# Making Sense of Women’s Experiences of Menopause: Treatment Decisions and ‘Subjective’ Cognitive Complaints

Yasmin Palmer

University Registration Number: 100197742

This thesis is in partial fulfilment of the qualification: Doctor of Clinical Psychology (ClinPsyD)

University of East Anglia

Faculty of Medicine and Health Sciences

Submission Date: March 24th, 2025

Word Count: 26,317

**Access Condition and Agreement**

Each deposit in UEA Digital Repository is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the Data Collections is not permitted, except that material may be duplicated by you for your research use or for educational purposes in electronic or print form. You must obtain permission from the copyright holder, usually the author, for any other use. Exceptions only apply where a deposit may be explicitly provided under a stated licence, such as a Creative Commons licence or Open Government licence. Electronic or print copies may not be offered, whether for sale or otherwise to anyone, unless explicitly stated under a Creative Commons or Open Government license. Unauthorised reproduction, editing or reformatting for resale purposes is explicitly prohibited (except where approved by the copyright holder themselves) and UEA reserves the right to take immediate 'take down' action on behalf of the copyright and/or rights holder if this Access condition of the UEA Digital Repository is breached. Any material in this database has been supplied on the understanding that it is copyright material and that no quotation from the material may be published without proper acknowledgement.

# Thesis Portfolio Abstract

**Background:** Approximately half of the population will experience menopause. During the initial stages (perimenopause), women commonly report the most severity of these symptoms. These cognitive changes are thought to have a significant impact on women's daily lives. However, little is understood about the experience of these changes. Additionally, women commonly disengage with potentially helpful treatments, such as hormone replacement therapy (HRT), which may have beneficial effects on cognition and other menopause-related symptoms.

**Aim:** The thesis portfolio aimed to develop an understanding of women's experiences of cognition in perimenopause and to better understand the barriers to women engaging in potentially helpful treatments (HRT) to improve symptoms.

**Methods:** Semi-structured interviews were analysed using reflexive thematic analysis to understand women's experiences of cognition during perimenopause. A systematic review of the existing qualitative literature using thematic synthesis was conducted to understand the experience of decisions related to taking HRT.

**Results:** The qualitative study produced four themes: Cognitive changes, The mental load, Symptom synergy and "You either cry, or you laugh it off". The systematic review identified the themes: When symptoms get too much, HRT is the last resort, "You've got to weigh it all up", Women want informed choices and shared decision-making, and The journey is unique and changeable: no single answer.

**Conclusions:** This thesis portfolio highlights the multifaceted experiences of cognition and treatment options relating to menopause. It promotes a need to consider symptoms through a sociocultural lens to support research and clinical implications.

# Table of Contents

## List of Tables

### Chapter 2- Empirical Study

### Chapter 4- Systematic Review

# List of Figures

**Chapter 2- Empirical Paper**

**Chapter 4- Systematic Review**

**Chapter 5- Critical Discussion**

**Appendices**

# Acknowledgements

I would like to express my deepest gratitude to my supervisors, Dr Fergus Gracey and Dr Anastasya Shepherd, for their unwavering support, guidance and encouragement throughout the thesis process. Your expertise, feedback and patient mentorship have been invaluable in shaping this work. I would also like to thank Abi Dennington-Price for her insightful contributions and encouragement throughout the research process. I am truly grateful for all your continuous support and dedication.

I would like to extend my thanks to the women who participated in the research. Your openness, time and willingness to share your experiences have made this research possible. I feel privileged to have listened to your stories. I want to thank the women in my life who so openly and bravely share their experiences of menopause and who inspired the development of this research. Without these contributions, this project would not have been achievable.

Finally, I wish to express my profound appreciation to my husband, Max. Your constant understanding and encouragement have been an anchor throughout this journey. Thank you for your unwavering support, patience and belief in me.

# Chapter 1: Introduction

## Introducing Menopause, Cognition and Hormone Replacement Therapy

Word count: 2609

The thesis portfolio aimed to develop an understanding of women’s experiences of cognition in perimenopause and to better understand the barriers to women engaging in potentially helpful treatment (hormone replacement therapy [HRT]) to improve symptoms. The thesis aimed to address these ideas from a critical realist ontology and epistemological positioning due to the biological nature of menopause and the socio-contextual interactions of women’s experiences with the phenomena. The understanding developed through this portfolio hopes to inform progress in the identification and treatment of cognitive and other symptoms of menopause.

To achieve this aim, the thesis portfolio presents a qualitative study to understand women’s experiences of cognition during perimenopause in Chapter 2, and a systematic review of the existing literature to understand the experience of decision-making to take HRT within Chapter 4. To summarise and provide critical appraisal, interpretation and contextualisation of the research, a summary chapter is included in Chapter 5. This introductory chapter aims to provide information regarding key terms and context to the issues discussed within the portfolio.

## Menopause

Menopause is the time in a female’s life defined as the permanent cessation of menstruation resulting from the loss of ovarian reproductive function (British Menopause Society [BMS], 2021; World Health Organisation [WHO], 2024). The term menopause is derived from the Greek terms *meno* (month) and *pauso* (to cease), marking the singular day of the permanent ending of menstruation, following 12 months of amenorrhoea (Koysombat et al., 2024; National Institution for Health and Care Excellence [NICE], 2015). The clarification of terminology is essential given that the misuse of vocabulary relating to menopause across the world has caused confusion among healthcare providers, researchers, the media and the public (Australian Menopause Society [AMS], 2008; International Menopause Society [IMS], n.d.). Hormones usually associated with changes during menopause include progesterone, oestrogen and testosterone. Menopause commonly occurs in women ages 45 to 55, with the average age being 51 (WHO, 2024;

BMS, 2021). The term early menopause is applicable to women aged 40 to 44 years, and premature ovarian insufficiency is diagnosed in people under the age of 40 (NICE, 2015). Following menopause, women are in the post-menopause phase for the remainder of their lifespan. The onset of menopause varies across social and demographic contexts, for example in the United Kingdom, people from ethnic minority backgrounds and those with lifelong conditions (e.g. Down's syndrome) commonly experience menopause at a younger age (NICE, 2015). Menopause may also be induced early due to surgery to remove the ovaries (oophorectomy), or the uterus (hysterectomy), cancer treatments (chemotherapy), or genetic or unknown reasons (NHS, 2022; WHO, 2024). Perimenopause refers to the period from when these signs (endocrinological, biological and clinical features) are first observed and ends one year after the final menstrual period (AMS, 2008; WHO, 2024). Perimenopause is thought to start up to 10 years before a woman reaches menopause, meaning women may commonly experience symptoms as early as their mid-30s.

Menopause-related symptoms are associated with changes in the regularity and flow of the menstrual cycle. Vasomotor symptoms (VMS), known as 'hot flashes', are a hallmark of menopause and impact over 80% of women (Hickey et al., 2017). They are characterised by episodes of intense heat, sweating and flushing and are primarily felt in the head, neck, chest and upper back and commonly relate to night sweats. Other physical symptoms include joint and muscle aches, genital symptoms (vaginal dryness and dyspareunia), weight gain, headaches and skin problems e.g. itchiness or dryness. Psychological changes include anxiety, depression and loss of self-worth. Physical and psychological symptoms are thought to be commonly related to beliefs about menopause and are thought to affect the experience of symptoms, with more negative beliefs, expectations and low self-esteem being related to increased psychological difficulties (Hickey et al., 2017). Symptoms are typically more severe during perimenopause; however, some symptoms may continue into post-menopause (Ahsan et al., 2015). Symptoms can have a significant impact on women's lives, including relationships and work (Bazeley et al., 2022).

By 2050, it is estimated that worldwide, more than 1.6 billion women will have reached menopause or be postmenopausal (Zhang et al., 2021). Furthermore, women are predicted to spend about one-third of their lifespan or longer in the postmenopausal stage (BMS, 2021). Considering 75% of menopausal women report being affected by bothersome menopausal symptoms, the exploration of experiences is important (Zhang et al., 2021).

### Cognition in Healthy Adults and Cognitive Decline in the Aging Brain

Cognition develops rapidly throughout childhood, whereby the rapid growth of synaptic connections between neurons (gray matter) to myelination of nerve fibres (white matter) develop (Craik & Bialystok, 2006). The volume of cortical gray matter continues to increase through adolescence, with the maturation of some cognitive processes continuing into early adulthood, whereby cognitive abilities are thought to peak (Nichols et al., 2021). During mid to late adulthood, there is thought to be a gradual decline in most cognitive abilities, during which cortical thinning occurs and is considered part of healthy ageing. It is thought that gray matter volume shows a U-shape across the lifespan, with a reduction in connectivity and structural atrophy in older age (Craik & Bialystok, 2006). Disparities in cognitive abilities between men and women are acknowledged, with females showing greater loss of connections and brain matter. This normal aging is associated with a decline in episodic memory and executive functioning. When compared with younger controls, healthy older adults show poorer performance in measures of recall and recognition, novel problem solving, fluency and mental flexibility (Kramer et al., 2007). It is thought that such changes relate to socio-cultural factors, whilst also being linked to biological differences such as sex hormones (Craik & Bialystok, 2006). Sociodemographic factors are considered to relate to cognitive performance; for example, higher socioeconomic status is predictive of better performance on cognitive tasks. However, caution may be applied to such findings as many early tests were developed and standardised on males, suggesting a historical bias towards male test construction (Mensh & Mensh, 1991).

## Menopause and The Brain

Perimenopause is a neuroendocrine transition impacted by hormone changes, consequently impacting brain function in women (Mishra et al., 2022). These effects have been compared to those of age-matched males, finding that higher-order cognitive processes were specific to menopause endocrine ageing rather than chronological ageing (Mosconi et al., 2021). Oestrogen (known as oestradiol) is key for energy production in the brain (TED, 2020). Due to the decline of oestrogen during perimenopause, the neurons slow down and age faster. The neural circuits thought to be impacted by menopause are associated with hypothalamic functions, executive functioning, learning, memory, emotion, motivation and sensory integration (Brinton et al., 2015). The effects of decreases in oestrogen also impact areas of the brain, such as the hypothalamus, in charge of regulating body temperature, which can result in hot flashes (TED, 2020). The effects on the brain stem, which regulates sleep and wakefulness, can impact sleep patterns, and changes to the amygdala and hippocampus are thought to impact mood swings and forgetting (TED, 2020). These effects have been found to be unique to changes during the menopause transition (TED, 2020). Overall, mid-life endocrine ageing within the menopause transition is seen to have a significant biological effect on cognition in combination with other symptoms.

Historically, neurological ageing has been considered a linear process, suggesting that higher rates of Alzheimer’s disease (AD) in women may be related to an increased life expectancy of females compared to males (Mishra et al., 2022). Females have a nearly two-fold greater lifetime risk of AD (Alzheimer’s Association, 2016). Discourses have begun to suggest that hormones related to menopause have been identified as risk factors for AD (Brinton et al., 2015). This process can lead to amyloid plaques during perimenopause and is a risk factor and hallmark of AD (Yao et al., 2009). This suggests that the rapid decline in hormones and neurological symptoms experienced in menopause may be associated with these risks (Mosconi et al., 2018, 2021). Therefore, this suggests the very real biological neurological changes which need investigating to support potential interventions to prevent serious cognitive decline.

## Discourses of Cognition in Perimenopause

There is considerable variation in the discourses and approaches used when describing the types of cognition affected during menopause. At a biological level, research has identified that neurological symptoms are thought to be related to changes in hormone receptors in the brain during perimenopause and other stages of menopause (Brinton et al., 2015). At the individual psychological level, cognitive changes are reported by 62% of women during perimenopause, 73% of whom report these to be somewhat or extremely difficult (Greendale, 2020; Bazeley et al., 2022). Subjectively and within the media, terms used to describe these difficulties include ‘brain fog’ or ‘subjective cognitive decline’ (Jaff & Maki, 2021; Reuben et al., 2021). How people think about, describe, and experience symptoms is therefore potentially influenced by a range of biopsychosocial factors, which might be shaped significantly by social context and thus might be difficult to fully understand.

## Hormone Replacement Therapy (HRT)

Some research is beginning to explore the use of HRT to protect cognitive function (Koire et al., 2022; NICE, 2015; Sochocka et al., 2023). HRT is a NICE-recommended treatment for symptom management of menopause-related symptoms; however, the current prescription of HRT as a dementia-preventative option is not recommended (NICE, 2015). HRT is used to alter the biological changes to hormones during menopause and is available through prescription only (in the United Kingdom). Combinations of oestrogen and progesterone are available, with progesterone also commonly being considered for the protection of the lining of the womb (BMS, 2021). Testosterone is recommended by the BMS (2022) for women who complain of low libido. Although some women report the benefits of testosterone to areas of cognition, mood, energy and musculoskeletal health, the BMS suggest more research is needed to evidence this.

It is recognised that the risks and benefits of HRT must be tailored to the individual’s age, personal circumstances and specific health outcomes (NICE, 2015). For many, HRT is considered a safe and effective option, yet most discontinue its use within the first 12 months (Kyvernitakis et al., 2015; NICE, 2015; Zhang et al., 2021).

Although HRT may be an effective treatment to mitigate menopausal symptoms, its contentious history has impacted attitudes towards adherence and uptake. Interest arose at the start of the 20th century for the use of HRT as a treatment for hot flashes, followed by movements in the 1960s suggesting that menopause was a hormone deficiency disease, curable through the prescription of oestrogen (Cagnacci & Venier, 2019). Since then, advances in evidence-based practice have been made to support the efficacy of HRT treatment. However, in 2002 the World Health Initiative (WHI) published findings suggesting that HRT use led to more serious health problems (e.g. coronary heart disease and breast cancer) than beneficial effects (Cagnacci & Venier, 2019). Yet, in this study, no distinction was made between users and their age, which research has since found to be an influencing factor in the cost vs benefit of taking HRT (Langer et al., 2021). Despite the re-evaluation of the study findings and continued research, which suggests the safe and effective use of HRT, uptake and adherence remain poor (Langer et al., 2021). Therefore, the history, publicity and knowledge of potential risks may contribute to the disengagement of HRT.

## Other Types of Symptom Management

In an attempt to manage menopause-related symptoms, many women consider complementary and alternative medicine (CAM) options for menopause-related symptom management. However, the efficacy of treatments is mixed (Johnson et al., 2019). Alternative treatments include hypnosis, mindfulness, relaxation, yoga, diet, supplements, acupuncture, exercise and weight loss (Hickey et al., 2017). Additionally, women adopt lifestyle changes such as clothing choices to regulate body temperature, exercise and weight loss (Hickey et al., 2017). Other NICE (2015) recommended treatment approaches include cognitive behavioural therapy (CBT). Strategies to manage symptoms have been found to vary across cultures (O’Reilly et al., 2023). However, stress reduction and diversion strategies such as praying, reading, and engaging with friends and family have been identified to be used by women across various countries (O'Reilly et al., 2023).

### Psychological Theories of Health-Related Behaviours

Theories of health-related behaviours can be used to understand attitudes towards perceived high-stakes decisions such as taking HRT (Schaller & Malhotra, 2015). Many psychological models have been developed to understand such behaviours, including the theory of reasoned action, the theory of planned behaviour (TPB), the attitude-behaviour theory and the protection motivation theory (Ajzen & Fishbein, 1973; Ajzen, 1991; Rogers, 1975; Triandis, 1979). A review by Sheeran (2002) considered the psychological variables which moderate intention-behaviour decisions concerning existing theories. The paper identified four groups of variables: behaviour type, intention type, properties of intention and cognitive and personal variables. The TPB is a continuum model which considers these ideas and reflects how likely a person is to change their behaviour based on the absence or presence of several predictive factors (Simpson et al., 2024). These factors include attitudes towards the behaviour, including perceived risks or benefits, subjective norms, which are the influence of others such as professionals, friends or family, and perceived behavioural control, which is how easy or difficult it is to engage in the behaviour (Ajzen, 1991).

### Stigma and Taboo

Socially, a woman's experience of menopause may be influenced by gender norms, familial and sociocultural factors, including how female ageing and the menopausal transition are viewed in their culture (WHO, 2024). The many misunderstandings and stigma associated with menstruation and menopause are thought to contribute to limited knowledge of reproductive health within the population (Goffman, 2009; Rowson, 2023). A study reported that 60% of women did not feel informed about menopause, causing women to look to friends or websites for information once symptoms began (Munn, 2022). Additionally, menopause is further stigmatised compared to other feminine physiological issues due to the stigma of ageing females in society (Posner, 1979). This has caused the topic area, until recently, to be relatively ignored and poorly researched. The topic of menopause has recently received increased attention from UK celebrities, practitioners, campaigners for women's rights, trade unions, policymakers and scholars (Rowson et al., 2023). However, a recent review by Rowson (2023) found that the British media perpetuates a negative and stigmatising discourse embedded within the biomedical perspective, with positive stories not foregrounded. Therefore, although advances in destigmatising the topic have begun, more progress is still needed.

## Terminology

The gendered terminology associated with female medicine has been considered within this portfolio. Although menopause affects individuals born female in sex, the latest literature and guidance use the language 'women' to describe experiences within this population, with separate guidance for trans men and non-binary people registered female at birth (NICE, 2015; WHO, 2024). This portfolio is interested in exploring these biologically female phenomena relating to cognition and engagement with HRT in the context of social construction. Therefore, the portfolio acknowledges this and opts to use the language of the current global and national guidance.

## Aims of the Portfolio

The portfolio includes an empirical study with the aim of understanding the nature and experience of cognition during perimenopause in the context of women's experiences and the impact of social and cultural factors. A systematic review is also reported on, the aim of this is to better understand the decision-making process associated with taking HRT, as although advances in research are beginning to suggest HRT's helpfulness for preventing cognitive decline during menopause, women commonly choose alternative methods to manage symptoms. The overarching aim of the portfolio is, therefore, to advance understanding of the experience of women during the menopause transition to support research, public awareness and application to healthcare providers (HCPs) to better support women through this currently misunderstood and often challenging mid-life transition.

# Chapter 2: Empirical Study

## “It's a bit like it's a snow globe and sometimes everything lands perfectly and other times it's really difficult”: A Qualitative Analysis of the Nature and Experience of Cognitive Changes during Perimenopause

Word count: 6000

Formatted for submission to the British Journal of Health Psychology*

See Appendix A for formatting guidelines for authors

*Selected due to the clinical and health relevance of the topic

## Abstract

**Purpose:** Perimenopausal women commonly report changes in their cognition. However, existing research is conflicted on the objectivity of cognitive changes, subsequently labelling experiences as ‘subjective cognitive decline’. Despite this, many women report cognitive changes to be difficult and impact their daily lives. This qualitative study aims to understand the nature and experience of cognitive changes during perimenopause.

**Design:** Perimenopausal women (N=15) participated in semi-structured interviews.

**Methods:** The data was analysed using reflexive thematic analysis.

**Results:** Four themes were derived from the data: Cognitive changes, The mental load, Symptom synergy and “You either cry, or you laugh it off”.

**Conclusion:** Cognitive changes experienced in perimenopause are complex and multifaceted. They interact with individuals’ emotional appraisal and other symptoms, such as sleep and anxiety. The language commonly used to describe cognitive experiences is forgetting, however, the descriptions align with other neuropsychological language such as word-finding, concentration and memory. Impacts on other areas of executive functioning and emotional regulation were also identified. The emotional and cognitive interactions may be impacted by sociocultural expectations, resulting in an internalisation of having to cope, manage symptoms and limit behavioural consequences. Future research should explore cognitive changes sensitive to interacting factors specific to perimenopause.

**Keywords:** Perimenopause, Cognition, Women’s Health, Reflective Thematic Analysis

Approximately half of the population will experience menopause, with 26% of the global female population over the average perimenopausal age (World Health Organisation [WHO], 2024). Perimenopause refers to the stage of hormonal decline, irregular cycles, vasomotor symptoms (VMS), musculoskeletal symptoms, mood changes, urogenital symptoms, and sexual difficulties (National Health Service [NHS], 2022; National Insitute for Health and Care Excellence [NICE], 2024). Additionally, 62% of women report cognitive symptoms, with 73% finding them challenging (Bazeley et al., 2022; Greendale et al., 2020). Therefore, perimenopause can have significant physiological, psychological and cognitive impacts on many lives.

Cognitive symptoms in perimenopause, often called 'subjective cognitive decline' or 'brain fog' vary among women and their stage in the transition (Reuben et al., 2021). Oestrogen affects the brain by regulating metabolism, blood flow and dendritic outgrowth, which may impact cognition (Hamoda et al., 2020). Self-reported difficulties include word retrieval, forgetting the purpose of behaviour, and losing one's train of thought (Greendale et al., 2020). Objective tests show declines in verbal memory, verbal fluency, attention, and executive functions during perimenopause (Berent-Spillson et al., 2017). Long-term studies also suggest a reduced ability to learn new information compared to pre- and post-menopause (Pullens et al., 2010). While evidence supports cognitive changes, the exact consequences remain unclear.

The mechanisms underpinning cognitive changes in perimenopause are debated. Some research shows cognitive symptoms are mediated by perimenopausal symptoms such as hot flashes, sleep disturbances and depressive mood (Greendale et al., 2009). The 'domino hypothesis' proposes that VMS, such as hot flashes, disrupt sleep and consequently affect cognition (Campbell & Whitehead, 1977; Hamoda et al., 2020). Hormone replacement therapies (HRT) may improve cognition in women with VMS (Hogervorst et al., 2022). However, other research finds no connection between VMS, anxiety, or sleep on cognition (Greendale et al., 2010, 2020). Cognition during perimenopause is multifaceted, interacting with symptoms and everyday life.

Women report more cognitive difficulties during perimenopause than pre- and post-menopause, though neuropsychological tests show no significant changes (Unkenstein et al., 2016; Pullens et al., 2010). A 6-year-long longitudinal study found small but significant declines in processing speed, verbal encoding and verbal episodic memory (Greendale et al., 2010). However, dismissing these experiences as ‘subjective’ may invalidate reported distress, such as work disruptions, relationship strain, and reduced confidence (Johnston-Robledo & Chrisler, 2022; Bazeley et al., 2022). Understanding these experiences is crucial due to potential links with neurodegeneration conditions like Alzheimer’s disease (Vega et al., 2016) and to inform healthcare practices (Greendale et al., 2020).

Research on cognitive changes during perimenopause shows varying results, with differences in affected cognition and contributing factors. Variations in determining menopause status and inclusion and exclusion criteria may account for discrepancies (Weber et al., 2014). Limitations in the use of brief cognitive batteries to assess cognitive performance may reduce sensitivity to subjective cognitive decline reported by women (Greendale et al., 2009). This may be evidenced as women who self-report forgetfulness have normal, yet lower objective test scores (Unkenstein et al., 2016). It is unclear if current measures capture the effects of sleep disruption or hormonal changes. Furthermore, a lack of consideration of cognitive function before perimenopause and comparison group data remain limitations. Consequently, the existing literature has limitations in understanding the ‘true’ reality of cognitive changes in perimenopause.

Research on cognition in perimenopause is growing, although findings are complex and contradictory. Issues include reliance on brief standardised batteries, which may lack sensitivity or account for contextual variations, contributing to a discourse that cognitive changes are subjective. More studies are needed which engage with women’s experiences of cognition, considering the nature and impact of such changes. To initiate this, the current study will aim to contextualise women’s cognitive experiences using qualitative interviews.

## Research Questions

Primary: What is the nature and experience of cognitive changes in everyday life during perimenopause?

Secondary: How do people experience the interplay between cognitive and other perimenopause symptoms (e.g., hot flushes, sleep disturbances)?

## Materials and Methods

### Design

This study uses a qualitative design to attempt to understand women's unique and nuanced experiences of cognitive changes during perimenopause within the context of everyday life. Reflexive thematic analysis (RTA) was used as the qualitative framework to better understand the phenomenon by identifying and making sense of patterns of meaning within the collected data set (Braun & Clarke, 2022).

The project took a critical realist approach to addressing the question. In terms of ontology, the research adopted a realist position, given that perimenopause is a biological process impacting the neuropsychology of the brain, suggesting a 'real' common truth. Epistemologically, a relativist position was taken, recognising that experiences of perimenopause are constructed by society, culture, background and context (Sergeant & Rizq, 2017). The ontology and epistemology support the rationale of qualitative semi-structured interview methodology of a heterogeneous sample to capture diverse experiences of the biological process.

### Participants

Participants were recruited using social media advertisements, including advertisements from supporting menopause charities. The study recruited 15 females who self-identified as perimenopausal. The sample size follows guidance in qualitative research for a medium-sized RTA to reach information sufficiency (Braun & Clarke, 2021b). Participants were English-speaking, living in the United Kingdom and had the capacity to consent to taking part in the research. A full list of eligibility criteria is provided in Table 2.1.

**Table 2.1**

*Inclusion and Exclusion Criteria for Study Participants*

| Inclusion | Exclusion |
|---|---|
| • Self-reported perimenopausal (at least one menstruation within the past 12 months)<br>• Fluent in English with sufficient language and communication to participate in interviews | • Individuals who have had hormone treatment known to alter the underlying biology of the menopause transition e.g. gender altering hormones |

Given the qualitative nature of the study, generalisability is considered a strength concerning the naturalistic, ‘soft’ transferability, theoretical and/or intersectionality of the findings, rather than statistical probability associated with quantitative research (Braun & Clarke, 2021a, 2022; Lincoln & Guba, 1985; Smith, 2018).

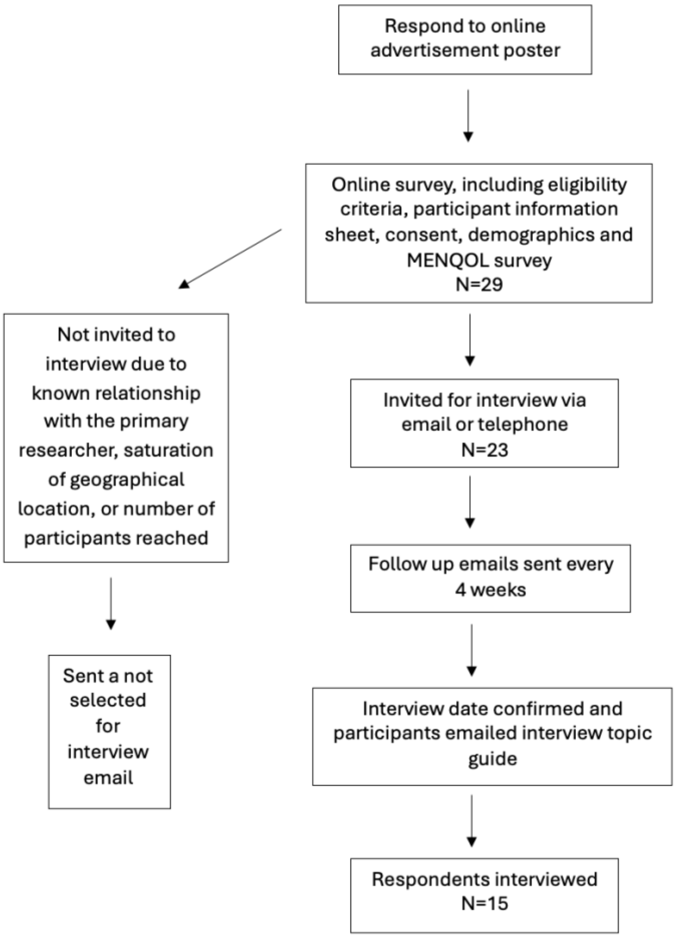
**Procedure**

The study was granted ethical approval by the University of East Anglia Faculty of Medicine and Health Sciences Research Ethics Committee (ETH2324-3078; see Appendix B for ethical considerations). The advertisement provided common symptoms and terminology, in addition to clearly stating that the study wanted to hear from all demographics to support the collection of a representative sample. Participants registered their interest in participating by following a JISC survey link to complete the eligibility criteria, participant information sheet (Appendix C) and informed consent (Appendix D). Following this, participants completed demographic information to support heterogeneous sampling to include representation in research of underrepresented groups, followed by the Menopause Specific Quality of Life (MENQOL; Appendix E) survey to characterise their experiences over the past month. The demographic data was used to support diversifying the sample with reference to UK Census data using a purposive sampling method.

Participants invited to be interviewed (via email) received a copy of the interview guide before the interview (Appendix F). Interviews were conducted online via Microsoft Teams and lasted between 50 to 90 minutes. Although the use of online vs face-to-face interviews as best practice is debated, the use of online interviews for this study is supported by the research design, which calls for a diversity of interviewees who are geographically dispersed (De Villiers et al., 2022). The interviews were delivered by the primary researcher (Y.P). Interviews were audio and video recorded, with one participant opting to keep their camera turned off, to support transcription. Each participant received a £10 voucher to thank them for their participation. Participants not selected for interview received a thank you email.

**Figure 2.1**

*A Flow Chart to Show the Process of Participant Selection*



## Patient and Public Involvement (PPI)

A PPI member of the research team was involved in the development of the study advising on the aims, patient-facing documents, interpretation of the data and theme development. A guidance for reporting involvement of patients and the public (GRIPP2) short form was used to describe the use of PPI in the study (Staniszewska et al., 2017; Appendix G).

