
- **Few studies using objective tests to measure transition symptoms.** The empirical studies in the evidence base overwhelmingly rely on self-report data - what women themselves say about their symptoms. These data can be unreliable, especially if they rely on recall (Griffiths *et al.* 2006). It can be difficult to tell, for example, whether women over-estimate or under-estimate the discomfort that menopause transition causes. As an illustration, most women in the UK do not self-report menopausal symptoms as bothersome in research studies, but 75% seek medical advice about managing them (Mishra and Kuh, 2012, cited in Griffiths and Hunter 2014⁵⁶, page 114). We could conclude that women under-report symptoms in research, but also to their managers because of the gendered

⁵⁶ This study has no connection to work and is not included in our evidence base. Other studies based on the same data set are included (Ballard *et al.* 2001; Mishra and Kuh 2006). Mishra and Kuh (2012) report longitudinal survey data from 695 women. 675 completed annual questionnaires between 1993 and 2000. All were born in the same week in 1946 and were selected randomly for participation on that basis. These data are robust due to the longitudinal element and the random sampling, so the findings apply to the wider UK population of women of the same age. However the sample is not as large as in other longitudinal studies.

ageism discussed in chapter 3. Objective tests of transition symptoms include polysomnography, which assesses sleep quality (de Araújo Moraes *et al.* 2012). Skin monitors can be used to measure hot flushes (Hunter and Rendall 2007). Urine tests detect hormone levels to identify a woman's reproductive stage. In the evidence base, only Park *et al.* (2008, 2011) used an objective symptom test for hot flushes and only Woods and Mitchell (2011) report results from urine tests⁵⁷.

- **Few studies using objective tests to measure work performance.** The same is true of the evidence for the effects of transition on performance at work. In the evidence base, only Park *et al.* (2008, 2011) and Weber *et al.* (2013) employed objective tests of cognitive performance. Only Rutanen *et al.* (2014a, 2014b) used objective tests of physical performance. No longitudinal studies objectively measure the relationship between work performance and symptom intensity during transition.
- **Is it always transition symptoms which cause work-related problems for women during mid-life?** Relationships identified in the evidence base between symptoms and workplace problems may actually be due to other things. Larsson and Hallman's (1997) Swedish study, for example, used secondary data from 1989-1993 on nurses' sickness absence. They found women who reported severe pre-menstrual symptoms in a 1982 survey took more time off work in mid-life than those who had previously reported mild or no symptoms. Sickness absence amongst the first group was also due to a wider variety of illnesses. It is tempting to assume Larsson and Hallman's findings suggest women with severe pre-menstrual symptoms have a more difficult time coping with menopause transition at work because of the role of hormones in both reproductive stages. But this study is small (n=54), and only a third of respondents had severe pre-menstrual symptoms. The researchers also used age as a measurement of menopausal status, which is not a reliable indicator⁵⁸. Further, the findings vary between age groups as well as between those with severe pre-menstrual symptoms and those without. As a result we can not tell whether the connection the authors imply exists, or whether other things are going on amongst this group of women.

⁵⁷ However, these objective tests are based on the medical-biological model of the menopause rather than the biopsychocultural approach. Relying on biological measures of hormone levels or symptoms alone ignores the psychocultural aspects of how women interpret their symptoms. We argue that severity of symptoms should also be based on a woman's own experience as well as any concerns she might have including embarrassment or health. A combination of objective tests and real-time self-report measures (eg, sending questions to respondents' smartphones on a regular basis) would therefore be most appropriate.

⁵⁸ Larsson and Hallman classify women aged 42-57 as being in the 'climacteric period', and sub-divide them into pre-menopausal (42-45), perimenopausal (46-48), menopausal (49-51) and post-menopausal (52-57).

- **No studies using scales which discuss their applicability to the context.** Several studies in the evidence base use existing scales with good psychometric properties, including the Menopause Rating Scale, the Greene Climacteric Scale, the Work Productivity and Activity Impairment Questionnaire and the Work Ability Index. But scale properties are not reported. This means we can not be totally sure these researchers are measuring what they claim to be measuring in the contexts where they carried out their studies (eg, Bolge *et al.* 2010; DiBonaventura *et al.* 2012; Geukes *et al.* 2012; Matsuzaki *et al.* 2014, 2016; Mishra and Kuh 2006; Rutanen *et al.* 2014a, 2014b).
- **Few studies of workplace interventions.** Studies exploring the effectiveness of workplace interventions in improving the experience of transition are very scarce (Jack *et al.* 2016). In the evidence base, only Ariyoshi (2008, 2009) and Rutanen *et al.* (2014a, 2014b) conducted such evaluations. These studies do not tell us how much these interventions cost.
- **No studies of variations in transition experience and economic participation.** There are no studies in the evidence base which track differences in the menopause transition experience and its relationship to economic participation between countries or cultures.
- **Very little research on other people's reactions.** The only evidence we located assessing how other people in the workplace actually react to women who are experiencing transition is a) a reference to a Healthtalk.org⁵⁹ study in Griffiths and Hunter (2014, page 116); and b) a study of line managers by Salazar and Paravic, in Chile, which suggests most women continue to perform well during this period of time (cited in Griffiths and Hunter 2014⁶⁰). Although we have discussed the evidence that women worry about others' reactions to their symptoms at work, in chapter 3 especially, this may in some cases be due to their perceptions of these reactions.
- **No research on difficulties in finding work or on wages.** We found no studies of how transition relates to these issues.
- **Few studies on transition as it relates to continued employment.** There is very little on the relationship between menopause transition and feeling unable to look for work, reducing working hours, women's careers, opting to leave work, redundancy and/ or being fired. We found only 6 studies of these issues (Paul 2003; Im and Meleis 2001; DiBonaventura *et al.* 2012; Daysal and Orsini 2014; Jack *et al.* 2014; NUT 2014a, 2014b).

⁵⁹ We were unable to track this down on the Healthtalk.org website.

⁶⁰ This is not part of our evidence base because it is written in Spanish. The Griffiths and Hunter (2014) chapter does not provide any more detail about this study.

- **No research comparing mid-life women to mid-life men.** No research directly compares workplace experiences for women in transition and men of the same age. We therefore can not establish whether all the experiences reported in the evidence base are unique to mid-life women.
- **Few studies on women in manual and/ or low-paid work.** We only located a handful of studies – Im and Meleis (2001) and Rutanen (2014a, 2014b) – which recruited women in such occupations. Giron *et al.* (2012) point to the physical demands of nursing as a profession, but other studies of nurses do not discuss this issue (Lee and Taylor 1996; Larsson and Hallman 1997; Matsuzaki, Uemura and Yasui 2014, 2016). Griffiths *et al.* (2010) underline the lack of evidence about menopausal women in manual and low-paid work.
- **Very little research on migraines, transition and work.** We found only one study in this category - Moloney *et al.* (2006).
- **Few studies reporting data from the UK.** Only 19% of the evidence base fell into this category.
- **Few studies acknowledging that transition might be positive.** The evidence base pays a lot of attention to the symptoms of transition and their problematic effects on work (Jack *et al.* 2016). This could perpetuate negative stereotypes about mid-life women and their economic participation. Only Ballard *et al.* (2001), Jack *et al.* (2014), Kafanelis *et al.* (2009), Morris and Symonds (2004), Putnam and Bochantin (2009), SIRC (2002) and Wroolie and Holcomb (2010) recognise the potentially positive effects of transition on women's careers.
- **No studies comprehensively quantifying the economic costs of menopause transition.** There are no studies counting the various costs of menopause transition as they relate to economic participation in the UK, and these costs are difficult to measure anyway. One challenge comes from difficulties in separating the effects of the menopause transition from other events in a woman's life. For example, the menopause transition usually happens during mid-life. The biopsychocultural model suggests we need to take account of changes mid-life might bring about which are distinct from those caused by transition. So we need to control for the influence that mid-life – amongst other things - has on economic participation when estimating the costs of transition. To do this accurately we need to compare a 'bothersome symptoms' group of mid-life women with a plausible control group⁶¹ who are not experiencing such symptoms. Ideally, these groups should be statistically comparable except for differences in the severity of their symptoms. This means we need an experimental design where we randomly

⁶¹ A control group in experimental research is compared to a group who have an experience which the control group do not. This allows researchers to evaluate the results of this experience.

assign women to each group. But the menopause transition — and whether it is bothersome — can not be randomly assigned. Therefore, we can not achieve the experimental ideal, so we can not be sure we have isolated the effects of bothersome symptoms on economic participation. Another challenge in counting the economic costs of transition is that many of the relevant factors, including transition itself, are not accounted for in the evidence base. We discuss the technical issues of measurement which arise in Appendix 4.

