EVIDENCE REPORT

S3-LEITLINIE

PERI- UND POSTMENOPAUSE

DIAGNOSTIK UND INTERVENTIONEN

PICO QUESTION 3

PROJECT: AWMF NR 015-062

VERSION: 4.0

STAND: 28.11.2025

RESEARCHERS

- Univ.-Prof. Dr. **Stefanie J. Klug**, MPH, Chair of Epidemiology, TUM School of Medicine and Health, Technical University of Munich, Munich, Germany
- **Hebatullah Abdulazeem**, MD, MSc, Chair of Epidemiology, TUM School of Medicine and Health, Technical University of Munich, Munich, Germany
- **Rehab Meckawy**, MD, MSc, Faculty of Medicine, Alexandria University, Alexandria, Egypt

TABLE OF CONTENTS

Researchers ii

Tables of Figures, Tables, and Appendices v

Abbreviations vi

Abstract 1

Brief Literature Introduction 3

Methods 4

Information source 4

Eligibility criteria 5

Inclusion Criteria in PECO format 5

Exclusion Criteria 6

Studies Selection And Data Extraction 7

Risk of bias and Quality assessment 7

Risk of bias assessment: Newcastle–Ottawa Scale 7

Certainty of Evidence: GRADE Approach 8

Data analysis and Results synthesis 8

Results 10

Characteristics of Included Studies 11

Risk of Bias Assessment 14

Outcomes of the included studies 15

Symptoms Studied 15

Causal Attribution Context across the included studies 16

Meta-analyses 19

GRADE assessment of the key outcomes identified 23

Interpretation of results 25

Summary of Findings 25

Clinical implications of the results 25

Strengths and Limitations of this Evidence Report 27

References **28**

Appendix **34**

TABLES OF FIGURES, TABLES, AND APPENDICES

Figure 1 PRISMA flow diagram of the selection process for PICO question 3 10
Figure 2 Forest plot of odds ratios for psychological/cognitive symptoms in perimenopausal vs premenopausal women 19
Figure 3 Forest plot of odds ratios for psychological/cognitive symptoms in postmenopausal versus premenopausal women 20
Figure 4 Forest plot of odds ratios for quality-of-life impact in perimenopausal versus premenopausal women 21
Figure 5 Forest plot of odds ratios for vasomotor/cardiovascular symptoms in perimenopausal versus premenopausal women 22

Table 1 Characteristics of the included studies (n=110) 12
Table 2 Symptoms reported in MT across the included studies. 15
Table 3 Symptoms attributed to MT vs differential diagnosis across the included studies 18
Table 4 GRADE assessment of the main identified outcomes 23

Appendix 1 Search strategy 34
Appendix 2 Data extraction items 36
Appendix 3 List of excluded studies (n=118) 37
Appendix 4 Metadata of the included studies 43
Appendix 5 Eligibility and participant criteria of the included studies 51
Appendix 6 Timeline and women's groups in the included studies 79
Appendix 7 Symptoms and causal attribution context 105
Appendix 8 Key findings of the included studies 128
Appendix 9 Sexual changes across the MT stages across 24 studies 174
Appendix 10 Direct QoL evidence across 30 included studies 177
Appendix 11 Inferred QoL evidence from 108 included studies based on clinical symptoms and complaints 180

ABBREVIATIONS

ALSWH	Australian Longitudinal Study on Women's Health
AWMF	Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften
CHIWOS	Canadian HIV Women's Sexual and Reproductive Health Cohort Study
CI	Confidence Interval
ERMA	Estrogenic Regulation of Muscle Apoptosis Study
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
HRT	Hormone Replacement Therapy
HR	Hazard Ratio
MBHMS	Michigan Bone Health and Metabolism Study
MD	Mean Difference
MIDUS	Midlife in the United States Study
MT	Menopausal Transition
NOS	Newcastle–Ottawa Scale
OR	Odds Ratio
PECOS	Population, Exposure, Comparator, Outcome, Study design
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QoL	Quality of Life
RR	Risk Ratio
STRAW	Stages of Reproductive Aging Workshop
SWAN	Study of Women's Health Across the Nation
VMS	Vasomotor Symptoms
WHAP	Women's Healthy Ageing Project
WHO	World Health Organization
WIHS	Women's Interagency HIV Study

ABSTRACT

Background

Symptoms during the menopausal transition (MT) are commonly attributed to hormonal changes, but the extent to which specific symptoms are causally linked to menopause stage versus alternative diagnoses remains unclear.

Objectives

To systematically review and synthesize evidence on the causal attribution of clinical symptoms and complaints of women passing through MT age.

This review addressed the research question 'PICO Question 3': What is the age-related evidence for attributing a patient's complaints to perimenopause or postmenopause as opposed to other differential diagnoses?

Methods

A systematic search was conducted in multiple databases (PubMed, Embase, Cochrane, Scopus, Web of Science, and Google Scholar) without language or date restrictions. Observational studies addressing clinical symptoms and complaints in women passing through MT with the objective to investigate the cause or the link of these symptoms to MT stages were eligible. Two independent reviewers performed title and abstract screening, as well as full-text screening and data extraction. Risk of bias was assessed using the Newcastle-Ottawa Scale. Results were synthesized narratively, accompanied by descriptive statistics for study characteristics. Quantitative meta-analyses were calculated, where feasible. Certainty assessments of the identified findings were performed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE).

Results

110 studies (with approximately 160,000 participants) published from 1975 to 2025 were included, originating mainly from the USA and Australia. The evidence for causal attribution to menopause stage was found with moderate certainty for vasomotor symptoms (e.g., hot flashes, night sweats), with pooled odds ratios indicating a significant increase in peri- and postmenopausal women compared to premenopausal women (OR 3.06, 95% CI 1.53–6.10 for peri vs pre; moderate certainty). Urogenital and sexual symptoms (e.g., vaginal dryness, dyspareunia) were also consistently associated with postmenopause, though evidence was

moderate due to heterogeneity. Psychological and cognitive symptoms (depression, mood changes, sleep disturbances) showed inconsistent attribution, with substantial influence from alternative diagnoses such as mood disorders and sleep apnea. The risk of bias was generally low to moderate across the included studies.

Conclusions

Vasomotor and urogenital symptoms are strongly and consistently associated with menopausal stage transitions, supporting their use as stage-linked clinical indicators. Psychological and cognitive symptoms require a comprehensive assessment to rule out alternative causes. These findings provide moderate-certainty evidence base for clinicians and researchers and emphasize the need for structured diagnostic pathways and individualized symptom assessment during menopause transition.

BRIEF LITERATURE INTRODUCTION

The menopausal transition (MT) is a complex period in women's lives, marked by fluctuating hormone levels and a wide array of physical, psychological, and somatic symptoms. Accurately attributing these symptoms to specific menopausal stages—distinct from effects of aging, comorbidities, or other differential diagnoses—is critical for effective clinical care and health policy planning.[1] However, overlapping symptomatology and methodological inconsistencies in the literature have made it challenging to distinguish which symptoms are causally related to the MT itself. To address this gap, this evidence report systematically reviews and synthesizes the available data on symptom attribution across menopause stages in women, providing clarity for clinicians, researchers, and guideline developers.

METHODS

This systematic review followed the Cochrane Handbook guidance for conducting systematic reviews and was reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidance. The study protocol was pre-registered on the International Prospective Register of Systematic Reviews (PROSPERO) with Registration number CRD42025612068.

This review investigates the research question: What is the age-related evidence for attributing a patient's complaints to perimenopause or postmenopause as opposed to other differential diagnoses?

Information source

A literature search was conducted on 17 September 2024 through PubMed, Embase, Cochrane, Scopus, and Web of Science, including studies from databases inception. An updated search across the same databases was performed on 10 May 2025. Further searches were conducted in Google Scholar and on the reference lists of the included studies and relevant reviews (backward and forward citation tracking).

The search strategy was developed by a methodologist and cross-checked by the team's senior researcher and clinical experts. Our search strategy was developed within the context of a larger project to investigate the classification of menopausal women. The search terms used in the broad search strategy encompassed two main domains: "menopause" and "staging". Piloting this search strategy retrieved many relevant studies in the context. Of this review. However, an additional tailored search strategy was added through the same databases and dates to confirm the comprehensiveness of the search strategy needed for the addressed research question. The additional search strategy encompassed domains of "diagnosis" and "attribution". Both PubMed search strategies are presented in Appendix 1. This report presents only the evidence related to causal attribution of menopause transition symptoms and complaints.

Eligibility criteria

Inclusion criteria in PECO format

Population

- women passing through the age of MT, as self-reported or with objective staging of being pre, peri, or postmenopausal, e.g., STRAW+10.
- The search is not confined to, but relevant mainly to, women between the ages of 45 and 58 years.
- No limitations were applied to countries, regions, or ethnic groups.

Exposure

- Any clinical symptoms or complaints that can occur during the MT were included, for example (not exclusive):
    - Perimenopausal-relevant complaints: bleeding disorders, lower abdominal pain, dysmenorrhea, recurrence of endometriosis-typical symptoms, mastodynia (breast tenderness), water retention, bloating, edema, (cyclical weight changes), tension feelings (in fingers, etc.), increase of migraine symptoms, palpitations, (arrhythmic pulse)
    - Postmenopausal-relevant complaints: increasing dryness of mucosa (eyes, mouth), genitourinary syndrome of menopause (GSM) (e.g., vulvovaginal dryness, burning, itching, recurrent urinary tract infections, vulvovaginal atrophy)
    - Peri- and postmenopausal-relevant complaints: vasomotor symptoms (VMS) (e.g., hot flushes, sweating), headaches, exhaustion/fatigue, sleeping disorders, dizziness, vertigo, depressive symptoms/mood swings, anxiety, cognitive impairment (deficits of attention, memory, executive functions, or working speed), myalgia, arthralgia, GSM (e.g., vulvovaginal dryness, burning, itching, recurrent urinary tract infections), female sexual dysfunction (libido problems), alopecia, thinning of hair, hair loss
- Studies performing interventions to confirm or exclude certain diagnoses compared to MT

Comparator

- At least one comparison group is mandatory, such as:
    - Women with complaints in an MT stage vs another stage

- Women with complaints in an MT stage vs women in the same stage without complaints
- Women with complaints in an MT stage vs a comparable group with differential diagnosis of the addressed complaints

Outcome

- Investigating causal attributions of symptoms and complaints occurring in MT stages.

Eligible study design

- Primary observational studies (longitudinal observational, cohort, or cross-sectional)
- Clinical trials with relevant objectives
- Studies reporting effect sizes (e.g., odds ratio [OR], risk ratio [RR], hazard ratio [HR], or mean difference [MD]) and 95% confidence intervals (CI) comparing the prevalence or severity of menopausal symptoms across menopausal stages (e.g., perimenopause vs premenopause, postmenopause vs premenopause), or in relation to potential differential diagnoses were given higher priority.
- As we expected a high number of epidemiological studies presenting only prevalence data, such studies were considered a second priority as they lack temporal causal attribution of symptoms.

Further inclusion criteria

- Publications in any language
- Full-text availability

Exclusion criteria

- Studies lack objectives to study menopausal attribution in the context of MT stages
- Research examining women's knowledge and attitudes regarding MT complaints
- Research identifying physical activity, medication interventions, ethnicity, obesity, or comorbidities (e.g., HIV), such as confounding factors, without reporting relevant associations with MT complaints either in the exposure or control group
- Studies that report clinical findings for only one menopause stage without a comparison group
- Studies investigating menopause symptoms as a manifestation of pathological or metabolic consequences of menopause
- Studies evaluating diagnostic and investigation tools for validation purposes only, without a causal attribution context

- Animal studies
- Qualitative studies

Studies selection and data extraction

Title and abstract screening was conducted independently by two investigators (HA and RM) using *Rayyan.ai* in accordance with predefined eligibility criteria. The tool was trained by initially including a set of pre-identified eligible studies. Following manual independent screening of the first 100 records, the model began categorizing records as highly likely, likely, no recommendation, unlikely, or highly unlikely. Screening efforts prioritized highly likely records to reinforce the model's learning on relevant eligibility features. Records labeled unlikely were selectively reviewed by one investigator (HA) to verify tool recommendations, while those labeled no recommendation were screened conventionally. Full-text screening of shortlisted studies was performed by two independent reviewers (HA and RM), with disagreements resolved through discussion.