## Measures

### *Menopause-specific Quality of Life Questionnaire (MENQOL)*

The MENQOL (one-month) is a 29-item Likert-scale questionnaire widely used within menopause literature as a standardised way to make sense of quality of life (QoL). The questionnaire measures four domains: vasomotor (items one to three), psychosocial (items four to ten), physical (items 11 to 26) and sexual (items 27 to 29) factors. Items are rated present or not present, and if present, how bothersome, from zero (not bothersome) to six (extremely bothersome). Each domain is scored separately, with answers converted from raw scores based on the extent of the bothersome rating. The questionnaire was used within the online survey to characterise the sample according to the level of menopause-related QoL, to assist with participant selection and aid the transferability of the findings (Lincoln & Guba, 1985). The questionnaire demonstrates good overall internal consistency across all four domains, with the highest Cronbach's Alpha in the sexual domain ($\alpha$= .89), followed by physical ($\alpha$=.87), vasomotor ($\alpha$=.82), and psychosocial ($\alpha$=.81) (Hilditch et al., 1996). Permission was granted by Mapi Research Trust for the use of MENQOL questionnaire in this study (Appendix E).

### *Semi-structured Interview Schedule*

A semi-structured interview schedule was developed by the research team in collaboration with the PPI member (Appendix F). The interview guide questions were designed to investigate cognitive changes during perimenopause, the impact of these symptoms on everyday life and other perimenopause symptoms which may impact cognition. The guide was used flexibly to allow the interview to be guided by the emergence of areas significant to the research question.

### Analysis

The audio recordings of the interviews were transcribed using AVIDNOTE artificial intelligence software for research. Participants' identifiable information was removed from the transcripts. To ensure the accuracy of transcription and immersion in the data, these transcriptions were reviewed by the lead researcher. The semi-structured interview data was analysed using NVivo v14 qualitative analysis software. The data was analysed following Braun and Clarke's guidance on conducting RTA (Braun & Clarke, 2019, 2021a, 2022). This analysis approach was selected to provide a robust analysis, whilst maintaining reflexive and recursive engagement with the dataset. The research analysis process followed the explicit six-phase process for engagement, coding, and theme development of the data. Braun and Clarke (2021a) provide flexibility within these steps as the analytic skills of the researcher develop. The six phases are as follows: familiarisation; coding; generating initial themes; developing and reviewing themes; refining, defining and naming themes; and writing the report. The use of a systematic coding process supports rigour by ensuring systematic engagement with meaning and patterning across the entire dataset, meaning theme development is derived from robust and detailed analytic interrogation (Brown & Clarke, 2022; Lincoln & Guba, 1985; Roberts et al., 2019).

#### *Reflexivity*

The lead researcher (Y.P) considered reflexivity using a reflective diary throughout the data collection and analytic process (Braun & Clarke, 2022). Following Braun and Clarke's (2022) guidance, one researcher led the coding of the data, however, ongoing supervision was conducted with the research team in the development of codes and themes.

The study used Lincoln and Guba's (1985) framework to assess quality and rigour within qualitative research by ensuring credibility, transferability, dependability and confirmability. This approach was used to assess trustworthiness aligned with the critical realist philosophy to ensure the applicability and utility of the findings.

## Results

A total of 29 individuals completed the online survey and 15 were interviewed. The mean age was 50 years, and the mean duration reported in perimenopause was four years. The majority of participants were of white ethnicity (n=10), followed by multiple races (n=3), black (n=1) and Alaskan Native/Asian/Native Hawaiian (n=1). Further demographic information is provided in Appendix H. Interviews were conducted between April and July 2024.

**Table 2.3**

*Participant Demographics*

| Participant Number | Ethnicity | Age | Duration of Perimenopausal (years) | MENQOL score (1-8, 8=poorer quality of life) |
|---|---|---|---|---|
| 1 | Multiple Races | 52 | 2 | 4 |
| 2 | Multiple Races | 51 | 10 | 3 |
| 3 | White | 50 | 2 | 5 |
| 4 | White | 52 | 5 | 4 |
| 5 | White | 51 | 3 | 4 |
| 6 | Multiple Races | 54 | 3 | 3 |
| 7 | Alaskan Native/Asian/Native Hawaiian | 55 | 4 | 3 |
| 8 | White | 47 | 3 | 4 |
| 9 | White | 52 | 5 | 6 |
| 10 | White | 49 | 1 | 5 |
| 11 | White | 44 | 4 | 5 |
| 12 | White | 42 | 4 | 4 |
| 13 | Black | 48 | 3 | 6 |
| 14 | White | 50 | 3 | 3 |

| | | | | |
|---|---|---|---|---|
| 15 | White | 51 | 5 | 5 |

The following four themes reflected the experiences of cognitive changes during perimenopause derived from the interviews:

1. Cognitive changes, relating to the types of cognitive symptoms experienced
2. The mental load, concerning descriptions of what it is like to experience these changes
3. Symptom synergy, regarding the interplay between cognition and other symptoms, including the management of these symptoms
4. “You either cry, or you laugh it off”, about the emotional struggle and subsequent attempts to manage cognitive symptoms

### Theme 1: Cognitive Changes

This theme captures the types of cognition-related symptoms women reported. The language commonly used by participants when describing cognitive symptoms was “forgetting” (P13). However, when considering accounts, experiences appeared to align with other constructs of neuropsychological language.

Depictions of forgetting were used to refer to memory, attention and other cognitive issues. This included word-finding difficulties. Excerpts described that “words just come out wrong or come out the wrong way around” (P10).

Others described forgetting in the context of concentration difficulties, saying they would “forget…halfway through a sentence” (P2), applying to finding words but also “the whole point of what you’re trying to say” (P2). Some described difficulties learning new information, demonstrated by the quote “it's more new things, and if they're complicated, sometimes it takes me a few more repetitions to remember it. So if I do it less frequently, it might be like, oh, how do we do this again?” (P5). Participants’ accounts commented on having to go ‘over and over’ (P14) information.

> “So I would come back after the course, I would spend an hour after the course. So it's still in here writing things down […] If it's something new, it's really hard for me to get a grip. Understanding it” (P14).

Others describe forgetting in the context of memory. “Forgetting a name” (P3), was frequently evident, even if they’ve “worked with them for years” (P14). Many accounts described forgetting actions, like “where did I just put my car keys?” (P7) or what they “want from upstairs” (P1), and many described that they “can’t remember where they are going” (P10) when driving. Participants’ accounts mostly depicted that “it’s definitely short term…long term is fine” (P1). However, a few described difficulties with long-term memories but noted it is more “mixing them up” (P13). These differences show the complexities and variations in women’s experiences.

Although forgetting is commonly the word used, many described that “you forget it and then it comes back to you” (P10) or that they “remember stuff, if someone prompts” (P11) them. This was described “like forgetfulness and then you forget it and then it just comes back to you two hours later and you think, oh, why is that just like you know, what's triggered me to remember it?” (P10). This may suggest that retrieval is the difficulty being described, yet the language used is commonly forgetting.

There was a general acknowledgement that perimenopause impacted areas of cognition associated with executive dysfunction. Many accounts recognised difficulties in areas of “focus” (P1), “switching tasks” (P12), “attention” (P14), going off on a “tangent” (P4) and “decision-making” (P13). This was articulated by one participant as “it's mostly I would say from a cognitive point of view it's the executive dysfunction. So planning, prioritising, organising, decision making, all those kind of things have just progressively got really tricky for me” (P12).

Some noted feeling like they had attention-deficit/hyperactivity disorder (ADHD). Several accounts described questioning if they had ADHD for the first time in their lives.

> “I honestly felt at one point that I had ADHD or something like that because I just totally lost the ability to concentrate on one thing and my brain is just jump into so many different things all the time” (P9).

Others who had previously believed they may have ADHD found themselves struggling to cope with the increased severity of these symptoms. Participant 12 commented, “I do think that is that they could be ADHD symptoms that preceded this, but I think it's a double whammy”.

Participants’ difficulties with “prioritising” (P5) and “planning” (P2) were discussed. The accounts disclose questioning “which one’s urgent? which one’s more important?” (P7). This is likely related to difficulties with “decision-making” (P10) apparent through the experience. This appeared to impact on the ability to function at work and prioritise what needed to be done at home, demonstrated by the quote “I am so overwhelmed by the amount that I have to do, I can't prioritise it. I can't figure out what I need to do” (P12).

Many accounts recognised a change in the ability to regulate emotions, in particular getting more “angry” (P11) and having a “temper” (P10). One participant described it as “having an out-of-body experience” (P14). This suggested that there is a dichotomy of being aware that one is experiencing emotional changes but being unable to control them. The excerpt, “and then I think, lock me up” (P11) suggests that the inability to control emotions may be perceived as a risk to others and that one must be kept away.

### Theme 2: The Mental Load

Whereas the previous theme was concerned with the types of cognitive changes women described, women also talked about their experiences of these changes, as captured in this theme and the comment, “it’s almost like the lights are on, but the neurons aren’t firing together” (P5). Several descriptions depict cognition during perimenopause as “complex to unpick” (P12). Some used known terms such as “brain fog” (P10). Others used analogies to describe the experience as “someone’s like literally stuffed my head with cotton wool” (P3). Many accounts described the overarching idea that the brain feels “full” (P6) or at “capacity” (P9).

Participant accounts note that cognitive symptoms change over time “at certain times of the month, it’s worse than others” (P11) and across stages of perimenopause for some it has “progressively got worse” (P12). Many described symptoms also change more frequently as “other times it’s fine” (P2). This variation was described as “it's a bit like my memory's random access now it's a bit like it's a snow globe and sometimes everything lands perfectly and other times it's really difficult” (P5).

Cognitive experiences were likened to Dementia or considered worse. This is demonstrated by the quote: “I'd imagine this is what it feels like to have Dementia, but you probably have not as a deeper awareness that it's all fallen apart. Whereas this is cruel, you know, that you don't have the grasp” (P2). The quote “forgetting is the most terrible thing that can happen to you” (P13) encapsulates the tribulation of the experience.

Several described experiencing the expectation of keeping up appearances that they are coping, such as “the swan. You see something that's going along quite nicely and all the time its little legs are going 100 miles an hour” (P2). This may suggest that societal expectations of women have an impact on the experience of cognitive symptoms as “women, we seem to be doing everything” (P14). Some excerpts gave the sense that women must “just suck it up” (P2) and “accept it because it’s nature, right” (P13). Again, this may imply that women are expected to cope as perimenopause is seen as a normative process.

Some described how this impacted relationships with their partners and children, resulting in a need to make amends, “I will always make amends. No matter what, I will always make amends and ensure that they recognise that this is because of mummy having hormonal difficulties or struggling with her emotions” (P12). Several excerpts described feelings of guilt or shame about their behaviour. Some accounts disclosed “crying afterwards” (P2). This may suggest an emotional impact of ruptures in relationships and an internal battle to regulate emotions.  One account noted they “don’t socialise as much” (P11), suggesting a sense of isolation as a result of being unable to control one’s emotions and fear of the potential consequences.

### Theme 3: Symptom Synergy

Much of the cognitive symptoms described appeared to be influenced by other symptoms of perimenopause and the ability to manage such symptoms. Many accounts recognised a relationship between stress and anxiety on the severity of cognitive symptoms. Throughout the data, there was a sense that these symptoms acted as a “vicious cycle” (P5) with cognition. There was a general acknowledgement of a causal paradox whereby it is difficult to know the interaction of perimenopause and other factors on cognition: “it’s a little bit chicken or egg…is it one, is it the other?” (P3). One participant commented, “I think when I'm feeling really stressed, it's worse. Yeah, definitely worse when I'm anxious and stressed” (P15). Many accounts noted having anxiety about “little things” (P7), even those who had “never suffered from anxiety” (P1). Additionally, women described worrying about the impact of emotional regulation symptoms, which may contribute to this cyclic pattern of anxiety. One participant stated, “I always sort of worry about like whether I'm being short or like you know, sort of what your tempers like” (P10).

Worry about cognitive symptoms appeared to impact sleep across accounts. Many described difficulties falling asleep due to anxiety or waking in the night and ruminating on their behaviour, if they had forgotten something, or what they needed to remember for the next day. This is shown through the quote, “so if I haven't slept well and the anxiety sometimes is a factor in that because I'll wake up for no reason then can't sleep because I'm worrying about all the things that I might have forgotten” (P5). Women also commented on the loss of sleep due to worrying about how they were perceived during times of emotional dysregulation, illustrated by the quote “yeah, I probably then get less sleep because I'm worrying about how was perceived, wondering if next time’ll be worse” (P11).

Several described the interaction of other symptoms on inhibiting sleep such as “night sweats” (P6) and “needing the toilet” (P15). This may suggest an impact of the physical symptoms of perimenopause on sleep and, subsequently, cognition. One excerpt describes this as a “cumulative effect” (P3). The participants’ excerpts gave the sense that sleep loss could be an “entire night” (P13), causing them to “wake up feeling tired” (P8).

This appeared to impact the difficulties of completing everyday tasks and responsibilities in women's everyday lives. This is portrayed by the quote "the insomnia can really affect, affect my cognition at some point, because when you don't get enough sleep, you don't think straight" (P13).

Many accounts recognised trying to make lifestyle changes such as "exercise" (P7) or medical changes to manage both physical and cognitive symptoms. Some disclosed taking prescribed medications such as HRT. One participant said, "I think the patches have helped with that flush thing…and the night sweating that. That seems to have really levelled off. So yeah, I would say they've helped" (P3). Others appeared to prefer to make "natural" (P10) changes, for some due to medical reasons. One participant commented, "I think if I didn't take my magnesium, I would probably definitely feel it, because magnesium just helps you drift. It just helps me drift off to sleep" (P7).

Several excerpts described barriers to taking treatments aimed to help manage interacting symptoms, such as forgetting to take medications. Many participants noted HRT to be complex to remember. One participant commented, "when I was given it, I was told by the doctor what to do. And by the time I got my prescription, I forgot what I had to do" (P14). This may suggest that the cognitive demands required to take medications are too much for perimenopausal women who state difficulties with these skills. Some accounts noted that strategies like having a "routine" (P12) helped to remember, however, for HRT the patterns were often too irregular. This is shown by the quote, "no matter if I put a reminder on my phone, I'm lucky if I remembered the full course in that month" (P11). This led to a sense of doubt:

> You have to take the progesterone at night anyway. But I would always do my oestrogen in the evenings as well. So I'd be like, what have I forgotten? I've forgotten something. So there's this constant sense of that. Have I gone through all the medication I need to take? (P12)

The above excerpts suggest that the process of taking medications is made more difficult due to the cognitive symptoms themselves. This may inhibit the potential benefits associated with taking medications, suggesting a trap of cognitive difficulties.

### Theme 4: “You either cry, or you laugh it off”

There was a general acknowledgement that the experience of cognitive changes is “terrible” (P11). This appeared to be related to a fear of the future as there was an awareness that it could get “worse” (P7). Several statements described the experience of forgetting as “frustrating” (P13) as they could not get their words out or function the same as they used to. These changes appeared to result in difficult emotions associated with a change of “identity” (P12) from one’s pre-menopausal self. One participant described this as, “it's frustrating because you know quite well before it started you were capable of it. So sometimes you feel like a failure” (P11). Another said, “I just feel stupid because I just feel like I'm not capable anymore” (P9). Many participants described the impact these changes had on their “confidence” (P4) as they often felt “embarrassed” (P3). Questioning what others thought of them seemed to be echoed in accounts: “I would have thought, what's the matter with that woman? Like, is she an idiot or something? Can't she understand what she's been asked to do?” (P5).

When experiencing cognitive difficulties, many described using humour to cope, with one participant saying, “you either cry, or you laugh it off” (P11). This may reflect the emotional struggle of the experience and a need to connect with others through humour to cope. However, there was variability between participants and over time: “well, I can't get upset about it. It makes people laugh and I don't mind them laughing” (P14) compared to “other times I can be a little bit more lighter with it, a bit more like aha, that's funny kind of thing. But that can vary” (P12).

Some excerpts gave the sense that cognitive difficulties contributed to an inability to “function at work” (P5) or caused them to be “falling behind significantly” (P12). Work appeared to be impacted by forgetting, as women cannot remember what they have “got to do” (P14). This appeared to create a fear of making a “mistake” (P5). On a few occasions, the beliefs that forgetting at work is “not very professional” (P14) and not meeting the “expectations” (P14) of their role were commented on. Some described the difficulties as becoming too much that they needed time “off work” (P12). Some described that “flexibility” (P6), “less stress” (P1) or having a “menopause-friendly employer” (P15) helped to make work more manageable. Some participants’ accounts noted that they were “better able to function at work” (P15) because they had to focus but noted this required a lot of effort to be “hyper-vigilant” (P5). One participant commented, “I seem to be better at work. It's almost like, you know, I have an important job to do and I'm so focused on getting it done” (P15). These ideas contribute to the idea of variability in women’s experiences across individuals and situations.

In an attempt to manage symptoms, women commented on developing techniques. One participant felt that by making these changes, their symptoms became manageable: “so far, I mean, it's not, it's not life changing for me, you know, it's not, you just adapted, like I said, the lists and things like that” (P1). However, feeling able to cope was dependent on these changes. The need to “write everything down” (P3) was frequently evident to mitigate the impact of forgetting. Many accounts noted lists as a method to remember. One participant commented, “if I didn't have those lists, I wouldn't. I don't think I'd be able to do my job” (P4).

The participant’s accounts disclosed that they may “argue” (P7) with family about forgotten conversations. Some excerpts gave the sense that strategies helped to prevent a “row” (P4). Several described the use of their phones to create shared calendars, which were supported by producing reminders to prompt them of upcoming plans.

> “If I do not put into my diary for work, outside of work, any of the kids stuff, any of my medical appointments, any of their medical appointments, any school things, any after school things, life things, it's not put in the diary on a shared calendar between me and my husband it’s gone. So that is the reality around remembering things. And that’s it, that’s what I rely on. I know I cannot rely on my mind to recall that information” (P12).

Many noted “trying to describe” (P11) what word they were trying to say, relying on others to help prompt them. This was referred to as helpful support from others.

## Discussion

The qualitative analysis identified four overarching themes. Cognitive changes captured cognitive issues, including word-finding, concentration, memory, recall, executive functioning and emotional regulation. The mental load explored the experience of these changes. Symptom synergy and “You either cry, or you laugh it off” depicted the interplay of physical symptoms, sleep, cognition, emotion regulation, distress, guilt and coping. The findings highlight women’s multifaceted experiences and efforts to cope in daily life.

The findings suggest women commonly describe their cognitive difficulties as ‘forgetting’; however, the descriptions aligned with the neuropsychological language of word-finding, concentration, memory and recall. This supports areas of cognition commonly reported to be affected (Berent-Spillson et al., 2017; Greendale, 2020; Pullens et al., 2010). The current study found nuances between forgetting and retrieval as symptoms evolve over time, raising questions about whether difficulties are with input, retrieval, attention, concentration or language processing. This corresponds to existing theories of retrieval-induced forgetting, which suggest that forgetting is the consequence of an inhibitory mechanism which interferes with accessing target items (Murayama et al., 2014).

Previous research has linked executive functioning deficits to perimenopause (Berent-Spillson et al., 2017). This study provided new insights into the appraisal and experience of cognitive symptoms, likened to executive functioning and frontal system-type difficulties. This can be shown by women’s explicit reference to attention and executive functioning and descriptions of symptom patterns (such as difficulties focusing, prioritising, planning and decision-making). Some women related their experiences to those of ADHD, characterised by difficulties in executive functioning (Castellanos et al., 2006). These findings may be likened to adult-onset ADHD, as symptom onset or intensity often coincides with menopause, contributing to later-age diagnosis in women (Wasserstein et al., 2023).

Within the findings, ‘forgetting’ was shown to impact identity due to feelings of embarrassment and loss of one’s previous self. While menopause’s threat to identity has been noted, the specific impact of cognitive changes concerning identity is unexplored (Yazdkhasti et al., 2016). The findings showed that cognitive difficulties impacted women’s ability to perform their work to the same level as pre-menopause, leading to feelings of failure and, for some, resignation. The cognitive-transactional theory explains how emotional responses like shame and identity loss worsen the perception of cognitive difficulties (Lazarus & Folkman, 1987), creating a vicious cycle that may have further psychological and cognitive effects.

The results highlighted difficulties in regulating emotions during perimenopause, particularly feelings of uncontrollable anger, often referred to as ‘menopause rage’, which has societal expectations of women to self-manage (Orgad et al., 2024). The study found that anger led to feelings of guilt and a responsibility to repair one’s behaviour, reflecting societal views that women should control their emotions (O’Reilly et al., 2024). These constructs may be sociocultural normative, influencing the meaning attributed to such experiences (O’Reilly et al., 2023). The findings suggest such behaviours have a large cost for women. As a result, some choose social avoidance due to fear of the impact on others. These feelings and behaviours may manifest into more severe forms of mental health difficulties.

Research to date has not provided sufficient evidence to explain how depression, sleep problems, and VMS interact with cognition during perimenopause (Greendale et al., 2010, 2020; Metcalf et al., 2023). The results of the current study support the idea that cognitive symptoms do not occur in isolation. The heterogeneity of symptomology across individuals and time supports the complexity of understanding cognitive symptoms within the context of other interacting factors relating to life and perimenopausal symptoms, supporting the ‘domino theory’ hypothesis (Campbell & Whitehead, 1977; Hamoda et al., 2020). The study provides a unique interpretation of cognitive difficulties by highlighting how treatments like HRT, aimed to improve sleep and VMS, are hindered by cognitive difficulties, creating a cycle of cognitive entrapment.

The findings question the concept of ‘subjective cognitive decline’ and highlight difficulties in identifying objective cognitive changes through existing neuropsychological tests (Unkenstein et al., 2016). The current study showed that women experience a selection of VMS, sleep, cognitive and emotional symptoms that interact and change over time and are influenced by HRT and other treatments or strategies. These symptoms vary in their emotional impacts depending on women’s fears and expectations, many of which are rooted in social contexts such as beliefs about women’s roles. These ideas may explain why neuropsychological test-based studies which decontextualise cognition may not accurately capture cognitive changes during perimenopause. Thus, it is erroneous for negative findings of test-based studies to be interpreted as showing the absence of ‘objective’ cognitive changes and therefore to imply women’s experiences as merely ‘subjective’.

### Strengths

Strengths of the research include the use of anonymous semi-structured interviews, which gave space for the understanding of the true experiences of cognition in the context of real-world experiences, providing a nuanced and detailed account. The systematic RTA approach used to analyse the data supported the credibility of the research to support the accuracy and truthfulness of the findings (Lincoln & Guba, 1985). Adopting reflexivity allowed for the critical examination of researcher biases, perspectives and interpretations to be explored within the analytic process to support the transparency and credibility of the findings (Braun & Clarke, 2022). The collection of demographics and MENQOL data supports the contextualisation of the sample and therefore transferability of the findings. The credibility of the findings was also supported by PPI involvement throughout the research process (including question development, the interview topic guide and theme conceptualisation).

## Limitations

A key limitation of this study is the self-report of perimenopause. Therefore, caution should be applied when relating this knowledge to clinical populations. This is an existing problem within the literature due to discrepancies in approaches to screening participants. Although it was advertised that the research wanted to hear all women's experiences, there may have been a bias in respondents who volunteered, who may have had a more impactful experience to share. Menopause charities supported the advertising nationally; however, interviewees were disproportionate in the number of national health service workers and/or living in one geographical location. Therefore, potentially limiting the transferability of the data and transferability of the subsequent themes developed (Lincoln & Guba, 1985). The PPI involvement within the study included one individual, which restricts the diversity of perspectives and experiences, therefore possibly limiting the credibility and confirmability of the findings as outlined by Lincoln and Guba (1985).

## Future Research

The current study provides an alternative yet complementary approach to objective measures of cognition by understanding the nature of the phenomenon and its presentation, which has the potential to guide future attempts to measure cognitive changes. Therefore, more future research is needed to develop measures which are sensitive to the multifaceted and variable factors discussed. Future research should consider the vocabulary of women's reports within research, as 'forgetting' is commonly the term used. Further exploration of the relationship between perimenopause and emerging or existing symptoms of neurodivergence is needed. Additionally, more research is needed to understand the interplay between cognition and other related perimenopause symptoms e.g. sleep lab studies. Future research should explore the emotional and cognitive interactions concerning the societal expectations of women, considering a comparison of these effects in cultures with alternative views of women's health, expectations and ageing. More research is needed to consider helpful adaptations in the prescription of medications, such as written communication or simplifying the administration process to support uptake and adherence.

## Conclusion

This study explored cognitive changes during perimenopause, revealing important implications for clinical and health psychology. The language used by women differs from that of neuropsychological research and clinical practice. The themes highlight the complexities of cognition amid other symptoms and emotional impacts. An internalised expectation to manage symptoms likely interacts with sociocultural norms. Cognitive symptoms may inhibit women’s engagement with treatments, contributing to entrapment. Further research is needed to develop tools sensitive to the complexities of cognition during perimenopause, understand the psychological-cognition interaction, and explore alternative methods to support treatment engagement.

## References

Berent-Spillson, A., Marsh, C., Persad, C., Randolph, J., Zubieta, J. K., & Smith, Y. (2017). Metabolic and hormone influences on emotion processing during menopause. *Psychoneuroendocrinology*, *76*(1), 218-225.

Bezeley. A., Marren.C., Shepherd. A. (2022). Menopause and the workplace. *1*(1).1-42.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Braun, V., & Clarke, V. (2021a). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, *18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Braun, V., & Clarke, V. (2021b). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, *13*(2), 201–216. https://doi.org/10.1080/2159676X.2019.1704846

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide / Virginia Braun and Victoria Clarke*. SAGE.

Campbell, S., & Whitehead, M. (1977). Oestrogen therapy and the menopausal syndrome. *Clinics in obstetrics and gynaecology*, *4*(1), 31-47.

Castellanos, F. X., Sonuga-Barke, E. J. S., Milham, M. P., & Tannock, R. (2006). Characterizing cognition in ADHD: Beyond executive dysfunction. *Trends in Cognitive Sciences*, *10*(3), 117–123. https://doi.org/10.1016/j.tics.2006.01.011

De Villiers, C., Farooq, M. B., & Molinari, M. (2022). Qualitative research interviews using online video technology – challenges and opportunities. *Meditari Accountancy Research*, *30*(6), 1764–1782. https://doi.org/10.1108/MEDAR-03-2021-1252

Greendale, G. A., Huang, M. H., Wight, R. G., Seeman, T., Luetters, C., Avis, N. E., Johnstone. J., & Karlamangla, A. S. (2009). Effects of the menopause transition and hormone use on cognitive performance in midlife women. *Neurology*, *72*(21), 1850-1857.

Greendale, G. A., Karlamangla, A. S., & Maki, P. M. (2020). The menopause transition and cognition. *JAMA*, *323*(15), 1495. https://doi.org/10.1001/jama.2020.1757

Greendale, G. A., Wight, R. G., Huang, M. H., Avis, N., Gold, E. B., Joffe, H., Seeman, T., Vuge, M., & Karlamangla, A. S. (2010). Menopause-associated symptoms and cognitive performance: results from the study of women's health across the nation. *American Journal of Epidemiology*, *171*(11), 1214–1224. https://doi.org/10.1093/aje/kwq067

Hamoda, H., Panay, N., Pedder, H., Arya, R., & Savvas, M. (2020). The British menopause society & women's health concern 2020 recommendations on hormone replacement therapy in menopausal women. *Post reproductive health*, *26*(4), 181-209.

Hogervorst, E., Craig, J., & O'Donnell, E. (2022). Cognition and mental health in menopause: A review. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *81*, 69-84.

Hilditch. J. R., Lewis. J., Peter. A., Maris. B. V., Ross. A., Franssen. E., Guyatt. G. H., Norton. P. G., & Dunn. E. (1996). A menopause-specific quality of life questionnaire: Development and psychometric properties. *Maturitas, 24*(6), 161-175.

Johnston-Robledo, I., & Chrisler, J. C. (2020). The menstrual mark: Menstruation as social stigma. *SEX ROLES, 68*(1-2), 9-18.

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of personality*, *1*(3), 141-169.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.

Metcalf, C. A., Duffy, K. A., Page, C. E., & Novick, A. M. (2023). Cognitive problems in perimenopause: A review of recent evidence. *Current Psychiatry Reports*, *25*(10), 501–511. https://doi.org/10.1007/s11920-023-01447-3

Murayama, K., Miyatsu, T., Buchli, D., & Storm, B. C. (2014). Forgetting as a consequence of retrieval: A meta-analytic review of retrieval-induced forgetting. *Psychological Bulletin*, *140*(5), 1383–1409. https://doi.org/10.1037/a0037505

National Health Service. (2022). Menopause. *Menopause*. https://www.nhs.uk/conditions/menopause/

NICE National Institute for Health and Care Excellence. (2024). Menopause: Identification and management. *Menopause: Identification and Management*. https://www.nice.org.uk/guidance/ng23

O'Reilly, K., McDermid, F., McInnes, S., & Peters, K. (2023). An exploration of women's knowledge and experience of perimenopause and menopause: An integrative literature review. *Journal of Clinical Nursing*, *32*(15–16), 4528–4540. https://doi.org/10.1111/jocn.16568

O'Reilly, K., McDermid, F., McInnes, S., & Peters, K. (2024). "I was just a shell": Mental health concerns for women in perimenopause and menopause. *International Journal of Mental Health Nursing*, *33*(3), 693–702. https://doi.org/10.1111/inm.13271

Orgad, S., Gilchrist, K., & Rottenberg, C. (2024). How to tame your hormones: Menopause rage in media discourse. *Feminist Media Studies*, 1–20. https://doi.org/10.1080/14680777.2024.2409970

Pullens, M. J., De Vries, J., & Roukema, J. A. (2010). Subjective cognitive dysfunction in breast cancer patients: A systematic review. *Psycho‐oncology*, *19*(11), 1127-1138.