Neglect of economic participation in the wider literature

Overall, work is not a prominent focus in the wider literature on menopause transition. Some studies beyond those we have reviewed discuss work but only as a small element of the overall project. Examples follow.

- **Many studies capture work in a single question in a survey and/ or treat it as a variable describing respondents.** For example, in Lyndaker and Hulton's (2004) study of the relationship between age and perimenopausal symptom recognition, frequency and intensity, place of work is only captured as part of respondent demographics.
- Elsewhere **work is treated as something to exclude from analyses in case it has an impact on other cause and effect relationships.** For example, Seritan, Iosif, Park, DeatherageHand, Sweet and Gold *et al.* (2010) adjusted their analysis to see if employment status affected whether perimenopausal women with hot flushes and night sweats also experienced psychological transition symptoms.
- **Other studies** analyse elements of work to see how they affect aspects of transition, but **do not limit their focus to the relationship between the workplace and transition.** So Dennerstein, Leher, Dudley and Guthrie (2001) look at whether job satisfaction affects women's mood during transition, alongside a range of other factors including level of education, age and social support.
- In other examples, **the impact of symptoms on work are measured but using questions which collapse effects together.** Young, Rabago, Zgierska, Austin and Finn (2003) measured the negative effects of excessive daytime sleepiness on work. However the same question included personal relationships and recreation. Specific effects on work are not reported.

7. Conclusions

This report reviews 104 English language publications - the evidence base for the effects of menopause transition on women's economic participation in the UK from 1990 to the end of March 2016. The evidence identifies many negative effects of menopause transition on women's economic participation, mainly due to the symptoms they experience at this time of life. It is consistent in terms of the recommendations it makes to employers. The quality of evidence elsewhere is mixed for the most part, and significant gaps exist.

The implications of our review are as follows.

- **The numbers of older UK women in employment have been rising for a number of years.** As a result, **many more will now experience transition whilst in employment.**
- Since the physical and psychological symptoms of transition are potentially wide-ranging and women experience transition in different ways, **any workplace interventions to reduce its negative impact need to account for the full variety of possible difficulties.** Many of these interventions are low cost and easy for employers to implement. Others may be more expensive or more challenging, like flexible working patterns. However, these initiatives may only be necessary temporarily.
- Unlike pregnancy or maternity, **the menopause is not well understood or provided for in workplace cultures, policies and training.** Managers' and colleagues' attitudes to menopausal women – or simply women in mid-life – make a difference here. Their lack of knowledge, understanding and support indicate widespread gendered ageism in organisations. This creates challenges for working women in transition in addition to coping with their symptoms. Combined with the variations in experiences discussed above, this forms the basis for **a social responsibility case for greater organisational attention to transition**, in order to ensure mid-life women have the highest possible quality of working life.
- Relatedly, **gendered ageism** seems to be the cause of many of the problems which working women experience during transition. This requires changes in prevailing values, beliefs and norms in organisations. Organisational culture is the basis for everyday decisions about what kind of action is needed, where it should take place, who should undertake it and how it should be done. But if culture contradicts messages in equality and diversity training or policies around flexible work, environmental adjustments and absence then they will have little effect. **Cultural change programmes aimed at fostering open and supportive workplace environments around menopause transition are the foundation on which other, more tangible changes can be based.**

- **The Equality Act (2010) protects women against workplace discrimination on the basis of either their sex or their age.** Other pieces of legislation also place a general duty on employers around the health, safety and welfare of all their workers. On this basis, comprehensive workplace laws which take account of menopause transition are already in place in the UK. So **the legal case for organisational attention to the menopause transition is clear.**
- The costs of transition are potentially very significant for mid-life women, their employers and wider society. **Intensive margin costs** – those associated with women staying in employment and coping with their symptoms – **are likely to be much higher than extensive margin costs** – those associated with leaving work or losing jobs due to symptoms - **in the UK** given official statistics on employment rates by gender and age.
- **The most significant evidence gaps exist around the business or economic case for organisational attention to transition.**
- The most important gap as we see it is **the relative absence of studies which focus on the UK.** Most of our knowledge about the relationship between menopause transition and work derives from other countries. The biopsychocultural approach to the menopause argues that we should avoid generalisations about women’s experiences of transition, at work as elsewhere. More UK-specific data would bolster our understanding in this respect.
- One specific gap is **the absence of any estimates at all for the costs of transition in the UK for women’s economic participation.** This is important in continuing to develop the business case for organisational attention to menopause transition.
- However, **we should also beware of assuming that transition always carries costs.** Future research should allow for positive as well as negative representations of this time in a working woman’s life. Relatedly, **we know almost nothing about how others in organisations feel about and react to their mid-life female colleagues in transition.** Evidence of this kind is important in order to implement effective cultural change programmes in particular, where necessary.
- **The business case would also be reinforced by evidence comparing the experiences of working mid-life women in the UK to those of mid-life men,** in order to identify whether workplace interventions should be gender- or age-specific.
- Other important gaps include studies of workplace interventions. **We know very little about whether organisational initiatives succeed** in reducing negative effects on women’s quality of working life or their performance at work during menopause transition. There is no evidence from the UK. **We also do not know**

how much these initiatives cost. More data of this kind would help in continuing to develop the business case.

- **A very small amount of evidence exists on how transition affects those in manual or low-paid jobs.** Since more than half of the working women in the UK are employed in these occupations, understanding their mid-life experiences at work is another crucial element of the business and the social responsibility cases.
- There are also **few studies of the relationship between menopause transition and the wider UK labour market.** Data of this sort are useful for understanding the impact that transition might have on GDP, for example, or the welfare system. They would also allow a recognition of the potential productivity losses which organisations will incur if they do not make use of the full array of experience, skill and knowledge possessed by older female workers.

Appendix 1. Glossary

Biopsychocultural approach: an approach to the menopause which places it in the wider context of a woman's life. Emphasises that various factors, like her lifestyle and her attitude to ageing as well as other mid-life events, mean every woman experiences menopause differently. An alternative to the **medical-biological model**.

Bothersome: refers to the extent to which women experience **menopause transition** symptoms as problematic.

Capability procedure: used in organisations where an employee is identified as under-performing, to try and identify the cause. Can lead to someone losing their job.

Chronic Sleep Maintenance Insomnia with Night-time Awakenings (CINA): rare symptom of menopause transition where women wake very regularly at night.

Climacteric: broadly speaking, another way of describing **menopause transition**, but sometimes defined as incorporating the shorter **perimenopause**.

Control group: strictly speaking, a group in an **experiment** to whom the relevant intervention is not applied. Allows the researcher to see whether the intervention affects the experimental group. More generally, used as a comparison to a group who have a specific experience which the control group do not share (eg, bothersome transition symptoms), to assess the effect of this experience.

Convenience sample: when people are chosen to take part in research because they are closest to the researcher and so easiest to access. A fast and efficient sampling method but does not produce **representative** findings.

Cross-sectional: data gathered at one point in time, or a study using this approach.

Direct cost: an economic cost which can be identified as a direct result of something else, such as menopause transition symptoms.

Domino effect: where one **menopause transition** symptom (eg, hot flushes) leads to another (eg, fatigue).