Data extraction was performed using a predefined extraction sheet tailored for this review. One investigator (HA) extracted data with the assistance of *Elicit.ai*, and a second investigator (RM) cross-checked the results. The tool was prompted item-by-item according to the extraction framework, and its outputs were systematically compared with manual extractions to ensure accuracy. Iterative prompt refinement was undertaken until consensus was reached between the manual and tool-assisted results. Random spot-checks were conducted at the end of the process to confirm consistency.

Potential population overlap between studies was assessed by identifying known cohorts relevant to this research area (e.g., the Study of Women's Health Across the Nation (SWAN) cohort). A detailed list of extracted variables is provided in Appendix 2.

Risk of bias and Quality assessment

RISK OF BIAS ASSESSMENT: NEWCASTLE–OTTAWA SCALE

Risk of bias was evaluated using the Newcastle-Ottawa Scale (NOS) adapted for observational studies, applying the appropriate version for either cross-sectional or cohort designs. The NOS assesses methodological quality across three domains: (1) Selection of study groups, (2)

Comparability of groups, and (3) Outcome (for cohort studies) or Exposure (for cross-sectional studies) assessment. Each study was scored based on predefined criteria within these domains, with higher scores indicating lower risk of bias. For cross-sectional studies, the adapted NOS version incorporated modifications to account for the absence of follow-up, emphasizing representativeness, measurement validity, and statistical adjustment for confounding.

To streamline the process, *Elicit.ai* was used to generate a structured output sheet pre-populated with the extracted methodological data relevant to each NOS item. This output was then manually cross-checked by two investigators against the full-text publications to ensure accuracy, completeness, and adherence to the NOS criteria. Discrepancies between the tool-generated data and manual review were resolved by discussion, with final scores determined by consensus.

Certainty of evidence: GRADE approach

The overall certainty of evidence for each key outcome was evaluated using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) framework. GRADE assesses certainty across four levels (high, moderate, low, very low), considering the factors risk of bias, consistency, directness, precision, and publication bias. Each meta-analyzable variable, if applicable, and core finding was assigned a GRADE rating based on the aggregate quality and consistency of the contributing studies, as well as the risk of bias assessed using the NOS. To present the GRADE domains and final certainty ratings of evidence, a summary table was created for the prioritized outcomes and key findings.

Data analysis and results synthesis

Narrative synthesis and descriptive statistics were the primary approaches used to summarize the characteristics and findings of the included studies. Symptoms and complaints were grouped using a predefined symptom ontology into harmonized categories as follows:

1. Psychological, sleep, and cognitive
2. Vasomotor and cardiovascular
3. Gynecological, urogenital, and sexual
4. Musculoskeletal and pain syndromes
5. Dermatological
6. Quality of life (QoL) impact

7. Others

Studies eligible for meta-analysis were those reporting effect sizes, e.g., OR, RR, HR, or MD, with the 95%CI, comparing the prevalence or severity of menopausal symptoms across named menopausal stages. Where overlapping data from shared parent cohorts were detected, duplicate samples were flagged and accounted for in sensitivity analyses.

For each symptom category and menopause stage comparison (perimenopause vs premenopause, postmenopause vs premenopause), random-effects meta-analyses were conducted using the DerSimonian-Laird method. Separate analyses were performed for each effect measure (OR, RR, HR, MD), symptom domain, and stage contrast. The primary summary estimate was the pooled log-transformed effect size, along with its corresponding standard error (SE). Forest plots were generated for each analysis to present individual and pooled estimates with 95%CI, direction of effect, and comparison group labels (e.g., "Favors Pre" vs "Favors Peri/Post"). Heterogeneity was assessed using the I^2 statistic and between-study variance (tau^2). Planned subgroup analyses included comparisons based on whether studies adjusted for key confounders (e.g., age, comorbidities, psychiatric history), study design (cohort versus cross-sectional), and specific contributions from the parent study. All analyses were conducted in R (version 2025.05.0+496), using the *meta* and *metafor* packages.

RESULTS

Screening results

A total of 84,818 records were collectively retrieved on studies seeking to investigate women's allocation in MT transition stages and causal attribution of symptoms, which was reduced to 42,470 after removal of duplicates (n=42,348). After title and abstract screening, 228 studies were shortlisted for full-text screening. 110 studies met the eligibility criteria for inclusion, and 118 studies were excluded with justification (Appendix 3). PRISMA flow diagram of the screening process is depicted in Figure 1. The metadata of the included studies is presented in Appendix 4.

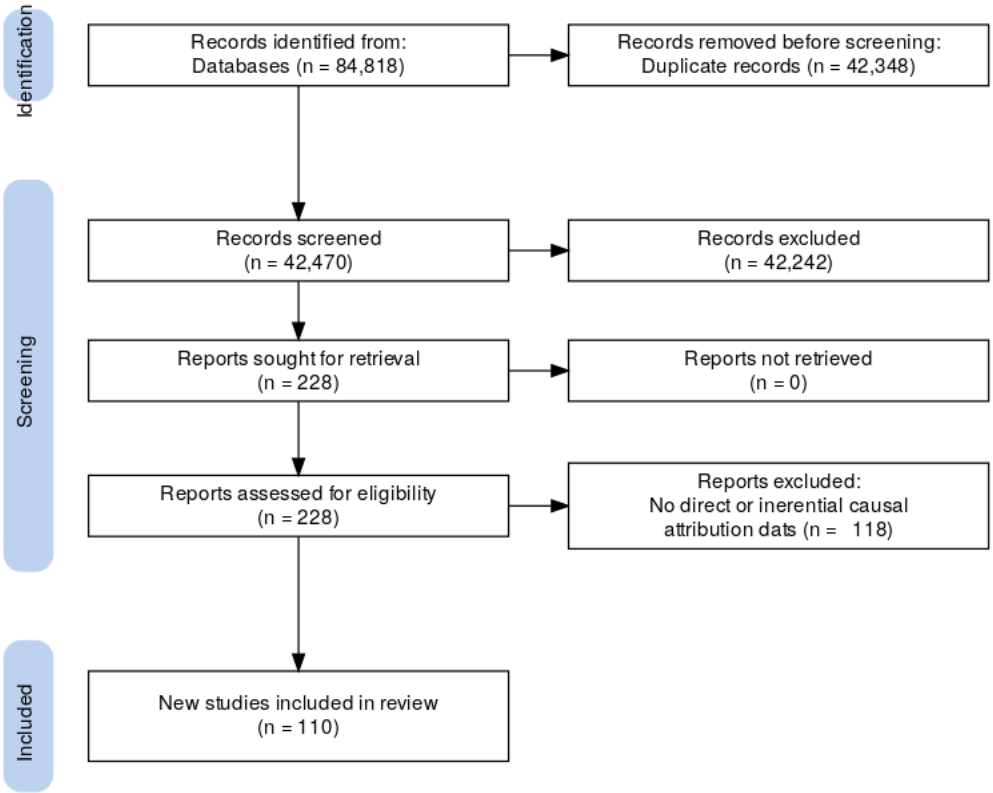

Figure 1 PRISMA flow diagram of the selection process for PICO question 3

Characteristics of Included Studies

110 studies[2-111]were included. studies, of which 99 were cohort, 7 cross-sectional[8,19,24,43,55,56,88], 3 controlled studies[2,31,46], and one case-control study[83]. The studies spanned publication years from 1975[2] to 2025[57], capturing five decades of menopause research and reflecting broad international representation across 13 countries (USA: 78, Australia: 9, United Kingdom: 4, South Korea: 3, Japan: 2, China: 5, Canada: 2, Finland: 3, Switzerland: 1). The study with the smallest sample size enrolled 29 participants[87], while the largest included 17,098 participants[66]. Collectively, the included studies comprised a total sample of 160,735 women. After accounting for potential overlap among studies from the same parent cohort, the estimated number of unique participants is approximately 55,776. A total of 33 major parent studies or cohorts were represented, including SWAN, UK Biobank, Whitehall II, ALSWH, MIDUS, WHAP, WIHS, MBHMS, ERMA, CHIWOS, and the 1945/1946 British birth cohort studies, among others. Granular details of the characteristics of the included studies are presented in Table 1.

The included studies featured a broad range of midlife women, with an average age of approximately 48 years across studies. Most cohorts recruited participants aged 40 to 69 years. Common inclusion criteria included an intact uterus and at least one ovary, exclusion of hormone replacement therapy (HRT) users or those with surgical menopause, and absence of major chronic medical or gynecological conditions. Some cohorts further excluded participants with psychiatric disorders or required the absence of major cancers. Several studies reported varied racial and ethnic backgrounds, including significant representation of White, African American, Hispanic, Chinese, and Japanese women. Additional demographic and health variables frequently reported included sexual activity, marital status, socioeconomic indicators, education, smoking status, BMI, anxiety, perceived stress, and depressive symptoms.

In defining the MT stage, 37 studies used the STRAW criteria, 19 applied the updated STRAW+10 definition, and 10 studies used the World Health Organization (WHO) criteria. The remaining 44 studies employed alternative or study-specific definitions for classifying menopause stages. Additional details for the study's population characteristics and the key findings of the included studies are presented in Appendix 5.

Table 1 Characteristics of the included studies (n=110)

Study_ID	Study design	Parent Study	Sample Size; Country	Risk of Bias
Abe-1975[2]	Clinical trial	NA	86; Japan	Moderate
Avis-2000[7]	Cohort	MWHS II	200; USA	Moderate
Avis-2009[4]	Cohort	SWAN	2943; USA	Moderate
Avis-2009[3]	Cohort	SWAN	3302; USA	Moderate
Avis-2015[6]	Cohort	SWAN	1449; USA	Moderate
Avis-2017[5]	Cohort	SWAN	1,390; USA	Moderate
Baker-2015[8]	Cross-sectional	NA	72; USA	Moderate
Berecki-Gisolf-2009[9]	Cohort	ALSWH	8,649; Australia	Moderate
Bromberger-2003[10]	Cohort	SWAN	3,161; USA	Moderate
Bromberger-2010[13]	Cohort	SWAN	3296; USA	Moderate
Bromberger-2011[12]	Cohort	SWAN	221; USA	Moderate
Bromberger-2013[11]	Cohort	SWAN	2956; USA	Moderate
Brown-2002[14]	Cohort	ALSWH	8,623; Australia	Moderate
Burri-2015[15]	Cohort	TwinsUK	507; UK	Moderate
Callan-2019[16]	Cohort	SMWHS	291; USA	Moderate
Campbell-2016[17]	Cohort	WHAP	438; Australia	Moderate
Cauley-2023[18]	Cohort	SWAN	3101; USA	Moderate
Cho-2018[19]	Cross-sectional	Korean Genome and Epidemiology Study	526; South Korea	Moderate
Cohen-2006[20]	Cohort	The Harvard Study of Moods and Cycles	460; USA	Moderate
Crandall-2011[21]	Cohort	SWAN	2283; USA	Moderate
Cray-2012[23]	Cohort	SMWHS	532; USA	Moderate
Cray-2013[22]	Cohort	SMWHS	6857; USA	Moderate
Dennerstein-2001[25]	Cohort	MWMHP	197; Australia	Moderate
Dennerstein-2007[26]	Cohort	MWMHP	204; Australia	Moderate
Dennerstein-2007[27]	Cohort	MWMHP	336; Australia	Moderate
deZambotti-2017[24]	Cross-sectional	NA	46; USA	Low
ElKhoudary-2014[28]	Cohort	SWAN	2,495; USA	Moderate
Epperson-2013[29]	Cohort	POAS	403; USA	Low
Ford-2005[30]	Cohort	MBHMS	660; USA	Moderate
Freedman-2004[31]	Clinical trial	NA	31; USA	Low
Freeman-2004[39]	Cohort	POAS	353; USA	Low
Freeman-2004[40]	Cohort	POAS	436; USA	Moderate
Freeman-2005[35]	Cohort	POAS	436; USA	Low
Freeman-2006[38]	Cohort	POAS	231; USA	Low
Freeman-2007[36]	Cohort	POAS	404; USA	Low
Freeman-2008[34]	Cohort	POAS	404; USA	Moderate
Freeman-2011[37]	Cohort	POAS	349; USA	Moderate
Freeman-2014[33]	Cohort	POAS	203; USA	Moderate
Freeman-2016[32]	Cohort	POAS	233; USA	Low
Gold-2006[41]	Cohort	SWAN	2784; USA	Low
Gold-2007[43]	Cross-sectional	SWAN	742; USA	Low
Gold-2017[42]	Cohort	SWAN	1546; USA	Moderate
Gold-2022[44]	Cohort	SWAN	1922; USA	Moderate