Reuben, R., Karkaby, L., McNamee, C., Phillips, N. A., & Einstein, G. (2021). Menopause and cognitive complaints: Are ovarian hormones linked with subjective cognitive decline? *Climacteric*, *24*(4), 321–332. https://doi.org/10.1080/13697137.2021.1892627

Roberts, K., Dowell, A., & Nie, J. B. (2019). Attempting rigour and replicability in thematic analysis of qualitative research data; A case study of codebook development. *BMC Medical Research Methodology*, *19*(1), 1-8.

Sergeant, J., & Rizq, R. (2017). ‘Its all part of the big CHANGE’: A grounded theory study of women’s identity during menopause. *Journal of Psychosomatic Obstetrics & Gynecology*, *38*(3), 189-201.

Smith, B. (2018). Generalizability in qualitative research: Misunderstandings, opportunities and recommendations for the sport and exercise sciences. *Qualitative Research in Sport, Exercise and Health*, *10*(1), 137–149. https://doi.org/10.1080/2159676X.2017.1393221

Staniszewska, S., Brett, J., Simera, I., Seers, K., Mockford, C., Goodlad, S., Altman, D. G., Moher, D., Barber, R., Denegri, S., Entwistle, A., Littlejohns, P., Morris, C., Suleman, R., Thomas, V., & Tysall, C. (2017). GRIPP2 reporting checklists: Tools to improve reporting of patient and public involvement in research. *BMJ*, j3453. https://doi.org/10.1136/bmj.j3453

Unkenstein, A. E., Bryant, C. A., Judd, F. K., Ong, B., & Kinsella, G. J. (2016). Understanding women's experience of memory over the menopausal transition: Subjective and objective memory in pre-, peri-, and postmenopausal women. *Menopause*, *23*(12), 1319-1329.

Vega, J. N., Zurkovsky, L., Albert, K., Melo, A., Boyd, B., Dumas, J., Woodward, N., McDonald, B. C., Saykin, A. J., Park, J. H., Naylor, M., & Newhouse, P. A. (2016). Altered brain connectivity in early postmenopausal women with subjective cognitive impairment. *Frontiers in Neuroscience*, *10*. https://doi.org/10.3389/fnins.2016.00433

Wasserstein, J., Stefanatos, G. A., & Solanto, M. V. (2023). 2 Perimenopause, menopause and ADHD. *Journal of the International Neuropsychological Society*, *29*(s1), 881–881. https://doi.org/10.1017/S1355617723010846

Weber, M. T., Maki, P. M., & McDermott, M. P. (2014). Cognition and mood in perimenopause: A systematic review and meta-analysis. *The Journal of steroid biochemistry and molecular biology*, *142*, 90-98.

World Health Organisation. (2024). *Menopause*. https://www.who.int/news-room/fact-sheets/detail/menopause

Yazdkhasti, M., Negarandeh, R., & Behboodi-Moghadam, Z. (2016). Threat of the feminine identity: The emerging structure in exploring the process of women's empowerment for menopause management: A grounded theory study. *International Journal of Medical Research & Health Sciences*, *5*(11), 509-520.

# Chapter 3: Bridging Chapter

Word count: 274

The empirical paper in Chapter 2 aimed to understand the nature and experience of cognition during perimenopause. The findings identified that the language commonly used by women is ‘forgetting’, despite the cognitive process understood by neuropsychology being different. The findings helped to understand possible cognitive processes which women experience to be impacted such as word-finding, concentration and memory. Other areas of executive functioning and emotional regulation were also found to be affected. The findings demonstrated that these experiences are multifaceted and variable across women. The emotional appraisal and synergy with other perimenopausal symptoms are thought to create complexity. The findings drew upon social discourses, cultural variations, societal views of women and women's health to make sense of perimenopausal cognitive and psychological experiences. Women’s appraisal of their symptoms appeared to impact subsequent psychological and cognitive difficulties, creating a cyclic pattern.

The empirical paper provides advances in the understanding of the complexities and nuances in women’s experiences of cognitive changes during perimenopause. The study identified many cognitive strategies that women develop to manage symptoms, e.g. writing lists, alongside reports of cognitive challenges in adhering to prescribed medications (HRT), e.g. remembering to take the medication. Women also comment on trying to cope with symptoms naturally. Research has suggested that HRT can help symptoms of menopause with either direct or indirect benefits on cognitive difficulties and other menopause-related symptoms, however, many women choose not to engage in this type of treatment (Koire et al., 2022; Koysombat et al., 2024; Zhang et al., 2021). The study presented in the next chapter is a systematic review which aims to understand the experience of making decisions about taking HRT during menopause.

# Chapter 4: Systematic Review and Thematic Synthesis

## Exploring Women's Choices Regarding Hormone Replacement Therapy Use in Menopause: A Systematic Review and Thematic Synthesis

Word count: 5818

Formatted for submission to the British Journal of Health Psychology*

See Appendix A for formatting guidelines for authors

*Selected due to the clinical and health relevance of the topic

## Abstract

**Purpose:** To understand the experiences of women when attempting to make decisions about taking hormone replacement therapy (HRT) to treat symptoms of menopause.

**Methods:** A systematic review was conducted. Databases MEDLINE, Web of Science, APA PsycInfo and CINAHL were searched using terms relevant to the research aims. The inclusion and exclusion criteria were applied to screen the papers by the primary and secondary reviewers. A thematic synthesis of qualitative papers was used to understand the complexities of this process. The papers were coded based on resonance, relevance and rigour to identify core, central and peripheral papers to direct the analysis process.

**Results:** Eight papers were included in the review following the screening process. Four themes were derived from the data. 1) When symptoms get too much, HRT is the last resort, 2) "You've got to weigh it all up", 3) Women want informed choices and shared decision-making, and 4) The journey is unique and changeable: no single answer.

**Conclusion:** The themes highlight the impact of societal views of symptom management and provide insights into the need for personalised and informed approaches to the communication of risks between providers and women. The study raises awareness of the need for societal changes in how women are expected to cope with menopausal symptoms. The findings highlight the need for additional research to better understand these risks and effective communication methods to support women to make an informed choice about their treatment options.

**Keywords: Menopause, Hormone Replacement Therapy, Healthcare Providers, Women**

For many women, menopause is characterised by symptoms which impact their daily lives, emotional well-being, self-worth and relationships (Barber & Charles, 2023a). The use of Hormone Replacement Therapy (HRT) remains the main treatment for women during the menopause transition (NICE, 2019). The British Menopause Society (BMS) provides guidelines for women and providers to discuss HRT as a viable option for treating symptoms of menopause (BMS, 2020). Although HRT has been shown to be an effective treatment in managing symptoms, women continue to decline or discontinue the intervention within 12 months (Kyvernitakis et al., 2015; Zhang et al., 2021).

Research has documented the influence of media coverage in impacting changes in behaviour, attitudes and beliefs (Kite et al., 2023). This is relevant to menopause decision-making regarding HRT due to the increasing impact of social media and influential celebrities on the topic (Koysombat et al., 2024). In 2002, the Women's Health Initiative (WHI) published findings indicating that HRT use led to more serious health problems (e.g. coronary heart disease and breast cancer) than beneficial effects (Cagnacci & Venier, 2019). Yet, in this study, no distinction was made between users and their age, which research has since found to be an influencing factor in the cost vs benefit of taking HRT (Langer et al., 2021). The WHI publication led to changes in prescribing protocols for doctors and concern among HRT users, causing many women to discontinue its use (Kyvernitakis et al., 2015). The detrimental impact of this report and controversy over the study design led to a reanalysis of the data. The findings demonstrated the beneficial effects of taking HRT on the cardiovascular system, reducing coronary disease and all-cause mortality, particularly in younger (50-59 years) or early post-menopausal (within 10 years of post-menopausal onset) women (Manson et al., 2013). A more recent umbrella review of 60 published literature reviews showed a need to consider the trade-offs between a complex balance of benefits and harms relating to HRT use (Zhang et al., 2021). The review also found that the overall quality of the included reviews was poor, suggesting that research of better quality is needed into the physical health outcomes of taking HRT. Overall, despite the more recent data and menopause treatment guidelines suggesting HRT can be a safe and effective treatment for many women, some still have reservations and elect not to take it.

Since the initial WHI publication, much research has been conducted to understand the impact of the medical outcomes of taking HRT. Much of this research has investigated the attitudes and beliefs of providers, but few papers have focused on patient attitudes. A systematic review by Buick et al. (2005) used a narrative methodology to explore attitudes of women from 1980-2002 (before the WHI publication) revealed findings that short-term symptomatic considerations influenced the uptake of HRT, e.g. vasomotor symptoms (VMS), over long-term consequences. Furthermore, the decline of HRT was associated with viewing menopause as a natural transition. They suggested that women’s appraisal of the menopause transition directly influences their attitudes towards taking HRT. A later systematic review and meta-synthesis using mixed method analysis of papers from 2002-2010 (Tao et al., 2011) also confirmed decisions related to HRT use were related to VMS relief and built on previous findings with the addition of preventing osteoporosis and perceived improvements in quality of life. Negative beliefs included concerns of harmful effects, such as beliefs of increased risks of cancer. The most recent systematic review of cross-sectional articles, including surveys and focus groups, from 2012-2023 showed negative attitudes relating to general concerns about adverse side effects and negative beliefs from friends and family to influence treatment adherence (Pershad et al., 2023). However, this review used a narrative approach to analysis, which may omit the nuances of women’s decision-making expressed in qualitative papers. The paper comments on limitations around the sensitivity of data reporting in the qualitative studies included and acknowledges a need for further research to better understand the complex interplay of factors which shape women’s attitudes towards HRT. To summarise, some papers have identified factors which may impact women’s resolution to take HRT. However, a further review using in-depth methodologies is needed to gain a deeper understanding of the complexities involved in women’s decision-making.

Although some reviews of the literature have been completed to investigate attitudes towards HRT, the application of these ideas to theories of behaviour is lacking. The theory of planned behaviour (TPB) considers behaviour concerning attitudes, subjective norms and perceived behavioural control (Ajzen, 1991). Research has suggested the application of the TPB to explain women's decision-making towards HRT (Légaré et al., 2003; Quine & Rubin, 1997; Spatz et al., 2003). Furthermore, research has identified the benefits of implementing theory-driven behaviour change interventions during menopause (Simpson et al., 2024). A review of the up-to-date literature is needed to understand the complexities of these factors and consider them alongside the existing literature on decision-making and dominant theories.

Since the WHI publication, three reviews of the literature have been found to investigate women's attitudes and behaviours relating to taking HRT (Buick et al., 2005; Pershad et al., 2023; Tao et al., 2011). Buick et al. (2005) highlighted that women's perceptions of HRT influence the decision-making process using a narrative methodology. Tao et al. (2011) conducted a meta-synthesis of qualitative and quantitative studies and identified positive and negative factors associated with risks concerning the WHI publication. Attitudes from qualitative papers in this study were pooled into identified categories for inclusion in the meta-analysis. Pershad et al. (2023) used a narrative approach to analyse quantitative and qualitative papers, finding themes of demographic, environmental, contextual and healthcare-related factors to be influential. Although previous reviews have contributed knowledge to the field, they lack a nuanced approach to qualitative analysis. The approaches used potentially overlook insights into the profound understanding of women's experiences and evidence the need for a robust review of existing qualitative data.

It is important to understand the reasoning behind decision-making to aid clinicians in supporting women to make informed decisions about their treatment and ensure that women have access to available treatment options to support symptom management. Therefore, given the limitations in the analysis of qualitative data and the missing application to existing theories of health behaviour, the current review aims to address the gaps in the existing literature. The review aims to do this by using sensitive and nuanced analysis of qualitative research to address the experiences of women when making decisions about using HRT as a treatment for menopause.

### Review Objectives

1. What are the ways in which women make decisions about taking HRT or not taking HRT during menopause?
2. What is important to women when making decisions about the uptake or continuation of taking HRT?
3. What are the variables which influence women's decision-making to take HRT or not take HRT during menopause?

## Methods

The review adopted a critical realist approach using the thematic synthesis framework by Thomas and Harden (2008) (Tong et al., 2012). Braun and Clarke's (2021) guidance for conducting thematic analysis was used to guide the coding process and support the authors' interpretations of the findings. The ENTREQ guideline was used to assist in clear and transparent reporting of the review (Tong et al., 2012)(Appendix I).

### Study Registration

The protocol was submitted on 17th June 2024 via the International Prospective Register of Systematic Reviews (PROSPERO; Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42024556842).

### Eligibility Criteria

Inclusion and exclusion criteria were developed according to the PICO framework, and adapted for use in qualitative review (Richardson et al., 1995).

#### *Population*

Papers were included with participants who experience menopause transition symptoms (including perimenopause and post-menopause) and participants who are biologically female going through the biological process of menopause (regardless of cause, as this is difficult to differentiate within the literature). Participants were from any age range within the menopause transition. Excluded were studies of females relating to a specific group, such as cancer treatment or with a significant focus on the attitudes and beliefs of others, such as stakeholders or healthcare professionals (HCPs).

*Intervention*

Papers related to taking HRT were included. Excluded were papers specifically related to HRT decision-making for other diagnoses, e.g. cardiovascular disease and those which only evaluate medical clinical outcomes or dosage of HRT used.

*Outcome*

Papers with primary research questions addressing attitudes and decision-making were included.

Studies collecting primary data and using qualitative design methodology were included in the review. Papers were from peer-reviewed journals only. Papers not written in English or where a translation or full text was unavailable were excluded. If missing data was required, then an attempt to contact the publisher and/or author was made.

## Search Strategy

A pre-planned systematic search of the literature was conducted by the primary researcher (Y.P) within the databases across all publication years up to the present day (11th March 2025) (Richardson et al., 1995). The following databases were searched: MEDLINE, Web of Science, APA PsycInfo and CINAHL. Detail of the full search strategy is provided in table 4.1.

**Table 4.1**

*A Table to Show Database Search Terms and Syntax*

| Search Number | Fields | Search Terms |
|---|---|---|
| 1 | Title | meno* or perimeno* or postmeno* |
| 2 | Title | AND decision* or decid* or belie* or percept* or view* or attitud* or barrie* or knowledge or behaviour or uptake* or "take up" or attrition or compliance or noncompliance or adherence or nonadherence or influen* or facillit* or continu* or discontinu* or factor* or acceptance |

| | | |
|---|---|---|
| 3 | Abstract | AND hrt or "hormone replacement thera*" or "oestrogen replacement thera*" or "oestrogen replacement therap*" or “meno* therap*” or “hormone therap*” or “menopause hormone therap*” or testosterone, (abstract) AND interview* or "focus group*" or qualitative |

### Study Selection

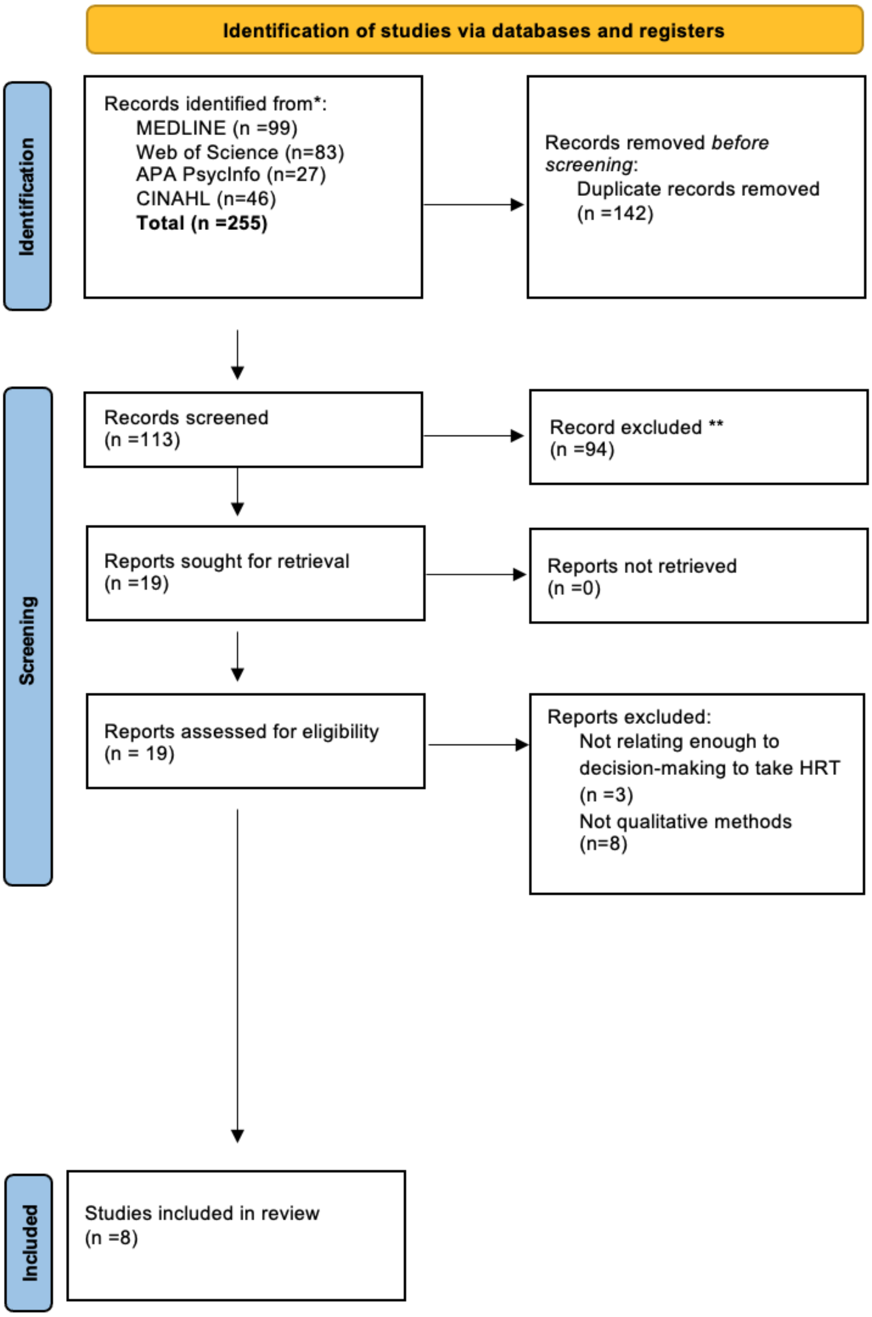
The results from the electronic searches were imported into rayyan intelligent systematic review software. The screening process was performed by the primary reviewer (Y.P) and 20% of the title and abstract screening was completed by a second reviewer (A.E). A third reviewer (F.G) was consulted if a decision could not be reached through discussion. The primary researcher (Y.P) then screened full text papers.

### Study Selection Results

The initial study selection identified 255 papers. After removing 142 duplicates, a total of 113 papers were included for screening. A total of 8 papers were ultimately included in the review. A PRISMA flow chart (Figure 4.1) provides a summary of the screening and selection process.

**Figure 4.1**

*PRISMA 2020 Flow Diagram of the Journal Identification, Screening and Exclusion Process*



## Quality Appraisal

The evaluation of quality in qualitative reviews is contested and ongoing in the development of effective techniques (Butler et al., 2016). In this study, a three-step approach developed by Whiffin et al. (2021) was used to prioritise the most relevant, resonant and rigorous studies to structure the coding process.

Relevance was evaluated based on the alignment of the study's primary research question and population to the review question. Resonance was established based on the content, style and richness of the study findings. Rigour was assessed using the Critical Appraisals Skills Program (CASP qualitative studies checklist, as recommended by the Cochrane collaboration (Noyes et al., 2019). As the CASP was not originally designed for scoring, the scoring criteria developed by Butler et al. (2016) was used to provide a quality rating. All papers were quality-checked by the lead reviewer (Y.P) and 50% by the independent reviewer (A.E). The outcome of these three criteria was collated to form the core, central or peripheral classification as per the approach taken by Whiffin et al. (2021) (Table 4.1; Table 4.2). Due to the developing approach and limited included papers, none were removed following quality ratings.

**Table 4.2**

*Core, Central and Peripheral Classifications of Papers*

| Type of Classification | Characteristics of Paper |
|---|---|
| Core | **Relevance:** Full alignment of the research question and review question<br>**Resonance:** Findings provide insightful and novel advances to the research area<br>**Rigour:** Thoroughly documented methodology demonstrated by CASP score of 7.5 or higher |
| Central | **Relevance:** Primary research question and review question mostly align, with relevant findings<br>**Resonance:** Findings are lacking in detail or depth of some description. Offers the potential to make meaningful contributes to the evidence base<br>**Rigour:** Thoroughly documented methodology demonstrated by CASP score of 7.5 or higher |
| Peripheral | **Relevance:** Findings are relevant, but the research question is not fully aligned to the narrative synthesis<br>**Resonance:** Findings are lacking in detail and/or descriptions, they may be tentative or superficial<br>**Rigour:** Questioning of the methodological integrity, with a CASP score of less than 7.5 |

**Table 4.3**

*Characteristics of Included Studies Table*

| Study | Research Focus | Qualitative Data Collection | Participants | Data Analysis | Key findings | CASP Score (Butler et al., 2016) | Classification of Paper (core, central or peripheral) |
|---|---|---|---|---|---|---|---|
| Barber and Charles (2023) | Barriers that impact women's access to treatment and uptake of HRT. | Interviews. | 20 menopausal women (aged 45-60), 30 GP's and 10 gynaecologists. | Grounded theory-influenced. | Barriers include lack of knowledge of symptoms, stigma, beliefs it is natural and previous negative experiences of accessing treatment. | High (9) | Central |
| Fox-Young et al., (1995) | Women's perceptions and experiences of menopause and associated topics. | 7 focus groups. | 40 women aged 45-55 (pre, peri or postmenopausal). | Theme development (unspecified). | 8 themes: obtaining information, the experience of menopause, sexuality and relationships, relationships with doctors, attitudes to HRT use, HRT and cancer, hysterectomy, osteoporosis. | Low (7) | Peripheral |
| Hunter et al., (2020) | Older women's perceptions of the benefits, risks and decision to use long-term (>5 years) HRT. | Interviews. | 30 women over the age of 60 using HRT >5 years. | Grounded theory. | Use HRT to preserve youthful physical and mental function and prevent disease. Reassurance from gynaecologists of risks reduced concerns. | Moderate (8) | Core |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kolip et al., 2009 | Attitudes of postmenopausal women towards HRT use. | Interviews. | 35 women ages 46-75. | Reconstructive analytical procedure. | Reasons included attitudes of integrity-preserving, performance-oriented, searching, faith-in-medicine and benefit-generalising. | Moderate (8) | Central |
| Ozuzu-Nwaiwi, J. (2007) | Perceptions and use of HRT among black and minority ethnic (BME) women in the UK. | Semi-structured interviews. | 22 BME women aged 45-61. | Theme development (unspecified). | Key themes: meaning and understanding, symptom management, deciding to use HRT, how they received information, doctor's attitudes, experiencing parental symptoms. | Low (6) | Peripheral |
| Padonu et al., (1996) | Perceptions and practices related to menopause and HRT. | 6 focus group and questionnaire. | 55 African-American women aged 46-56. | Content analysis. | Menopause is related to aging, psychological symptoms are more negative than VMS's, self-care and help seeking practices identified, HRT perceived negatively due to fear of cancer. | Low (7) | Peripheral |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Theroux (2010) | Women's decision-making of symptoms management during menopause. | Semi-structured interviews. | 7 peri and post-menopausal women 48-58 years old. | Content analysis. | Decision making is non-linear. Consider available options, weight benefits/risks and likely outcomes. Influence of the WHI study on risk perceptions. | Moderate (8) | Core |
| Walter et al., (2004) | Perspectives of optimal risk communication and decision making of HRT and how to improve its effectiveness. | Focus groups and semi-structured interviews. | 40 women aged 50-55. Current users, ex-users or never-users of HRT. | Thematic analysis. | Personal consultation about risks informed decision making. Lack of time, general practitioner attitudes and poor communication during consultation was identified as a barrier. | Moderate (8) | Central |

## Thematic Synthesis

### *Data Extraction and Prioritisation of Papers*

Data extraction was completed by Y.P. Data used for thematic synthesis was classified as first-order constructs (participant quotes) and second-order constructs (researcher interpretations, statements, assumptions and ideas). This allowed for the researcher's interpretation of the raw data (quotes) and the author's interpretations to support the data being grounded in participants' experiences (Butler et al., 2016). Key information including information about the study design, participant demographics, methodology, results and analysis was extracted from the papers to provide a summary (Table 4.2).

### *Stages One and Two: Coding Data and Developing Descriptive Themes*

Familiarisation of the papers took place through several readings. Initial reflections were recorded in a reflective diary. NVivo 14 qualitative data analysis software was used to create semantic and latent codes. Data from papers categorised as *'core'* was coded first, followed by *'central'* and then *'peripheral'*. The initial coding of data from core papers supported with the development of a codebook. This process allowed for saturation of the coding within higher quality papers, relevant to the research question, with fewer new codes developed as the analysis progressed. This was an iterative process, requiring revaluation of initial codes to ensure codes reflected each study. Descriptive themes were developed through the grouping of similar and different codes to create early themes which remained close to the content of the studies.

### *Stage Three: Generating Analytic Themes*

Analytical themes were developed using an inductive process. Y.P, F.G and A.S discussed the descriptive themes and potential interpretations whilst considering the influence of philosophical positions and narrative lenses. Finally, the interpretations were reviewed by a patient and public involvement (PPI) member to ensure representation of the topic.

## Trustworthiness

Lincoln and Guba's (1985) framework of credibility, dependability, transferability and confirmability was used to consider trustworthiness. Credibility was achieved through first and second-order coding to ensure themes reflected the original data. The rigorous approach of Braun and Clarke's (2021) thematic analysis and the use of an independent reviewer within the screening process further supported credibility. Information to contextualise the participants supports the transferability of the findings. Dependability is supported by a clear explanation of the analysis process. The researcher used a reflexive approach to the data analysis, which supports the confirmability of the findings to ensure they are shaped by the data rather than researcher bias. This was also supported by the discussion of themes with PPI and the research team. These criteria support the robustness, reliability and validity of the findings.

## Results

Following the screening, eight studies were included for thematic synthesis. Studies were published between 1995 and 2023 (Table 4.2). Papers originated from the United Kingdom (n=3), United States (n=3), Australia (n=1) and Germany (n=1). Data collected included interviews only (n=5), focus groups (n=2), or both (n=1). The types of analysis used were grounded theory (n=2), content analysis (n=2), thematic analysis (n=1), theme development (n=2) and reconstructive analytic procedure (n=1).

Across the studies, 249 women were involved. Participants ranged from perimenopausal to post-menopausal and included HRT users, previous HRT users and non-HRT users. Studies ranged in their reporting of demographic information, however, two studies included recruited women from black ethnic groups only.

Considering relevance, resonance and rigour (using the CASP), two papers were classified as core, three as central and three as peripheral.

Four themes emerged from the data:

1) When symptoms get too much, HRT is the last resort
2) "You've got to weigh it all up"
3) Women want informed choices and shared decision-making

4) The journey is unique and changeable: no single answer

**Theme 1: When symptoms get too much, HRT is the last resort**

This theme describes some women's choice to use HRT as a last resort for managing symptoms. Only when symptoms become too much and impact women's ability to function in daily life do women deliberate the use of HRT to manage symptoms. Others describe the belief that the symptoms of those who are not on HRT are not "severe enough" (Ozuzu-Nwaiwi, 2007), supporting the overall idea that women only take HRT as a last resort, when there's no other option and/or when symptoms are severe. One participant commented "I think I have to look into this [HT] because I don't know what else to do and I'm doing everything I can and I'm not feeling good" (Theroux, 2010). For some, this created a sense of desperation, with HRT being a life-saving option, saying "eventually I will probably take [HRT] through desperation" (Walter et al., 2004). Another participant said HRT is "like a life belt you'd throw to someone who's drowning. And then hold on tight so you don't sink." (Kolip et al., 2009).

Whilst many commented that they felt they would take HRT to manage the severity of symptoms, this was at times balanced against the idea that HRT was not a desirable option. This was depicted in the comment, "I can't stand this at the moment, so I'll just have to grit my teeth and take the hormones." (Kolip et al., 2009).

Those who had decided to take HRT noticed a significant positive impact in improving their ability to function in their daily lives and work. For some on long-term HRT, the idea of having to stop taking HRT would cause significant difficulty. One participant said, "if I'm expected to so-to-speak "master" my menopause without hormones then I'd have to resign. I can't do my job in that state" (Kolip et al., 2009). This suggests a sense of desperation relating to the loss of HRT.

Quotes indicated women's expectations that they should be able to cope without medical intervention, an implication of which is that to take HRT would be a sign of weakness. This may be linked to the idea that the strong ones can manage symptoms of menopause naturally, with some identifying with having a "just get on with it" (Barber &

Charles, 2023) attitude. One participant said “I think I had a lot of resistance to using hormones. I should be strong enough not to have to do that.” (Theroux, 2010). There seemed to be a desire to cope naturally. However, those who cannot have no choice but to use medical interventions. This was demonstrated by the quote, “I really like to keep things as close to natural as possible, but I will just have to take hormones” (Theroux, 2010).