Empirical: refers to studies based on data about people.

Experiment: where researchers create an artificial environment to be able to isolate two factors and see whether one causes the other.

Extensive margin of the labour force: refers to the costs of people leaving or losing their jobs. Borne by the worker themselves, their partner and family, their employer and wider society.

Focus groups: a method of gathering **primary data**, involving a group discussion with a facilitator.

Gendered ageism: in this context, how sexism and negative attitudes towards older people combine to produce specific problems for older women.

Generalisation: where **empirical** findings from a sample of people can be assumed to refer to the wider population from which the sample was recruited.

Grey literature: published outside standard academic and/ or commercial channels.

Healthy worker effect: refers to the fact that people in employment are likely to be healthier than those who are not. Might affect accuracy of studies of the health of employed people.

Indirect cost: an economic cost where the cause is difficult to identify, and/ or where there may be more than one cause.

Intensive margin of the labour force: refers to the costs of people staying in their jobs whilst experiencing a form of impairment which affects their performance. Borne by the worker themselves, their partner and family, their employer and wider society.

Longitudinal: data gathered from the same group of people over time, or a study using this approach.

Medical-biological model: understands experience of menopause as the result of reducing hormone levels only.

Menopause: the time in a woman's life when her periods stop permanently, so she can no longer have children.

Menopause transition: the time leading up to the menopause when symptoms occur, especially irregular and/ or heavier periods.

Mixed methods: where a study uses more than one method to gather data, usually because the researcher wants to confirm findings.

Objective test: in this context, can be used to measure transition symptoms, hormone levels or work performance. Uses equipment designed to capture these accurately and avoids problems with **self-report** data.

Perimenopause: broadly speaking, another way of describing **menopause transition**.

Post-menopause: the time after a woman's periods stop for good, marking the end of her reproductive life.

Premature menopause: when menopause occurs before a woman reaches 40.

Presenteeism: turning up to work even when you are not well enough, because of worries about consequences of taking time off sick.

Primary data: data which a researcher collects themselves.

Psychometric properties: describes a scale or questionnaire. Good psychometric properties means it measures something accurately and consistently over time, as well as capturing any changes.

Qualitative: data expressed in words, gathered using open questions with no fixed set of answers, allowing respondents to speak in their own words or studies using this kind of data.

Quality-Adjusted Life Year (QALY): term in health economics referring to one completely healthy year of life.

Quantitative: numerical data collected through closed questions with fixed responses or produced by counting the number of times certain themes appear in **qualitative** data or studies using this kind of data.

Quasi-experiment: a study which mimics an **experiment** but where the researcher can not assign people to experimental and **control groups** randomly.

Reasonable workplace adjustment: in UK workplace legislation, this means employers are legally bound to give the same access to all workers to everything they need to do their job properly and to keep it. Reasonable adjustments may be required for some groups - eg, women experiencing menopause transition.

Representative: where data are collected from a group of people/ sample who represent a wider population. Allows **generalisation**.

Reproductive stage: refers to the different stages of a woman's reproductive life, from her first period onwards.

Response rate: the number of people who participated in a survey, calculated as a percentage of everyone who was invited to take part.

Scale properties: a questionnaire or a scale may have good **psychometric properties** in the context where it was developed, but good scale properties mean it can be used anywhere and will be accurate and consistent.

Secondary data: data which have already been collected and are then used again by another researcher.

Self-report: an approach to collecting data where people are asked questions about their behaviour, feelings, experiences etc.

Shared annual leave bank: a workplace system where employees can save leave up to take in future years, have salary deducted for leave taken over their allowance, receive additional salary where leave is not used or donate unused annual leave to a pool which others can access.

Sleep apnoea: a condition where breathing either pauses or becomes shallower for short periods of time whilst someone is asleep. Causes regular waking at night.

Statistical significance: a calculation which means a researcher can be sure that the difference or change they have identified in their quantitative data exists.

Vasomotor: shorthand term for hot flushes and night sweats.

Appendix 2. Details of the evidence base

Grouped by period of publication, 64% of the evidence was published between 2010 and the present day, compared to 4% between 1990 and 1994. We believe this significantly increased volume is a result of growing concerns around the ageing female workforce worldwide.

Grouped by type, 64% of the evidence consists of empirical studies. The next largest category is guidance for mid-life women, managers, employers and/ or union representatives in the grey literature, at 16% of the total. Systematic reviews, drawing together previous studies on a specific topic, are at 15%.

Grouping the empirical studies by data source, 74% are based on primary data collected by the authors (eg, using questionnaires, interviews or focus groups). Studies using secondary data represent 22%.

Grouping the empirical evidence by data type, quantitative studies represent 60% of this category. Qualitative studies represent 22%.

Grouping the empirical evidence by study design, cross-sectional studies are much more common, at 70%. Longitudinal studies represent 29% of this category.

Grouping the empirical studies by country of origin, the largest category is data from English-speaking countries which are culturally similar to the UK - the US and Australia - at 39%. The next largest category is studies using data from non-English speaking countries outside of Europe, at 22%. UK studies represent 19% of this category.

Table 4 details publications identified as above the quality threshold by type and approach taken. We determined quality by the strength of the approach used, whether it was suitable for the intended audience and the publication's relevance to the project parameters. Table 5 details publications below this quality threshold, which are included in the report but given less weight.

Table 4: Publications identified as above quality threshold

Author/s and date	Type	Approach taken	Strengths and weaknesses
Altmann (2015)	Grey literature, report for the Department of Work and Pensions	Conversations and meetings with stakeholders	Little discussion of methods, but appropriate for wide audience. Some of data reported are not representative.
Ariyoshi (2008)	Journal article	Outlines intervention in Japanese company around reproductive health. Qualitative interviews with OH nurses and symptomatic women workers, employee survey, reports from in-house OH nurses.	Strong mixed methods study of workplace intervention. No details of survey sample or design and symptoms self-reported.
Ariyoshi (2009)	Journal article	Same data set as above, evaluates intervention.	See above.
Atkinson <i>et al.</i> (2015)	Journal article	Detailed narrative of one UK woman's career history and aspirations. Aged 51, HR director.	Only one narrative presented, but in section of journal which publishes first person accounts of work. Very personal account. Fairly short passage on transition.

Ballard <i>et al.</i> (2001)	Journal article	Qualitative data from longitudinal UK survey, 1,019 female respondents, aged 47 to 50, from various social classes. Data from 1993 to 1996.	Survey generated fairly rich information. Detailed discussion of methods. Data not representative.
Bochantin (2014)	Journal article	Qualitative data from online discussion board, 1,325 posts from 18 women between mid-January 2007 and mid-June 2007	Research focuses on online support for menopausal women so use of discussion board appropriate. Might well have captured uncensored feelings and experiences because the posts are anonymous, as well as posters probably being fairly diverse. Ethics of 'lurking' – ie, the researcher not disclosing their analysis of posts to board users - not discussed.
BOHRF (2010)	Grey literature, guidance for managers based on Griffiths <i>et al.</i> (2010) survey	Cross-sectional qualitative interviews and quantitative survey with UK women in the UK. No sample size given for interviews, 900 plus for questionnaire.	Very little methodological detail but appropriate for audience. Women work in management and administrative roles in various sectors, so data do not cover full occupational range.

Bolge <i>et al.</i> (2010)	Journal article	Analyses sub-set of quantitative secondary data from annual US survey (US National Health and Wellness Survey), 1,446 women respondents. 141 with CINA, 1,305 without. All had menopausal symptoms.	Uses existing scales and original sample represents US population. Self-report data and cross-sectional design. Does not report CINA over time, and CINA rare anyway. Online survey so respondents needed access to the Internet.
Burton <i>et al.</i> (2004)	Journal article	Quantitative data from cross-sectional survey at US financial services organisation. 16,651 respondents, 76% women. 1,340 had sought medical advice for symptoms.	Large sample size from workplace where women are in the majority. Used existing scales. Self-report data. If percentages reported refer to whole sample then work limitation would be higher amongst women only sample. Only captures women who have seen doctors – so those in most distress?
Business in the Community (2016)	Grey literature, toolkit for managers	Recommendations for managers of women in transition	Clear set of guidelines for managers, emphasises legal protection for women in transition and recent tribunal cases. No methodological detail provided or specific evidence cited, but appropriate for audience.