Gopal-2008[45]	Cohort	POAS	300; USA	Moderate
Gordon-2016[46]	Clinical trial	PERT	52; NA	Moderate
Gordon-2020[47]	Cohort	FEMM	101; USA	Moderate
Greendale-2009[48]	Cohort	SWAN	2,362; USA	Moderate
Grummisch-2023[49]	Cohort	FEMM	43; Canada	Moderate
Guthrie-2004[50]	Cohort	MWMHP	438; Australia	Moderate
Guthrie-2005[51]	Cohort	MWMHP	381; Australia	Moderate
Harlow-2017[52]	Cohort	SWAN	3289; USA	Moderate
Hickey-2016[53]	Cohort	ALSWH	5,895; Australia	Moderate
Huang-2024[54]	Cohort	PALM	609; China	Moderate
HydeRiley-2004[55]	Cross-sectional	NA	755; USA	Moderate
Jacobs-2017[56]	Cross-sectional	NEFS	142; USA	Low
Jang-2025[57]	Cohort	Kangbuk Samsung Health Stud	3305; South Korea	Moderate
Jones-2018[58]	Cohort	MWHS	275; USA	Moderate
Kalleinen-2021[59]	Cohort	Woman 46	57; Finland	Moderate
Katainen-2018[60]	Cohort	NA	65; Finland	Low
King_2022[61]	Cohort	CHIWOS	457; Canada	Moderate
Kok-2006[62]	Cohort	NSHD	1,261; UK	Moderate
Kravitz-2022[63]	Cohort	SWAN	1,551; USA	Moderate
Kumari-2005[64]	Cohort	Whitehall II	2,489; UK	Moderate
Lampio-2017[65]	Cohort	Woman 46	60; Finland	Moderate
Lee-2023[66]	Cohort	NA	17,098; South Korea	Moderate
Li-2020[67]	Cohort	PALM	187; China	Moderate
Luo-2020[68]	Cohort	PALM	458; China	Moderate
Maki-2021[69]	Cohort	WIHS	443; USA	Moderate
Maleki-2019[70]	Cohort	SWAN	2933; USA	Moderate
Marsh-2015[72]	Cohort	NA	44; USA	Moderate
Marsh-2017[71]	Cohort	SWAN	1,306; USA	Low
Matthews-1994[75]	Cohort	NA	541; USA	Moderate
Matthews-2021[74]	Cohort	SWAN	159; USA	Moderate
Matthews-2022[73]	Cohort	SWAN	1407; USA	Moderate
Maxwell-2023[76]	Cohort	Fels longitudinal study	429; USA	Low
Mirer-2017[77]	Cohort	WSC	219; USA	Moderate
Mishra-2012[78]	Cohort	NSHD	695; UK	Moderate
Mitchell-2010[79]	Cohort	SMWHS	292; USA	Moderate
Mitchell-2015[80]	Cohort	SMWHS	291; USA	Moderate
Mitchell-2017[81]	Cohort	SMWHS	291; USA	Moderate
Mulhall-2018[82]	Cohort	PATH	711; Australia	Moderate
Ozasa-2022[83]	Case-control	NA	78; Japan	Moderate
Randolph-2005[84]	Cohort	SWAN	3293; USA	Low
Rössler-2016[85]	Cohort	Zurich Study	168; Switzerland	Moderate
Samargandy-2022[86]	Cohort	SWAN	3302; USA	Moderate
Schmidt-2004[87]	Cohort	NA	29; USA	Moderate
Schnall-2019[88]	Cross-sectional	NA	73; USA	Moderate
Shardell-2021[89]	Cohort	HIP	750; USA	Moderate
Sowers-2007[90]	Cohort	MBHMS	530; USA	Moderate
Strauss-2011[91]	Cohort	MIDUS	986; USA	Moderate
Tang-2019[92]	Cohort	PALM	430; China	Moderate

Tang-2020[93]	Cohort	PALM	430; China	Moderate
Taylor-Swanson-2018[94]	Cohort	XMWHS	3,868; USA	Moderate
Tepper-2016[95]	Cohort	SWAN	1455; USA	Moderate
Than-2023[96]	Cohort	UK Biobank	15,486; UK	Moderate
Thurston-2013[97]	Cohort	SWAN	536; USA	Moderate
Tirkkonen-2021[98]	Cohort	ERMA	342; Finland	Moderate
Waetjen-2008[100]	Cohort	SWAN	2415; USA	Moderate
Waetjen-2009[102]	Cohort	SWAN	1529; USA	Moderate
Waetjen-2011[101]	Cohort	SWAN	2891; USA	Moderate
Waetjen-2018[99]	Cohort	SWAN	2435; USA	Moderate
Weber-2021[103]	Cohort	RICAM	85; USA	Moderate
Woods-2002[104]	Cohort	SMWHS	205; USA	Moderate
Woods-2006[105]	Cohort	SMWHS	169; USA	Low
Woods-2008[110]	Cohort	SMWHS	302; USA	Moderate
Woods-2010[109]	Cohort	SMWHS	286; USA	Moderate
Woods-2010[107]	Cohort	SMWHS	286; USA	Moderate
Woods-2016[108]	Cohort	SMWHS	508; USA	Moderate
Woods-2014[106]	Cohort	SMWHS	130; USA	Moderate
Young-2003[111]	Cohort	WSC	589; USA	Moderate

ALSWH: Australian Longitudinal Study on Women's Health; CHIWOS: Canadian HIV Women's Sexual and Reproductive Health Cohort Study; ERMA: Estrogenic Regulation of Muscle Apoptosis Study; FEMM: Females' Endocrine, Metabolic and Menstrual Health Study; HIP: Health, Aging and Body Composition Hip Study; MBHMS: Michigan Bone Health and Metabolism Study; MIDUS: Midlife in the United States Study; MWMHP: Melbourne Women's Midlife Health Project; MWHS II: Massachusetts Women's Health Study II; NEFS: New England Family Study; NSHD: National Survey of Health and Development also known as 1946 British birth cohort study; PALM: Peking University Perimenopausal Aging Longitudinal Multicenter Study; PATH: Personality and Total Health Through Life Project; PERT: Progesterone, Estrogen, and Reproductive Transitions Trial; POAS: Penn Ovarian Aging Study; RICAM: Research on the Influence of Cardiac Aging in Midlife Study; SMWHS: Seattle Midlife Women's Health Study; SWAN: Study of Women's Health Across the Nation; UK Biobank: United Kingdom Biobank; UK Adult Twin Registry: TwinsUK: Twin Research and Genetic Epidemiology Unit, King's College London; WHAP: Women's Healthy Ageing Project; Whitehall II: Whitehall II Study; WIHS: Women's Interagency HIV Study; Woman 46: Women 46 Years Birth Cohort (Finland); WSC: Wisconsin Sleep Cohort; XMWHS: Xian Midlife Women's Health Study; Zurich Study: Zurich Cohort Study of Young Adults.

Risk of bias Assessment

Risk of bias was assessed in all included studies using the Newcastle-Ottawa Scale. More studies demonstrated moderate risk of bias (n=94 studies, 85%), and a few were of low risk of bias (n=16, 15%). Studies were most methodologically limited by incomplete control of confounders, potential selection bias, or insufficient follow-up.

Outcomes of the included studies

Symptoms studied

The included studies investigated a wide array of symptoms across the MT, spanning several main domains (Table 2). Vasomotor and cardiovascular symptoms, such as hot flashes, night sweats, palpitations, and blood pressure changes, were among the most frequently assessed. Gynecological, urogenital, and sexual symptoms included vaginal dryness, urinary incontinence, menstrual changes, and a range of sexual function disturbances (such as decreased libido and dyspareunia) were identified. Psychological, sleep, and cognitive symptoms were also prominent, with studies reporting on anxiety, depression, irritability, mood swings, insomnia, poor sleep quality, and cognitive impairment (including memory and concentration difficulties). Musculoskeletal and pain syndromes encompassed a variety of complaints, such as headaches, joint and muscle pain, and back pain. Dermatological symptoms, such as dryness, itchy skin, and loss of skin elasticity, were less commonly reported. Some studies also addressed broader quality-of-life impacts, including fatigue, social withdrawal, daily functioning limitations, and overall well-being, reflecting the multifaceted nature of the symptom burden experienced by women during the menopausal transition.

Table 2 Symptoms reported in MT across the included studies

Group	Symptoms reported across all the included studies
Dermatological	Dryness, loss of elasticity, formication, itchy skin, plantar fasciitis, pruritus, easy bruising
Gynecological Urogenital Sexual	Vaginal dryness, urinary incontinence, leaking urine, vaginal atrophy, menstrual bleeding, menstrual patterns, urinary frequency, nocturia, breast tenderness, stress incontinence, urge incontinence, postmenopausal bleeding Dyspareunia, decreased libido, sexual dysfunction, painful sex, libido, arousal, orgasm, satisfaction, pain during intercourse, change in sexual desire, frequency of sexual activities, masturbation, avoiding intimacy, partner's problems with sexual performance
Musculoskeletal Pain syndromes	Headache, muscle aches, stiff shoulders, back pain, headaches/migraines, pain symptoms, joint ache, bodily pain, abdominal pain, neck pain, aches, chest pain, musculoskeletal pain, stiff or aching joints, bone aches, tendonitis, migraine, restless legs syndrome, fibromyalgia-like pain, carpal tunnel symptoms, temporomandibular joint dysfunction
Psychological Sleep Cognitive	Anxiety, depression, irritability, depressive symptoms, mood swings, mood changes, crying, negative mood, panic, tearfulness, low energy and motivation, emotional liability, hyperirritability Insomnia, sleep disturbances, poor sleep, trouble sleeping, difficulty getting to sleep, awakening during the night, early morning awakening, sleep maintenance problems, sleep disruption, snoring, daytime sleepiness, unsatisfactory sleep