Women acknowledged generational differences in the management of symptoms. This appeared to contribute to feelings of shame around taking HRT and possibly why it is seen as a last resort, whereby women are expected to be able to cope without it. This may be shown by the comment “my mother took nothing, not even an aspirin, so I don’t tell her I’m on HRT” (Fox-Young et al., 1995).

### Theme 2: “You’ve got to weigh it all up”

This theme describes women’s consideration of the possible risks of taking HRT and weighing them up with the potential benefits. The data extracted from studies shows how women referred to different sources of information such as the WHI publication, information from professionals, e.g., HCPs, social media and relationships with other women, which they drew on to form their decision whether to take HRT. One participant said, “you’ve got to weigh it all up” (Walter, 2004).

> “I weighed the risks and the benefits. I was getting desperate. This was no way to live. So I decided that I did just have to absorb some risk here in order to feel better because it felt like less risk than the path I was on” (Theroux, 2010).

The above quote depicts the idea that there is a consideration of the risks of being on HRT with the risks of managing without it. It also supports a continuous notion that women only consider HRT when experiencing feelings of desperation.

There was a mix of views regarding discontinuing HRT. The process of decision-making was described as a nonlinear process by one author (Theroux, 2010), whereby women consider their available options, weigh up the risks and benefits, and continuously reevaluate their decision. Some expressed an eagerness to come off it as soon as possible due to concerns about the risks, whereas other long-term users were desperate to continue using it. For some, the potential impact of the dangers of coming off HRT were too high, despite the belief that continued use may increase the risk of cancer.

> “You can threaten me, I will not stop this until I die. So, there's part of me that knows there's a risk […] at this point, if I heard that I had cancer, okay. It's the risk that I'm accepting to take, and I'd rather have cancer than Alzheimer's” (Hunter et al., 2020).

Some commented that the concerns regarding the risks were a motivator to discontinue use as soon as possible. One participant said, “I still have that little nagging concern at the back of my mind. As soon as I can get off HT, I probably should” (Theroux, 2010). Whereas for others the benefits outweighed the perceived risks, commenting “the truth is that I really do feel so much better that I’m willing to take some risks” (Theroux, 2010).

The ability to make a fully informed decision in weighing up the risks and benefits was impacted by a lack of knowledge about the benefits of taking HRT. One study reported that women were often unaware of the positive impact of taking HRT on osteoporosis (Fox-Young et al., 1995). However, there was an awareness that HRT may help reduce the risks of dementia, which was considered by women in the risk vs benefit decision to take HRT. A participant in Hunter et al. (2020) said, “I don't want to know. Having been on hormone replacement for a long time, I prefer to think there's either no impact or only a positive one on delaying dementia”.

Women reported concerns about a potential increased risk of cancer as a barrier to taking HRT, causing delays in help-seeking and taking the treatment once prescribed (Barber & Charles, 2023). The risks for some have resulted in beliefs that HRT should be avoided. Participants said, “It [HT] is something to be avoided, if possible” (Theroux, 2010) and “I just always have that fear of getting cancer…" (Padonu et al., 1996).

The following quote conveys a comparison to the ‘nature’ of hormones, which, for some provides reassurance regarding alleged risks; “It didn't seem foreign or harmful, because it was just giving back to you what you had before” (Hunter et al., 2020). This may be understood further by the idea that once women start taking HRT, they express fewer concerns about the risks (Theroux, 2010). Over time, long-term users showed a higher level of cognitive dissonance, expressing fewer beliefs about the risks of taking HRT.

Women who were able to access the WHI report drew on this when describing their decision-making. Whilst some referred to the general findings, others were aware of the criticisms of the research. It appeared that those who chose to take HRT were more aware of the flaws of this study through their own research and explanations from their HCP. This is shown by the quotes “I think so many women are basing a decision on medication on a flawed study” (Barber & Charles, 2023) and “my original doctor. . . explained the difference between the study that was done […] So I've not felt any worry about any of that” (Hunter et al., 2020). Whereas those who were more concerned about the risks had limited information:

> “I can remember when the WHI first came out, hearing how women were running from HT. I had the feeling that it was unsafe to go on HT, so I needed to know more about that ... I think that fear is a huge thing for women around this whole issue” (Theroux, 2010).

**Theme 3: Women want informed choices and shared decision-making**

This theme depicts how women desire autonomy over the decision to take HRT. The decision to take HRT concerning this theme was heavily influenced by communication with professionals and obtaining information from sources such as friends, colleagues, relatives, the media, books and the internet (Ozuzu-Nwaiwu, 2007).

A desire from women to be treated like “partners” (Theroux, 2010), alongside professionals, in the decision to take HRT was evident. Those who felt it was a collaborative decision were more likely to consider HRT, whilst those with more negative attitudes towards HRT did not feel included in the decision. The quote “doctors are kind, but they don’t treat you as a partner in solving the problem” (Fox-Young et al., 1995) demonstrates this.

There appeared to be variances between women in the desired communication style of professionals. There was an ideal balance between receiving clear guidance from professionals whilst maintaining a collaborative, non-authoritative approach. The quotes “I just wished that she’d say something off her own bat […] she always said it’s up to me”

(Kolip et al., 2009) and “yes, perhaps there’s a difficulty now between being autocratic and being patronising, which must be quite tough” (Walter et al., 2024) portray this.

The interaction women had with HCPs appeared to influence their perceptions and willingness to consider HRT, the likelihood of them adhering to the medication and continuing treatment. Additionally, having a positive initial appointment was influential to women revisiting the discussion of HRT in the future (Barber & Charles, 2023). A Kolip et al. (2009) participant said “I have a very, really, very nice GP who’s easy to talk to and . . . er . . . who’s always straight about what’s advisable and what’s not advisable. That’s what matters to me”.

Some long-term users of HRT had experienced providers who no longer agreed to continue supporting the use of HRT, leaving these women feeling frustrated as this was conflicting with their wishes. As a result, women commented on searching for alternative providers who would support their wishes to continue treatment saying, “I'll change doctors until I find one that seems to agree with my point of view” (Hunter et al., 2020).

Acquiring knowledge appeared to provide women with the power to make decisions about their treatment options. Women wanted to make an “informed choice” (Walter et al., 2004) regarding their decision. Sharing experiences among women appeared to contribute to raising awareness and increasing knowledge. Respondents said, “I told all my friends to take it, too” (Kolip et al., 2009) and “even meeting people who’ve come off it” (Walter et al., 2004).

**Theme 4: The journey is unique and changeable: no single answer**

This theme gives focus to the overall difficulty of the decision to take HRT. Women describe never truly knowing if they have made the right decision. This leaves women constantly questioning the decision to take up, continue or discontinue the use of HRT. Women questioned, “should I keep taking the hormones or not?” (Kolip et al., 2009), saying “I was just torn ...” (Theroux, 2010).

The difficulty in decision-making appeared to be made worse by unclear and conflicting information. This may impact why decision-making is not a linear process across the duration of menopause, with some women taking a prolonged time to decide (Theroux, 2010). This was made worse as “you hear so many conflicting views” (Walter et al., 2004), leaving women questioning “whom should I believe?” (Theroux, 2010).

Some women describe a concept that the decision is made harder by unclear information, with treatment options that are not specific to the individual. Some women felt they may be making the wrong decision due to a lack of knowledge or information. They described this as being a barrier to using HRT, saying “why isn’t it tailored for the person who’s there? Instead it’s a blunderbuss approach really, it’s just kind of so wide” (Walter et al., 2004).

The idea that women’s attitudes towards HRT were impacted by their personal experiences of it was documented (Fox-Young et al., 1995). This may suggest that approaches to supporting women need to consider that attitudes and experiences are individualistic.

## Discussion

This systematic review used a thematic synthesis approach to highlight the ways in which women attempt to make a decision about HRT and their experience of this process. The review identified four themes: When symptoms get too much, HRT is the last resort; “You’ve got to weigh it all up”; Women want informed choices and shared decision-making and The journey is unique and changeable: no single answer. Although some papers included in this study were focused on menopause more generally, the noteworthy extent to which HRT decision-making was discussed may suggest the importance of the choice faced by women.

A repeated theme across the studies was the need to consider the trade-offs between the risks and benefits of taking HRT. Throughout, women described balancing the believed long-term risks of cancer with the perceived dangers of not taking HRT. There was an overall sense that HRT should only be considered as a final recourse. This supports Tao et al.’s (2011) review which suggests that women take HRT to improve their quality of life. Furthermore, existing literature suggests the need for a consideration of the trade-offs between a complex balance of benefits and harms relating to HRT use (Zhang et al., 2021). Additionally, current guidance suggests that women should be supported to consider their individualised risks and benefits within medical consultations (Hamoda et al., 2022; NICE, 2019). The current study builds upon existing research by presenting the importance of women's concerns regarding the risks of *not* receiving HRT treatment, such as Alzheimer's disease. The TPB may suggest that attitudes related to knowledge of the benefits and risks of HRT would influence an individual's likelihood to engage in the treatment, with a positive attitude increasing the likelihood of taking HRT. This stresses the importance of the impact of the WHI publication on women's perceptions of the risks. The current study showed that those who believed the study to be flawed were more likely to uptake and continue HRT. Therefore, although the TPB offers helpful conceptions, the process of deliberating the risks and benefits is complex and is established in access to information.

The synthesis of data across the studies derived a theme of women desiring control over the decision to take HRT. This was particularly salient when considering interactions with HCPs. Women appeared to want to be partners in the decision-making process, whilst also placing trust in their HCPs' expertise to guide them. This raises questions as research has shown that HCP's knowledge and confidence in prescribing HRT is variable. Professionals report barriers in prescribing HRT to include a lack of true evidence-based information and inadequate training in the efficacy and safety of personalised prescriptions (Rozenberg et al., 2023). Attitudes towards HRT use were also reported to be shaped by information sources, e.g. friends and online. This supports research documenting the influence of media coverage in impacting changes in behaviour, attitudes and beliefs during menopause (Kite et al., 2023; Koysombat et al., 2024). The TPB aligns with the study findings as subjective norms reflect the perceived social pressures from significant others i.e., professionals and other sources.

A theme across the studies was the idea that women feel overwhelmed and confused by treatment options, often not knowing if they have made the right decision. A lack of confidence and conflicting guidance were documented to contribute to feelings of doubt and a desire to discontinue treatment at the earliest possibility. The ongoing confusion was thought to be impacted by personal and social issues (such as fear of judgment and expectations of being strong). This appeared to contribute to continuous reappraisal of the decision, exacerbated by a lack of confidence. For many, this seemed to result in a sense of indecision or lack of a definitive conclusion. These findings may explain existing literature, which suggests that women are reported to discontinue the use of HRT within the first 12 months (Kyvernitakis et al., 2015; Zhang et al., 2021). The findings of the study propose parallels to the concept of perceived control within the decision-making process of TPB, in terms of persistent uncertainty. Though increasing perceived control, women may be more likely to act on a clear and informed decision. The current review offers details on the nature of such uncertainties.

### Limitations

The review was constrained by the limited number of papers available in the published literature. Amongst the included papers, few had a primary research question which fully aligned with the aims of the current review. As a result, within the papers, data relevant to the current review was secondary to the primary aims. This was reflected in the lower relevance scores (Whiffin et al., 2021). These factors had the potential to impact the detail and depth of the findings specific to the review objectives. Only two papers were categorised as core, reflecting a relatively low contribution of data from studies which are high in relevance, resonance and rigour. Additionally, the rigour of included studies assessed using the CASP quality checklist noted issues of addressing the researcher-participant relationship and ethical consideration across the studies to be concerned, therefore threatening the robustness of the findings. Methodological differences were not compared across studies, however, flexibility in the analytic process allowed for a recursive approach to theme development in line with a critical realist paradigm (Braun & Clarke, 2021). Due to the limited number of qualitative studies exploring the topic, the study included papers which explored the views of women at different stages of menopause (peri- and post-). The stage and duration of menopause may impact women’s views towards taking HRT.

## Future Research

The findings show a desire for information to be tailored to women regarding individualised risks such as their health history and age. The findings suggest that HCPs spending more time with women, discussing the risks and benefits as person-specific, providing accurate information from the view of an expert and then guiding them through a collaborative decision was the preferred method for consideration of HRT. Research is needed to understand this process and develop guidance and support for professionals to best support women. More access to accurate and personalised information relating to the risks of taking and not taking HRT is needed to provide women with the necessary resources to make an informed decision about their treatment choices. Additionally, more research is needed into the individualisation of these risks and methods of effective communication of this information to women to empower them to make informed decisions about their treatment options.

Recent guidance has outlined recommendations for the individualistic prescription of HRT (Hamoda et al., 2022). However, as many of the papers included within the review are prior to the recent surge in media and research interest into menopause, they may not reflect current views. However, this highlights a lack of recent interest in exploring women's views, but rather a focus on the efficacy of HRT. More research is needed to explore women's attitudes towards taking HRT to evaluate the impact of recent knowledge and guidance. Social attitudes to women's health as needing to 'get on with it' prevailed within the research. More research is needed to explore these societal constructs in relation to their impact on women's help-seeking behaviours.

## Conclusion

The systematic review aimed to understand the experience of women when making decisions about taking HRT as a treatment for menopause. Although some reviews had been completed, there was a lack of in-depth analysis of qualitative findings to develop a rich understanding of attitudes towards HRT use. Therefore, the study used thematic synthesis of qualitative papers to unveil four themes: When symptoms get too much, HRT is the last resort, “You’ve got to weigh it all up”, Women want informed choices and shared decision-making and The journey is unique and changeable: no single answer. The themes highlight the impact of societal views of symptom management, such as coping naturally and provide insights into the need for personalised and informed approaches to the communication of risks between providers and women. The findings emphasise the need for additional research to better understand the best process for HCPs to communicate risks and benefits with women and to raise awareness regarding societal changes in how women are expected to cope.

## Reference List

Ajzen, I. (1991). The theory of planned behaviour. *Organizational behaviour and human decision processes*, *50*(2), 179-211.

Barber, K., & Charles, A. (2023). Barriers to accessing effective treatment and support for menopausal symptoms: A qualitative study capturing the behaviours, beliefs and experiences of key stakeholders. *Patient Preference & Adherence*, *17*, 2971–2980. https://doi.org/10.2147/PPA.S430203

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, *18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

British Menopause Society. (2020). HRT-guide. https://thebms.org.uk/wp-content/uploads/2022/12/04-BMS-TfC-HRT-Guide-NOV2022-A.pdf

Buick, D. L., Crook, D., & Horne, R. (2005). Women's perceptions of hormone replacement therapy: Risks and benefits (1980–2002). A literature review: Climacteric. *Climacteric*, *8*(1), 24–35. https://doi.org/10.1080/13697130500062654

Butler, A., Hall, H., & Copnell, B. (2016). A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews on Evidence-Based Nursing*, *13*(3), 241–249. https://doi.org/10.1111/wvn.12134

Cagnacci, A., & Venier, M. (2019). The controversial history of hormone replacement therapy. *Medicina*, *55*(9), 602. https://doi.org/10.3390/medicina55090602

Fox-Young, S., Sheehan, M., O'connor, V., Cragg, C., & Del Mar, C. (1995). Women's perceptions and experience of menopause: A focus group study. *Journal of Psychosomatic Obstetrics & Gynecology*, *16*(4), 215–221. https://doi.org/10.3109/01674829509024472

Hamoda, H., Mukherjee, A., Morris, E., Baldeweg, S. E., Jayasena, C. N., Briggs, P., & Moger, S. (2022). Joint position statement by the British Menopause Society, Royal College of Obstetricians and Gynaecologists and Society for Endocrinology on best practice recommendations for the care of women experiencing the menopause. *Post Reproductive Health*, *28*(3), 123-125.

Hunter, M., Huang, A., & Wallhagen, M. (2020). "I’m going to stay young": Belief in anti-aging efficacy of menopausal hormone therapy drives prolonged use despite medical risks. *Plos One 15*(5), e0233703. https://doi.org/10.1371/journal.pone.0233703

Kite, J., Chan, L., MacKay, K., Corbett, L., Reyes-Marcelino, G., Nguyen, B., Bellew, W., & Freeman, B. (2023). A model of social media effects in public health communication campaigns: Systematic Review. *Journal of Medical Internet Research*, *25*, e46345. https://doi.org/10.2196/46345

Kolip, P., Hoefling-Engels, N., & Schmacke, N. (2009). Attitudes toward postmenopausal long-term hormone therapy. *Qualitative Health Research*, *19*(2), 207–215. https://doi.org/10.1177/1049732308328053

Koysombat, K., Mukherjee, A., Nyunt, S., Pedder, H., Vinogradova, Y., Burgin, J., Dave, H., Comninos, A. N., Talaulikar, V., Bailey, J. V., Dhillo, W. S., & Abbara, A. (2024). Factors affecting shared decision-making concerning menopausal hormone therapy. *Annals of the New York Academy of Sciences*, *1538*(1), 34–44. https://doi.org/10.1111/nyas.15185

Kyvernitakis, I., Kostev, K., Hars, O., Albert, U. S., & Hadji, P. (2015). Discontinuation rates of menopausal hormone therapy among postmenopausal women in the post-WHI study era. *Climacteric: The Journal of the International Menopause Society*, *18*(5), 737–742. https://doi.org/10.3109/13697137.2015.1037267

Langer, R. D., Hodis, H. N., Lobo, R. A., & Allison, M. A. (2021). Hormone replacement therapy – where are we now? *Climacteric*, *24*(1), 3–10. https://doi.org/10.1080/13697137.2020.1851183

Légaré, F., Godin, G., Dodin, S., Turcot, L., & Laperrière, L. (2003). Adherence to hormone replacement therapy: A longitudinal study using the theory of planned behaviour. *Psychology & Health*, *18*(3), 351–371. https://doi.org/10.1080/0887044031000146824

Manson, J. E., Chlebowski, R. T., Stefanick, M. L., Aragaki, A. K., Rossouw, J. E., Prentice, R. L., Anderson, G., Howard, B. V., Thomson, C. A., LaCroix, A. Z., Wactawski-Wende, J., Jackson, R. D., Limacher, M., Margolis, K. L., Wassertheil-Smoller, S., Beresford, S. A., Cauley, J. A., Eaton, C. B., Gass, M., & Hsia, J. (2013). Menopausal hormone therapy and health outcomes during the intervention and extended poststopping phases of the women's health initiative randomised trials. *JAMA: Journal of American Medical Association*, *310*(13), 1353-1368. https://doi.org/10.1001/jama.2013.278040

National Institute for Health and Care Excellence. (2015). *Menopause: identification and management* [NICE Guideline NG23]. https://www.nice.org.uk/guidance/ng23/chapter/Recommendations#identifying-perimenopause-and-menopause

Ozuzu-Nwaiwu, J. (2007). Black women's perceptions of menopause and the use of HRT. *Nursing Times, 103*(2), 24-25.

Padonu, G., Holmes- Rovner, M., Rothert, M., Schmitt, N., Kroll, J., Rovner, D., Talarczyk, G., Breer, L., Ransom, S., & Gladney, E. (1996). African-American women's attitudes and expectations of menopause. *American Journal of Preventative Medicine, 12*(5), 420-423.

Pershad, A., Morris, J. M., Shearer, K., Pace, D., & Khanna, P. (2023). Influencing factors on women's attitudes toward hormone therapy acceptance for menopause treatment: A systematic review. *Menopause*, *30*(10), 1061–1069. https://doi.org/10.1097/GME.0000000000002243

Quine, L., & Rubin, R. (1997). Attitude, subjective norm and perceived behavioural control as predictors of women's intentions to take hormone replacement therapy. *British Journal of Health Psychology*, *2*(3), 199–216. https://doi.org/10.1111/j.2044-8287.1997.tb00536.x

Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: A key to evidence-based decisions. *ACP Journal Club, 123*(3), A12-13. https://www.ncbi.nlm.nih.gov/pubmed/7582737

Rozenberg, S., Panay, N., Gambacciani, M., Cano, A., Gray, S., & Schaudig, K. (2023). Breaking down barriers for prescribing and using hormone therapy for the treatment of menopausal symptoms: an experts' perspective. *Expert Review of Clinical Pharmacology*, *16*(6), 507-517.

Simpson, E. E. A., Doherty, J., & Timlin, D. (2024). Menopause as a window of opportunity: The benefits of designing more effective theory-driven behaviour change interventions to promote healthier lifestyle choices at midlife. *Proceedings of the Nutrition Society, 83*(2),120-129. 10.1017/S002966512300481

Spatz, B. A., Thombs, D., Byrne, T. J., & Page, B. J. (2003). Use of the theory of planned behaviour to explain HRT decisions. *American Journal of Health Behaviour*, *27*(4), 445–455.

Tao, M., Teng, Y., Shao, H., Wu, P., & Mills, E. J. (2011). Knowledge, perceptions and information about hormone therapy (HT) among menopausal women: A systematic review and meta-synthesis: PloS one. *PloS One*, *6*(9), e24661. https://doi.org/10.1371/journal.pone.0024661

Theroux, R. (2010). Women's decision making during the menopausal transition. *Journal of the American Academy of Nurse Practitioners*, *22*(11), 612–621. https://doi.org/10.1111/j.1745-7599.2010.00553.x

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, *8*(1), 45. https://doi.org/10.1186/1471-2288-8-45

Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology*, *12*(1), 181. https://doi.org/10.1186/1471-2288-12-181

Walter, F. M., Emery, J. D., Rogers, M., & Britten, N. (2004). Women’s views of optimal risk communication and decision making in general practice consultations about the menopause and hormone replacement therapy. *Patient Education and Counselling*, *53*(2), 121–128. https://doi.org/10.1016/j.pec.2003.11.001

Whiffin, C. J., Gracey, F., & Ellis-Hill, C. (2021). The experience of families following traumatic brain injury in adult populations: A meta-synthesis of narrative structures. *International Journal of Nursing Studies*, *123*, 104043. https://doi.org/10.1016/j.ijnurstu.2021.104043

Zhang, G.-Q., Chen, J.-L., Luo, Y., Mathur, M. B., Anagnostis, P., Nurmatov, U., Talibov, M., Zhang, J., Hawrylowicz, C. M., Lumsden, M. A., Critchley, H., Sheikh, A., Lundbäck, B., Lässer, C., Kankaanranta, H., Lee, S. H., & Nwaru, B. I. (2021). Menopausal hormone therapy and women’s health: an umbrella review. *PLOS Medicine*, *18*(8), e1003731. https://doi.org/10.1371/journal.pmed.1003731

# Chapter 5: Discussion and Critical Evaluation

Word count: 6066

This chapter draws together the findings from the systematic review and empirical paper. The chapter begins with my reflections on the research process, followed by a summary of the research and an overall discussion concerning the existing literature in the field of menopause, HRT, and cognition, as well as the contributions to the research area. Further evaluation of the ontological and epistemological positionings and additional information on the methodological process are reflected on, followed by the strengths and limitations of the work conducted and the impact of this on clinical practice, theoretical underpinnings and future research.

A qualitative empirical study was conducted to understand the nature and experience of cognitive symptoms in the everyday life of perimenopausal women. The use of reflexive thematic analysis (RTA) identified the reality of women's experiences and the relationship that cognitive factors had on psychological symptoms such as frustration and change in identity. Symptoms impacted women's ability to cope in everyday life, often resulting in a further bearing on their work and family life. Identified was the impact of other symptoms such as anxiety, stress and sleep in mediating cognitive changes. The study recognised areas of cognition which were impacted such as word-finding, concentration, memory, recall, executive functioning and emotional regulation. The paper recognised the complexities of cognition during perimenopause, dependent on a multitude of variables.

A systematic review of existing qualitative studies of women's attitudes towards taking HRT and a thematic synthesis of the data was completed to further explore the experience of making decisions about hormone treatment options. The findings identified feelings of desperation, consideration of the risks and benefits, autonomy over the decision and a continued re-evaluation of the decision to be key elements. The findings helped to highlight the complexities of the decision and the importance of access to accurate and individualistic information. The idea of the naturality of menopause as a biological process and the idea of trying to cope first without medical intervention was highlighted in the decision-making process.

## Reflections on the Research Process

The initial development of the research concept was derived from my interest in clinical and health psychology, in addition to wanting to develop my knowledge of neuropsychology during ClinPsyD training. Through discussions with the research team, it was later discovered that a project relating to menopause was also individually proposed by a member of the ClinPsyD program service user and carer group, who had identified this as an important topic to be explored. This individual later became a key and influential patient and public involvement (PPI) member, helping to guide the research in a meaningful way. I was inspired to consider cognition in relation to perimenopause due to witnessing the profound and unusual changes women in my life were reporting; however, little confirmation or validation of these experiences was acknowledged within the literature. Experiences of cognitive or neuropsychological change were often reported as being ‘subjective’ or undetectable using existing neuropsychological assessment measures. Therefore, the production of a project to explore these ideas to better understand the experiences of women became an interesting and personally motivated topic.

Frequently throughout the research, I felt emotionally impacted by the experiences of the women involved. This resulted in my personal reflections on societal impacts and expectations of women, often causing me to relate to my own experiences as a female. These reflections included consideration of my own attitudes towards menopause and hormone treatments, influenced by comments from participants about my age and the future inevitability of symptoms such as “you’ve got all this to come”. Hearing women’s experiences within the qualitative interviews provided them space for their voices to be heard, with many reporting they found it therapeutic just to be listened to. I felt moved by participants’ experiences and at times frustrated at what felt like injustice and a lack of understanding of the magnitude of the impact some women experience. These strong emotions widened my understanding of the importance of the topic and further motivated me to capture women’s meaningful experiences.

As the lead researcher, being a female subject to the biological condition within my lifetime, it felt important to capture the impact of my personal reflections throughout the research process (Braun & Clarke, 2022). I used my relatability in understanding the experience of hormone changes across the lifespan to relate to women and ask questions in a genuine and inquisitive way. I feel this allowed the interviewees to be vulnerable and share their personal and often evoking emotions in a safe space. My interaction with the data progressed through the analysis process and motivated me to engage with the data to ensure participants' views were captured.

As someone who is new to qualitative research, the experience has been rewarding; however, at times I have found the discursive nature challenging. Learning more about the appropriate terminology and the idea of ontologies and epistemological philosophies has allowed me to better understand myself as a researcher and discover my personal positioning as a critical realist. Throughout the experience of conducting the analysis, I distinctly remember relating to the reflective thematic analysis (RTA) chapter titled 'finding, losing, then finding your way again' (Braun & Clarke, 2022). Initially, the idea of this approach to going backwards to go forward with the iterative nature of RTA was terrifying to me, especially given the time pressures of the project, finding myself only focusing on the concept of going *backwards*. However, during my experience, I began to understand the necessity of this process. I used Braun and Clarke's (2022) resources to help confront and validate my anxieties, ultimately finding myself propelling forward in the analytical process.

For the empirical research, I planned to initially understand the nuances of cognitive difficulties experienced during perimenopause. When analysing and engaging with the inductive and iterative process of RTA what emerged from women's reported experiences was the significant emotional synergy of these symptoms and their complexity with the impact of everyday life. The process of theme refinement with the research team was necessary to reevaluate the attention given to describing cognitive experiences whilst endorsing a qualitative approach to represent the emotional challenges profoundly coherent across the interviews. The balance of considering Braun and Clarke's (2022) guidance of creating complex and multifaceted themes and limiting the use of subthemes, whilst ensuring the key concepts were portrayed, was considered.

## Overview of Results

This portfolio brings together existing and novel contributions to the research area of cognition and symptom management of women during the menopause transition. The papers highlight the biological reality of menopause whilst contextualising these experiences as a response to socially constructed underpinnings which position the voices and experiences of women.

The aim of the research reported in the empirical paper was to understand the nature and experience of cognitive changes during perimenopause. To address this aim, Braun and Clarke's (2022) RTA approach to analysing qualitative semi-structured interviews was used. The theme, Cognitive changes captured the types of cognitive experiences, including word-finding, concentration, memory, recall, executive functioning and emotional regulation. The theme The mental load added to these ideas by understanding the depiction of experiences. The themes 'Symptom synergy' and "You either cry, or you laugh it off" concerned the interplay of menopause-related symptoms, emotive challenges and resourceful strategy development.

The systematic review paper aimed to improve the understanding of the ways in which women attempt to make decisions about HRT and their experience of this process. HRT is recommended to treat menopause symptoms and has been found to have protective effects on cognitive function and prevent decline (Koire et al., 2022; NICE, 2015; Sochocka et al., 2023). Despite this, reluctance in the uptake of HRT and dropping out once started are common (Zhang et al., 2021). The systematic review aimed to address this by synthesising the research on experiences of women's decision-making from a qualitative perspective, to better understand this as a complex and socially contextualised phenomenon. Thomas and Harden's (2008) approach to thematic synthesis was used, with the addition of Braun and Clarke's (2021) thematic analysis to assist in the qualitative process. The findings were applied to existing theories of health behaviour.

Overall, women's decision-making was complex, informed by the information they had access to and their understanding of it, was highly personal and was therefore an ongoing and intangible process. The following four themes were derived from the analytic process: When symptoms get too much, HRT is the last resort, "You've got to weigh it all up", Women want informed choices and shared decision-making, and The journey is unique and changeable: no single answer. Pertinent to the findings was the idea of natural ways to manage menopause being associated with a woman's strength and ability to cope with everyday life. Feelings of desperation were what prompted women to consider the perceived potential risks and benefits of taking HRT. The experience of women's contact with professionals impacted this decision, based on the likelihood of feeling like a partner in the decision and the degree to which they trusted the professionals' knowledge. There was a sense that women wanted treatment to be personalised to them, their health needs and presentation. Present was the idea that long-term users became less concerned about the possible risks, moving towards decreasing cognitive dissonance towards the benefits HRT had provided them. This suggests that the initial barriers are uptake and initial adherence, after which attitudes change over time. The publication of the WHI report was considered in women's decision-making, whilst some referred to the general findings, others were more critical of the research and aware of its limitations which subsequently impacted their interpretations of the risks.