Business in the Community	Grey literature, resource for managers	Summary of Marks and Spencer's employee well-being initiative	Produced as part of the Business in the Community Workwell scheme which emphasises "the benefits of taking a strategic, proactive approach to wellness and engagement and provides practical support to help businesses take action". No methodological detail provided, but appropriate for audience.
Cau-Bareille (2011)	Journal article	Qualitative data from 'some' preliminary interviews, 8 formal interviews, 4 workshops with 30 plus women present at most. Looks at French kindergarten teachers in their 50s.	Difficult to ascertain sample size and study not focused on menopause - seemed to emerge as by-product of discussions. But provides qualitative data from female-dominated occupation and under-studied national setting.
Cumming <i>et al.</i> (2011)	Journal article	Quantitative data from cross-sectional survey, 1,100 female respondents	Aimed to collect international data but very few replies from outside the UK. Financial support from pharmaceutical companies for website where survey was hosted - potential conflict of interest. Good response rate for self-selection sample, but not representative.

Daysal and Orsini (2014)	Discussion paper	Quantitative, longitudinal, secondary Medical Expenditure Panel Survey data. 21,732 US female respondents.	Accounts for complex relationship between HRT use and employment status. Very large sample, identifies cause and effect relationships. Does not examine effects for women who discontinue HRT but stay at work or symptom increase due to discontinuing HRT. Women who continued HRT may have had worse symptoms. Those who had never used HRT may have had less severe symptoms.
De Araújo Moraes <i>et al.</i> (2011)	Journal article	Systematic review of 61 previous studies	Detailed account of methodology for systematic review, only omission is time period covered
DiBonaventura <i>et al.</i> (2012)	Journal article	Quantitative secondary data from annual cross-sectional online survey using representative sample of US adults. Data from 3,632 women (40 to 64).	High quality existing scales used in survey, and original sample large and representative. Self-report data and cross-sectional design though. Cost estimates may therefore be inaccurate. Sponsored by Pfizer, and two of the authors work for Pfizer.
Duijits <i>et al.</i> (2014)	Journal article	Systematic review of 30 previous studies, covering January 2000 to March 2013	Detailed account of methodology used

DWP (2015)	Grey literature, official statistics	Employment levels for women and men aged over 50 between 1984 and 2015	Data from Labour Force Survey, very large sample and representative findings
Fenton and Panay (2013)	Journal article	Editorial, reviews 6 studies	Reviews studies attempting to quantify the costs of menopausal symptoms. Suits function and audience.
Fenton and Panay (2014)	Journal article	Editorial, reviews 5 studies	Reviews studies of effects of menopause at work. Suits function and audience.
Fisher (1994)	Professional association magazine article	Discusses workplace intervention in US hospital	Aimed at HR professionals and workplace counsellors, so appropriate for audience.
Gartoulla <i>et al.</i> (2016)	Journal article	Quantitative data from cross-sectional Australian survey, 1,263 female respondents aged 40 to 65	Sample recruited from national electoral roll and average response rate (34.5%). High quality existing scales used. Cross-sectional and self-report data though.
Goldman (2010)	Grey literature, article on the Occupational Health and Well-being section of the Personnel Today website	Draws on four other sources and one quotation to provide advice for women and their employers	Short, but provides references for its claims. Appropriate for audience.

Government Equalities Office	Grey literature, resource for managers	Case study for Think, Act, Report campaign on gender equality at work, discusses Marks and Spencer	No discussion of methodology or evidence used but appropriate for audience and gives a detailed summary
Griffiths <i>et al.</i> (2006)	Grey literature, report for British Association of Women Police Officers	Quantitative data from cross-sectional English survey. 941 female police officer respondents from seven forces, aged 40 plus	Detailed account of survey development. Higher than average response rate (42%). Occupation male-dominated. No discussion of how data were analysed.
Griffiths <i>et al.</i> (2010)	Grey literature, reports research for BOHRF	Qualitative data from 61 interviews and quantitative data from 912 questionnaires – the latter across 10 organisations. UK female respondents aged 45 to 55. Cross-sectional design.	Detailed discussion of methods, large sample for interviews, fair size for questionnaire. Sample includes perimenopausal women. Recruited at work, not through clinics which would have over-included women with bothersome symptoms. Survey used reliable measure of menopausal status. Self-report data and cross-sectional design though. Only women in professional, managerial and administrative occupations included.
Griffiths <i>et al.</i> (2013)	Journal article	Quantitative data from the same cross-sectional UK survey as Griffiths <i>et al.</i> (2010). 896 female respondents. Slightly revised following peer review.	See above

Griffiths <i>et al.</i> (2016)	Journal article	Systematic review of 22 previous studies	No discussion of methodology used and small number of studies reviewed/ But appropriate for its purpose - to summarise recommendations from the European Menopause and Andropause Society (EMAS) on workplace conditions for menopausal women.
Griffiths and Hunter (2014)	Grey literature, chapter in Annual Report of the Chief Medical Officer	Systematic review of 64 previous studies	No discussion of method used for systematic review, but appropriate for audience - various stakeholders in UK public health.
Healthtalk.org	Grey literature, online information resource for employers especially	Presents video recordings of interviews with 10 women	No discussion of method, but appropriate for audience. Interviews and short biographies provide good sense of participants' experiences.
Hunter and Rendall (2007)	Journal article	Systematic review of 83 previous studies	No discussion of methodology used for systematic review, but covers large number of studies
Im and Meleis (2001)	Journal article	Quantitative survey data from 119 Korean migrant women in low-status and low-paid jobs in the US, and qualitative data from interviews with 21 of these women	Convenience sample so not representative. Cross-sectional and self-report design. Interesting focus on women in these more physically demanding jobs though and qualitative data are detailed.

IMS	Grey literature	Lists menopause-related definitions approved by IMS Board	Useful list of definitions which has been in place since 1999
Irni (2009)	Journal article	Qualitative data from cross-sectional Finnish interviews with men and women workers aged 56 to 64. Also HR managers and shop stewards. 17 in total.	Interviews across 3 organisations, capturing different work conditions. Appropriate use of data from non-representative sample. Methodology section rather descriptive. Does not discuss research ethics or its non-generalisable data.
Jack <i>et al.</i> (2014)	Research report	Quantitative data from survey and qualitative data from interviews in 3 universities. 839 women (aged 40 to 75) completed survey. 48 women (aged 25 plus) interviewed. All work at 3 Australian universities in a variety of roles.	Emphasises that menopause only one event in complex combination of changes and responsibilities for mid-life women; difficult to tell if all symptoms were menopause-related. 33% of interviewees were perimenopausal but only 25% of the survey respondents. Younger interviewees anticipating menopause due to age. Not clear whether samples are representative and response rate for survey not recorded. Overall though mixed methods are a strength, as are qualitative insights. Good, clear recommendations for key stakeholders within and outside these organisations.

Jack <i>et al.</i> (2016)	Journal article	Systematic review of 75 previous studies (1974 to 2015)	Detailed account of methodology used for systematic review
Javaid (2012)	Grey literature, article in professional association magazine	Summary of first successful UK employment tribunal case brought under the Equality Act (2010) alleging unfair dismissal and sex discrimination based on menopause transition	Succinct and clear on the facts of the case, the judgement and the implications for employers. A useful resource for HR professionals.
Kittell <i>et al.</i> (1998)	Journal article	Qualitative data from 61 interviews with US women aged 41 to 54, who had self-reported changes in their periods	Methodology captures women's individual perspectives. Clearly outlined and defended, including discussion of research ethics and data analysis. Large sample for qualitative study. Self-report and cross-sectional however.
Kleinman <i>et al.</i> (2013)	Journal article	Analyses quantitative secondary data covering the period from 2001-2010. 34,644 US women, 50% with diagnosed symptoms, 50% without.	Some women could have been diagnosed earlier. Women in control group may have undiagnosed symptoms. But very large sample, longitudinal design and use of control group.