	Memory problems, cognitive impairment, problem concentrating, forgetfulness, decision fatigue, brain fog, concentration difficulties
Quality of life	Fatigue , social withdrawal, quality of life impact, self-rated health, perceived poor health, impact on daily activities, limitations in activities of daily living, work productivity loss, relationship status, well-being
Vasomotor Cardiovascular	Hot flashes, hot flushes, night sweats, cold sweats, palpitations, chilly sensation, sweating, vasomotor symptoms, feeling too hot, heavy sweating, blood pressure changes, dizziness, vertigo, hypertension

Causal attribution context across the included studies

Confounder Adjustment

Most studies rigorously adjusted for demographic, reproductive, health, lifestyle, and psychological variables. A smaller subset additionally controlled for comorbidity burden, medication use, and social or behavioral factors. The identified commonly adjusted domains were:

- Demographics: Age, race/ethnicity, education, marital status, income, employment, region, and socioeconomic status
- Reproductive: menopausal stage, hormone therapy, age at menopause, surgical menopause (oophorectomy/hysterectomy), parity, gravidity, reproductive duration, prior hormone exposure, and hormone levels (FSH, estradiol)
- Health/Medical: BMI, diabetes, hypertension, cardiovascular disease, cancer, chronic conditions, comorbidity indices, and medication use
- Lifestyle: smoking, alcohol, physical activity, diet, sleep, recreational drug use, and lifestyle-related stress
- Psychological/Psychosocial: depression, anxiety, perceived stress, psychiatric history, mood symptoms, life events, social support, and attitudes toward menopause
- Other Factors: prior symptom history (premenstrual syndrome (PMS), migraine), trauma/abuse, sexual satisfaction, marital quality, physical limitations, environmental exposures, and biomarker data

Differential Diagnosis Controls

The included studies defined women by menopausal stage (premenopause, perimenopause, postmenopause), often refined using biomarkers (FSH, estradiol). Across the defined stages, many studies employed systematic differential diagnosis approaches to distinguish menopausal symptoms from other conditions, utilizing standardized diagnostic criteria, validated inventories, or physician adjudication for attribution. The identified differentials across the included studies were:

- Mental Health: depressive and anxiety disorders (diagnosed via structured interviews or validated scales, such as CES-D, PHQ-9, GAD-7)
- Sleep Disorders: self-reported inventories and polysomnography
- Endocrine Disorders: thyroid dysfunction (thyroid hormone assays)
- Psychiatric History: structured interviews or medical records.
- Cardiovascular and Musculoskeletal Conditions: physician diagnosis, clinical exams, or health records
- Chronic Diseases: diabetes, cancer, and multimorbidity assessed by indices or medical review
- Reproductive Disorders: PMS, gynecological pathology, confirmed by imaging or labs.
- Other Differentials: migraine/headaches, cognitive decline/dementia, substance use, psychosocial stressors, trauma, and environmental exposures.

Table 3 summarizes the identified potential causal attribution of key symptoms to perimenopause, postmenopause, or differential diagnoses. For each symptom or cluster of symptoms, the table details the stage(s) or alternative diagnoses most strongly associated with symptom onset or severity, providing supporting evidence. Additional details regarding the symptoms and the key findings across the included studies are presented in Appendix 6-11.

Table 3 Symptoms attributed to MT vs differential diagnosis across the included studies

Key Symptom/Attribution Finding	Attribution	Supporting References
Vasomotor symptoms (hot flashes, night sweats) markedly increase in frequency and severity during perimenopause and persist postmenopause	Perimenopause, Postmenopause	4, 6, 11, 26, 30, 35, 46, 53, 68
Depressive symptoms and mood instability are most pronounced during late perimenopause and early postmenopause	Late Perimenopause, Early Postmenopause	5, 14, 18, 27, 29, 37, 62
Anxiety symptoms and sleep disturbances are most common in perimenopause, often independent of vasomotor symptoms	Perimenopause	9, 17, 22, 38, 44, 57, 75
Sexual dysfunction (decreased libido, vaginal dryness, dyspareunia) rises sharply postmenopause, strongly linked to hypoestrogenism	Postmenopause	3, 12, 20, 28, 33, 51, 61
Joint and musculoskeletal pain frequently increase during the menopausal transition, but are often explained by aging or comorbidities	Differential Diagnosis, Both stages	10, 15, 25, 36, 47, 59, 64
Fatigue and cognitive complaints peak in perimenopause, with postmenopausal persistence in a subset of women	Perimenopause, Both	8, 23, 39, 42, 55, 66, 71
Urinary incontinence and genitourinary symptoms are more prevalent postmenopause, with both hormonal and non-hormonal causes	Postmenopause, Differential Diagnosis	13, 16, 24, 34, 48, 60, 73
The majority of sleep disturbances during menopause are attributable to concurrent depression, anxiety, or chronic pain	Differential Diagnosis	21, 31, 43, 50, 63, 70
Skin, hair, and mucosal symptoms are attributed primarily to hypoestrogenism postmenopause, but with frequent multifactorial contributors	Postmenopause, Differential Diagnosis	19, 40, 32, 54, 65, 74
Quality of life declines most notably in late perimenopause, linked to symptom clustering rather than any single symptom	Late Perimenopause	7, 41, 45, 52, 58, 69

Psychological/Cognitive Symptoms: Perimenopause vs Premenopause

Meta-analysis of 14 comparisons showed that women in perimenopause have significantly higher odds of experiencing psychological or cognitive symptoms—including depression, mood changes, and anxiety—compared to those in the premenopausal stage (random-effects pooled OR = 1.89, 95% CI: 1.54–2.31). There was moderate heterogeneity across studies (I^2 = 32.7%). This indicates that perimenopause is associated with an almost two-fold increase in risk for these symptoms compared to premenopause.

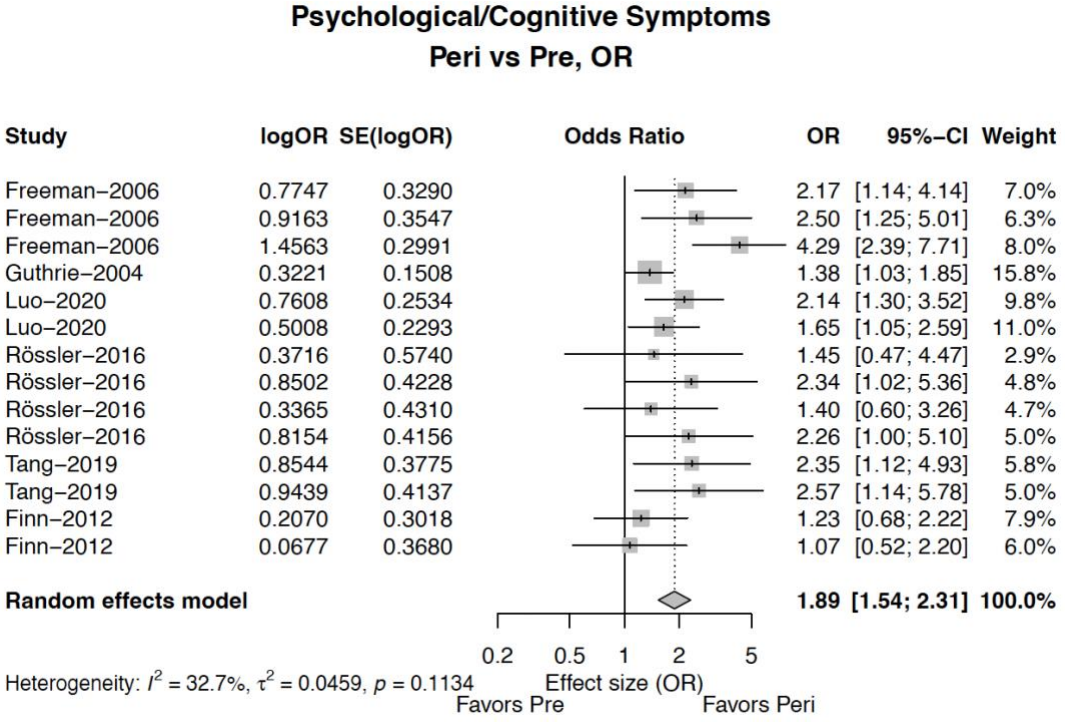

Figure 2 Forest plot of odds ratios for psychological/cognitive symptoms in perimenopausal vs premenopausal women

Psychological/Cognitive Symptoms: Postmenopause vs Premenopause

In comparisons of postmenopausal to premenopausal women (6 comparisons), the odds of psychological/cognitive symptoms remained elevated (random-effects pooled OR = 1.96, 95% CI: 1.30–2.95), but heterogeneity was high ($I^2 = 85.7\%$), suggesting variability in findings across studies. Nevertheless, the overall pattern supports a sustained increase in risk for these symptoms in the postmenopausal stage compared to premenopause.

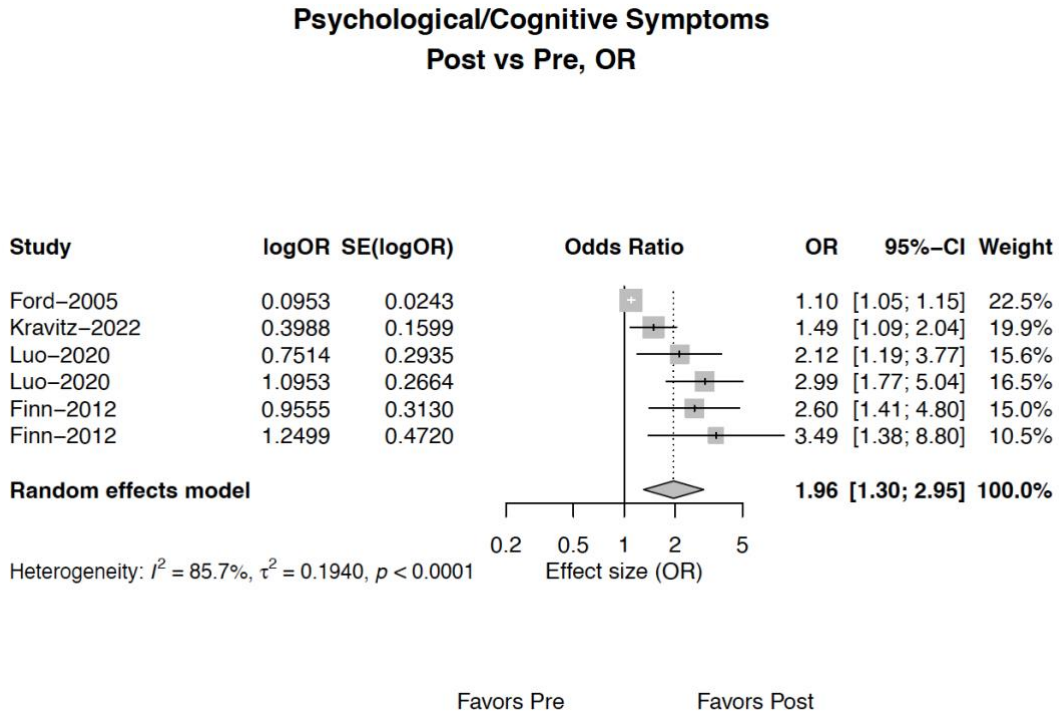

Figure 3 Forest plot of odds ratios for psychological/cognitive symptoms in postmenopausal versus premenopausal women

Quality of Life (QoL) Impact: Perimenopause vs Premenopause

Analysis of two studies found that perimenopausal women are more likely to report reductions in quality of life compared to premenopausal women (random-effects pooled OR = 1.58, 95% CI: 1.29–1.94), with no observed heterogeneity ($I^2 = 0\%$). This indicates a consistent association between perimenopause and QoL impact across these studies.