## Combined Discussion: A Summary of Additional Findings

The empirical paper focused on understanding the nature and experience of cognitive difficulties in perimenopause, whereas the systematic review focused on the experience of making decisions about taking HRT to treat menopause-related symptoms. Narratives that women must be strong and appear to cope whilst balancing feelings of shame and stigma were prevalent across both studies. The idea that women must 'get on with it' and that a 'natural' approach was preferred appeared to relate to this. This demonstrates the types of social discourses women draw upon and conceptualises existing sociological ideas within women's health (Short & Zacher, 2022). This may explain the emerging literature in complementary and alternative medicine (CAM) for a search for 'natural' relief from symptoms (Posadzki et al., 2013). However, this creates a dichotomy whereby cultures which view menopause as a normal ageing process are reported to experience fewer related symptoms (Hickey et al., 2021). This may suggest that viewing menopause as 'natural' is not problematic, but rather negative discourses towards menopause, which increases the severity of symptoms (Aljumah et al., 2023). Existing theories build on this by proposing that the medicalisation of menopause reinforces negative views about reproductive ageing (Ciolfi Felice et al., 2021). This may be understood through a critical realist lens whereby the symptomology across women exists. Still, the level of psychological difficulty experienced is mitigated by a feedback loop influenced by societal expectations of women, which vary across cultures.

The findings showed the need for women to be able to develop strategies to cope, out of resilience and internalised expectations of symptom management. This sense of fostered autonomy may be a result of an accumulative experience of managing hormone-related experiences across the female lifespan. Throughout the female lifespan, women experience other biological hormonal events which are supported through medical management, such as puberty, the menstrual cycle, pregnancy and postpartum, as well as contraception, infertility, miscarriage and birth trauma. From adolescence, women are continuously navigating the physiological and emotional challenges of menstruation within a societal framework of stigmatisation and medical intervention (Olson et al., 2022). Barnes (2014) discusses the emergence of similar themes across these events, including the importance of biological bases, social environment and support, and the role of health professionals in women's experiences. Olson et al. (2022) acknowledge that the invisible power of stigma must first be recognised to be actively challenged and therefore disbanded. This portfolio provides a step in this direction to capture the impact of societal construction of women's experiences of health across the lifespan.

The findings identify that access to support and helpful information can be challenging. When women do eventually overcome the barriers and seek professional help, the experience seems to be impacted by a lack of collaboration and reassurance of professional knowledge. Women’s experiences of difficulty accessing help are evidenced in the literature (Aljumah et al., 2023). NICE guidelines stress the importance of tailoring treatment approaches to individual circumstances and provide clear guidance on how to communicate the risks, benefits and consequences of HRT (NICE, 2015). However, the conclusions drawn within the portfolio suggest that women’s experiences of healthcare relating to menopause do not align with NICE guidance. Personalised, up-to-date and clear evidence of what help is needed to influence healthcare policy and guidance to support women to make informed decisions about their treatment options. Qualitative research is needed to understand women’s experiences from a social justice view, rather than seeking a single truth about ‘are cognitive changes real’ and ‘does HRT work’. Without this, women endure avoidable misguidance over information and the healthcare system.

Across the research findings, women appeared to have an internal locus of control whereby they felt the need to mitigate the impact their symptoms had on others, do their own research and develop strategies themselves for managing symptoms. This may relate to a cultural pressure for stoicism, whereby women feel they must endure menopause due to societal and cultural narratives about women being resilient or self-sacrificing (Shore, 1999). Jack’s (1991) self-silencing theory contextualises women’s tendency to self-silence their feelings, thoughts and actions as a way of maintaining intimate relationships. These concepts have been applied to areas of women’s health issues within the lifespan (Maji & Dixit, 2019). However, less has been done to explore this within the menopause transition. Despite this, given what is known about the overlap in experiences across reproductive-related periods, it is likely that theories of self-silencing may be extended to the menopause transition. This may contribute to barriers in seeking support and reluctance to engage with treatments or emotional support due to fears of shame and failure. These ideas bring together the findings from both papers to incorporate the social expectations and pressures on women and the influence of these factors on their experiences.

The understanding that every woman's experience is unique and dynamic across the duration and stages of menopause was striking and therefore sought to be represented within the interpretations. These ideas provide a counterpoint to formal theories of cognition and behaviours which seek to simplify these experiences. The experience of menopause appeared to be influenced by biological changes, i.e. stage of menopause, duration, and hormonal fluctuations, whilst being influenced by women's unique worlds, i.e. their support network, healthcare experiences, workplace support, pre-existing psychological factors, varying levels of stress/anxiety and sleep deprivation. Whilst common cognitive experiences are recognised, the experience of these varies according to context. Experiences also shape how menopause is perceived in the media, research, healthcare and policy systems. This suggested a dynamic interaction of multifaceted systems to create individual and unique experiences of menopause. Through this understanding, we can begin to explain why the topic has been misunderstood, further adding to the experience of confusion and a lack of clarity about women's own symptoms and the best way to manage them. These nuances likely explain why understanding women's experiences within research is challenging and, therefore, creates potential barriers to developing theory and research-driven effective interventions. The ever-changing, re-assessing and evolving nature of menopause depicted across the papers likely relates to women's descriptions of searching for answers.

## Ontology/Epistemology and Further Reflections

Self-reflection is integral to qualitative work whereby reality is constructed, varying and relative. Reflexivity is also a fundamental aspect of RTA (Braun & Clarke, 2023). The following hopes to provide transparency and, therefore, support the quality of the analytic process by sharing my reflections across the stages of initial coding to theme development and interpretation of the empirical paper.

I became increasingly aware of ensuring the voice of the participants was captured in the research and, therefore, wanted to align the research with the experiences of the participants. The following excerpt from my reflective diary dated 20.12.24 was recorded during the six-stage analytic process of RTA.

> *"As I am coding, I think the interviews could have been more cognition focused. But all the information is relevant in a way as they [symptoms] do not happen in isolation. Also, PPI was involved in the development of the interview schedule and felt the questions were important. I also think there is so much going on for women that to open up about cognition, they also need to be heard about the other stuff, which is validating. And my stance seems to be to want to share women's voices about their experiences and validate experiences which historically and currently have not been listened to or acknowledged. I think I have a bias to get on a soap box about it all. I have to be cautious about this bias regarding missing things, but also, as I have not experienced this myself [perimenopause]. I am conscious I don't want to then inadvertently overpower people's actual voices with my own."*

Additionally, as it was my first time conducting qualitative research, I had to develop my skills to think like a researcher rather than a Clinical Psychologist who formulates and looks for a direct clinical intervention. The following excerpt, dated 26.11.24, recognises this and the use of supervision to redirect my thinking to that of a researcher.

> *"Supervision has shown that I have been thinking like a Clinical Psychologist and trying to formulate to find the causes of cognitive difficulties to find treatments/solutions. But this is not right here and something I need to park to the side and reflect on to then think about other viewpoints and to refocus (like mindfulness). Think about the research question i.e. the impact on everyday life. We are NOT trying to solve the origin of cognitive difficulties in perimenopause."*

## Strengths and Weaknesses of the Present Study

The strengths and limitations of the study can be understood using Lincoln and Guba's (1985) framework for qualitative analysis, focusing on their outline of achieving trustworthiness. Trustworthiness (or rigour) used to assess the quality of a study refers to the degree of confidence in the data, interpretation and methods. The four key areas to be addressed are credibility, transferability, dependability and confirmability and, later added, authenticity (Guba & Lincoln, 1994).

## Strengths

### ***Credibility***

Credibility is achieved through the accuracy and truthfulness of the findings. A key strength of the study is the researcher's prolonged engagement with participants and the data through an iterative RTA approach. To support the immersion in the analytic process, the primary researcher transcribed (although supported by AVIDNOTE software), coded and analysed all interviews, as considered best practice in RTA (Braun & Clarke, 2023). Braun and Clarke's (2022, 2023) approach discourages the use of a codebook, rather supporting the development of codes organically as an iterative process of analysis, therefore, this guidance was followed. Additionally, a rigorous process of reflective journaling and discussions with the research team was implemented throughout the analysis.

The use of PPI throughout the research supports credibility such as developing an interview schedule aimed to gather detailed and rich information, in addition to discussing the sense-making during the analytic process. To ensure themes captured women's experiences, they were discussed with the PPI member who was continuously involved in the research from the start. They reported that the findings resonated with their own experiences whilst acknowledging the diversity of experiences between individuals. Throughout the analysis, the development of the themes was discussed with the supervisory team to capture the clear quotes which illustrate the complexity of experiences. This thorough engagement with the research process proved a strength of the empirical study. Overall, the engagement, analysis and reflective process used supports the credibility of the study.

### ***Transferability***

Transferability refers to the extent to which the findings can be applied to persons in other settings. The purposive sampling method used for the empirical study supports the transferability of the findings to similar groups. The studies provide detailed demographic descriptions of participants included within the data. Additionally, the use of the MENQOL data was used to provide initial information about participant symptoms and support with purposive sampling. Within the systematic review, the inclusion of papers which capture the voice of ethnic minority groups supported the diversity of views frequently not represented in research. Despite these papers being classed as peripheral according to Whiffin's et al. (2021) approach, the inclusion allowed for helpful contributions to consider the heterogeneity of women's experiences.

### ***Dependability***

Dependability refers to the stability of the research findings over time, ensuring the results are repeatable and stable. Strengths relating to the dependability of the study include the use of an audit trail across the duration of the research. Additionally, the use of Nvivo 14 to record the coding and development of themes across the studies proves clear documentation of their development (see Appendix J for visualisation of codes). Documented supervision was used throughout the research to detail decisions made throughout the process.

### ***Confirmability***

The confirmability of the data refers to the extent to which the findings are consistent and could be repeated. The use of the researcher's reflexivity with RTA is seen as a strength. The use of supervision and audit trails support this, in addition to the use of discussions with the research team to reflect and reduce bias. To ensure the findings were grounded in the participants' experiences, rather than researcher bias, first-order (participant quotes) and second-order (researcher interpretations, statements, assumptions and ideas) constructs were used. Initially, latent codes were formed and progressed to semantic codes as insight into the experiences of participants developed.

The findings of the systematic review were based on a thorough and systematic process. Due to the number of terms used to describe attitudes and the variety of terms associated with menopause and types of hormone interventions, many search terms were used to ensure the inclusion of papers relevant to the study's aims.

## Limitations

### *Credibility*

Due to time restraints, member checking was not within the feasibility of the study. However, following the completion of the thesis process, a summary of the findings is planned to be shared with participants (with their consent) to provide them with an opportunity to share their feedback on the findings.

The credibility of the systematic review findings was limited by the number of papers available (eight) with sufficient information relating to attitudes towards taking HRT, subsequently impacting the scope of the data available for thematic synthesis. The gold standard for conducting a systematic review is for the second reviewer to screen at every stage (Stoll et al., 2019). Due to the quantity of papers from the initial searches and the limited resources available for the project, this was not feasible. However, to target the greatest number of possible discrepancies in included papers, the resource of the second reviewer was utilised at the title/abstract stage and the quality screening, therefore supporting the maximisation of the validity of the review within the scope.

### *Transferability*

There are limitations to the transferability of the findings due to the small sample size of 15 participants within the empirical paper, therefore limiting the application of the findings to other contexts. Initially, the research aimed to use purposive sampling to create representativeness of individuals in accordance with UK census data. As fewer participants than initially anticipated applied for the study this became less feasible. Although the demographics asked about employment, the ‘type’ of employment was not considered in the purposive sampling. During the interviews, it transpired that many respondents worked in healthcare professions. Although the use of charity organisations to advertise was used, perhaps the sharing of the advertisement poster from the research team’s sources increased the interest of HCPs. Additionally, many of the applicants were disproportionately based in one geographical location. Some attempts to purposively invite others from alternative locations were made, although limited to the number of applicants. These limitations may impair the ability to 'transfer' the findings from the study to other settings.

The MENQOL data was primarily used to provide information on the symptom characteristics of participants. An additional use to support the ethical collection of this data was identified as future research. However, due to the lower-than-anticipated respondents to the survey and bias in applicants' demographics, the use of this data for a larger future study is likely unfeasible.

### *Dependability*

Limitations of the systematic review regarding dependability include a change to the research design due to the feasibility of the study (detailed in the 'Advantages and Disadvantages of the Methodological Approach' heading within this chapter).

### *Confirmability*

Limitations to confirmability within the study include the challenges of acknowledging potential biases for reflections. The use of supervision was essential to encourage alternative reflections.

# Advantages and Disadvantages of the Methodological Approaches

## Narrative Development and Refinement of the Systematic Review Methods

The original review planned to use a mixed-method approach to the analysis (Stern et al., 2020). During the process of the systematic review, it became apparent that it was unfeasible to continue. Initially, this decision was made to attempt to integrate both quantitative and qualitative findings and to explore the extent to which existing theories could be advanced by attention to the more complex and nuanced aspects of women's decision-making experiences described in qualitative research. However, following the initial screening process and before data extraction, the number of papers eligible for inclusion was too great, given the project's remit and resource limitations (see Appendix K for PRISMA flow of this original process). Therefore, the decision to change the analysis approach was cautiously made with the consideration of other approaches. The use of a meta-analysis of the quantitative data proved challenging due to the diversity in methodological approaches used within the studies. This led to the consideration of alternative approaches to analyse quantitative data, such as using a synthesis without meta-analysis ([SWiM], Campbell, 2020). Ultimately, a qualitative methodological review was deemed most appropriate, given that previous reviews lacked in-depth analysis of qualitative papers (Buick et al., 2005; Pershad et al., 2023; Tao et al., 2011). Initially, a narrative synthesis approach to analyse the qualitative data was considered (Popay et al., 2006). Although this approach had the potential to generate patterns across the studies, ultimately, a thematic synthesis was opted for to allow deep and structured insights into the complexity of women's experiences captured within the existing data (Thomas & Harden, 2008). It was thought that this approach would answer the research aims to better understand the decision-making process and experience of women taking HRT to manage symptoms of menopause. The resulting themes developed from the existing literature through the systematic review contributed to this aim. Changes to the review methods were discussed with the research team, and any amendments made were updated to PROSPERO.

### Empirical Paper

Qualitative methods offer valuable insights into answering the empirical research question to understand the nuanced experiences and subjective nature of cognition during perimenopause. As with other qualitative approaches, RTA allowed for an in-depth exploration of participants' narratives and emphasised the importance of researcher reflexivity in data interpretation. RTA encourages the development of themes which are deeply rooted in the participants' experiences whilst acknowledging the researcher's influence in shaping the findings. A strength of the use of RTA is that it allows for neutrality in terms of what was attended to in the analysis and how, which in this study allowed the researcher to attend to a wider diversity of phenomena as they arose within the process. The limitation of RTA, however, is that a more detailed accounting of the nature of the cognitive changes could have been achieved more with a phenomenological account. A grounded theory approach would have enabled closer attention to what emerged in the findings, reflecting on the interaction of components. In contrast, a fully social constructionist approach would have allowed attention to the social discourses being drawn upon by women and how this constructs disempowerment and marginalisation. Despite the potential benefits of other approaches, overall, the key strength of using RTA was to allow a bigger picture of cognitive, social and everyday aspects of perimenopause without being overly constrained by a particular analytic lens.

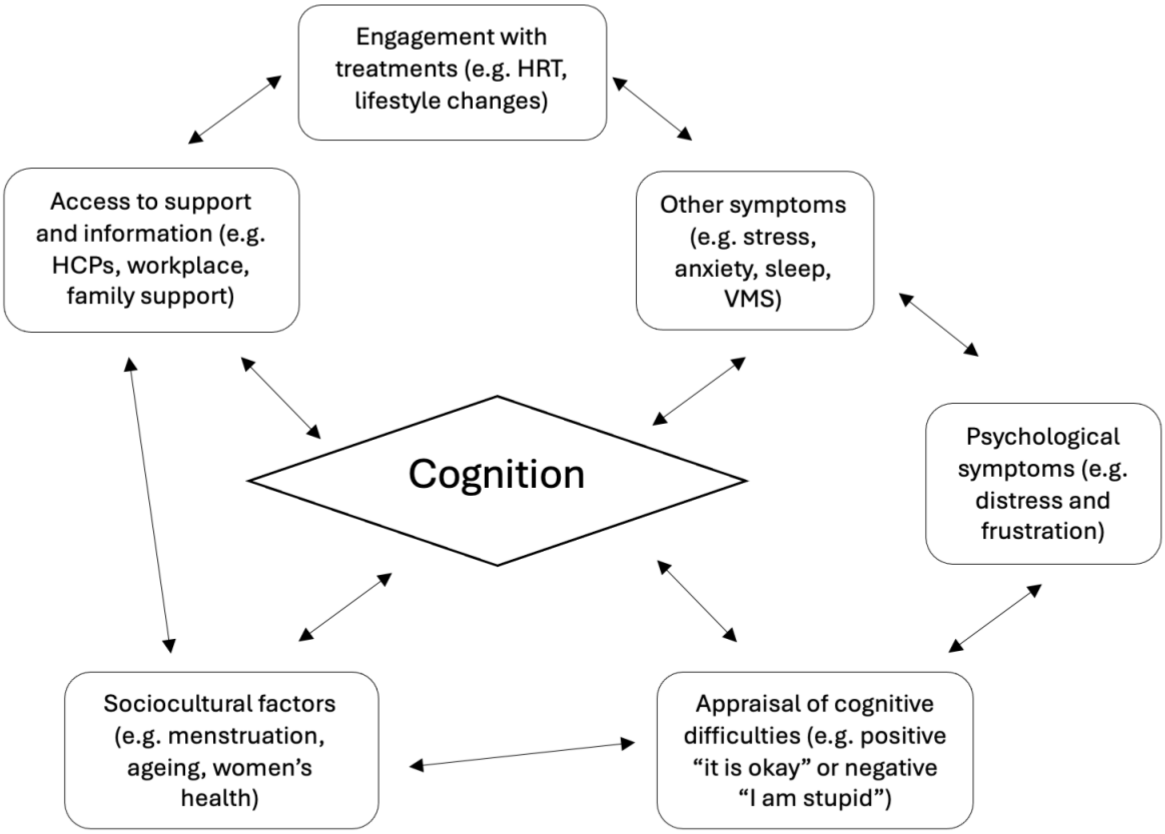
## Implications for Theory

Many of the existing theories of menopause include symptoms such as stress and anxiety, depression, sleep and VMS (Hunter & Mann, 2010; Shore, 1991). These models have been developed to support the NICE (2015) guidelines for cognitive behavioural therapy intervention (CBT), with specific developments to apply CBT for menopause (British Menopause Society [BMS], 2019). The 'domino hypothesis' theory also suggests the interaction of symptoms. However, these theories do not specifically address cognitive difficulties, but rather appraisals and cognitions associated with symptoms. The empirical paper suggests that these symptoms interact with cognition. However, the research shows that these systems are more complex in terms of context. The significance of cognitive symptoms reported by women suggests the need for these symptoms to be considered within theory and formulation development.

The overall aim to understand and convey women's experiences was achieved through the appraisal of the interacting themes within the empirical paper. There was an overall sense that cognitive symptoms had an emotive impact, relating to feelings of fear, stupidity, shame and failure. There was a repeated sense of having to get on with symptoms and be able to cope despite these difficulties. The data revealed a cycle of feedback 'traps' resulting from the interplay of physical symptoms, sleep disturbances, and cognitive symptoms. These factors gave rise to feelings of guilt, anxiety, and rumination, which further exacerbated stress and led to a desire to repair relationships and family dynamics. These 'traps' were further exacerbated by cognitive barriers to engaging in potentially helpful treatments (HRT) and difficulties accessing professional support. This cyclic pattern has the potential to further impact cognitive and emotive experiences associated with menopause, subsequently mitigating the severity of the factors involved. See a diagrammatic presentation of this in Figure 5.1. Existing theories may need to be adapted to better reflect the complexity of perimenopausal experiences, incorporating biological, emotional, sociocultural, and cognitive dimensions.

**Figure 5.1**

*Diagram of Interacting Cognition, Emotional, Contextual and Relating Symptoms*



### Clinical Implications for Practice and Service Delivery and/or Development

HRT has the potential to help manage cognitive decline when taken during menopause, however, women are often reluctant to take it. This portfolio suggests that the information provided by HCPs regarding their collaboration in this decision, whilst remaining the trusted and knowledgeable professional, was key to women's attitudes and behaviours towards taking it. This appears similar to women's preferences relating to other hormone-related decisions such as contraception, whereby women want control over the decision, and whilst they want their provider to participate in the decision to offer comprehensive and personalised information, they ultimately want their values and preferences to be paramount (Dehlendorf et al., 2013). Therefore, adaptation in training styles is needed. Adopting psychological approaches such as motivational interviewing and theory-led attitudes toward health behaviour change such as TPB may have positive impacts on women’s engagement with potentially helpful medical interventions (Ajzen, 1991; Rollnick et al., 2008).

This portfolio highlights the importance of understanding the variation and multifaceted nature of perimenopause experiences. It highlights the need for professionals to consider a personalised approach to women’s individual needs. This includes appropriate and up-to-date knowledge of symptoms and treatment options to confidently inform women of their choices, including educating women on the critical evaluation of the WHI study and recent advances in these findings to support accurate considerations of treatment options available. This process should be done in partnership with women to encourage self-action to support engagement in the process. The variation in women’s experiences of HCPs shows a need for consistency across locations and practices. This may be supported through changes to policies and practice guidelines for professionals in addition to mandatory training adherence.

Socially constructed ideas of menopause and women’s management of hormonal changes were thought to impact the likeliness to engage in treatment and to experience symptom-related distress. Therefore, changes in media and social presentations are needed to provide education to women about these changes. This may be through constructive media depictions and increasing public awareness of available support. Although media coverage has increased over recent years through celebrity involvement on television and social media (Orgad & Rottenberg, 2024). Further work is needed to impact movement in the construction of society's views of menopause and, ultimately women’s perceptions of their own experiences.

When women are seeking psychological support relating to symptoms (e.g. VMS, sleep, cognition, mood), consideration needs to be given to the ways in which symptoms interact with each other and are impacted by sociocultural views of menopause and women's health, rather than treating symptoms in isolation. The interaction of these symptoms in combination with psychological distress such as desperation, shame and frustration should also be considered during interventions. NICE guidelines consider psychological symptoms by providing guidance for HRT and CBT (NICE, 2015). However, no consideration of cognition nor the sociocultural impact of symptoms is considered in this guidance. The current research contributes to understanding how the appraisal of cognitive difficulties and other interacting symptoms of menopause impact cognitive difficulties and, therefore, needs to be considered within therapeutic models and interventions. Thus, psychological interventions should focus on the appraisal of cognitive changes and the impact these have on the individuals' self-esteem and identity. Additionally, interventions should target comorbid symptoms such as sleep, anxiety and stress due to their reported cyclic impact on cognition and distress.

## Suggestions for Further Research

The findings highlight a need for more research to support the development of assessments and cognitive screening tools sensitive to the subjectivity, variation and sensitivity of experiences of women during perimenopause. This may be supported by a need for a more integrated and multifaceted model of understanding cognition specific to menopause, which considers the overlapping cognitive and contextual factors. Continued research is needed to explore cognitive experiences, as although the empirical study offers helpful contributions to the topic area, the topic is complex. Therefore, there is a need for an ongoing process of increasing knowledge within the research area. The use of qualitative methodologies to do this is supported to capture the richness of these experiences.

Further research is needed to understand the complex interaction of psychological symptoms such as anxiety, stress and sleep disturbances on cognition during perimenopause. This may be done through specific qualitative approaches to understand women’s experiences of the interactions. The use of symptom diary evaluations may provide information on the relationship between psychological and cognitive symptoms. New approaches to assessment are needed which consider the complexity of cognitive complaints rather than the initial ideas of subjectivity. This research should aim to highlight areas for evidence-based interventions to support women and reduce psychological distress. More research is needed to understand the complexities of professional and patient communication to help develop practices that would support women to engage with such interventions.

## Overall Conclusions

This thesis portfolio aimed to understand the experience of perimenopause for women concerning cognitive changes and how women make decisions about taking HRT as a potentially beneficial treatment for managing menopause-related symptoms. The motivation of this work was to provide a better understanding of these experiences due to previous research labelling cognitive changes as ‘subjective’ and often undetectable in neuropsychological measures despite women’s self-reported difficulties. The current research aimed to understand these experiences, hoping to influence cognitive assessment tools and recommendations for psychological interventions. The findings hope to validate women’s experiences of cognitive changes and help to understand and, therefore, improve access to potentially helpful treatment options to manage cognitive symptoms.

Taken together, the findings highlight the multifaceted and individualistic interaction of biological, cognitive, sociocultural and psychological experiences and their impact on women’s daily lives. The influence of women’s sense of responsibility to manage their symptoms and ‘just get on with it’ was recognised and considered in the context of women’s health across the lifetime and decision-making theories. Psychological difficulties were highlighted throughout the studies, including desperation, shame and loss of identity. This highlights the need for a better understanding of these processes for clinical applications to support women. Ultimately, a deeper understanding of these complex cognitive and psychological processes is needed to transform clinical practice and ensure that women have the appropriate information to access support.

# Appendices

## Appendix A- British Journal of Health Psychology guidelines for submission for publication

### 2. AIMS AND SCOPE

The *British Journal of Health Psychology* publishes original research on all aspects of psychology related to health, health-related behaviour and illness across the lifespan, including:

- experimental and clinical research on psychological factors aetiology;
- experiential and lived experience of health and illness;
- psychological and behavioural management of acute and chronic illness;
- health-related behaviour change and maintenance;
- psychological factors in screening and medical procedures;
- positive psychological approaches to health and illness;
- psychosocial factors in health-related behaviours;
- influence of emotion on health and health-related behaviours;
- psychosocial processes relevant to disease outcomes;
- psychological interventions in health and disease;
- psychological aspects of prevention and public health.

Papers must make a clear potential contribution to health psychology theory, knowledge and/or practice and employ rigorous research design and methodology.

We do not publish studies where the main focus is on mental health or psychopathology. In addition, we typically do not publish cross-sectional studies or those using only student populations unless there is a strong rationale for doing so.

Papers describing intervention development (without also presenting an analysis of the outcomes of the intervention) will usually only be considered if they make a contribution to health psychology theory, knowledge and/or practice beyond the specific intervention context.

The journal encourages submissions of papers reporting experimental, theoretical and applied studies using quantitative, qualitative and mixed-methods approaches. Research carried out at the individual, group and community levels is welcome. It also welcomes systematic reviews and meta-analyses. Submissions concerning clinical applications of Health Psychology principles and interventions with relevance for Health Psychology outcomes and populations are particularly encouraged.

## 3. MANUSCRIPT CATEGORIES

The types of paper invited are:

- papers reporting original empirical investigations, using quantitative, qualitative or mixed methods;
- theoretical papers which report analyses of theories in health psychology;
- review papers, which should provide systematic overviews, evaluations and interpretations of research in a given field of health psychology (narrative reviews will only be considered for editorials or important theoretical discourses);
- methodological papers dealing with methodological issues of particular relevance to health psychology;
- we particularly welcome papers reporting effectiveness (for example, Randomised Controlled Trials) and process evaluations of interventions in clinical and non-clinical populations.

Authors who are interested in submitting papers that do not fit into these categories are advised to contact the editors who would be very happy to discuss the potential submission. Papers describing single study quantitative research (including reviews with quantitative analyses) should be no more than 5000 words (excluding the abstract, reference list, tables and figures). For papers describing 2 or more quantitative studies, the word limit is 6000 words (excluding the abstract, reference list, tables and figures). Papers describing qualitative or mixed methods research (including reviews with qualitative analyses) should be no more than 6000 words (including quotes, whether in the text or in tables, but excluding the abstract, tables, figures and references).

All systematic reviews must be pre-registered and an anonymous link to the pre-registration must be provided in the main document, so that it is available to reviewers. Systematic reviews without pre-registration details will be returned to the authors at submission.

## Parts of the Manuscript

### *Title Page*

You may like to use this template for your title page. The title page should contain**:**

- A short informative title containing the major key words. The title should not contain abbreviations (see Wiley's best practice SEO tips);
- A short running title of less than 40 characters;
- The full names of the authors;
- The author's institutional affiliations where the work was conducted, with a footnote for the author’s present address if different from where the work was conducted;
- Abstract;
- Keywords;
- Data availability statement (see Data Sharing and Data Accessibility Policy);
- Acknowledgments.

## **Author Contributions**

For all articles, the journal mandates the CRediT (Contribution Roles Taxonomy)—more information is available on our Author Services site.

**Abstract**

For articles containing original scientific research, a structured abstract of up to 250 words should be included with the headings: Objectives, Design, Methods, Results, Conclusions. Review articles should use these headings: Purpose, Methods, Results, Conclusions. As the abstract is often the most widely visible part of your paper, it is important that it conveys succinctly all the most important features of your study. You can save words by writing short, direct sentences. Helpful hints about writing the conclusions to abstracts can be found here.