Kronenberg (1990)	Journal article	Systematic review of 113 previous studies and analysis of quantitative data from cross-sectional US survey. 501 female respondents aged 29 to 82.	No discussion of methodology used for systematic review, but large number of studies included. Methodology section rather descriptive. Survey noted as exploratory, good response rate (42%). Clear recommendations for future research.
Marks and Spencer (2011)	Grey literature, annual report	Section entitled 'Our people', discusses issues including rewards and benefits which refers to their well-being initiative	Appropriate for its purpose and audience
Matthews (2015)	Grey literature, news article on Personnel Today website, aimed at employers	Reviews previous studies and reports quotations from relevant stakeholders	No discussion of method used, but appropriate for audience.
Menopause UK	Grey literature, online information resource	Quantitative data about the menopause in the UK and the NHS	'Infographics', no discussion of method used but aimed at NHS staff to help them get menopause on the agenda in their workplaces

Mishra and Kuh (2006)	Journal article	Draws on same original data set as Ballard <i>et al.</i> 1,525 UK female respondents aged 48 to 54, covers 1993 to 2000.	Large, representative sample, includes women from all menopause transition categories. High response rate and longitudinal data covering range of issues. Some women perhaps more aware of changes and so report greater impact on quality of life. Does not report on women in very early perimenopause or women who attain menopause late.
Moloney <i>et al.</i> (2006)	Journal article	Qualitative interviews, focus groups, survey, 6 month diaries and online discussion boards. 53 US women aged 40 to 55 participated across two studies.	Focus neither on menopause nor employment, but fair amount of qualitative evidence about how migraines suffered by menopausal women affect ability to work and performance. Mixed methods plus longitudinal element of first study both strengths.
Morris and Symonds (2004)	Journal article	Qualitative data from 11 interviews with employed women in the UK, in a variety of jobs across several sectors	Reasonably detailed discussion of methodology. Sample fairly similar to each other. Authors say this is a strength in part as differences emerge more clearly. Findings not representative. Research ethics not discussed.

NASUWT	Grey literature, leaflet for members	Based on data from Paul (2003)	Provides information about health, safety and welfare issues at work regarding women experiencing menopause. Establishes legal duties for employers.
North Lincolnshire Council (2013)	Grey literature, guidance for managers	Outlines reasonable adjustments regarding Equality Act, one section deals with menopause	Useful for its discussion of women's needs during menopause and reasonable adjustments that may follow. 25% of their employees are mid-life women.
NUT (2014a)	Grey literature, guidance for members	Quantitative and qualitative data from survey of 3,000 plus female members aged 45 to 60	Large sample for a survey, although perhaps small relative to membership. Clear advice for women as to what to expect from employers. No details of methodology but appropriate for audience. Notes teaching a female-dominated profession.
NUT (2014b)	Grey literature, internal report	Full details of survey findings. Sample size recorded as 3,079.	Very little methodological detail, but large sample and very relevant to this review. Mixed data a strength.
ONS (2013a)	Grey literature, official statistics	2011 Census data for England and Wales	Data from 2011 Census, very large sample and representative findings
ONS (2013b)	Grey literature, official statistics	Women's 2013 participation rates for UK labour market	Data from Labour Force Survey and Annual Population Survey, very large samples and representative findings

ONS (2015)	Grey literature, official statistics	2014 participation rates for UK labour market	See above
ONS (2016)	Grey literature, official statistics	UK labour market statistics for January to March 2016	Data from Labour Force Survey, very large sample and representative findings
ONS (2017)	Grey literature, official statistics	UK labour market statistics for January to March 2017	See above
Park <i>et al.</i> (2008)	Journal paper	Quantitative data from real task undertaken in controlled environment, objective tests and interviews. 12 female Japanese participants.	Very small sample. Difficult to wholly trust conclusions regarding variable women's responses to the task. Experiment may not represent real workplaces. Key strengths though in use of physiological measures of stress and hot flushes, and real task.
Park <i>et al.</i> (2011)	Journal paper	Same approach as above, 24 female Japanese participants.	See above
Paul (2003)	Grey literature, reports on research commissioned by the TUC, information for members and employers	Quantitative data from cross-sectional UK survey of 500 TUC safety representatives	Very widely cited and drawn upon, despite being 13 years old. Little methodological detail but appropriate for audience. Difficult to summarise accurately though and representatives are reporting female members' experience, so limited on this basis.

Pines (2013)	Grey literature, e-letter update for IMS members	Commentary on 5 recent academic papers	No discussion of method used to identify studies reviewed, but appropriate for audience
PCS	Grey literature, online information resource	Offers advice for women and recommendations for employers	Plain English helpful given audience. Recommendations for employers draw on Paul (2003) survey, so data rather old.
Putnam and Bochantin (2009)	Journal article	Qualitative data from online discussion board, 85 posts from 21 women between mid-January 2006 and mid-April 2007. Same board as used in Bochantin (2014).	As with Bochantin, use of online discussion board appropriate for aims of study. Also might well have captured uncensored feelings, experiences and advice given posts are anonymous. Posters probably fairly diverse. Not much methodological detail however and ethics of 'lurking' again not discussed.
Reynolds (1997)	Journal article	Mainly qualitative data from cross-sectional survey, 56 UK female respondents aged 39 to 65	Did not recruit via GPs so avoided over-including women with bothersome symptoms. Used open-ended questions in survey to achieve larger sample than interviews. Anonymity may have helped too. Lack of generalisable findings not discussed.

Reynolds (1999)	Journal article	Quantitative and qualitative data from cross-sectional survey, follow-up on sample used above. 29 respondents, all in employment.	Small, self-selected sample, which over-recruited women in high status jobs; but also has the strength of mixed data.
Rutanen <i>et al.</i> (2014a)	Journal article	Quantitative data from Finnish survey, diaries and physical tests of women aged 44 to 52 undertaking 4 aerobic exercise sessions per week for 6 months and attending lectures on physical activity and health. 123 participants, 60 in control group. All had hot flushes.	Strong mixed methods and longitudinal study which investigates effect of exercise intervention on work. Used high quality existing scale in survey. Representative sample claimed but self-selected so unlikely. Respondents knew other members of their groups. Only women with symptoms took part. Most have mentally demanding jobs so there may have been more positive effects among women with physically challenging jobs. But this would imply physical fitness is not important for mentally demanding work.
Rutanen <i>et al.</i> (2014b)	Journal article	Same data set as above, excluding diaries. Includes findings from follow-up survey two years later. 89 participants, 44 in control group.	Again, strong mixed methods study done over 2.5 year period. Similar pros and cons, but also some women would have been post-menopausal at follow-up.

Sarrel (2012)	Journal article	Editorial, reviews 23 studies	Editorial for issue containing Geukes <i>et al.</i> article, reviews evidence about women, work and the menopause. Appropriate for function and audience.
Sarrel <i>et al.</i> (2015)	Journal article	Analyses quantitative US secondary database, longitudinal design covering 1999 to 2011. Data from 504,546 female respondents, 50% with diagnosed hot flushes and night sweats and 50% without.	Some women in control group may have had undiagnosed symptoms. Information like symptom severity not in database. Large sample may mean differences seem more significant than they are. Cost estimates might therefore be inaccurate. But use of control group and longitudinal design both key strengths.
SIRC (2002)	Grey literature, report on research for HRT Aware	Qualitative and quantitative findings from focus groups, interviews and national survey with UK women. 200 survey respondents aged 50 to 64.	Few methodological details, but appropriate for audience (we assume the general public) and offers unusual positive account of menopause
TUC (2013)	Grey literature, guidance for representatives	Draws on data from BOHRF (2010) and Paul (2003)	Clear summary and recommendations and outlines employers' legal duties. Useful summary of rather confusing detail in Paul.