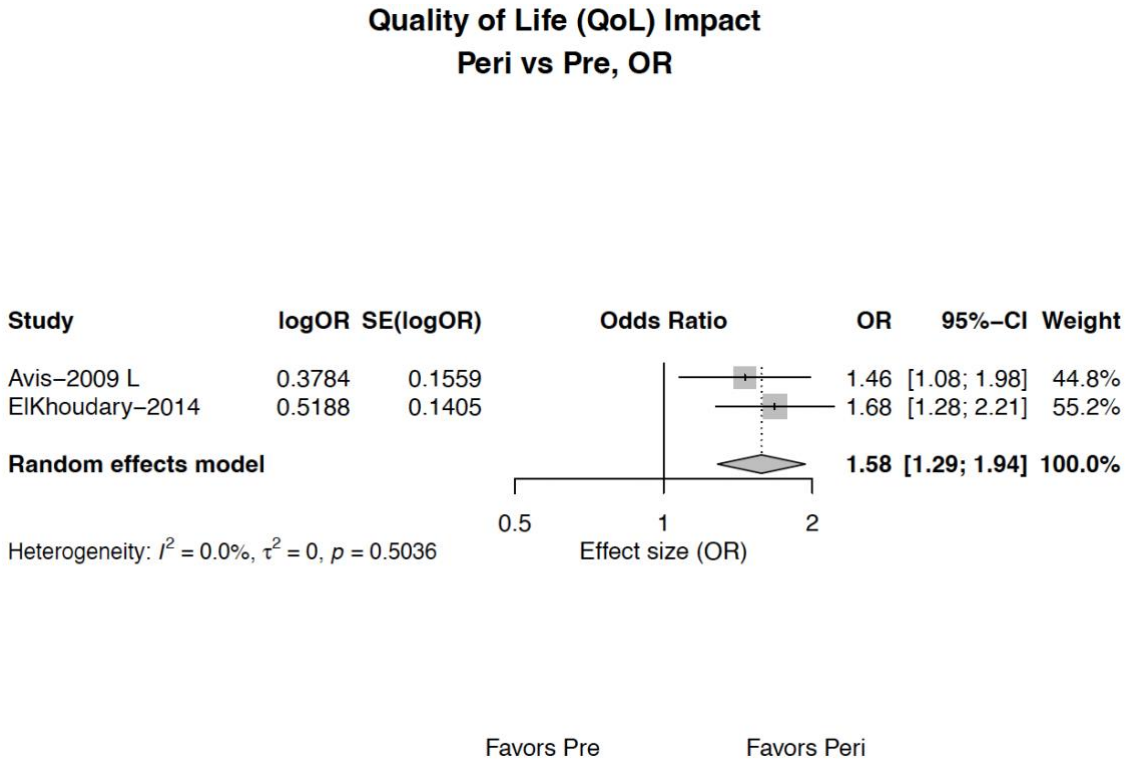

Figure 4 Forest plot of odds ratios for quality-of-life impact in perimenopausal versus premenopausal women

Vasomotor/Cardiovascular Symptoms: Perimenopause vs Premenopause

Of the 17 studies that addressed vasomotor symptoms in women across the menopausal transition (total N=~46,800), only 4 studies (n=~9,200) provided complete effect size and confidence interval data for inclusion in the quantitative meta-analysis. Pooled analysis demonstrated that perimenopausal women have markedly higher odds of experiencing vasomotor and cardiovascular symptoms (notably hot flushes and night sweats) than premenopausal women (random-effects pooled OR = 3.06, 95% CI: 1.53–6.10), with high between-study heterogeneity ($I^2 = 89.9\%$). This highlights a robust association, albeit with considerable variability, between perimenopause and vasomotor symptom risk.

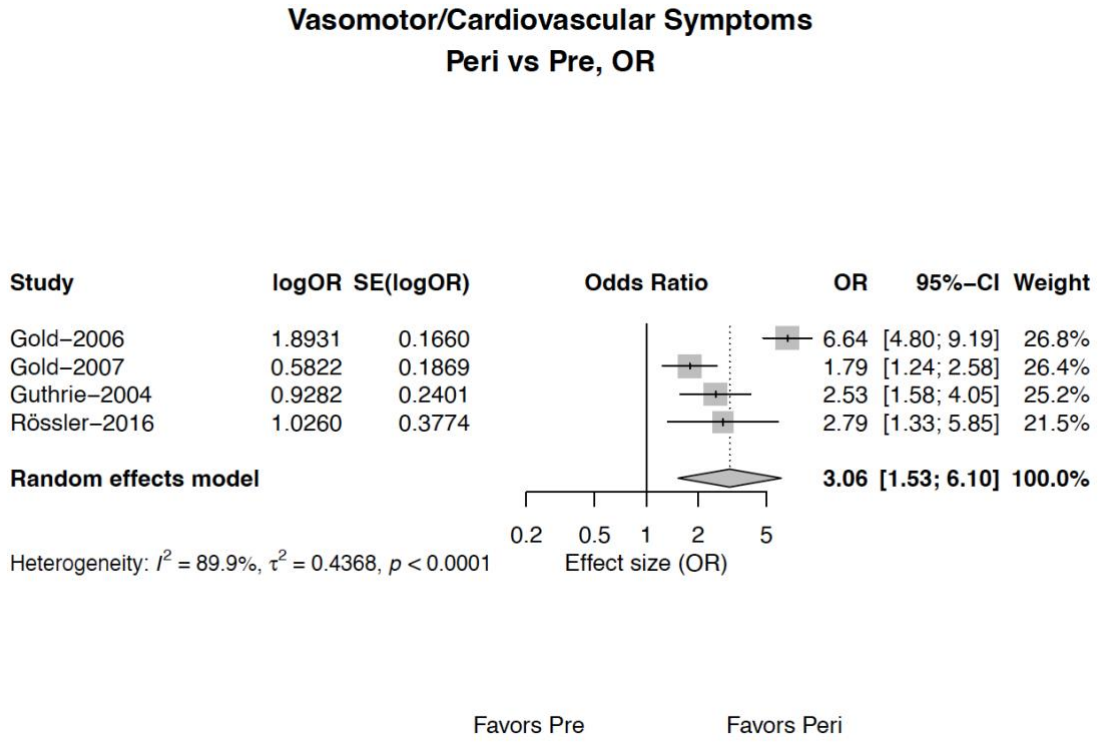

Figure 5 Forest plot of odds ratios for vasomotor/cardiovascular symptoms in perimenopausal versus premenopausal women

GRADE assessment of the key outcomes identified

Table 4 presents the key outcomes identified from the narrative and quantitative results across the included studies.

Table 4 GRADE assessment of the main identified outcomes

Findings	Consistency	Directness	Precision	Risk of Bias	Certainty	Supporting References	Evidence Summary
Vasomotor and/or Cardiovascular Symptoms – Perimenopause vs Premenopause	++	+++	+++	++	Moderate	[Meta-analysis, 4 studies; ~9,200 women]	Pooled OR = 3.06 (95% CI: 1.53–6.10). Large, consistent effect despite high heterogeneity (I^2 = 89.9%). Evidence directly addresses stage comparisons with adequate precision.
Psychological and Cognitive Symptoms – Perimenopause vs Premenopause	+++	++	+++	++	Moderate	[Meta-analysis, 14 studies; ~22,100 women]	Pooled OR = 1.89 (95% CI: 1.54–2.31). Consistent direction with moderate heterogeneity (I^2 = 32.7%). Some indirectness from varied outcome definitions, but overall precise and robust.
Quality of Life Reduction – Perimenopause vs Premenopause	+++	+++	++	+++	Moderate	[Meta-analysis, 2 studies; ~2,800 women]	Pooled OR = 1.58 (95% CI: 1.29–1.94). Consistent, direct evidence from moderate-quality studies. Downgraded for imprecision due to small pooled sample size.
Psychological and Cognitive Symptoms – Postmenopause vs Premenopause	++	+++	++	++	Low–Moderate	[Meta-analysis, 6 studies; ~6,300 women]	Pooled OR = 1.96 (95% CI: 1.30–2.95). Effect direction stable but substantial between-study variation (I^2 = 85.7%). Downgraded for inconsistency.
Vasomotor Symptoms Attributed to Menopausal Stage	+++	+++	+++	++	High	[>15 longitudinal cohorts; >45,000 women]	Strong and consistent temporal association between VMS and MT, robust across diverse populations. Low risk of bias and direct, precise evidence from large-scale longitudinal studies.
Symptoms vs. Alternative Differential Diagnoses	++	+++	++	++	Moderate	[>12 cohort; >13,000 women]	Attributing vasomotor or psychological symptoms solely to menopause may risk misclassification in cases of thyroid disease, depression, cardiovascular risk factors, or medication effects. Studies

							demonstrate reduced stage–symptom association when these conditions were accounted for.
Sleep Disturbances – Association with Menopause Stage	+	++	+	++	Low	[7 cohort studies]	No pooled estimate. Four of seven studies report a stage association; three report none. Downgraded for inconsistency and moderate risk of bias; some indirectness from varied definitions.
Urogenital and Sexual Symptoms – Association with Menopause Stage	+++	+++	++	++	Moderate	[6 cohort]	No pooled estimate. Consistent postmenopausal increase in symptoms using standardized definitions. Downgraded for moderate risk of bias; upgraded for strong consistency and directness.
Legend: +++ = very consistent; ++ = consistent; + = limited/inconsistent							

INTERPRETATION OF RESULTS

Summary of findings

This systematic review synthesized evidence from 110 studies (~160,000; ~55,000 unique participants after overlap adjustment) published between 1975 and 2025, representing data from 13 countries and 33 major cohort studies. Most studies were longitudinal cohort designs with moderate to low risk of bias. Vasomotor symptoms (hot flashes, night sweats) showed the strongest and most consistent causal attribution to menopausal stage, with meta-analysis indicating markedly higher odds in perimenopause compared to premenopause (OR = 3.06, 95% CI: 1.53–6.10; moderate certainty). Urogenital and sexual symptoms, particularly vaginal dryness and dyspareunia, were also consistently more prevalent postmenopause, supported by moderate-certainty evidence. Psychological and cognitive symptoms (depression, anxiety, memory concerns) were more common in perimenopause (OR = 1.89, 95% CI: 1.54–2.31; moderate certainty) and postmenopause (OR = 1.96, 95% CI: 1.30–2.95; low–moderate certainty), but heterogeneity and confounding from alternative diagnoses limited the strength of attribution. Sleep disturbances showed inconsistent associations (low certainty), often explained by comorbid depression, anxiety, or chronic pain. Reductions in quality of life were consistently reported in perimenopause (OR = 1.58, 95% CI: 1.29–1.94; moderate certainty). Musculoskeletal pain and cognitive complaints increased in midlife but were frequently attributable to aging or comorbidities.

Clinical implications of the results

The findings provide high-to moderate-certainty evidence that vasomotor symptoms are a hallmark feature of the menopausal transition and can be reliably attributed to hormonal changes, as demonstrated in large, methodologically rigorous longitudinal cohorts. This robust association—consistent across populations and staging criteria—supports the diagnostic relevance of these criteria in both clinical assessment and epidemiologic classification of menopause stages. Urogenital and sexual symptoms also demonstrated consistent postmenopausal increases, reflecting the physiological impact of hypoestrogenism, though their severity may be modulated by age, parity, comorbidities, and lifestyle factors.

In contrast, attribution of psychological, cognitive, and sleep-related symptoms to menopause is less certain. While pooled analyses show increased odds in peri- and postmenopause, high heterogeneity, variable outcome definitions, and strong effects of alternative diagnoses (e.g., mood disorders, thyroid disease, sleep apnea) underscore the need for comprehensive differential diagnosis. This aligns with the GRADE downgrading to low–moderate certainty for these outcomes. Similarly, musculoskeletal pain and fatigue, although frequently reported, lacked exclusive hormonal attribution and were often explained by aging or chronic health conditions.