**Keywords**

Please provide appropriate keywords.

**Acknowledgements**

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section. Financial and material support should also be mentioned. Thanks to anonymous reviewers are not appropriate.

*Statement of Contribution*

All authors are required to provide a clear summary of ‘what is already known on this subject?’ and ‘what does this study add?’. Authors should identify existing research knowledge relating to the specific research question and give a summary of the new knowledge added by your study. Under each of these headings, please provide 2-3 (maximum) clear outcome statements (not process statements of what the paper does); the statements for 'what does this study add?' should be presented as bullet points of no more than 100 characters each.

*Main Text File*

As papers are double-anonymous peer reviewed, the main text file should not include any information that might identify the authors.

Manuscripts can be uploaded either as a single document (containing the main text, tables and figures), or with figures and tables provided as separate files. Should your manuscript reach revision stage, figures and tables must be provided as separate files. The main manuscript file can be submitted in Microsoft Word (.doc or .docx) or LaTex (.tex) format.

If submitting your manuscript file in LaTex format via Research Exchange, select the file designation “Main Document – LaTeX .tex File” on upload. When submitting a LaTex Main Document, you must also provide a PDF version of the manuscript for Peer Review. Please upload this file as “Main Document - LaTeX PDF.” All supporting files that are referred to in the LaTex Main Document should be uploaded as a “LaTeX Supplementary File.”

LaTex Guidelines for Post-Acceptance:

Please check that you have supplied the following files for typesetting post-acceptance:

- PDF of the finalized source manuscript files compiled without any errors.
- The LaTeX source code files (text, figure captions, and tables, preferably in a single file), BibTex files (if used), any associated packages/files along with all other files needed for compiling without any errors. This is particularly important if authors have used any LaTeX style or class files, bibliography files (.bbl, .bst. .blg) or packages apart from those used in the NJD LaTex Template class file.
- Electronic graphics files for the illustrations in Encapsulated PostScript (EPS), PDF or TIFF format. Authors are requested not to create figures using LaTeX codes.

Your main document file should include:

- A short informative title containing the major key words. The title should not contain abbreviations;
- Abstract structured (intro/methods/results/conclusion);
- Up to seven keywords;

- Main body: formatted as introduction, materials & methods, results, discussion, conclusion;
- References;
- Tables (each table complete with title and footnotes);
- Figure legends: Legends should be supplied as a complete list in the text. Figures should be uploaded as separate files (see below)
- Statement of Contribution.

Supporting information should be supplied as separate files. Tables and figures can be included at the end of the main document or attached as separate files but they must be mentioned in the text.

- The main text file should not include any information that might identify the authors. Please do not mention the authors’ names or affiliations and always refer to any previous work in the third person.
- The journal uses British spelling; however, authors may submit using either option, as spelling of accepted papers is converted during the production process.

**References**

This journal uses APA reference style; as the journal offers Free Format submission, however, this is for information only and you do not need to format the references in your article. This will instead be taken care of by the typesetter.

**Tables**

Tables should be self-contained and complement, not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend, and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡, §, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

### Figures

Although authors are encouraged to send the highest-quality figures possible, for peer-review purposes, a wide variety of formats, sizes, and resolutions are accepted.

Legends should be concise but comprehensive – the figure and its legend must be understandable without reference to the text. Include definitions of any symbols used and define/explain all abbreviations and units of measurement.

### Supporting Information

Supporting information is information that is not essential to the article, but provides greater depth and background. It is hosted online and appears without editing or typesetting. It may include tables, figures, videos, datasets, etc.

Note: if data, scripts, or other artefacts used to generate the analyses presented in the paper are available via a publicly available data repository, authors should include a reference to the location of the material within their paper.

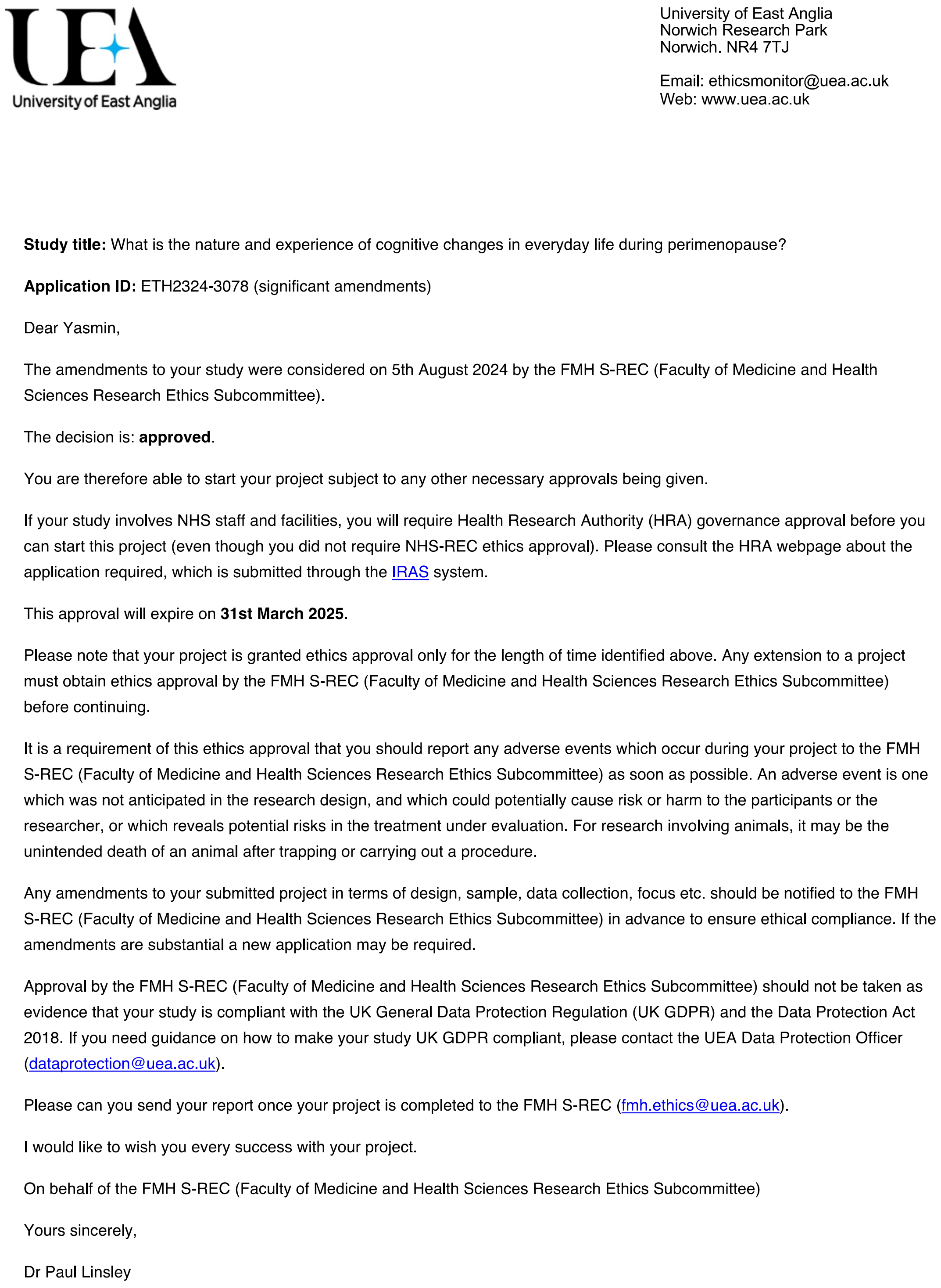
### *General Style Points*

For guidelines on editorial style, please consult the APA Publication Manual published by the American Psychological Association. The following points provide general advice on formatting and style.

- **Language:** Authors must avoid the use of sexist or any other discriminatory language.
- **Abbreviations:** In general, terms should not be abbreviated unless they are used repeatedly and the abbreviation is helpful to the reader. Initially, use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only.
- **Units of measurement:** Measurements should be given in SI or SI-derived units. Visit the Bureau International des Poids et Mesures (BIPM) website for more information about SI units.
- **Effect size:** In normal circumstances, effect size should be incorporated.

- **Numbers:** numbers under 10 are spelt out, except for: measurements with a unit (8mmol/l); age (6 weeks old), or lists with other numbers (11 dogs, 9 cats, 4 gerbils).

# Appendix B- Evidence of Ethical Approval and Ethics PDF for Reference of Ethical Concerns



University of East Anglia
Norwich Research Park
Norwich. NR4 7TJ

Email: ethicsmonitor@uea.ac.uk
Web: www.uea.ac.uk

**Study title:** What is the nature and experience of cognitive changes in everyday life during perimenopause?

**Application ID:** ETH2324-3078 (significant amendments)

Dear Yasmin,

The amendments to your study were considered on 5th August 2024 by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee).

The decision is: **approved**.

You are therefore able to start your project subject to any other necessary approvals being given.

If your study involves NHS staff and facilities, you will require Health Research Authority (HRA) governance approval before you can start this project (even though you did not require NHS-REC ethics approval). Please consult the HRA webpage about the application required, which is submitted through the IRAS system.

This approval will expire on **31st March 2025**.

Please note that your project is granted ethics approval only for the length of time identified above. Any extension to a project must obtain ethics approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) before continuing.

It is a requirement of this ethics approval that you should report any adverse events which occur during your project to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) as soon as possible. An adverse event is one which was not anticipated in the research design, and which could potentially cause risk or harm to the participants or the researcher, or which reveals potential risks in the treatment under evaluation. For research involving animals, it may be the unintended death of an animal after trapping or carrying out a procedure.

Any amendments to your submitted project in terms of design, sample, data collection, focus etc. should be notified to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) in advance to ensure ethical compliance. If the amendments are substantial a new application may be required.

Approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) should not be taken as evidence that your study is compliant with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. If you need guidance on how to make your study UK GDPR compliant, please contact the UEA Data Protection Officer (dataprotection@uea.ac.uk).

Please can you send your report once your project is completed to the FMH S-REC (fmh.ethics@uea.ac.uk).

I would like to wish you every success with your project.

On behalf of the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee)

Yours sincerely,

Dr Paul Linsley

# Ethics ETH2324-3078 (Significant amendments): Mrs Yasmin Palmer

| | |
|---|---|
| Date Created | 30 Jul 2024 |
| Date Submitted | 30 Jul 2024 |
| Date forwarded to committee | 01 Aug 2024 |
| Researcher | Mrs Yasmin Palmer |
| Category | PGR |
| Supervisor | Dr Fergus Gracey |
| Faculty | Faculty of Medicine & Health Sciences |
| Current status | Approved |

---

## Ethics application

### Amendment type

**Type of amendment**
Change to research protocol

**Is this amendment related to Covid-19?**
No

### Change research protocol

### Describe changes

**Fully describe any changes and upload revised documentation if there are wording changes.**
Changes to the protocol:

1. Change from the use of teams transcription of interviews to AVIDNOTE research software.

2. Amendment to budget for the cost of 2 months AVIDNOTE subscription

3. Removal of budget cost for paper advertisement due to social media advertisement and reduction to £150 cost for participant love2shop vouchers due to completing 15 interviews, instead of 16.

**Attach any documentation which relates to the changes described.**

### Change your original application submitted in Ethics Monitor

**Select the relevant tab(s) from your original ethics application to edit:**
Human participants - method

**If other, fully describe the changes below.**

**Attach any documentation which relates to the changes described.**

### Human participants - method

**Which data collection methods will be used in the research?:**
Interview
Anonymous questionnaire

**If your research involves any of the methods (including Other) listed above, upload supporting materials.**
**How have your characteristics, or those of the participants influenced the design of the study or how the research is experienced by participants?**
All participants will be biologically female, due to the phenomenon investigated being a biological female process. Being a female researcher conducting the interviews may have a positive impact in providing a containing and safe environment.

The topic area was suggested by one of the ClinPsyD service user and career committee members who has provided input into the research question and focus, methods and public facing documents. This individual will continue in the role of PPI advisor for the study throughout.

**Will the project involve transcripts?**
Yes

**Select ONE option below:**
Other

**If yes provide details.**
To support with the analysis of the data, AVIDNOTE transcription will be used in addition to qualitative analysis software such as NVIVO. Microsoft Teams is a recognised secure software used by the national health service and supported by UEA.

**Provide an explanation if you are not offering the participant the opportunity to review their transcripts.**
Offering participants to review their transcripts will reduce time available for the researcher to transcribe the interviews and conduct the analysis. Participants can withdraw their data for up to two weeks following interview.

**Will you be capturing photographs or video footage (digital assets) of individuals taken for University business?**
No

**Is this research using visual/vocal methods where respondents may be identified?**
Yes

**If yes, confirm what safeguards are in place for participants who are vulnerable or underage.**
All participants will be over the age of 18 and inclusion criteria includes capacity to consent to taking part in the research. No vulnerable or underage participants will be involved in the study.

**Will it be necessary for participants to take part in the study without their knowledge and consent at the time?**

No

**Will deception or incomplete disclosure be used?**
No

**Will the participants be debriefed after data collection?**
Yes

**If yes, how will they be debriefed and what information will be provided?**
Participants will receive a verbal debrief following the completion of the interview conducted by the primary researcher (Yasmin Palmer). Prior to the interview, the researcher will have the participants contact details. These may be used in the event that a participant abruptly exits the interview without receiving a debrief. The debrief information is included in the interview guide to support with a verbal debrief.

**If yes, upload a copy of the debrief information.**
**Will substances be administered to the participants?**
No

**Will involvement in the project result in, or the risk of, discomfort, physical harm, psychological harm or intrusive procedures?**
No

**Will the project involve prolonged or repetitive testing?**
No

**Will the project involve potentially sensitive topics?**
Yes

**If yes, provide details.**
The literature commonly reports that perimenopause is associated with increase mental and physical health concerns (Weber, 2014). Therefore, there is a risk of identifying these issues within the research. Should the participants display distress, they will be reminded that they can take a break, stop the interview, or withdraw from the study. The lead researcher will draw on their clinical skills as a mental health professional to respond sympathetically and supportively towards participants, including normalising experiences of the perimenopause, such as tearfulness (Nazarpour, 2016). The researcher will offer a wellbeing check before and after the interview, followed by a debrief to reduce distress and enhance a positive participation experience (Greenspan & Loftus, 2022). If participants report mental or physical health concerns during the interviews they will be signposted to their GP, local wellbeing service, Samaritans helpline or other known relevant sources of support. Signposting to relevant support services will also be included in the patient information sheet and the debrief document. Considerations of how the researcher will manage the researcher-participant relationship has been reflected upon and will be supported by thesis supervision. Deceptive practices will not be used in this study, thus minimising harm to participants.

**Will the project involve elite interviews?**
No

**Will the project involve any incitement to, encouragement of, or participation, in an illegal act (by participant or researcher)?**
No

**Will the research involve an investigation of people engaged in or supporting activities that compromise computer security or other activities that may normally be considered harmful or unlawful?**
No

**Does the research involve members of the public in participatory research where they are actively involved in undertaking research tasks?**
No

**Does the research offer advice or guidance to people?**
No

**Is the research intended to benefit the participants, third parties or the local community?**
Yes

**Provide an explanation.**
There are no intended benefits, however some people might find it helpful and validating to talk about their experiences and contribute to this research. The most likely benefits will be to others who will go on experience menopause in the future because of possible discoveries found within the research.

**What procedures are in place for monitoring the research with respect to ethical compliance?**
Ethical compliance will be monitored by the primary supervisor (Dr Fergus Gracey) and the lead researcher (Yasmin Palmer). Any issues with ethical compliance will be raised at the earliest convenience with the ethics committee and research supervisors.

**Does the study involve the use of a clinical or non-clinical scale, questionnaire or inventory which has specific copyright permissions, reproduction or distribution restrictions or training requirements?**
Yes

**If yes, provide details.**
MENQOL questionnaire used Copyright © 2005 Sunnybrook Health Sciences Centre. All rights reserved.

This questionnaire is accessible for students and clinicians, however required an access fee.

**Upload your protocol.**
**Include any other ethical considerations regarding data collection methods.**

The interview will last up to 90 minutes and will be audio and video recorded, due to the use of a video platform. Recording sessions supports with collecting an accurate record of the participants experiences (Edwards & Holland, 2020). This video and audio recording will be deleted following transcription as the earliest possibility.

## Appendix C- Participant Information Sheet: Version 1 10.10.23

**Title of Project:** What is the nature and experience of cognitive changes in everyday life during perimenopause?

My name is Yasmin- I am carrying out a research study as part of my doctorate in Clinical Psychology at the University of East Anglia (UEA). You are invited to take part in the research described.

The project will explore people's experiences during the perimenopause to help us better understand how the perimenopause impacts on memory.

Your decision to take part in this research project is completely voluntary. Before deciding whether you would like to get involved, please read the following participant information sheet.

If you have any questions, please raise them with the research team via the contact details provided below.

Thank you for taking the time to read this information sheet.

If you would like to find out more or want to discuss the research at any stage, please contact a member of the research team.

The lead researcher is:

Yasmin Palmer
Trainee Clinical Psychologist
Email: y.palmer@uea.ac.uk

You can also contact the following members of the research team:

Dr Fergus Gracey
Research Supervisor
Email: f.gracey@uea.ac.uk

Dr Anastasya Shepherd
Research Supervisor
Email: anastasya.shepherd@nchc.nhs.uk

If you have a serious concern or want to make a formal complaint to someone independent of the research team, please contact Prof Niall Broomfield.

Prof Niall Broomfield
Deputy Dean of Norwich Medical School and Head of the Department of Clinical Psychology and Psychological Therapies
Email: N.Broomfield@uea.ac.uk

**Explanation: purpose and background of the research**

The perimenopause is the time in a woman's life when hormone levels begin to drop, and finally results in their menstrual cycle – their 'period' - stopping.

Almost every woman will go through the perimenopause at some point in their life. It can be a difficult and unhappy stage of life for many women due to the physical and emotional changes they will go through - including cognitive changes. Cognition refers to the mental processes which take place in the brain, including thinking, attention, language, learning, memory and perception.

Women often report that they struggle with changes in mental health, mood and memory during their perimenopause, however research varies in its proven understanding of changes and the severity of them. Some women also experience different symptoms during their perimenopause, which in turn can also impact on their cognition and mental health.

This research project aims to gather a better understanding of how the perimenopause changes women's cognition and impacts on their overall quality of life. We hope that by developing our understanding of cognitive changes during perimenopause we may be able to help women and health care professionals to recognise changes, validate women's experiences, and provide appropriate support for them.

**What would you like me to do?**

We will ask you to complete a short survey and questionnaire online so we can get some general information about people who sign up for the study. We will select a portion of those who sign up to take part in an online interview. This will last about 90 minutes. We recognise that this topic and this time of someone's life might be emotionally sensitive. We will take this into account and there will be a chance for a debrief at the end of the interview. You will also be able to ask any questions and you will be given a £10 'Love to Shop' voucher to thank you for your time. Following this you will be given a two-week window where you can withdraw your information from the study.

**Why am I being asked to participate in the research?**

The study aims to capture the different experiences of around 16 women with different backgrounds and support networks and who may have had – or are having – either a positive, negative, or neutral experiences of cognitive changes during their perimenopause. We hope that by developing our understanding of cognitive changes during perimenopause we may be able to help women and medical staff to identify possible changes, validate women's experiences and provide support for them. You are invited to take part in the research to help support in our knowledge.

**What would taking part involve?**

Should you decide to take part in the research study, you will be asked to continue on this web page which will take you to a section where you will be asked to consent to participate and provide your contact details (either by phone or email). Following this you will be asked to complete some questions about yourself e.g., your age, employment status and a questionnaire asking about your perimenopause symptoms.

One of our research team will contact you to invite you to interview within three months of registering your interest to be involved. They will contact you by your preferred contact method. If you are not selected for interview, you will be contacted to thank you for your interest in the study. The researcher will aim to be flexible to support a time for the interview that works with your demands. It is preferred that you have a private space to talk freely during the interview, without distraction. Before the interview, you will be able to raise any questions you have with the research team.

**Who will have access to my data and how will it be stored?**

Not all individuals who consent to participate in the study will be selected for interview, however those that are not interviewed we will keep your demographic information anonymised to support with the write up of the research to describe who applied to take part and plan to analyse this data at a future date.

Your anonymity will be maintained using pseudonyms or a code number. Only those involved in the research who need to know your name or contact details will have access to this. Any identifiable information will be anonymised at the transcription process and help to support with the writing of the results. All identifiable personal information will be deleted as soon as it is no longer needed by the research team. All data will be stored securely according to relevant regulation UEA policy. Data will be saved on password protected documents within password protected computers. It is possible that anonymised transcribed interviews will be shared with people with people with experience perimenopause to support with the researcher's analysis by ensuring that the analysed reflects the experiences of perimenopausal women.

There is a possibility that the research may be presented at relevant research conferences or published in peer reviewed journals. All information will be anonymised from the write up of the report, therefore participants will not be identifiable in these presentations or publications. A copy of your consent will be held securely by the UEA. The anonymised information collected will be held securely by the UEA for a period of 10 years.

**How will my information be used?**

We will need to use information from you for this research, this will include:

- Your name and contact details to contact you to come for interview. These will be removed from the data set during the analysis process and recorded as pseudonyms and will not be shared with anyone who is not part of the research team.
- Your transcribed interview, and demographic information, such as your age, ethnicity, disability, sexuality, socioeconomic status, and employment status.

**What are the possible benefits of taking part?**

There are no intended benefits, however some people might find it helpful and validating to talk about their experiences and contribute to this research. The most likely benefits will be to others who will go on experience menopause in the future because of possible discoveries found within the research.

**What are the possible disadvantages of taking part?**

The research does not intend to be significantly distressing, however the topics discussed are known to be difficult and therefore it is possible that you may find aspects of the interview upsetting. The interview questions have been created with the research team and individuals who have experienced perimenopause to help minimise distress. The researcher conducting the interviews is trained in providing support for people who experience distress and will therefore respond as supportive and in containing manor. If you feel upset or need a break from the interview, please feel free to ask for a break at any time. You can also decline to answer any questions during the interview.

Should the researcher identify any concerns for yourself or others during the interview, the researcher will share this information with the relevant organisations. If you recognise that you would benefit from support for your mental or physical health, you can contact the following services.

- **Samaritans –** 24/7 confidential emotional support: Tel: 116 123
- **First Response–** 24/7 helpline offering immediate advice and support for people with mental health difficulties. Tel: 111 option 2
- **Seek support from your General Practitioner (GP)** this may be for your perimenopausal symptoms, or other mental or physical health difficulties identified within the study

**These are a list of places for support specific to perimenopause. These organisations are included to simply provide helpful information and are not exclusively recommended by the research team.**

- https://healthtalk.org/menopause/overview
- https://menopausesupport.co.uk

- https://www.nhs.uk/conditions/menopause/help-and-support/
- https://www.themenopausecharity.org

**What will happen if I wish to withdraw from the study?**

If you wish to withdraw from the study, you can do so without giving a reason. The researcher will ask you if you would like existing data to be removed from the study. You can withdraw up to two weeks following the interview. After the two weeks it will be difficult for the researcher to remove your data as they would have already started the analysis process however should you wish your information to be removed the researcher will not include any direct quotes from your interview.

**Will I be told about the results of the study?**

Should you request to be contacted regarding the results of the study, you will be contacted by a member of the research team. The findings of the study will be shared with you in the form of a brief summary.

**Appendix D- Consent Questions, Adjusted for Online Survey: Version 1 10.10.23**

University of East Anglia

Title of Project: What is the nature and experience of cognitive changes in everyday life during perimenopause?

Name of Researcher: Yasmin Palmer

Please initial box ☐

1. I confirm that I have read the information sheet dated.................... (version...........) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I confirm that I am 18 and above years old. ☐

3. I understand that my participation is voluntary and that I am free to withdraw within a two-week period from my participation without giving any reason, without my medical care or legal rights being affected. ☐

4. I understand that the information collected about me may be used to support other research in the future as outlined in the information sheet. ☐

5. I recognise that I may not be selected to take part in an interview, however I consent to any other anonymised information collected about me to be used in future research e.g., questionnaires.

6. I understand that the information I provide will be held and maintained by the research team. It will be stored securely and anonymously and will only be used for purposes which I have agreed to. The information will be held by the University of East Anglia for 10 years following my participation in the research. ☐

7. I agree to my anonymised quotes being used when the findings are written up and shared with others.

8. I consent to my anonymised demographic and symptom information to be stored, even if I am not selected for interview. ☐

9. I understand that my interviews will be audio and video recorded and transcribed by the research team using transcribing software or platform for analysis. ☐

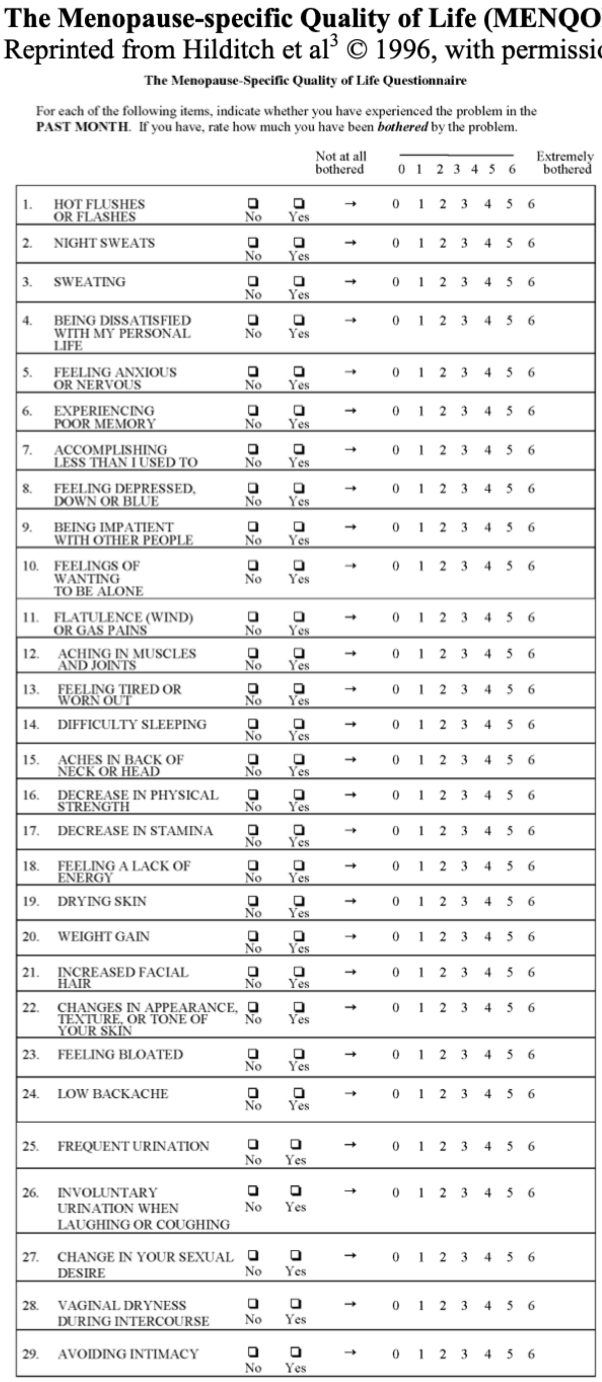
10. I agree to being contacted by the research team to arrange interviews on the below number and email address. ☐

11. I agree to take part in the above study. ☐

| | | |
|---|---|---|
| ____________________ | ____________________ | ____________________ |
| Name of Participant | Date | Signature |
| ____________________ | ____________________ | ____________________ |
| Name of Researcher | Date | Signature |

Note: 1 copy of the consent form will be sent to the participant and 1 to the research team.

# Appendix E- Menopause Quality of Life (MENQOL) and Approval from Mapi-Trust for Use and Changes for Online Survey Platform



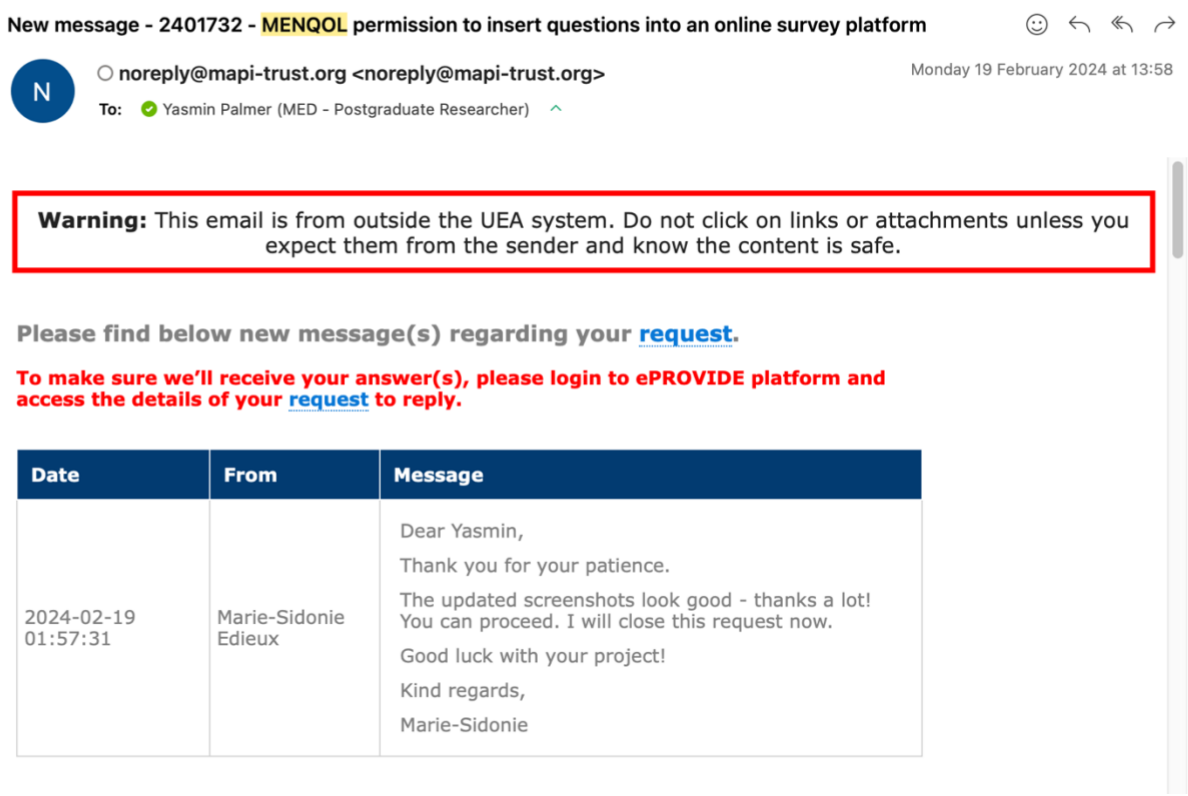
**The Menopause-specific Quality of Life (MENQOL) Questionnaire.**
Reprinted from Hilditch et al[3] © 1996, with permission from Elsevier.