TUC (2014)	Grey literature, report aimed at trade union members, employers and government	Series of cross-sectional surveys and focus groups in UK	Mixed methods, one survey had 5,000 plus respondents. Little methodological detail but appropriate given audience.
UNISON (2011)	Grey literature, guide for safety representatives	Draws on data from BOHRF (2010) and Paul (2003)	Short, factual leaflet outlining employers' legal duties. Appropriate for audience.
Utian (2005)	Journal article	Systematic review of 54 previous studies	No discussion of methodology used for systematic review but reasonable number of studies included
Warren (2012)	Journal article	Editorial, reviews 12 studies	Editorial for issue of journal containing article on loss of physical function post-menopause, reviews relevant evidence. Appropriate for function and audience.
Weber <i>et al.</i> (2013)	Journal article	Quantitative data from cross-sectional survey and objective cognition tests. 117 US women respondents aged 40 to 60. Data from longitudinal study.	Small sample of educated and high-functioning women, findings not generalisable. No comparisons between sample and women in other reproductive stages. Relies on recall to some extent, but objective cognition tests are a key strength.
XpertHR (1999)	Grey literature, online information resource for HR professionals	Summary of unsuccessful UK employment tribunal case alleging sex discrimination based on menopause transition	Succinct and clear on the facts of the case and the judgement. A useful resource for HR professionals, although implications could have been spelt out more explicitly.

Table 5: Publications identified as below quality threshold

Author/s and date	Type	Approach taken	Strengths and weaknesses
Chou <i>et al.</i> (2014)	Journal article	Quantitative data from cross-sectional survey, 442 Chinese women respondents aged 40 to 60. 28% perimenopausal	Scale measuring menopause status did not detect women with lower quality of life – although widely used elsewhere (Menopause Rating Scale). Also recruited via clinic so possibly over-sampled women with bothersome symptoms. 70% plus in paid employment, but not possible to tell whether work also affected quality of life. Self-report data also.
Diamond (2007)	Journal article	Systematic review of 104 previous studies	No discussion of methodology used for systematic review. Nothing specifically connecting menopause transition, migraines and work: suggestive only.
Engage for Success	Grey literature	Summary of Marks and Spencer’s employee well-being initiative, produced as part of the activities of Engage for Success’s well-being sub-group	Lacks detail, very broad overview only. Also does not discuss aspect of Marks and Spencer initiative which focused on the menopause.

Geukes <i>et al.</i> (2012)	Journal article	Analyses quantitative data from cross-sectional survey, 208 Dutch women respondents, hospital and care workers aged 44 to 60	Cross-sectional design and lower than average response rate (24%). Sample not representative. Data suggest only casual association between symptoms and ability to work, despite use of high quality scales (Greene Climacteric Scale and Work Ability Index).
Giron <i>et al.</i> (2012)	Journal article	Qualitative data from interviews with 9 nurses in Brazil aged 35 to 65	Small sample even for a qualitative study, little attention to employment and methodology very descriptive. Under-studied context though, and focuses on profession dominated by women.
Goonaratna <i>et al.</i> (1999)	Journal article	Quantitative interviews with 403 Sri Lankan women	Transition itself not addressed. All respondents are post-menopausal so recall may be an issue. Very weakly asserts that perimenopausal symptoms may interfere with employment.
Hammam <i>et al.</i> (2012)	Journal article	Mainly quantitative data from cross-sectional survey of 131 female Egyptian teaching staff in medical school, aged 45 to 60 plus	Small sample for survey. Mentions semi-structured interviews but not clear how many or their role. Data not generalisable and also self-report. No mention of the potential effects of medical training. Under-studied context though.

High and Marcellino (1994)	Journal article	Quantitative data from cross-sectional survey, 89 US women respondents	Seems to be a convenience sample, but covers women working in range of sectors. Mainly middle-class though and sample is small. Some measures unclear – eg, of poor job performance. Scale unclear – did 1 equal no symptoms or mild symptoms? Recall likely to be an issue as all were post-menopausal. Early study which may account for it being very widely cited.
Hsu <i>et al.</i> (2009)	Journal article	Qualitative data from interviews with 21 women in Taiwan aged 45 to 60	Relevance of findings is questionable as not much discussion of work. Impact of sleep disturbances on work is discussed, but not in detail.
Jyrkinen (2014)	Journal article	Qualitative data from 15 interviews with Finnish women in senior workplace roles	Author acknowledges being same gender and age as respondents may have created focus on negative aspects of age(ing) and gender. Small sample, not generalisable. Lacks detailed attention to menopause.
Kafanelis <i>et al.</i> (2009)	Journal article	Qualitative data from 30 interviews with Australian women aged 43 to 61. Longitudinal design.	Lack of diversity in sample and differences not explored in detail. Low proportion (30%) of employed women in sample.

Kopenhager and Guidozi (2015)	Journal article	Systematic review of 17 previous studies	Discusses platforms and search terms used. Everything relevant included, so no quality criteria applied. Very small number of studies reviewed.
Larsson and Hallman (1997)	Journal article	Analyses Swedish quantitative secondary data from 1989-1993 on sickness absence. Records for 54 nurses aged 42 to 57 were used. All had taken part in a previous survey on PMS.	Findings not generalisable. Small sample, and only 18 women had severe pre-menstrual symptoms. Menopausal stage defined by age, so not reliable.
Lee and Taylor (1996)	Journal article	Quantitative data from cross-sectional survey in the US, 266 female nurses aged between 40 and 60. Sub-sample of wider sample based on age.	Age used as proxy for menopausal status. Results for HRT difficult to interpret. May not suggest it is ineffective for those taking it, as authors conclude. Small sample, not representative.

Lin <i>et al.</i> (2011)	Journal article	Quantitative data from cross-sectional survey in Taiwan of care-givers for women with intellectual disabilities. 1,152 respondents. Nearly 90% female.	No data gathered from women with intellectual disabilities themselves. Sample of registered 'welfare institutions' not generalisable. Low response rate from institutions – 16%. Survey very simple, yes/ no answers only, and cross-sectional design.
Moloney and Johnson (2011)	Journal article	Systematic review of 55 previous studies	No discussion of methodology used for systematic review. Nothing specifically connecting menopause transition, migraines and work: suggestive only.
Matsuzaki <i>et al.</i> (2014)	Journal article	Quantitative data from cross-sectional survey in Japan, 1,169 female nurses responded, aged 45 to 60	Cross-sectional design. No differentiation between women working in different departments and sample not generalisable. Little attention to relationship between job-related stress and menopausal stages or symptoms. Results not discussed in detail.
Matsuzaki <i>et al.</i> (2016)	Journal article	Same survey as above, but also reports data gathered from additional group of "general workers" of same age. 1,179 respondents.	Similar weaknesses. Too many things unaccounted for - eg, we can not determine whether someone does not use a coping strategy because of lack of knowledge or absence of menopause transition symptoms.

Memon <i>et al.</i> (2014)	Journal article	Quantitative and qualitative data from cross-sectional survey in Pakistan, 200 female respondents, all teaching staff at various institutions. Aged between 40 and 59.	Findings said to be useful as they identify differences between teaching professionals. 30% reported negative impact on work of symptoms but not clear whether current or anticipated as some were pre-menopausal. Ethnic differences are suggested but no direct comparison made. Small sample and self-report data.
Pinas <i>et al.</i> (2010)	Conference paper abstract	Quantitative data from longitudinal intervention study using mixed methods, 300 Dutch female participants	Conference paper abstract so detailed methodology not available. No subsequent publication located. Large sample, longitudinal design and mixed methods (medical records and questionnaire response) are strengths, but no control group mentioned.
Simon and Reape (2009)	Journal article	Quantitative data from cross-sectional survey, 961 US female respondents aged 36 and over	Self-report data and limited generalisability (recruitment from single professional association). Small self-selected sample relative to membership of 40,000 women, and non-representative. Says little about workplace experience and no use of reproductive stages in analysis.