From a research perspective, these results highlight the need for standardization in symptom definitions, staging criteria, and confounder adjustment to improve attribution accuracy—particularly for non-specific symptoms. Future studies should integrate biomarker-supported staging with rigorous differential diagnosis to disentangle menopausal effects from comorbidities. Clinically, the evidence underscores the importance of recognizing vasomotor and urogenital symptoms as menopause-related while approaching psychological, sleep, and pain symptoms with diagnostic caution. This nuanced attribution framework can strengthen clinical pathways, refine epidemiologic estimates, and inform the development of evidence-based guideline recommendations that differentiate symptoms with strong causal links from those requiring broader assessment.

STRENGTHS AND LIMITATIONS OF THIS EVIDENCE REPORT

Strenghts

This evidence report has several important strengths. It is a comprehensive synthesis focused on the causal attribution of symptoms to menopausal stages versus alternative diagnoses, covering five decades of research across diverse populations and 33 major international cohorts. The systematic methodology followed established standards, including PROSPERO registration, PRISMA reporting, dual independent screening, structured data extraction, and rigorous risk of bias and certainty assessments using NOS and GRADE. A broad search strategy without language or date restrictions ensured the inclusion of both early and recent studies, while the use of meta-analysis provided quantitative effect estimates where feasible.

Limitations

However, some limitations must be acknowledged. The majority of included studies were observational, with moderate risk of bias and variability in confounder adjustment, outcome definitions, and staging criteria, which may limit causal inference. Potential overlap across cohorts necessitated careful handling, but residual duplication cannot be fully ruled out. Heterogeneity was high in several pooled analyses, particularly for psychological and cognitive outcomes, reflecting inconsistent measurement approaches and the strong influence of alternative diagnoses. The incomplete reporting of effect sizes restricted quantitative synthesis for some symptom domains. Finally, although the study has an international scope, most data were derived from North American and Australian cohorts, with fewer studies from other regions, which may limit the generalizability of the findings.

Overall, the strengths of this review lie in its breadth, methodological rigor, and clear identification of symptoms with strong versus uncertain menopausal attribution. The limitations highlight the need for more standardized, globally representative, and clinically integrated research to further strengthen future guideline development.

REFERENCES

1. Santoro N, Epperson CN, Mathews SB. Menopausal Symptoms and Their Management. *Endocrinology and metabolism clinics of North America*. Sep 2015;44(3):497-515. doi:10.1016/j.ecl.2015.05.001
2. Abe T, Furuhashi N, Ohashi I, Suzuki M, Moritsuka T. A New Method for the Screening of Unidentified Complaints Syndrome in Pre-, Mid-and Post-menopausal Women. *The Tohoku Journal of Experimental Medicine*. 1975;116(1):81-86.
3. Avis NE, Brockwell S, Randolph Jr JF, et al. Longitudinal changes in sexual functioning as women transition through menopause: results from the Study of Women's Health Across the Nation. *Menopause*. 2009;16(3):442-452.
4. Avis NE, Colvin A, Bromberger JT, et al. Change in health-related quality of life over the menopausal transition in a multiethnic cohort of middle-aged women: Study of Women's Health Across the Nation. *Menopause*. 2009;16(5):860-869.
5. Avis NE, Colvin A, Karlamangla AS, et al. Change in sexual functioning over the menopausal transition: results from the Study of Women's Health Across the Nation. *Menopause*. 2017;24(4):379-390.
6. Avis NE, Crawford SL, Greendale G, et al. Duration of menopausal vasomotor symptoms over the menopause transition. *JAMA internal medicine*. 2015;175(4):531-539.
7. Avis NE, Stellato R, Crawford S, Johannes C, Longcope C. Is there an association between menopause status and sexual functioning? *MENOPAUSE-NEW YORK-*. 2000;7(5):297-309.
8. Baker FC, Willoughby AR, Sassoon SA, Colrain IM, de Zambotti M. Insomnia in women approaching menopause: beyond perception. *Psychoneuroendocrinology*. 2015;60:96-104.
9. Berecki-Gisolf J, Begum N, Dobson AJ. Symptoms reported by women in midlife: menopausal transition or aging? *Menopause*. 2009;16(5):1021-1029.
10. Bromberger JT, Assmann SF, Avis NE, Schocken M, Kravitz HM, Cordal A. Persistent mood symptoms in a multiethnic community cohort of pre-and perimenopausal women. *American journal of epidemiology*. 2003;158(4):347-356.
11. Bromberger JT, Kravitz HM, Chang Y, et al. Does risk for anxiety increase during the menopausal transition? Study of women's health across the nation. *Menopause*. 2013;20(5):488-495.
12. Bromberger JT, Kravitz HM, Chang YF, Cyranowski JM, Brown C, Matthews KA. Major depression during and after the menopausal transition: Study of Women's Health Across the Nation (SWAN). *Psychological medicine*. 2011;41(9):1879-1888.
13. Bromberger JT, Schott LL, Kravitz HM, et al. Longitudinal change in reproductive hormones and depressive symptoms across the menopausal transition: results from the Study of Women's Health Across the Nation (SWAN). *Archives of general psychiatry*. 2010;67(6):598-607.
14. Brown WJ, Mishra GD, Dobson A. Changes in physical symptoms during the menopause transition. *International Journal of Behavioral Medicine*. 2002;9(1):53-67.
15. Burri A, Hilpert P, Spector T. Longitudinal evaluation of sexual function in a cohort of pre-and postmenopausal women. *The journal of sexual medicine*. 2015;12(6):1427-1435.
16. Callan NGL, Mitchell ES, Heitkemper MM, Woods NF. Abdominal pain during the menopause transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Women's Midlife Health*. 2019;5(1):2.
17. Campbell KE, Dennerstein L, Finch S, Szoeke CE. Impact of menopausal status on negative mood and depressive symptoms in a longitudinal sample spanning 20 years. *Menopause*. 2017;24(5):490-496.
18. Cauley JA, Kravitz HM, Ruppert K, et al. Self-Reported Sleep Disturbances over the Menopausal Transition and Fracture Risk: The Study of Women's Health Across the Nation. *Journal of Bone and Mineral Research Plus*. 2023;7(8):e10762.
19. Cho NY, Kim S, Nowakowski S, Shin C, Suh S. Sleep disturbance in women who undergo surgical menopause compared with women who experience natural menopause. *Menopause*. 2019;26(4):357-364.

20. Cohen LS, Soares CN, Vitonis AF, Otto MW, Harlow BL. Risk for new onset of depression during the menopausal transition: the Harvard study of moods and cycles. *Archives of general psychiatry*. 2006;63(4):385-390.
21. Crandall CJ, Tseng CH, Crawford SL, et al. Association of menopausal vasomotor symptoms with increased bone turnover during the menopausal transition. *Journal of Bone and Mineral Research*. 2011;26(4):840-849.
22. Cray LA, Woods NF, Herting JR, Mitchell ES. Symptom clusters during the late reproductive stage through the early postmenopause: observations from the Seattle Midlife Women's Health Study. *Menopause*. 2012;19(8):864-869.
23. Cray LA, Woods NF, Mitchell ES. Identifying symptom clusters during the menopausal transition: observations from the Seattle Midlife Women's Health Study. *Climacteric : the journal of the International Menopause Society*. 2013;16(5):539-549.
24. de Zambotti M, Trinder J, Colrain IM, Baker FC. Menstrual cycle-related variation in autonomic nervous system functioning in women in the early menopausal transition with and without insomnia disorder. *Psychoneuroendocrinology*. 2017;75:44-51.
25. Dennerstein L, Dudley E, Burger H. Are changes in sexual functioning during midlife due to aging or menopause? *Fertility and sterility*. 2001;76(3):456-460.
26. Dennerstein L, Lehert P, Burger HG, Guthrie JR. New findings from non-linear longitudinal modelling of menopausal hormone changes. *Human Reproduction Update*. 2007;13(6):551-557.
27. Dennerstein L, Lehert P, Guthrie JR, Burger HG. Modeling women's health during the menopausal transition: a longitudinal analysis. *Menopause*. 2007;14(1):53-62.
28. El Khoudary SR, McClure CK, VoPham T, et al. Longitudinal assessment of the menopausal transition, endogenous sex hormones, and perception of physical functioning: the study of women's health across the nation. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*. 2014;69(8):1011-1017.
29. Epperson CN, Sammel MD, Freeman EW. Menopause effects on verbal memory: findings from a longitudinal community cohort. *The Journal of clinical endocrinology & metabolism*. 2013;98(9):3829-3838.
30. Ford K, Sowers M, Crutchfield M, Wilson A, Jannausch M. A longitudinal study of the predictors of prevalence and severity of symptoms commonly associated with menopause. *Menopause*. 2005;12(3):308-317.
31. Freedman RR, Roehrs TA. Lack of sleep disturbance from menopausal hot flashes. *Fertility and sterility*. 2004;82(1):138-144.
32. Freeman EW, Sammel MD. Anxiety as a risk factor for menopausal hot flashes: evidence from the Penn Ovarian Aging cohort. *Menopause*. 2016;23(9):942-949.
33. Freeman EW, Sammel MD, Boorman DW, Zhang R. Longitudinal pattern of depressive symptoms around natural menopause. *JAMA psychiatry*. 2014;71(1):36-43.
34. Freeman EW, Sammel MD, Lin H, Gracia CR, Kapoor S. Symptoms in the menopausal transition: hormone and behavioral correlates. *Obstetrics & Gynecology*. 2008;111(1):127-136.
35. Freeman EW, Sammel MD, Lin H, Gracia CR, Kapoor S, Ferdousi T. The role of anxiety and hormonal changes in menopausal hot flashes. *Menopause*. 2005;12(3):258-266.
36. Freeman EW, Sammel MD, Lin H, et al. Symptoms associated with menopausal transition and reproductive hormones in midlife women. *Obstetrics & Gynecology*. 2007;110(2 Part 1):230-240.
37. Freeman EW, Sammel MD, Lin H, Liu Z, Gracia CR. Duration of menopausal hot flushes and associated risk factors. *Obstetrics & Gynecology*. 2011;117(5):1095-1104.
38. Freeman EW, Sammel MD, Lin H, Nelson DB. Associations of hormones and menopausal status with depressed mood in women with no history of depression. *Archives of general psychiatry*. 2006;63(4):375-382.
39. Freeman EW, Sammel MD, Liu L, Gracia CR, Nelson DB, Hollander L. Hormones and menopausal status as predictors of depression in women in transition to menopause. *Arch Gen Psychiatry*. Jan 2004;61(1):62-70. doi:10.1001/archpsyc.61.1.62
40. Freeman EW, Sammel MD, Rinaudo PJ, Sheng L. Premenstrual syndrome as a predictor of menopausal symptoms. *Obstetrics & Gynecology*. 2004;103(5 Part 1):960-966.