**The Menopause-Specific Quality of Life Questionnaire**

For each of the following items, indicate whether you have experienced the problem in the **PAST MONTH**. If you have, rate how much you have been ***bothered*** by the problem.

Not at all bothered 0 1 2 3 4 5 6 Extremely bothered

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | HOT FLUSHES OR FLASHES | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. | NIGHT SWEATS | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. | SWEATING | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. | BEING DISSATISFIED WITH MY PERSONAL LIFE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. | FEELING ANXIOUS OR NERVOUS | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. | EXPERIENCING POOR MEMORY | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. | ACCOMPLISHING LESS THAN I USED TO | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. | FEELING DEPRESSED, DOWN OR BLUE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. | BEING IMPATIENT WITH OTHER PEOPLE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. | FEELINGS OF WANTING TO BE ALONE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. | FLATULENCE (WIND) OR GAS PAINS | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. | ACHING IN MUSCLES AND JOINTS | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. | FEELING TIRED OR WORN OUT | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. | DIFFICULTY SLEEPING | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. | ACHES IN BACK OF NECK OR HEAD | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 16. | DECREASE IN PHYSICAL STRENGTH | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. | DECREASE IN STAMINA | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. | FEELING A LACK OF ENERGY | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. | DRYING SKIN | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. | WEIGHT GAIN | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 21. | INCREASED FACIAL HAIR | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 22. | CHANGES IN APPEARANCE, TEXTURE, OR TONE OF YOUR SKIN | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 23. | FEELING BLOATED | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 24. | LOW BACKACHE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 25. | FREQUENT URINATION | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 26. | INVOLUNTARY URINATION WHEN LAUGHING OR COUGHING | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 27. | CHANGE IN YOUR SEXUAL DESIRE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 28. | VAGINAL DRYNESS DURING INTERCOURSE | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 29. | AVOIDING INTIMACY | ☐ No | ☐ Yes | → | 0 | 1 | 2 | 3 | 4 | 5 | 6 |



**New message - 2401732 - MENQOL permission to insert questions into an online survey platform**

○ **noreply@mapi-trust.org <noreply@mapi-trust.org>**

Monday 19 February 2024 at 13:58

**To:** Yasmin Palmer (MED - Postgraduate Researcher)

**Warning:** This email is from outside the UEA system. Do not click on links or attachments unless you expect them from the sender and know the content is safe.

**Please find below new message(s) regarding your request.**

**To make sure we'll receive your answer(s), please login to ePROVIDE platform and access the details of your request to reply.**

| Date | From | Message |
|---|---|---|
| 2024-02-19 01:57:31 | Marie-Sidonie Edieux | Dear Yasmin,<br>Thank you for your patience.<br>The updated screenshots look good - thanks a lot! You can proceed. I will close this request now.<br>Good luck with your project!<br>Kind regards,<br>Marie-Sidonie |

## Appendix F- Interview Guide: Version 1, 10.10.23

Please find below the questions which will be asked during the interview. The questions have been developed alongside women who have experience of perimenopause, in addition to the research team. The questions will be used flexibly as the researcher will remain attentive to the variety of meanings which may emerge as the interview progresses (Warren, 2011). Participants will receive a copy of the interview schedule in advance via email.

Consent will be obtained at the start of the interviews and time will be allocated to revisit the aims, confidentiality and right to withdraw. The interviewer will conduct a wellbeing check, for example asking the participant how they slept, they are doing on the day and providing an opportunity to reschedule if necessary. The interviewer will ensure that the patient has a confidential space with minimal distractions to proceed. The interviewer will define the term cognition and there will be an opportunity for participants to ask the researcher questions. The researcher will conduct a well-being check and remind participants that they can take a break anytime. The researcher will provide a brief overview of the interview including the duration of 90 minutes and confirmed the participant's demographics and their stage of perimenopause, which will have already been collected.

Following the interview questions participants will be offered a debrief and another well-being check. Participants will be offered the opportunity to ask any questions. They will be asked if they would like to receive information about the findings of the research. Participants will be given a £10 Love to Shop voucher.

### Structure of Interview

#### Introductions

My name, role and involvement in the research.

Their name and confirm information already provided (demographics and MENQOL).

**Confirm understanding, confirm received copy of the interview guide, consent and right to withdraw, ensure private and confidential space for the interview, interview 90 minutes to allow for breaks**

### Wellbeing check

How did they sleep, mood on the day, opportunity to reschedule if needed, reminder can take breaks at any time if needed

### Terminology

**Cognition:** this includes your ability to plan ahead and complete complex task, your memory of recent and past events, your ability to process and recall new information, your ability to retrieve words and speak them, your memory for facts and details, and your ability to remain focused on a task.

**Perimenopause:** The perimenopause is the time in a woman's life when hormone levels begin to drop, and finally results in their menstrual cycle – their 'period' - stopping. Almost every woman will go through the perimenopause at some point in their life. It can be a difficult and unhappy stage of life for many women due to the physical and emotional changes they will go through - including cognitive changes.

### Initial questions

1) how long would you say you have been in the 'perimenopause'? minutes
2) can you give me an overview of your experience of perimenopause? 3 minutes
3) tell me about changes in your thinking since the perimenopause? 3 minutes
4) can you identify any factors which have impacted your cognition during perimenopause? 3 minutes

### Intermediate questions

1) Can you give an example of a cognitive change you have experienced during perimenopause? Examples include difficulty retrieving words or numbers, forgetting the purpose of a behaviour, and losing one's train of thought

2) Can you think of any specific situations or times when this has affected you? Tell me what happened? How was this for you?

3) How has your cognition changed over time during perimenopause?

4) What are your other main symptoms of the perimenopause?

5) Have you noticed anything that makes these problems with thinking or memory worse? E.g., physical symptoms

6) Are you using any forms of hormone replacement therapy (HRT) and if so, what is it and how has this effected your cognition? Including IUT (coil) or hormone rings

7) Are there any methods or techniques which you have developed to manage these cognitive changes? E.g., herbal remedies, exercise, diet, memory tools

8) How much has your cognition changed compared to before the perimenopause? What was it like before? Do you think anyone else has noticed a change in your cognition?

**Ending questions**

1) What support have you had during the perimenopause? Which parts have you found helpful/less helpful?

2) Are there any other experiences of your perimenopause which you feel are important for me to know?

3) If there is one thing that you think others should know that would have helped you on your own journey, what would it be?

4) Is there anything from your own experience that you feel should be investigated or talked about more?

**Debrief**

1) Do you have any questions?
2) How did you find the remote delivery of this interview?
3) Wellbeing check-in. How did they find the interview? How are they feeling?

## Appendix G- Guidance for Reporting Involvement of Patients and the Public (GRIPP2) Short Form used to Describe the Use of PPI in the Study Following Reporting Guidelines (Staniszewska et al., 2017)

| Section and Topic | Item |
|---|---|
| 1. Aim | To support in an accurate depiction of important experiences to be captured by the study. The projects were developed in collaboration with the initial aims and a PPI research proposal. |
| 2. Methods | One PPI member was recruited to the research team to support in the development of participant facing documents (i.e. patient information sheet). PPI supported in the development of the interview schedule to ensure it captured topics relevant to cognition and experiences. In addition to defining terms used e.g., cognition and ensuring participants received a copy of the interview scheduled in advance to support participants to prepare answers on an emotive topic. |
| 3. Study results | PPI contributed to the development of key concepts to be captured within themes and the analytic write up. The PPI member highlighted the importance of including areas impacted by cognition and including the interpretation of less negative experiences to create a more representative account. PPI contributed by their identification with quotes and the importance of their inclusion. |
| 4. Discussion and conclusions | PPI was effective and influential in aspects of the study. This may be as the PPI member is an Education and Research Patient & Service User Representative and therefore familiar with academic research development.<br>The PPI member was involved from the beginning of the research to support with shaping the study, therefore allowing them to contribute |

| | |
|---|---|
| | fully to the study. Attending supervisory meetings with the research team, financial compensation and a positive encouragement of their contribution to the research supported a positive impact of PPI on the study.<br>However, limitations may include the use of only one PPI member which may not reflect the diversity in perimenopausal experiences. Future research should consider the use of a focus group or additional patient and public involvement partners. |
| 5. Reflections/critical perspective | The PPI was embedded as much as possible within the study within the constraints of reasonable payment for time and time constraints of the research to increase involvement. |

## Appendix H- Empirical Paper Demographics Table

| Participant number | Ethnicity | Age | Education | Employment Status | Religion | Index of Multiple Deprivation Rank (IoD2019) | Disability Status | Relationship Status | Duration of Perimenopausal (years) | MENQOL score (1-8, 8=poorer quality of life) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Multiple Races | 52 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Part-time | No religion | 31199 | No | Divorced | 2 | 4 |
| 2 | Multiple Races | 51 | College degree or equivalent e.g. O-levels | Part-time | Catholicism | 16798 | No | Married | 10 | 3 |
| 3 | White | 50 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | Catholicism | 831 | No | Single | 2 | 5 |
| 4 | White | 52 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | No religion | 26716 | No | Married | 5 | 4 |
| 5 | White | 51 | Undergraduate degree or equivalent e.g. diploma, Postgraduate | Part-time | Spiritual | 2529 | No | Single | 3 | 4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | degree e.g. PHD, doctorate | | | | | | |
| 6 | Multiple Races | 54 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | Christian | 25573 | No | Divorced | 3 | 3 |
| 7 | Alaskan Native/Asian/Native Hawaiian | 55 | College degree or equivalent e.g. O-levels | Full time | Sikh | 6930 | No | Married | 4 | 3 |
| 8 | White | 47 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | No religion | 25897 | No | Married | 3 | 4 |
| 9 | White | 52 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | No religion | 19270 | No | Single | 5 | 6 |
| 10 | White | 49 | Less than high school degree | Part-time | Christian | 31792 | Yes | Married | 1 | 5 |
| 11 | White | 44 | College degree or equivalent e.g. O-levels | Part-time | No religion | 9537 | No | Single | 4 | 5 |
| 12 | White | 42 | Undergraduate degree or | Part-time | No religion | 15244 | Yes | Married | 4 | 4 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | | | | | | | |
| 13 | Black | 48 | College degree or equivalent e.g. O-levels | Full time | Christian | 10046 | No | Married | 3 | 6 |
| 14 | White | 50 | Undergraduate degree or equivalent e.g. diploma, Postgraduate degree e.g. PHD, doctorate | Full time | No religion | 32365 | No | Married | 3 | 3 |
| 15 | White | 51 | College degree or equivalent e.g. O-levels | Full time | Christian | 24454 | No | Married | 5 | 5 |

## Appendix I- The ENTREQ Checklist

| Item | Guide and description | Report Location (Reported under the heading it is presented in) |
|---|---|---|
| Aim | State the research question the synthesis addresses | Introduction |
| Synthesis methodology | Identify the synthesis methodology or theoretical framework which underpins the synthesis, and describe the rationale for choice of methodology (e.g. meta-ethnography, thematic synthesis, critical interpretive synthesis, grounded theory synthesis, realist synthesis, meta-aggregation, meta-study, framework synthesis). | Methods |
| Approach to searching | Indicate whether the search was pre-planned (comprehensive search strategies to seek all available studies) or iterative (to seek all available concepts until theoretical saturation is achieved). | Study Registration |
| Inclusion criteria | Specify the inclusion/exclusion criteria (e.g. in terms of population, language, year limits, type of publication, study type). | Eligibility Criteria Population, Intervention, Outcome |
| Data sources | Describe the information sources used (e.g. electronic databases (MEDLINE, EMBASE, CINAHL, psychINFO, Econlit), grey literature databases (digital thesis, policy | Search Strategy |

| | | |
|---|---|---|
| | reports), relevant organisational websites, experts, information specialists, generic web searches (Google Scholar), hand searching, reference lists) and when the searches were conducted; provide the rationale for using the data sources. | |
| Electronic search strategy | Describe the literature search (e.g. provide electronic search strategies with population terms, clinical or health topic terms, experiential or social phenomena related terms, filters for qualitative research and search limits). | Search Strategy |
| Study screening methods | Describe the process of study screening and sifting (e.g. title, abstract and full text review, number of independent reviewers who screened studies) | Study Selection |
| Study characteristics | Present the characteristics of the included studies (e.g. year of publication, country, population, number of participants, data collection, methodology, analysis, research questions). | Characteristics of included studies<br>Table 4.2 |
| Study selection results | Identify the number of studies screened and provide reasons for study exclusion (e.g. for comprehensive searching, provide numbers of studies screened and reasons for exclusion indicated in a figure/flowchart; for iterative searching describe reasons for study exclusion and inclusion based on modifications t the research question and/or contribution to theory development). | Prisma 2020 flow diagram of the journal identification, screening and exclusion process |
| Rationale for appraisal | Describe the rationale and approach used to appraise the included studies or selected findings (e.g. assessment of conduct (validity and robustness), | Quality Appraisal table 4.1 |

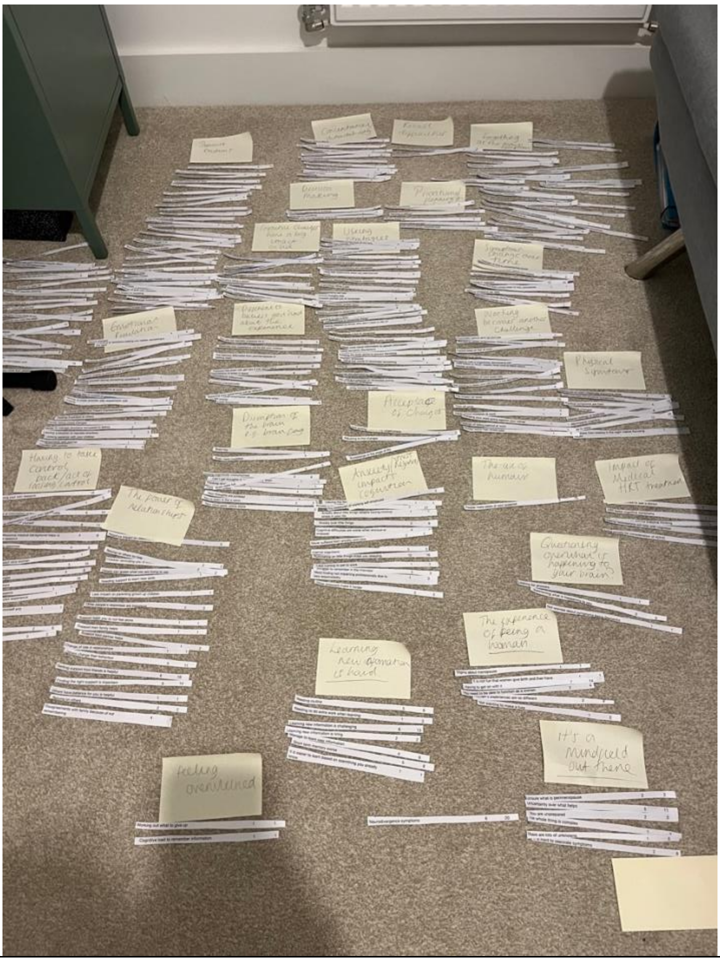
| | | |
|---|---|---|
| | assessment of reporting (transparency), assessment of content and utility of the findings). | |
| Appraisal items | State the tools, frameworks and criteria used to appraise the studies or selected findings (e.g. Existing tools: CASP, QARI, COREQ, Mays and Pope [25]; reviewer developed tools; describe the domains assessed: research team, study design, data analysis and interpretations, reporting). | Quality Appraisal |
| Appraisal process | Indicate whether the appraisal was conducted independently by more than one reviewer and if consensus was required. | Quality Appraisal |
| Appraisal results | Present results of the quality assessment and indicate which articles, if any, were weighted/excluded based on the assessment and give the rationale. | Characteristics of included studies table 4.2 |
| Data extraction | Indicate which sections of the primary studies were analysed and how were the data extracted from the primary studies? (e.g. all text under the headings "results /conclusions" were extracted electronically and entered into a computer software). | Thematic synthesis, data extraction and prioritisation of papers |
| Software | State the computer software used, if any. | Thematic Synthesis, Stages One and Two: Coding Data and Developing |

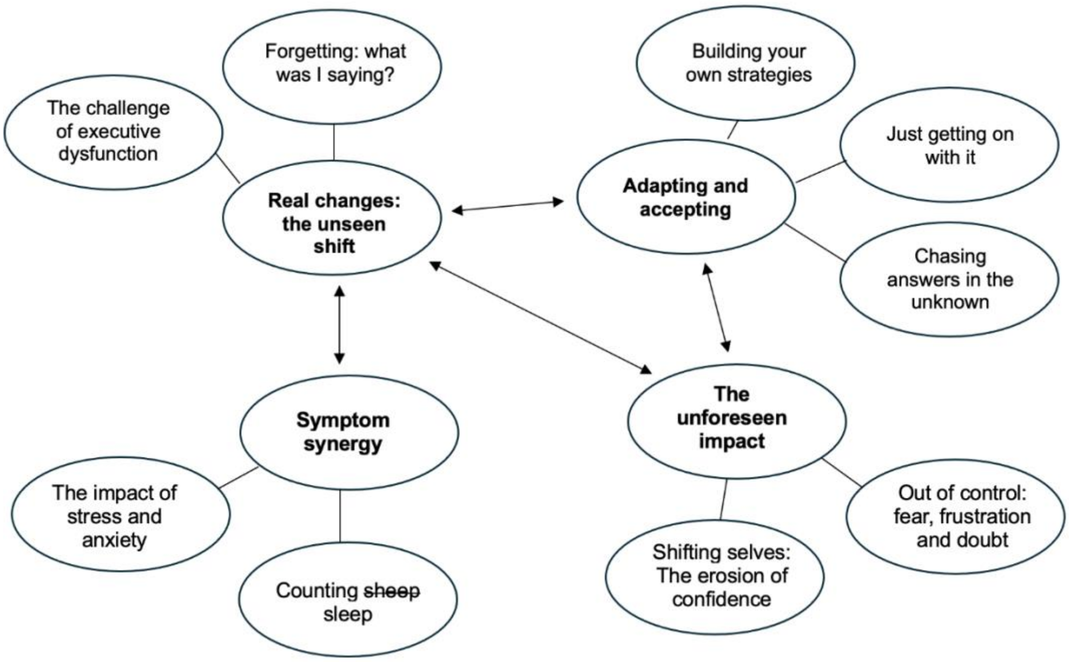
| | | |
|---|---|---|
| | | Descriptive Themes |
| Number of reviewers | Identify who was involved in coding and analysis. | Thematic Synthesis, Data Extraction and Prioritisation of Papers |
| Coding | Describe the process for coding of data (e.g. line by line coding to search for concepts). | Thematic Synthesis, Stages One and Two: Coding Data and Developing Descriptive Themes |
| Study comparison | Describe how were comparisons made within and across studies (e.g. subsequent studies were coded into pre-existing concepts, and new concepts were created when deemed necessary). | Thematic Synthesis, Stages One and Two: Coding Data and Developing Descriptive Themes |
| Derivation of themes | Explain whether the process of deriving the themes or constructs was inductive or deductive. | Thematic Synthesis, Stage Three: Generating |

| | | |
|---|---|---|
| | | Analytic Themes |
| Quotations | Provide quotations from the primary studies to illustrate themes/constructs, and identify whether the quotations were participant quotations or the author's interpretation | Results |
| Synthesis output | Present rich, compelling and useful results that go beyond a summary of the primary studies (e.g. new interpretation, models of evidence, conceptual models, analytical framework, development of a new theory or construct). | Results |

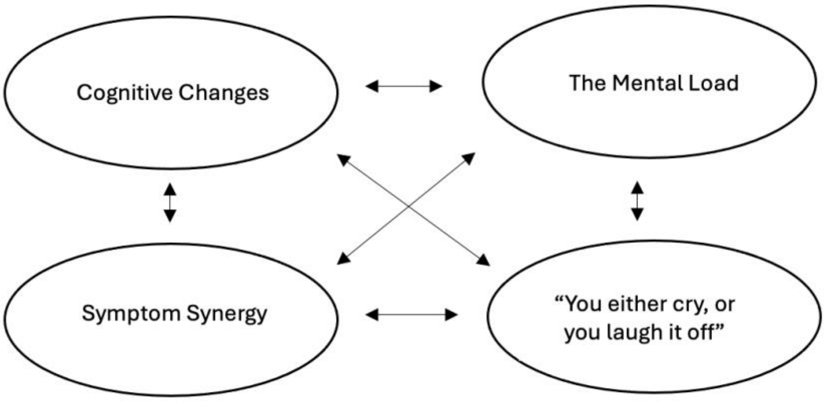
### Appendix J- The Process of Theme Development

| | |
|---|---|
| 1. | Familiarisation |
| | Braun and Clarke (2022) encourage the primary researcher to be fully immersed within the data to support the analytic process. This was achieved by the primary researcher (Y.P) watching the videos of the recordings alongside the transcription process, to ensure the accuracy of AVIDNOTE artificial intelligence software transcriptions. This process also allowed for noting visual and audible reflections across the interviews, not otherwise gained through the written transcripts alone. Following this the primary researcher engaged with the data through reading and re-reading the transcripts, making initial reflections.<br><br>Examples of my reflections taken from interview nine:<br><br>I am noticing links between self-talk and the distress associated with the severity of symptom reports, such as negative self-talk around forgetting like ‘why am I so stupid’ versus ‘it’s okay, I’ll get it next time’. This links to how people then explain their symptoms to others. This may be impacted stigma and people not feeling comfortable to say they are struggling with perimenopause. |
| 2. | Coding |
| | The initial coding of the interviews was completed by the primary researcher (Y.P) reviewing each transcript, line by line, to record semantic codes. Following discussion with the research team, some quotes were coded under more than one initial code due to the overlap of their meaning. As the initial codes developed and adapted throughout the progression of this stage, the primary researcher used an iterative approach by going back to the first developed codes to review and recode in order to support consistency throughout the transcripts. As coding progressed, latent codes, which focuses more on more implicit concepts of meaning were adopted.<br><br>Quotes initially coded as ‘acknowledgement of the impact’:<br>“Yeah, it does affect everywhere.” (Interview 10)<br>“Terrible. Absolutely. It's the worst experience in my life.” (Interview 11)<br>“It's been significant.” (Interview 12)<br>“Oh, yeah, it's hard. It's hard.” (Interview 13)<br>“When I lost my house, it had a really huge detrimental effect to me, I don’t mean that like a drama queen.” (Interview 5) |
| 3. | Generating initial themes |
| | Initial themes were developed my collating codes together with similar meaning to develop initial themes. Codes which shared a similar meaning or idea were clustered together to produce candidate themes.<br><br>For example, under the initial candidate theme of ‘descriptions of the brain’ were the codes: brain feels full, brain feels muddled, brain fog, getting cognitively overwhelmed, thinking does not feel clear, thinking is slower, your brain is like a sieve, your brain goes utterly blank, your thoughts are jumbled.<br><br>Although Nvivo 14 was used throughout the analytic process, initial groping of themes began visually as shown in the figure below: |

| | |
|---|---|
| | *A Photo to Show Coding and Initial Theme Development*<br><br> |
| 4. | Developing and reviewing themes |
| | During this phase the fit of the provisional themes to the dataset was assessed. To do this the coded data was revisited, with themes being evaluated at an individual and full dataset level. Each theme was questioned as to if it told a coherence and convincing story of the data captured. In addition to if the themes highlighted the most important components of the dataset in relation to the research question. Braun and Clarke’s (2022) guidance was followed whereby they encourage the process of collapsing themes.<br>The process of mapping themes was adopted, as shown in the figure below. |

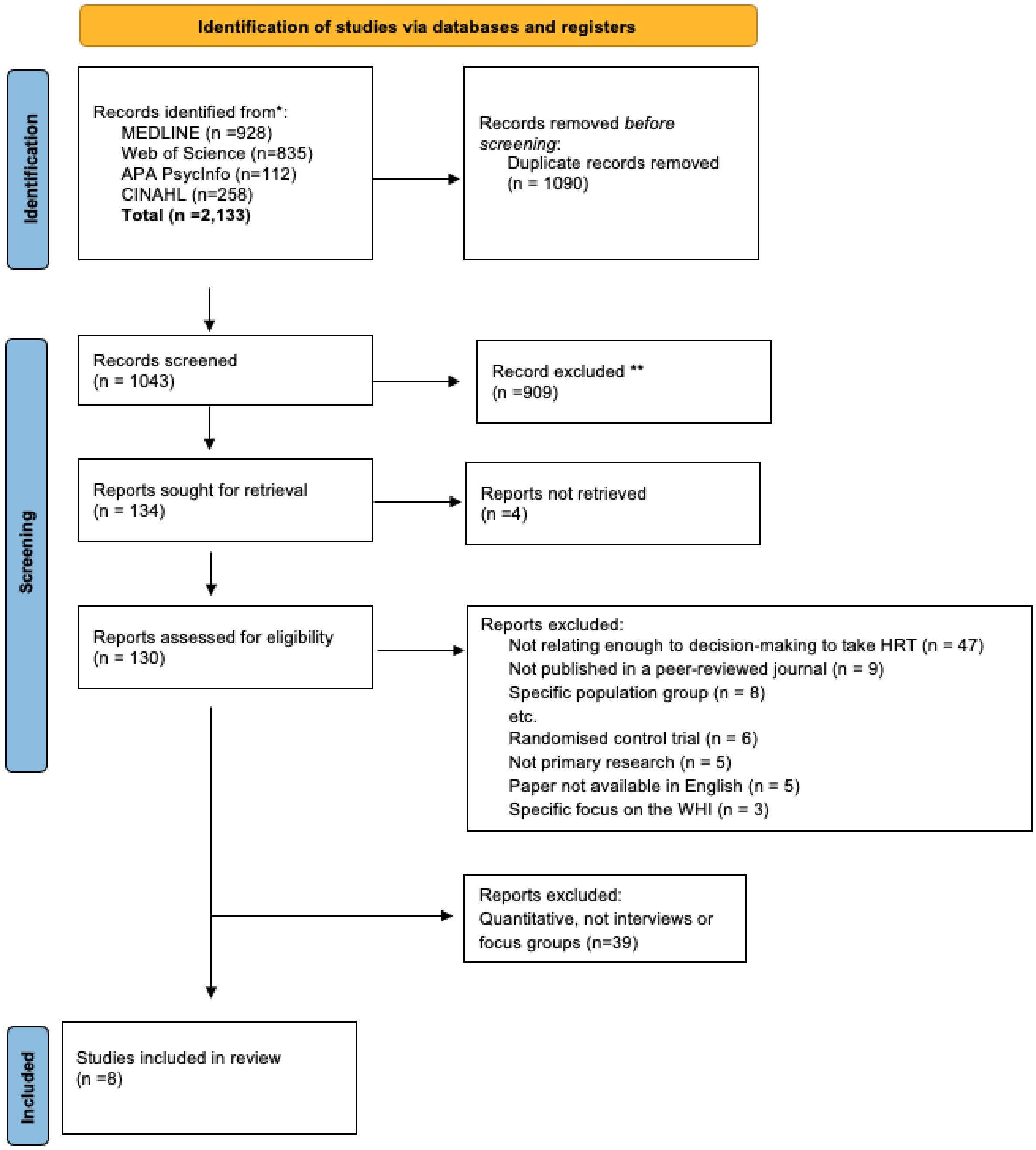
| | |
|---|---|
| | *An Initial Mapping of Patterns Across the Dataset*<br> |
| 5. | Refining, defining and naming themes |
| | The themes were adjusted based on Braun and Clarkes (2023) guidance on creating nuanced themes, whist discouraging subthemes. Also considered was the number of themes in relation to the size and scope of the research.<br>This process consisted of going back to the data set, addressing the research question and discussions with the PPI member and the research team. This phase included the redevelopment of theme one and two, with the overall decision that the types of cognition effected by perimenopause was related to differently compared to the way participants experience of cognition in perimenopause. Overall, the 4 final themes were decided upon due to their differentiation between key concepts identified within the dataset, including: the types of cognition, the experience of cognitive difficulties, the overlap of symptoms and the emotional impact. |
| 6. | Writing up |
| | Initial drafting of the write up began in earlier phases, including familiarisation notes and reflective journaling. This stage allowed for a formal write up process and selecting vivid and compelling data extracts which presented a story of the dataset. This process also included the write up of the remaining sections of the chapter. This process incorporated a further review from the PPI member and research team. |

*Final Mapping of Themes*



## Appendix K- PRISMA Flow Chart for Initial Searches of Databases and Screening

**Dated 23.09.24**



## List of All References within the Portfolio

Ahsan, M., Mallick, A., Singh, R., & Prasad, R. (2015). Assessment of menopausal symptoms during perimenopause and postmenopause in tertiary care hospital. *Journal of Basic and Clinical Reproductive Sciences*, *4*(1), 14. https://doi.org/10.4103/2278-960X.153516

Ajzen, I. (1991). The theory of planned behaviour. *Organizational behaviour and human decision processes*, *50*(2), 179-211.