Taechakraichana <i>et al.</i> (1997)	Journal article	Quantitative data from cross-sectional survey, 290 Thai women responded, all 'paramedical' workers at one hospital. Aged 49 to 59.	Does not discuss sampling method. Small sample, all working in same place and unusual categorisation of symptoms in the survey instrument (eg, dizziness classified as psychological). Reports only basic descriptive statistics.
Wagner <i>et al.</i> (2011a)	Conference poster and summary	Analyses quantitative secondary data from annual national US survey (2005). Sub-sample of 8,578 women aged 40 to 64.	Conference poster and summary so detailed methodology not available. Subsequent publication located (DiBonaventura <i>et al.</i> 2012). Uses data from national population survey – large, representative sample and includes high quality existing scales. But inclusion is by age not menopause status and only hot flushes are measured. Also cross-sectional design and self-report data. Sponsored by Pfizer, and two of the authors work for Pfizer.
Wagner <i>et al.</i> (2011b)	Conference poster and summary	Quantitative data from sub-sample of 3,632 women from the same survey as above. Divided into those reporting depression (1,165) in previous year and those not (2,467).	Same strengths and weaknesses as above, and sub-sample is smaller

Warshaw <i>et al.</i> (1999)	Journal article	Systematic review of 52 previous studies	No discussion of methodology used for systematic review. Nothing specifically connecting menopause transition, migraines and work: suggestive only.
Wollersheim (1993)	Journal article	Systematic review of 27 previous studies	No discussion of methodology used for systematic review. Suggests no evidence of association between menopause and depression.
Woods and Mitchell (2011)	Journal article	Analyses secondary data from a sub-set of longitudinal Seattle Midlife Women's Health Study data. 184 respondents. Mixed methods including health diaries, health questionnaires, urine specimens and menstrual calendars.	Small, non-representative sample, identifies correlations between variables as opposed to causal relationships. Longitudinal design and mixed methods are strengths but other aspects of design mean it is not clear what is being measured: eg, a diary question which asked "How much did the way you felt today interfere with work or school?" (page 656), followed by a 0-6 scale.
Wright (2005)	Journal article	Systematic review of 8 previous studies and discussion of workplace counselling case	No discussion of methodology used for systematic review. Very small number of studies reviewed.

Wroolie and Holcomb (2010)	Book chapter	Systematic review of 112 previous studies	No discussion of methodology used for systematic review. Large number of studies reviewed but of background relevance only.
Xu and others (2012)	Journal article	Analyses quantitative data from cross-sectional survey, 623 US female respondents (40 to 65). Data taken from one stage of longitudinal study.	Findings do not account for medication or depression, and both associated with sleep disturbances and HF. Cross-sectional data relying on self-report data. Findings establish only tenuous link between HF, sleep disturbances and effect on work.

Appendix 3. Symptoms of menopause transition

Table 6 below summarises the various symptoms reported in the evidence base. We have compiled this table as follows. First, one very commonly used scale in academic research on the menopause transition is the Greene Climacteric Scale, or GCS. This has good psychometric properties. We reproduce its list of symptoms because of this, although the scale is not as widely used in the evidence base reviewed here (see Geukes *et al.* 2012; Matsuzaki *et al.* 2014, 2016; Pinas *et al.* 2010).

Second, we include the list of symptoms from the Menopause Rating Scale, or MRS, for the same reasons (see Chou *et al.* 2014; also Hunter and Rendall 2007).

Third, we include symptoms reported in other studies in the evidence base to provide as comprehensive a list as possible. These are listed according to the frequency with which they are discussed, and are reported in Burton *et al.* (2004); Chou *et al.* (2014); de Araújo Moraes *et al.* (2012); DiBonaventura *et al.* (2012); Griffiths *et al.* (2006); Griffiths and Hunter (2014); Healthtalk.org; High and Marcellino (1994); Hunter and Rendall (2007); Jack *et al.* (2014); Kittell *et al.* (1998); Kopenhager and Guidozi (2015); Mishra and Kuh (2006); Morris and Symonds (2004); PCS; Taechakraichana *et al.* (1997); Utian (2005); Wright (2005); and Wroolie and Holcomb (2010).

Table 6: Summary of transition symptoms reported in the evidence base

Category	GCS symptoms	MRS symptoms	Other symptoms
Physical	Dizziness or faintness, head tightness/ pressure, numbness, loss of feeling in hands and feet, headaches, muscle and joint pain, difficulty breathing, hot flushes, night sweats ⁶² . Loss of interest in sex ⁶³	Hot flushes and sweating, heart discomfort (being very aware of heart beat, heart racing or skipping, tightness in chest), sleep problems (difficulty falling or staying asleep, waking early) and muscle and joint problems ⁶⁴ . Sexual problems (loss of sexual desire or satisfaction, less sexual activity), bladder problems (urinary incontinence or greater urge to urinate, difficulty urinating)	Irregular periods and/ or very heavy blood flow ⁶⁵ ; migraine headaches specifically; sleep apnoea; poor quality of sleep overall; limbs jerking whilst asleep; weight gain or weight redistribution; aching limbs; swollen ankles; sore or tender breasts; pins and needles; dry eyes; dry or itchy skin; skin colour changes; thinning, dry or itchy hair; growth or loss of body hair; growth of facial hair; bladder infections; loss of bone density; clumsiness.

⁶² The GCS uses the medical term ‘vasomotor’ to refer to hot flushes and night sweats, and classifies them separately from physical symptoms. These affect blood vessels. Hot flushes can produce facial and neck reddening, feelings of heat, nausea, sweating, heart palpitations and chills afterwards.

⁶³ This is a separate category in the GCS.

⁶⁴ The MRS calls these symptoms somatic-vegetative (affecting bodily functions or the senses).

⁶⁵ These symptoms do not appear in either the GCS or the MRS, perhaps because they are taken as self-evidently relating to menopause transition.

		vaginal dryness (dryness or burning in the vagina, difficulties with intercourse) ⁶⁶ .	
Psychological	Heart racing or beating strongly, tension or nervousness, sleeping difficulties ⁶⁷ , being excitable, anxiety or panic attacks, concentration problems, fatigue or loss of energy, loss of interest in most things, unhappiness or depression, crying spells, feeling irritable.	Depressive mood (feeling sad, tearful or down, lacking drive, mood swings), irritability (feeling tense, nervous or aggressive), anxiety (restlessness, feeling panicky), physical and mental exhaustion (lower performance, memory difficulties, concentration problems, forgetfulness).	Problems with decision making, loss of confidence and feeling out of control; onset or worsening of bipolar disorder; schizophrenia.

⁶⁶ The MRS uses the medical term urogenital for these symptoms, and classifies them separately from somatic-vegetative symptoms.

⁶⁷ These are classified as somato-vegetative (ie, physical) symptoms in the MRS.

Appendix 4. Technical note: measuring the economic costs of transition

To quantify these costs for the population of mid-life women (size N) in the UK we would need to measure:

- a) the proportion of women who experience bothersome symptoms of the menopause transition (let's call this S).
- b) the proportion of women experiencing bothersome symptoms who leave employment because of their symptoms (let's call this E)
- c) the proportion of women experiencing bothersome symptoms who stay in employment (let's call this I), and
- d) the costs for each of these groups (let's call these CE and CI).

The total cost for the UK can then be represented as $\text{Cost} = N \times S \times (E \times \text{CE} + I \times \text{CI})$.

In this technical note, we explain in more detail why the equation is difficult to calculate due to gaps in the available evidence for individual values.

Proportion of women affected by bothersome symptoms (S)

As discussed in chapter 2, estimating S in our equation is difficult using the available evidence. Studies use different measures of severity or do not categorise symptoms by severity. They also rely on self-report data, use non-representative samples and/ or fail to isolate the effects of symptoms on economic participation specifically.