41. Gold EB, Colvin A, Avis N, et al. Longitudinal analysis of the association between vasomotor symptoms and race/ethnicity across the menopausal transition: study of women's health across the nation. *American journal of public health*. 2006;96(7):1226-1235.
42. Gold EB, Crawford SL, Shelton JF, et al. Longitudinal analysis of changes in weight and waist circumference in relation to incident vasomotor symptoms: the Study of Women's Health Across the Nation (SWAN). *Menopause*. 2017;24(1):9-26.
43. Gold EB, Lasley B, Crawford SL, McConnell D, Joffe H, Greendale GA. Relation of daily urinary hormone patterns to vasomotor symptoms in a racially/ethnically diverse sample of midlife women: study of women's health across the nation. *Reproductive sciences*. 2007;14(8):786-797.
44. Gold EB, Xing G, Avis NE, et al. The longitudinal relation of inflammation to incidence of vasomotor symptoms. *Menopause*. 2022;29(8):894-904.
45. Gopal M, Sammel MD, Arya LA, Freeman EW, Lin H, Gracia C. Association of change in estradiol to lower urinary tract symptoms during the menopausal transition. *Obstetrics & Gynecology*. 2008;112(5):1045-1052.
46. Gordon JL, Rubinow DR, Eisenlohr-Moul TA, Leserman J, Girdler SS. Estradiol variability, stressful life events, and the emergence of depressive symptomatology during the menopausal transition. *Menopause*. 2016;23(3):257-266.
47. Gordon JL, Sander B, Eisenlohr-Moul TA, Tottenham LS. Mood sensitivity to estradiol predicts depressive symptoms in the menopause transition. *Psychological medicine*. 2021;51(10):1733-1741.
48. Greendale GA, Huang MH, Wight RG, et al. Effects of the menopause transition and hormone use on cognitive performance in midlife women. *Neurology*. 2009;72(21):1850-1857.
49. Grummisch JA, Tottenham LS, Gordon JL. Within-person changes in reproductive hormones and cognition in the menopause transition. *Maturitas*. 2023;177:107804.
50. Guthrie JR, Dennerstein L, Taffe JR, Lehert P, Burger HG. The menopausal transition: a 9-year prospective population-based study. The Melbourne Women's Midlife Health Project. *Climacteric : the journal of the International Menopause Society*. 2004;7(4):375-389.
51. Guthrie JR, Dennerstein L, Taffe JR, Lehert P, Burger HG. Hot flushes during the menopause transition: a longitudinal study in Australian-born women. *Menopause*. 2005;12(4):460-467.
52. Harlow SD, Karvonen-Gutierrez C, Elliott MR, et al. It is not just menopause: symptom clustering in the Study of Women's Health Across the Nation. *Women's midlife health*. 2017;3(1):2.
53. Hickey M, Schoenaker DAJM, Joffe H, Mishra GD. Depressive symptoms across the menopause transition: findings from a large population-based cohort study. *Menopause*. 2016;23(12):1287-1293.
54. Huang F, Fan Y, Tang R, et al. Musculoskeletal pain among Chinese women during the menopausal transition: findings from a longitudinal cohort study. *Pain*. 2024;165(11):2644-2654.
55. Hyde Riley E, Inui TS, Kleinman K, Connelly MT. Differential Association of Modifiable Health Behaviors with Hot Flashes in Perimenopausal and Postmenopausal Women. *Journal of General Internal Medicine*. 2004/07/01 2004;19(7):740-746. doi:https://doi.org/10.1111/j.1525-1497.2004.30261.x
56. Jacobs EG, Weiss B, Makris N, et al. Reorganization of functional networks in verbal working memory circuitry in early midlife: the impact of sex and menopausal status. *Cerebral Cortex*. 2017;27(5):2857-2870.
57. Jang Y, Chang Y, Park J, et al. Menopausal stage transitions and their associations with overall and individual sleep quality in middle-aged Korean women. *Journal of Affective Disorders*. 2025;368:82-89.
58. Jones HJ, Zak R, Lee KA. Sleep disturbances in midlife women at the cusp of the menopausal transition. *Journal of Clinical Sleep Medicine*. 2018;14(7):1127-1133.
59. Kalleinen N, Aittokallio J, Lampio L, et al. Sleep during menopausal transition: a 10-year follow-up. *Sleep*. 2021;44(6):zsaa283.
60. Katainen R, Engblom JR, Polo-Kantola P. Climacteric-related symptoms in menopause transition and beyond: a prospective 19-year follow-up study on previously hysterectomized women. *Menopause*. 2018;25(8):890-896.

61. King EM, Kaida A, Prior J, et al. Resilience and psychosocial factors linked to symptom experience during the menopause transition for women living with HIV. *Menopause*. 2022;29(4):430-439.
62. Kok HS, Kuh D, Cooper R, et al. Cognitive function across the life course and the menopausal transition in a British birth cohort. *Menopause*. 2006 2006;13(1):19-27. doi:10.1097/01.gme.0000196592.36711.a0
63. Kravitz HM, Colvin AB, Avis NE, Joffe H, Chen Y, Bromberger JT. Risk of high depressive symptoms after the final menstrual period: the Study of Women's Health Across the Nation (SWAN). *Menopause*. 2022;29(7):805-815.
64. Kumari M, Stafford M, Marmot M. The menopausal transition was associated in a prospective study with decreased health functioning in women who report menopausal symptoms. *Journal of clinical epidemiology*. 2005;58(7):719-727.
65. Lampio L, Polo-Kantola P, Himanen SL, et al. Sleep During Menopausal Transition: A 6-Year Follow-Up. *Sleep*. Jul 1 2017;40(7)doi:10.1093/sleep/zsx090
66. Lee DY, Andreescu C, Aizenstein H, et al. Impact of symptomatic menopausal transition on the occurrence of depression, anxiety, and sleep disorders: A real-world multi-site study. *European Psychiatry*. 2023;66(1):e80.
67. Li J, Luo M, Tang R, et al. Vasomotor symptoms in aging Chinese women: findings from a prospective cohort study. *Climacteric : the journal of the International Menopause Society*. Feb 2020;23(1):46-52. doi:10.1080/13697137.2019.1628734
68. Luo M, Li J, Tang R, et al. Insomnia symptoms in relation to menopause among middle-aged Chinese women: findings from a longitudinal cohort study. *Maturitas*. 2020;141:1-8.
69. Maki PM, Springer G, Anastos K, et al. Cognitive changes during the menopausal transition: a longitudinal study in women with and without HIV. *Menopause*. 2021;28(4):360-368.
70. Maleki N, Cheng YC, Tu Y, Locascio JJ. Longitudinal course of vasomotor symptoms in perimenopausal migraineurs. *Annals of Neurology*. 2019;85(6):865-874.
71. Marsh WK, Bromberger JT, Crawford SL, et al. Lifelong estradiol exposure and risk of depressive symptoms during the transition to menopause and postmenopause. *Menopause*. 2017;24(12):1351-1359.
72. Marsh WK, Gershenson B, Rothschild AJ. Symptom severity of bipolar disorder during the menopausal transition. *International Journal of Bipolar Disorders*. 2015;3(1):17.
73. Matthews KA, Chang Y, Brooks MM, et al. Identifying women who share patterns of reproductive hormones, vasomotor symptoms, and sleep maintenance problems across the menopause transition: group-based multi-trajectory modeling in the Study of Women's Health Across the Nation. *Menopause*. 2021;28(2):126-134.
74. Matthews KA, Lee L, Kravitz HM, et al. Influence of the menopausal transition on polysomnographic sleep characteristics: a longitudinal analysis. *Sleep*. 2021;44(11):zsab139.
75. Matthews KA, Wing RR, Kuller LH, Meilahn EN, Plantinga P. Influence of the perimenopause on cardiovascular risk factors and symptoms of middle-aged healthy women. *Archives of internal medicine*. 1994;154(20):2349-2355.
76. Maxwell RA, Reisinger-Kindle KM, Rackett TM, Yaklic JL, Czerwinski SA, Lee M. Perceived quality of sleep across the menopausal transition: A retrospective cohort study. *Health Science Reports*. 2023;6(6):e1250.
77. Mirer AG, Young T, Palta M, Benca RM, Rasmuson A, Peppard PE. Sleep-disordered breathing and the menopausal transition among participants in the Sleep in Midlife Women Study. *Menopause*. 2017-2 2017;24(2):157-162. doi:10.1097/gme.0000000000000744
78. Mishra GD, Kuh D. Health symptoms during midlife in relation to menopausal transition: British prospective cohort study. *Bmj*. 2012;344
79. Mitchell ES, Woods NF. Pain symptoms during the menopausal transition and early postmenopause. *Climacteric : the journal of the International Menopause Society*. 2010;13(5):467-478.
80. Mitchell ES, Woods NF. Hot flush severity during the menopausal transition and early postmenopause: beyond hormones. *Climacteric : the journal of the International Menopause Society*. 2015;18(4):536-544.
81. Mitchell ES, Woods NF. Depressed mood during the menopausal transition: is it reproductive aging or is it life? *Women's midlife health*. 2017;3(1):11.

82. Mulhall S, Andel R, Anstey KJ. Variation in symptoms of depression and anxiety in midlife women by menopausal status. *Maturitas*. 2018;108:7-12.
83. Ozasa K, Noma N, Young A, Korczeniewska OA, Eliav E, Imamura Y. Potential differences in somatosensory function during premenopause and early and late postmenopause in patients with burning mouth syndrome: An observational case–control study. *Journal of Dental Sciences*. 2022;17(1):399-406.
84. Randolph Jr JF, Sowers M, Bondarenko I, et al. The relationship of longitudinal change in reproductive hormones and vasomotor symptoms during the menopausal transition. *The Journal of Clinical Endocrinology & Metabolism*. 2005;90(11):6106-6112.
85. Rossler W, Ajdacic-Gross V, Riecher-Rossler A, Angst J, Hengartner MP. Does menopausal transition really influence mental health? Findings from the prospective long-term Zurich study. *World Psychiatry*. Jun 2016;15(2):146-54. doi:10.1002/wps.20319
86. Samargandy S, Matthews KA, Brooks MM, et al. Trajectories of blood pressure in midlife women: does menopause matter? *Circulation research*. 2022;130(3):312-322.
87. Schmidt PJ, Haq N, Rubinow DR. A longitudinal evaluation of the relationship between reproductive status and mood in perimenopausal women. *American Journal of Psychiatry*. 2004;161(12):2238-2244.
88. Schnall R, Liu J, Reame N. Ecological momentary assessment of HIV versus reproductive health symptoms in women of differing reproductive stages living with HIV. *Menopause*. 2019;26(12):1375-1384.
89. Shardell M, Gravitt PE, Burke AE, Ravel J, Brotman RM. Association of vaginal microbiota with signs and symptoms of the genitourinary syndrome of menopause across reproductive stages. *The Journals of Gerontology: Series A*. 2021;76(9):1542-1550.
90. Sowers M, Tomey K, Jannausch M, Eyvazzadeh A, Nan B, Randolph Jr J. Physical functioning and menopause states. *Obstetrics & Gynecology*. 2007;110(6):1290-1296.
91. Strauss JR. The reciprocal relationship between menopausal symptoms and depressive symptoms: A 9-year longitudinal study of American women in midlife. *Maturitas*. 2011;70(3):302-306.
92. Tang R, Luo M, Li J, et al. Symptoms of anxiety and depression among Chinese women transitioning through menopause: findings from a prospective community-based cohort study. *Fertility and sterility*. 2019;112(6):1160-1171.
93. Tang R, Luo M, Li J, et al. Relationships between vasomotor symptoms and mood in midlife urban Chinese women: observations in a prospective study. *The Journal of Clinical Endocrinology & Metabolism*. 2020;105(11):3437-3448.
94. Taylor-Swanson L, Wong AE, Pincus D, et al. The dynamics of stress and fatigue across menopause: attractors, coupling, and resilience. *Menopause*. 2018;25(4):380-390.
95. Tepper PG, Brooks MM, Randolph Jr JF, et al. Characterizing the trajectories of vasomotor symptoms across the menopausal transition. *Menopause*. 2016;23(10):1067-1074.
96. Than S, Moran C, Beare R, et al. Cognitive trajectories during the menopausal transition. *Frontiers in dementia*. 2023;2:1098693.
97. Thurston RC, Chang Y, Mancuso P, Matthews KA. Adipokines, adiposity, and vasomotor symptoms during the menopause transition: findings from the Study of Women's Health Across the Nation. *Fertility and sterility*. 2013;100(3):793-800.
98. Tirkkonen A, Kekäläinen T, Aukee P, et al. Bidirectional associations between cognitive functions and walking performance among middle-aged women. *Menopause*. 2022;29(2):200-209.
99. Waetjen LE, Crawford SL, Chang P-Y, et al. Factors associated with developing vaginal dryness symptoms in women transitioning through menopause: a longitudinal study. *Menopause*. 2018;25(10):1094-1104.
100. Waetjen LE, Feng W-Y, Ye J, et al. Factors associated with worsening and improving urinary incontinence across the menopausal transition. *Obstetrics & Gynecology*. 2008;111(3):667-677.
101. Waetjen LE, Johnson WO, Xing G, et al. Serum estradiol levels are not associated with urinary incontinence in midlife women transitioning through menopause. *Menopause*. 2011;18(12):1283-1290.
102. Waetjen LE, Ye J, Feng W-Y, et al. Association between menopausal transition stages and developing urinary incontinence. *Obstetrics & Gynecology*. 2009;114(5):989-998.