Ajzen, I., & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behaviour. *Journal of personality and Social Psychology*, *27*(1), 41.

Aljumah, R., Phillips, S., & Harper, J. C. (2023). An online survey of postmenopausal women to determine their attitudes and knowledge of the menopause. *Post Reproductive Health*, *29*(2), 67–84. https://doi.org/10.1177/20533691231166543

Alzheimer's Association. (2016). 2016 Alzheimer's disease facts and figures. *Alzheimer's & Dementia*, *12*(4), 459–509. https://doi.org/10.1016/j.jalz.2016.03.001

Australian Menopause Society (2008). *Scientific definitions for menopause related terminology.* https://www.menopause.org.au/hp/position-statements/scientific-definitions-for-menopause-related-terminology

Barber, K., & Charles, A. (2023). Barriers to accessing effective treatment and support for menopausal symptoms: A qualitative study capturing the behaviours, beliefs and experiences of key stakeholders. *Patient Preference & Adherence*, *17*, 2971–2980. https://doi.org/10.2147/PPA.S430203

Barnes, D. L. (2014). *Women's reproductive mental health across the lifespan*. New York: Springer International Publishing.

Bazeley, A., Marren, C., & Shepherd, A. (2022). *Menopause and the work-place*. Fawcett Society https://www.fawcettsociety.org.uk/Handlers/Download.ashx?IDMF=9672cf45-5f13-4b69-8882-1ee643ac8a6

Berent-Spillson, A., Marsh, C., Persad, C., Randolph, J., Zubieta, J. K., & Smith, Y. (2017). Metabolic and hormone influences on emotion processing during menopause. *Psychoneuroendocrinology*, *76*(1), 218-225.

Bezeley. A., Marren.C., Shepherd. A. (2022). Menopause and the workplace. *1*(1).1-42.

Brinton, R. D., Yao, J., Yin, F., Mack, W. J., & Cadenas, E. (2015). Perimenopause as a neurological transition state. *Nature Reviews Endocrinology*, *11*(7), 393–405. https://doi.org/10.1038/nrendo.2015.82

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Braun, V., & Clarke, V. (2021a). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, *18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Braun, V., & Clarke, V. (2021b). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, *13*(2), 201–216. https://doi.org/10.1080/2159676X.2019.1704846

Braun, V., & Clarke, V. (2022). *Thematic analysis: A practical guide / Virginia Braun and Victoria Clarke*. SAGE.

British Menopause Society (2019). Cognitive behaviour theory (CBT) for menopause symptoms. https://thebms.org.uk/wp-content/uploads/2022/12/01-BMS-TfC-CBT-NOV2022-A.pdf

British Menopause Society. (2021). *What is menopause?* https://thebms.org.uk/wp-content/uploads/2023/08/17-BMS-TfC-What-is-the-menopause-AUGUST2023-A.pdf

British Menopause Society. (2020). HRT-guide. https://thebms.org.uk/wp-content/uploads/2022/12/04-BMS-TfC-HRT-Guide-NOV2022-A.pdf

British Menopause Society. (2022). *Hormone replacement in menopause.* https://thebms.org.uk/wp-content/uploads/2022/12/08-BMS-TfC-Testosterone-replacement-in-menopause-DEC2022-A.pdf

Buick, D. L., Crook, D., & Horne, R. (2005). Women's perceptions of hormone replacement therapy: Risks and benefits (1980–2002). A literature review: Climacteric. *Climacteric*, *8*(1), 24–35. https://doi.org/10.1080/13697130500062654

Butler, A., Hall, H., & Copnell, B. (2016). A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews on Evidence-Based Nursing*, *13*(3), 241–249. https://doi.org/10.1111/wvn.12134

Cagnacci, A., & Venier, M. (2019). The Controversial History of Hormone Replacement Therapy. *Medicina*, *55*(9), 602. https://doi.org/10.3390/medicina55090602

Campbell, M., McKenzie, J. E., Sowden, A., Katikireddi, S. V., Brennan, S. E., Ellis, S., Hartmann-Boyce, J., Ryan, R., Shepperd, S., Thomas, J., Welch, V., & Thomson, H. (2020). Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. *BMJ*, *368*. https://doi.org/10.1136/bmj.l6890

Campbell, S., & Whitehead, M. (1977). Oestrogen therapy and the menopausal syndrome. *Clinics in obstetrics and gynaecology*, *4*(1), 31-47.

Castellanos, F. X., Sonuga-Barke, E. J. S., Milham, M. P., & Tannock, R. (2006). Characterizing cognition in ADHD: Beyond executive dysfunction. *Trends in Cognitive Sciences*, *10*(3), 117–123. https://doi.org/10.1016/j.tics.2006.01.011

Ciolfi Felice, M., Søndergaard, M. L. J., & Balaam, M. (2021). Resisting the Medicalisation of Menopause: Reclaiming the Body through Design. *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, 1–16. https://doi.org/10.1145/3411764.3445153

Craik, F. I., & Bialystok, E. (2006). Cognition through the lifespan: mechanisms of change. *Trends in cognitive sciences*, *10*(3), 131-138.

Dehlendorf, C., Levy, K., Kelley, A., Grumbach, K., & Steinauer, J. (2013). Women's preferences for contraceptive counselling and decision making. *Contraception*, *88*(2), 250–256. https://doi.org/10.1016/j.contraception.2012.10.012

De Villiers, C., Farooq, M. B., & Molinari, M. (2022). Qualitative research interviews using online video technology – challenges and opportunities. *Meditari Accountancy Research*, *30*(6), 1764–1782. https://doi.org/10.1108/MEDAR-03-2021-1252

Fox-Young, S., Sheehan, M., O'connor, V., Cragg, C., & Del Mar, C. (1995). Women's perceptions and experience of menopause: A focus group study. *Journal of Psychosomatic Obstetrics & Gynecology*, *16*(4), 215–221. https://doi.org/10.3109/01674829509024472

Goffman, E. (2009). *Stigma: Notes on the management of spoiled identity*. Simon and Schuster.

Greendale, G. A., Huang, M. H., Wight, R. G., Seeman, T., Luetters, C., Avis, N. E., Johnstone. J., & Karlamangla, A. S. (2009). Effects of the menopause transition and hormone use on cognitive performance in midlife women. *Neurology*, *72*(21), 1850-1857.

Greendale, G. A., Karlamangla, A. S., & Maki, P. M. (2020). The menopause transition and cognition. *JAMA*, *323*(15), 1495. https://doi.org/10.1001/jama.2020.1757

Greendale, G. A., Wight, R. G., Huang, M. H., Avis, N., Gold, E. B., Joffe, H., Seeman, T., Vuge, M., & Karlamangla, A. S. (2010). Menopause-associated symptoms and cognitive performance: results from the study of women's health across the nation. *American Journal of Epidemiology*, *171*(11), 1214–1224. https://doi.org/10.1093/aje/kwq067

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of qualitative research*, *2*(163-194), 105.

Hamoda, H., Mukherjee, A., Morris, E., Baldeweg, S. E., Jayasena, C. N., Briggs, P., & Moger, S. (2022). Joint position statement by the British Menopause Society, Royal College of Obstetricians and Gynaecologists and Society for Endocrinology on best practice recommendations for the care of women experiencing the menopause. *Post Reproductive Health*, *28*(3), 123-125.

Hamoda, H., Panay, N., Pedder, H., Arya, R., & Savvas, M. (2020). The British menopause society & women’s health concern 2020 recommendations on hormone replacement therapy in menopausal women. *Post reproductive health*, *26*(4), 181-209.

Hickey, M., Hunter, M. S., Santoro, N., & Ussher, J. (2022). Normalising menopause. *BMJ*, *377*.

Hickey, M., Szabo, R. A., & Hunter, M. S. (2017). Non-hormonal treatments for menopausal symptoms. *BMJ*, j5101. https://doi.org/10.1136/bmj.j5101

Hilditch. J. R., Lewis. J., Peter. A., Maris. B. V., Ross. A., Franssen. E., Guyatt. G. H., Norton. P. G., & Dunn. E. (1996). A menopause-specific quality of life questionnaire: Development and psychometric properties. *Maturitas, 24*(6), 161-175.

Hogervorst, E., Craig, J., & O'Donnell, E. (2022). Cognition and mental health in menopause: A review. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *81*, 69-84.

Hunter, M., Huang, A., & Wallhagen, M. (2020). "I’m going to stay young": Belief in anti-aging efficacy of menopausal hormone therapy drives prolonged use despite medical risks. *Plos One 15*(5), e0233703. https://doi.org/10.1371/journal.pone.0233703

Hunter, M. S., & Mann, E. (2010). A cognitive model of menopausal hot flushes and night sweats. *Journal of Psychosomatic Research*, *69*(5), 491–501. https://doi.org/10.1016/j.jpsychores.2010.04.005

International Menopause Society (n.d). *Glossary of terms.* Retrieved March 2, 2025, from https://www.menopauseinfo.org/wp-content/uploads/2023/01/IMS-English-Factsheet-4-glossary.pdf

Jack, D. C. (1991). *Silencing the self: Women and depression*. Harvard University Press.

Jaff, N. G., & Maki, P. M. (2021). Scientific insights into brain fog during the menopausal transition. *Climacteric*, *24*(4), 317–318. https://doi.org/10.1080/13697137.2021.1942700

Johnston-Robledo, I., & Chrisler, J. C. (2020). The menstrual mark: Menstruation as social stigma. *SEX ROLES, 68*(1-2), 9-18.

Johnson, A., Roberts, L., & Elkins, G. (2019). Complementary and alternative medicine for menopause. *Journal of Evidence-Based Integrative Medicine*, *24*, 1-14. https://doi.org/10.1177/2515690X19829380

Kite, J., Chan, L., MacKay, K., Corbett, L., Reyes-Marcelino, G., Nguyen, B., Bellew, W., & Freeman, B. (2023). A model of social media effects in public health communication campaigns: Systematic Review. *Journal of Medical Internet Research*, *25*, e46345. https://doi.org/10.2196/46345

Koire, A., Joffe, H., & Buckley, R. (2022). Menopausal hormone therapy and the mind: The role of hormone replacement in the prevention and treatment of cognitive decline, dementia, and cognitive dysfunction of depression. *Harvard Review of Psychiatry*, *30*(4), 215-225.

Kolip, P., Hoefling-Engels, N., & Schmacke, N. (2009). Attitudes toward postmenopausal long-term hormone therapy. *Qualitative Health Research*, *19*(2), 207–215. https://doi.org/10.1177/1049732308328053

Koysombat, K., McGown, P., Nyunt, S., Abbara, A., & Dhillo, W. S. (2024). New advances in menopause symptom management. *Best Practice & Research Clinical Endocrinology & Metabolism*, *38*(1), 101-774. https://doi.org/10.1016/j.beem.2023.101774

Koysombat, K., Mukherjee, A., Nyunt, S., Pedder, H., Vinogradova, Y., Burgin, J., Dave, H., Comninos, A. N., Talaulikar, V., Bailey, J. V., Dhillo, W. S., & Abbara, A. (2024). Factors affecting shared decision-making concerning menopausal hormone therapy. *Annals of the New York Academy of Sciences*, *1538*(1), 34–44. https://doi.org/10.1111/nyas.15185

Kramer, J. H., Mungas, D., Reed, B. R., Wetzel, M. E., Burnett, M. M., Miller, B. L., Weiner, M. W., & Chui, H. C. (2007). Longitudinal MRI and cognitive change in healthy elderly. *Neuropsychology*, *21*(4), 412–418. https://doi.org/10.1037/0894-4105.21.4.412

Kyvernitakis, I., Kostev, K., Hars, O., Albert, U. S., & Hadji, P. (2015). Discontinuation rates of menopausal hormone therapy among postmenopausal women in the post-WHI study era. *Climacteric: The Journal of the International Menopause Society*, *18*(5), 737–742. https://doi.org/10.3109/13697137.2015.1037267

Langer, R. D., Hodis, H. N., Lobo, R. A., & Allison, M. A. (2021). Hormone replacement therapy – where are we now? *Climacteric*, *24*(1), 3–10. https://doi.org/10.1080/13697137.2020.1851183

Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. *European Journal of personality*, *1*(3), 141-169.

Légaré, F., Godin, G., Dodin, S., Turcot, L., & Laperrière, L. (2003). Adherence to hormone replacement therapy: A longitudinal study using the theory of planned behaviour. *Psychology & Health*, *18*(3), 351–371. https://doi.org/10.1080/0887044031000146824

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE.

Maji, S., & Dixit, S. (2019). Self-silencing and women’s health: A review. *International Journal of Social Psychiatry*, *65*(1), 3–13. https://doi.org/10.1177/0020764018814271

Manson, J. E., Chlebowski, R. T., Stefanick, M. L., Aragaki, A. K., Rossouw, J. E., Prentice, R. L., Anderson, G., Howard, B. V., Thomson, C. A., LaCroix, A. Z., Wactawski-Wende, J., Jackson, R. D., Limacher, M., Margolis, K. L., Wassertheil-Smoller, S., Beresford, S. A., Cauley, J. A., Eaton, C. B., Gass, M., & Hsia, J. (2013). Menopausal hormone therapy and health outcomes during the intervention and extended poststopping phases of the women’s health initiative randomised trials. *JAMA: Journal of American Medical Association*, *310*(13), 1353-1368. https://doi.org/10.1001/jama.2013.278040

Mensh, E., & Mensh, H. (1991). *The IQ mythology: Class, race, gender, and inequality*. SIU Press.

Metcalf, C. A., Duffy, K. A., Page, C. E., & Novick, A. M. (2023). Cognitive problems in perimenopause: A review of recent evidence. *Current Psychiatry Reports*, *25*(10), 501–511. https://doi.org/10.1007/s11920-023-01447-3

Mishra, A., Wang, Y., Yin, F., Vitali, F., Rodgers, K. E., Soto, M., Mosconi, L., Wang, T., & Brinton, R. D. (2022). A tale of two systems: lessons learned from female mid-life aging with implications for Alzheimer's prevention & treatment. *Ageing Research Reviews*, *74*, 101542. https://doi.org/10.1016/j.arr.2021.101542

Mosconi, L., Berti, V., Dyke, J., Schelbaum, E., Jett, S., Loughlin, L., Jang, G., Rahman, A., Hristov, H., Pahlajani, S., Andrews, R., Matthews, D., Etingin, O., Ganzer, C., De Leon, M., Isaacson, R., & Brinton, R. D. (2021). Menopause impacts human brain structure, connectivity, energy metabolism, and amyloid-beta deposition. *Scientific Reports*, *11*(1), 10867. https://doi.org/10.1038/s41598-021-90084-y

Mosconi, L., Rahman, A., Diaz, I., Wu, X., Scheyer, O., Hristov, H. W., Vallabhajosula, S., Isaacson, R. S., De Leon, M. J., & Brinton, R. D. (2018). Increased Alzheimer's risk during the menopause transition: A 3-year longitudinal brain imaging study. *Plos One*, *13*(12), e0207885. https://doi.org/10.1371/journal.pone.0207885

Murayama, K., Miyatsu, T., Buchli, D., & Storm, B. C. (2014). Forgetting as a consequence of retrieval: A meta-analytic review of retrieval-induced forgetting. *Psychological Bulletin*, *140*(5), 1383–1409. https://doi.org/10.1037/a0037505

Munn, C., Vaughan, L., Talaulikar, V., Davies, M. C., & Harper, J. C. (2022). Menopause knowledge and education in women under 40: Results from an online survey. *Women's Health*, *18*, 17455057221139660.

National Health Service. (2022). Menopause. *Menopause*. https://www.nhs.uk/conditions/menopause/

NICE National Institute for Health and Care Excellence. (2015). *Menopause: identification and management* [NICE Guideline NG23]. https://www.nice.org.uk/guidance/ng23/chapter/Recommendations#identifying-perimenopause-and-menopause

NICE National Institute for Health and Care Excellence. (2024). Menopause: Identification and management. *Menopause: Identification and Management*. https://www.nice.org.uk/guidance/ng23

Nichols, E. S., Wild, C. J., Owen, A. M., & Soddu, A. (2021). Cognition across the lifespan: Investigating age, sex, and other sociodemographic influences. *Behavioral Sciences*, *11*(4), 51.

Olson, M. M., Alhelou, N., Kavattur, P. S., Rountree, L., & Winkler, I. T. (2022). The persistent power of stigma: A critical review of policy initiatives to break the menstrual silence and advance menstrual literacy. *PLOS Global Public Health*, *2*(7), e0000070. https://doi.org/10.1371/journal.pgph.0000070

O'Reilly, K., McDermid, F., McInnes, S., & Peters, K. (2023). An exploration of women's knowledge and experience of perimenopause and menopause: An integrative literature review. *Journal of Clinical Nursing*, *32*(15–16), 4528–4540. https://doi.org/10.1111/jocn.16568

O'Reilly, K., McDermid, F., McInnes, S., & Peters, K. (2024). "I was just a shell": Mental health concerns for women in perimenopause and menopause. *International Journal of Mental Health Nursing*, *33*(3), 693–702. https://doi.org/10.1111/inm.13271

Orgad, S., Gilchrist, K., & Rottenberg, C. (2024). How to tame your hormones: Menopause rage in media discourse. *Feminist Media Studies*, 1–20. https://doi.org/10.1080/14680777.2024.2409970

Orgad, S., & Rottenberg, C. (2024). Mediating menopause: Feminism, neoliberalism, and biomedicalisation. *Feminist Theory*, *25*(3), 338–358. https://doi.org/10.1177/14647001231182030

Ozuzu-Nwaiwu, J. (2007). Black women's perceptions of menopause and the use of HRT. *Nursing Times, 103*(2), 24-25.

Padonu, G., Holmes- Rovner, M., Rothert, M., Schmitt, N., Kroll, J., Rovner, D., Talarczyk, G., Breer, L., Ransom, S., & Gladney, E. (1996). African-American women's attitudes and expectations of menopause. *American Journal of Preventative Medicine, 12*(5), 420-423.

Pershad, A., Morris, J. M., Shearer, K., Pace, D., & Khanna, P. (2023). Influencing factors on women’s attitudes toward hormone therapy acceptance for menopause treatment: A systematic review. *Menopause*, *30*(10), 1061–1069. https://doi.org/10.1097/GME.0000000000002243

Popay, J., Roberts, H., Sowden, A., Petticrew, M., Arai, L., Rodgers, M., Britten, N., Roen, K., & Duffy, S. (2006). Guidance on the conduct of narrative synthesis in systematic reviews. *A Product from the ESRC Methods Programme*, *1*(1), b92.

Posadzki, P., Lee, M. S., Moon, T. W., Choi, T. Y., Park, T. Y., & Ernst, E. (2013). Prevalence of complementary and alternative medicine (CAM) use by menopausal women: A systematic review of surveys. *Maturitas*, *75*(1), 34–43. https://doi.org/10.1016/j.maturitas.2013.02.005

Posner, J. (1979). It's all in your head: Feminist and medical models of menopause (strange bedfellows). *Sex Roles*, *5*(2), 179-190.

Pullens, M. J., De Vries, J., & Roukema, J. A. (2010). Subjective cognitive dysfunction in breast cancer patients: A systematic review. *Psycho*‐*oncology*, *19*(11), 1127-1138.

Quine, L., & Rubin, R. (1997). Attitude, subjective norm and perceived behavioural control as predictors of women’s intentions to take hormone replacement therapy. *British Journal of Health Psychology*, *2*(3), 199–216. https://doi.org/10.1111/j.2044-8287.1997.tb00536.x

Reuben, R., Karkaby, L., McNamee, C., Phillips, N. A., & Einstein, G. (2021). Menopause and cognitive complaints: Are ovarian hormones linked with subjective cognitive decline? *Climacteric*, *24*(4), 321–332. https://doi.org/10.1080/13697137.2021.1892627

Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: A key to evidence-based decisions. *ACP Journal Club, 123*(3), A12-13. https://www.ncbi.nlm.nih.gov/pubmed/7582737

Roberts, K., Dowell, A., & Nie, J. B. (2019). Attempting rigour and replicability in thematic analysis of qualitative research data; A case study of codebook development. *BMC Medical Research Methodology*, *19*(1), 1-8.

Rollnick, S., Miller, W. R., Butler, C. C., & Aloia, M. S. (2008). Motivational interviewing in health care: Helping patients change behaviour. *Journal of Chronic Obstructive Pulmonary Disease, 5*(3)*,* 208.

Rogers, R. W. (1975). A protection motivation theory of fear appeals and attitude change. *The Journal of Psychology*, *91*(1), 93-114.

Rozenberg, S., Panay, N., Gambacciani, M., Cano, A., Gray, S., & Schaudig, K. (2023). Breaking down barriers for prescribing and using hormone therapy for the treatment of menopausal symptoms: an experts' perspective. *Expert Review of Clinical Pharmacology*, *16*(6), 507-517.

Rowson, R. (2023). Expressions of emotion as perceptual media. *Synthese*, *201*(6), 222. https://doi.org/10.1007/s11229-023-04212-4

Schaller, T. K., & Malhotra, N. K. (2015). Affective and cognitive components of attitudes in high-stakes decisions: An application of the theory of planned behaviour to hormone replacement therapy use. *Psychology & Marketing*, *32*(6), 678–695. https://doi.org/10.1002/mar.20809

Sergeant, J., & Rizq, R. (2017). 'Its all part of the big CHANGE': A grounded theory study of women's identity during menopause. *Journal of Psychosomatic Obstetrics & Gynecology*, *38*(3), 189-201.

Sheeran, P. (2002). Intention—Behaviour Relations: A Conceptual and empirical review. *European Review of Social Psychology*, *12*(1), 1–36. https://doi.org/10.1080/14792772143000003

Shore, G. (1999). II Soldering on: An exploration into women's perceptions and experiences of menopause. *Feminism & Psychology, 9*(2), 168-180. https://doi-org.uea.idm.oclc.org/10.1177/0959353599009002009

Short, S. E., & Zacher, M. (2022). Women’s Health: Population Patterns and Social Determinants. *Annual Review of Sociology*, *48*(1), 277–298. https://doi.org/10.1146/annurev-soc-030320-034200

Simpson, E. E. A., Doherty, J., & Timlin, D. (2024). Menopause as a window of opportunity: The benefits of designing more effective theory-driven behaviour change interventions to promote healthier lifestyle choices at midlife. *Proceedings of the Nutrition Society*, *83*(2), 120–129. https://doi.org/10.1017/S0029665123004810

Smith, B. (2018). Generalizability in qualitative research: Misunderstandings, opportunities and recommendations for the sport and exercise sciences. *Qualitative Research in Sport, Exercise and Health*, *10*(1), 137–149. https://doi.org/10.1080/2159676X.2017.1393221

Sochocka, M., Karska, J., Pszczołowska, M., Ochnik, M., Fułek, M., Fułek, K., Kurpas, D., Chojdak-Łukasiewicz, J., Rosner-Tenerowicz, A., & Leszek, J. (2023). Cognitive Decline in Early and Premature Menopause. *International Journal of Molecular Sciences*, *24*(7), 6566. https://doi.org/10.3390/ijms24076566

Spatz, B. A., Thombs, D., Byrne, T. J., & Page, B. J. (2003). Use of the theory of planned behaviour to explain HRT decisions. *American Journal of Health Behaviour*, *27*(4), 445–455.

Staniszewska, S., Brett, J., Simera, I., Seers, K., Mockford, C., Goodlad, S., Altman, D. G., Moher, D., Barber, R., Denegri, S., Entwistle, A., Littlejohns, P., Morris, C., Suleman, R., Thomas, V., & Tysall, C. (2017). GRIPP2 reporting checklists: Tools to improve reporting of patient and public involvement in research. *BMJ*, j3453. https://doi.org/10.1136/bmj.j3453

Stern, C., Lizarondo, L., Carrier, J., Godfrey, C., Rieger, K., Salmond, S., Apóstolo, J., Kirkpatrick, P., & Loveday, H. (2020). Methodological guidance for the conduct of mixed methods systematic reviews. *JBI Evidence Synthesis*, *18*(10), 2108. https://doi.org/10.11124/JBISRIR-D-19-00169

Stoll, C. R. T., Izadi, S., Fowler, S., Green, P., Suls, J., & Colditz, G. A. (2019). The value of a second reviewer for study selection in systematic reviews. *Research Synthesis Methods*, *10*(4), 539–545. https://doi.org/10.1002/jrsm.1369

Tao, M., Teng, Y., Shao, H., Wu, P., & Mills, E. J. (2011). Knowledge, perceptions and information about hormone therapy (HT) among menopausal women: A systematic review and meta-synthesis: PloS one. *PloS One*, *6*(9), e24661. https://doi.org/10.1371/journal.pone.0024661

TED. (2020, April 13). *How menopause affects the brain.* YouTube. https://www.youtube.com/watch?v=JJZ8z_nTCZQ

Theroux, R. (2010). Women’s decision making during the menopausal transition. *Journal of the American Academy of Nurse Practitioners*, *22*(11), 612–621. https://doi.org/10.1111/j.1745-7599.2010.00553.x

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, *8*(1), 45. https://doi.org/10.1186/1471-2288-8-45

Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology*, *12*(1), 181. https://doi.org/10.1186/1471-2288-12-181

Triandis, H. C. (1979). Values, attitudes, and interpersonal behaviour. *Nebraska Symposium on Motivation, 27,* 195-259.

Unkenstein, A. E., Bryant, C. A., Judd, F. K., Ong, B., & Kinsella, G. J. (2016). Understanding women's experience of memory over the menopausal transition: Subjective and objective memory in pre-, peri-, and postmenopausal women. *Menopause*, *23*(12), 1319-1329.

Vega, J. N., Zurkovsky, L., Albert, K., Melo, A., Boyd, B., Dumas, J., Woodward, N., McDonald, B. C., Saykin, A. J., Park, J. H., Naylor, M., & Newhouse, P. A. (2016). Altered brain connectivity in early postmenopausal women with subjective cognitive impairment. *Frontiers in Neuroscience*, *10*. https://doi.org/10.3389/fnins.2016.00433

Walter, F. M., Emery, J. D., Rogers, M., & Britten, N. (2004). Women's views of optimal risk communication and decision making in general practice consultations about the menopause and hormone replacement therapy. *Patient Education and Counselling*, *53*(2), 121–128. https://doi.org/10.1016/j.pec.2003.11.001

Wasserstein, J., Stefanatos, G. A., & Solanto, M. V. (2023). 2 Perimenopause, menopause and ADHD. *Journal of the International Neuropsychological Society*, *29*(1), 881–881. https://doi.org/10.1017/S1355617723010846

Weber, M. T., Maki, P. M., & McDermott, M. P. (2014). Cognition and mood in perimenopause: A systematic review and meta-analysis. *The Journal of Steroid Biochemistry and Molecular Biology*, *142*, 90-98.

Whiffin, C. J., Gracey, F., & Ellis-Hill, C. (2021). The experience of families following traumatic brain injury in adult populations: A meta-synthesis of narrative structures. *International Journal of Nursing Studies*, *123*, 104043. https://doi.org/10.1016/j.ijnurstu.2021.104043

World Health Organisation. (2024). *Menopause.* https://www.who.int/news-room/fact-sheets/detail/menopause

Yao, J., Irwin, R. W., Zhao, L., Nilsen, J., Hamilton, R. T., & Brinton, R. D. (2009). Mitochondrial bioenergetic deficit precedes Alzheimer's pathology in female mouse model of Alzheimer's disease. *Proceedings of the National Academy of Sciences*, *106*(34), 14670–14675. https://doi.org/10.1073/pnas.0903563106

Yazdkhasti, M., Negarandeh, R., & Behboodi-Moghadam, Z. (2016). Threat of the feminine identity: The emerging structure in exploring the process of women's empowerment for menopause management: A grounded theory study. *International Journal of Medical Research & Health Sciences*, *5*(11), 509-520.

Zhang, G.-Q., Chen, J.-L., Luo, Y., Mathur, M. B., Anagnostis, P., Nurmatov, U., Talibov, M., Zhang, J., Hawrylowicz, C. M., Lumsden, M. A., Critchley, H., Sheikh, A., Lundbäck, B., Lässer, C., Kankaanranta, H., Lee, S. H., & Nwaru, B. I. (2021). Menopausal hormone therapy and women's health: An umbrella review. *PLOS Medicine*, *18*(8), e1003731. https://doi.org/10.1371/journal.pmed.1003731