Proportion of women leaving work or losing their jobs (E)

In the only study of its kind in the evidence base, Daysal and Orsini (2014) use longitudinal US secondary data to estimate the number of women leaving the labour force due to transition. They conclude that those discontinuing HRT following WHIS warnings were 30% more likely to leave their jobs than those who continued to take the medication. The intuition behind their strategy is that the WHIS warning only impacted on labour force participation because it made women less likely to use HRT. In its turn, stopping HRT had a negative impact on the severity of their transition symptoms, as we saw in chapter 2.

But Daysal and Orsini's estimates only reflect the behaviour of women who stopped taking HRT due to the warning, about 5% of the 21,327 women in their sample. Women who continued HRT treatment after the warning may have had more severe symptoms to begin with; and those who had never used HRT treatment (approximately 85% of their sample) may have had less severe symptoms. So their estimate does not capture the behaviour of all working women during transition.

Extensive margin costs (CE)

Daysal and Orsini do not provide extensive margin costs for these lower levels of employment. Elsewhere, DiBonaventura *et al.* (2012) analyse secondary data from a representative annual US survey, capturing responses from women aged between 40 and 64 (n=3,632). They suggest women with transition-related depression and other symptoms are 12% more likely than women with symptoms other than depression not to work. DiBonaventura *et al.* attribute this to a lack of ability or willingness to look for a job.

Like Daysal and Orsini, DiBonaventura *et al.* do not estimate the costs of these lower levels of labour force participation. As we saw in our model in chapter 5, the extensive margin may create an additional burden on the welfare system. No figures are available for this burden as it applies to menopause transition.

Furthermore, when an older woman leaves her job, employers face replacement costs. Altmann (2015, page 18) suggests that recruiting and training new staff costs circa £6,000 per person. But she does not give the source for this estimate so we can not judge how reliable it is.

What we also can not quantify using the available evidence is the cost of lower self-esteem and reduced social support as a result of older women leaving work due to bothersome symptoms; or the lost economic benefits of older women not returning to work or leaving work earlier than they would have done otherwise. DWP figures indicate an increase of £20 billion in annual GDP if 0.6 million more older women worked full-time, and a £9 billion increase were the same number to enter part-time employment (cited in Altmann 2015, page 14). But these data are not specific to the effects of transition and no age group is specified other than the over-50s. They can not be used to count the extensive margin costs of transition.

Proportion of women with bothersome symptoms who stay at work (I)

The limited estimates reported above on the proportion of women leaving employment due to transition suggest that most women actually stay at work during this time in their lives, as does Figure 2 in chapter 5.

Turning to measures of I, Wagner *et al.* (2011a) use data from the same survey as DiBonaventura *et al.* They estimate that 18% of women with hot flashes and other menopausal symptoms were impaired at work during the seven days leading up to the survey versus 14% of women of the same age with no symptoms. These “results suggest women who experience menopausal symptoms with hot flashes ... may incur greater economic costs from increased productivity losses” (Wagner *et al.* 2011a, page 7).

Wagner *et al.* (2011b) found that 5% of 1,165 women suffering from depression and other transition-related symptoms reported sickness absence in the seven days prior to the same survey, compared to 3% of those with symptoms other than depression. 25% of

women with depression also reported presenteeism — compared to 14% of women without depression - during the same period of time. But neither Wagner *et al.* study expresses these figures as intensive margin costs (CI).

Similarly, Bolge *et al.* (2010) use US secondary data to suggest that work impairment amongst mid-life women with CINA equates to 6.4 hours in a 40 hour week. This equates to 8 weeks of lost productivity per year. These figures are derived as a comparison to those for mid-life women without CINA. However, again no costs are attached and only a small number of women in the sample reported CINA (10%).

Intensive margin costs (CI)

In the DiBonaventura *et al.* (2012) study, the combined effect of depression with other transition symptoms resulted in approximately twice the level of work impairment compared to the impact of symptoms without depression. Productivity losses were calculated at \$7,650 per woman per year for those with depression and other symptoms compared to \$4,584 for those without depression, a statistically significant difference of more than \$3,000 per head.

Kleinman *et al.* (2013) on the other hand use longitudinal secondary data from 2001-2010. These data compare 17,322 40+ women with medically diagnosed symptoms of menopause transition to a matched control group of 17,322 women in the same age group without symptoms. They calculate intensive margin costs for both groups. Absence from work cost employers \$647 annually per head for those with symptoms, compared to \$599 for those without - a small but statistically significant difference of \$48. Kleinman *et al.* also find that employees with diagnosed symptoms have 21% more sickness absence and exhibit a productivity decrease of 12.4% units of work per hour compared to those without these symptoms.

If women with undiagnosed symptoms were included in the control group, the estimates of these differences will be conservative. But this study assumes that women who differ in severity of symptoms or timing of transition do not systematically differ in any other way, which may not be accurate.

Sarrel *et al.* (2015) also quantify intensive margin costs using US secondary data on health insurance claims, this time for 1999 to 2011. In their study, 252,273 women were classified as having untreated hot flushes and night sweats and were compared to the same number in a matched sample with no symptoms. Sarrel *et al.* estimate an additional cost of \$1,096 per employee per year due to lost time at work for women with untreated hot flushes and night sweats compared to those without.

If women with undiagnosed symptoms were assigned to the Sarrel *et al.* control group, their estimates are – once more – on the low side. Nonetheless a more revealing (or additional) control group would have included women who had been diagnosed with these symptoms and treated. The study does not capture the intensive costs of untreated

hot flushes and night sweats overall. It also assumes that the increased costs of lost time at work are only due to these symptoms.

The differences in costs recorded by DiBonaventura *et al.* (2012), Kleinman *et al.* (2013) and Sarrel *et al.* (2015) also reflect the different ways they calculated lost productivity. For example, Sarrel *et al.* only calculate the costs of sickness absence in this regard. Because of this, it is difficult to arrive at an overall sense of intensive costs by drawing on these studies.

Quantifying the intensive margin costs of women with transition symptoms for wider society can only be done using samples of those seeking medical advice so they can stay at work or improve their productivity. Some studies do suggest HRT is necessary for some women to enable them to continue to work during transition (Ariyoshi 2008, 2009; Daysal and Orsini 2014; Griffiths *et al.* 2010, 2013; SIRC 2002).

But if medical advice is sought for non-transition reasons or reasons unrelated to work, then these costs do not represent additional costs for economic participation during transition. Also of course the burden of these costs shifts between the state and private health insurers – and women themselves - depending on the healthcare system in place.

Some studies suggest medical costs for women in transition do increase. Bolge *et al.* (2010) show how a 0.1 additional emergency room visit for women with CINA translates into an additional \$112 per head per year. DiBonaventura *et al.* calculate the combined costs of medical consultations, emergency room visits and hospitalisations at \$2,642 per year for women with depression and other symptoms and \$1,567 for women without depression.

Kleinman *et al.* (2013) suggest a statistically significant cost of an extra \$1,800 per woman with transition symptoms per year in terms of increased medical and drug use. And Sarrel and others (2015) suggest a total of \$339,559,548 per year for healthcare costs for women with untreated hot flushes and night sweats.

Other data indicate that HRT is a cost-effective treatment in terms of additional quality-adjusted life years (QALYs). One QALY equals one completely healthy year of life. According to Saltpeter *et al.*'s analysis of secondary data across several US large studies (cited in Pines 2013), women taking HRT for 15 years from age 50 can expect 1.49 more QALYs compared to non-HRT users. The cost of each QALY per head for HRT is \$2,438, which is low when compared to QALY estimates for other medications. These include the costs of statins to treat UK patients with coronary artery disease – these range from £8,000 to 30,000 a year per head.

However, none of these studies focuses on women in transition who seek these treatments so they can continue working. So we can not use the relevant figures to calculate healthcare-related CI for wider society. They are also all US costs and as such have been estimated for a country with a very different healthcare system to the UK NHS.

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