103. Weber MT, Rubin LH, Schroeder R, Steffenella T, Maki PM. Cognitive profiles in perimenopause: hormonal and menopausal symptom correlates. *Climacteric : the journal of the International Menopause Society*. Aug 2021;24(4):401-407. doi:10.1080/13697137.2021.1892626
104. Woods N, Mariella A, Mitchell E. Patterns of depressed mood across the menopausal transition: approaches to studying patterns in longitudinal data. *Acta obstetricia et gynecologica Scandinavica*. 2002;81(7):623-632.
105. Woods NF, Carr MC, Tao EY, Taylor HJ, Mitchell ES. Increased urinary cortisol levels during the menopause transition. *Menopause*. 2006;13(2):212-221.
106. Woods NF, Cray L, Mitchell ES, Herting JR. Endocrine biomarkers and symptom clusters during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Menopause*. 2014;21(6):646-652.
107. Woods NF, Mitchell ES. Sleep symptoms during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Sleep*. 2010;33(4):539-549.
108. Woods NF, Mitchell ES. The Seattle Midlife Women's Health Study: a longitudinal prospective study of women during the menopausal transition and early postmenopause. *Women's Midlife Health*. 2016;2(1):6.
109. Woods NF, Mitchell ES, Smith-Di Julio K. Sexual desire during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Journal of women's health*. 2010;19(2):209-218.
110. Woods NF, Smith-DiJulio K, Percival DB, Tao EY, Mariella A, Mitchell ES. Depressed mood during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Menopause*. 2008;15(2):223-232.
111. Young T, Finn L, Austin D, Peterson A. Menopausal status and sleep-disordered breathing in the Wisconsin Sleep Cohort Study. *American journal of respiratory and critical care medicine*. 2003;167(9):1181-1185.

APPENDIX

Appendix 1 Search strategy

Main Search Query - PubMed	Number of hits
19,"((((((((((menopause[MeSH Terms]) OR (climacteric[MeSH Terms])) OR (""menopause/physiology""[MeSH Terms])) OR (menopaus*[Title/Abstract])) OR (perimenopaus*[Title/Abstract])) OR (peri-menopaus*[Title/Abstract])) OR (postmenopaus*[Title/Abstract])) OR (post-menopaus*[Title/Abstract])) OR (climacteric[Title/Abstract])) OR (menopausal transition[Title/Abstract])) OR (menopause transition[Title/Abstract])) AND (((((allocat*[Title/Abstract]) OR (stag*[Title/Abstract])) OR (phase[Title/Abstract])) OR (assign*[Title/Abstract])) OR (classif*[Title/Abstract]))"	21,786
18,((((allocat*[Title/Abstract]) OR (stag*[Title/Abstract])) OR (phase[Title/Abstract])) OR (assign*[Title/Abstract])) OR (classif*[Title/Abstract])	3,911,010
17,classif*[Title/Abstract]	881,384
16,assign*[Title/Abstract]	412,201
15,phase[Title/Abstract]	1,235,389
14,stag*[Title/Abstract]	1,497,977
13,allocat*[Title/Abstract]	174,072
12,"((((((((((menopause[MeSH Terms]) OR (climacteric[MeSH Terms])) OR (""menopause/physiology""[MeSH Terms])) OR (menopaus*[Title/Abstract])) OR (perimenopaus*[Title/Abstract])) OR (peri-menopaus*[Title/Abstract])) OR (postmenopaus*[Title/Abstract])) OR (post-menopaus*[Title/Abstract])) OR (climacteric[Title/Abstract])) OR (menopausal transition[Title/Abstract])) OR (menopause transition[Title/Abstract])"	127,567
11,menopause transition[Title/Abstract]	667
10,menopausal transition[Title/Abstract]	1,854
9,climacteric[Title/Abstract]	5,997
8,post-menopaus*[Title/Abstract]	9,737
7,postmenopaus*[Title/Abstract]	72,212
6,peri-menopaus*[Title/Abstract]	542
5,perimenopaus*[Title/Abstract]	6,097
4,menopaus*[Title/Abstract]	60,559
3,""""menopause/physiology""[MeSH Terms]	16,751
2,climacteric[MeSH Terms]	67,475
1,menopause[MeSH Terms]	64,743

Additional tailored search query - PubMed	#
("perimenopause"[MeSH Terms] OR "postmenopause"[MeSH Terms] OR "menopause"[MeSH Terms] OR "perimenopaus*"[Title/Abstract] OR "postmenopaus*"[Title/Abstract] OR "menopaus*"[Title/Abstract] OR "climacteric"[Title/Abstract]) AND ("diagnosis, differential"[MeSH Terms] OR "differential diagnos*"[Title/Abstract] OR "misdiagnos*"[Title/Abstract] OR "competing diagnos*"[Title/Abstract]) AND ("likelihood functions"[MeSH Terms] OR "odds ratio"[MeSH Terms] OR "probability"[MeSH Terms] OR "likelihood"[Title/Abstract] OR "attribution"[Title/Abstract] OR "causal"[Title/Abstract] OR "odds"[Title/Abstract] OR "probability"[Title/Abstract])	276
"likelihood functions"[MeSH Terms] OR "odds ratio"[MeSH Terms] OR "probability"[MeSH Terms] OR "likelihood"[Title/Abstract] OR "attribution"[Title/Abstract] OR "causal"[Title/Abstract] OR "odds"[Title/Abstract] OR "probability"[Title/Abstract]	2,467,723
"probability"[Title/Abstract]	263,295
"odds"[Title/Abstract]	507,973
"causal"[Title/Abstract]	140,341
"attribution"[Title/Abstract]	12,521
"likelihood"[Title/Abstract]	213,312
"probability"[MeSH Terms]	1,707,187
"odds ratio"[MeSH Terms]	98,878
"likelihood functions"[MeSH Terms]	24,312
"diagnosis, differential"[MeSH Terms] OR "differential diagnos*"[Title/Abstract] OR "misdiagnos*"[Title/Abstract] OR "competing diagnos*"[Title/Abstract]	605,795
"competing diagnos*"[Title/Abstract]	148
"misdiagnos*"[Title/Abstract]	51,871
"differential diagnos*"[Title/Abstract]	167,253
"diagnosis, differential"[MeSH Terms]	476,577
"perimenopause"[MeSH Terms] OR "postmenopause"[MeSH Terms] OR "menopause"[MeSH Terms] OR "perimenopaus*"[Title/Abstract] OR "postmenopaus*"[Title/Abstract] OR "menopaus*"[Title/Abstract] OR "climacteric"[Title/Abstract]	130,032
"climacteric"[Title/Abstract]	6,090
"menopaus*"[Title/Abstract]	62,598
"postmenopaus*"[Title/Abstract]	74,150
"perimenopaus*"[Title/Abstract]	6,399
"menopause"[MeSH Terms]	65,844
"postmenopause"[MeSH Terms]	29,001
"perimenopause"[MeSH Terms]	1,840

Appendix 2 Data extraction items

Item	Definition
Study ID	Unique identifier for each included study in the review.
Metadata	Title, Journal
Country/Region	Geographic location where the study was conducted.
Parent Study	If the data comes from a larger or parent study, its identification.
Data Collection Period	Start and end years for data collection.
Study Design	The methodological design used in the study.
Setting	Type of location where the study was conducted.
Study Population	Description of the participants, including age range and sex.
Sample Size	Number of participants included in analyses.
Menopause Stage Definition	Criteria used to assign participants to menopausal stages.
Symptoms Addressed	Symptoms and clinical complaints in menopause transition age investigated in the study
Outcome Measures	Primary and secondary outcomes as defined by the study.
Quantitative Data	Odds ratios, mean differences of prevelances of related data,..
Key Findings	Summary of the main results, patterns, conclusions, clinical and research implications
Funding Source	Entity or organization that funded the study.
Conflict of Interest	Disclosures by authors about potential conflicts.
Ethical Approval	Whether and where ethical clearance was obtained.

Appendix 3 List of excluded studies (n=118)

All studies lack direct and inferential causal attribution of symptoms of MT.

Title	Authors
[Prevalence and factors associated with hot flashes in climacteric and post-climacteric women]	I K T Sclowitz, Iândora Krolow, Timm Sclowitz, et al.
[Severe bladder problems: main menopausal symptoms among zenues colombian indigenous women]	Cindy Arteta-Acosta, Jhonmer Márquez-Vega, Álvaro Monterrosa-Castro, et al.
A Cross Sectional Evaluation of Perimenopausal Depression	Emma M Steinberg, David R Rubinow, John J Bartko, et al.
A Cross-sectional Assessment of Depression, Anxiety, and Cognition in Perimenopausal and Menopausal Women	Anjalee L Nagda, Manjiri Chaitanya Datar, Nilesh Mahadeo Naphade, et al.
A Cross-Sectional Study to Assess the Quality of Life of Perimenopausal and Post menopausal Women in Rural Etawah, Uttar Pradesh, India	Debora J Mathew, Sandip Kumar, Pankaj Kumar Jain, et al.
A Crosssectional Study on Prevalence of Menopausal Symptoms in A	Sivaprasad, Ravi V Kumar, Murali Krishna, et al.
A Decision Tree Analysis on Multiple Factors Related to Menopausal Symptoms	Eun-Ok Im, Jee-Seon Yi, Wonshik Chee, et al.
A measurement-specific quality-of-life satisfaction during premenopause, perimenopause and postmenopause in Arabian Qatari women	Abdulbari Bener, Anas Falah, Prof Abdulbari Bener, et al.
A study of the psychological status and sexuality in middle-aged Bulgarian women: significance of the hormone replacement therapy (HRT)	A.-M Borissova, R Kovatcheva, A Shinkov, et al.
A study on anxiety and depression symptoms among menopausal women: a web based cross sectional survey	Geetha Kandasamy, Dalia Almaghaslah, Mona Almanasef, et al.
Age-related differences in functional network segregation in the context of sex and reproductive stage	Hannah K Ballard, T Bryan Jackson, Abigail C Symm, et al.
Aktuelle muskuloskeletale Beschwerden bei peri-und postmenopausalen Frauen: Ergebnisse einer multizentrischen bevölkerungsepidemiologischen Studie	Angelica Raspe, Christine Matthis, Ute Von Domarus, et al.
An overview of Somatic Symptoms among the two Menopausal Groups	Doyel Dasgupta
Analysis of clusters of menopausal disorders associated with a decrease in the quality of life in postovarectomy and climacteric syndromes	Neufeld, I V Bobyleva, I V Zhirnyakov, et al.
Analysis of Sociodemographic, Psychological, and Genetic Factors Contributing to Depressive symptoms in Pre-, Peri-and Postmenopausal Women	Elżbieta Grochans, Małgorzata Szkup, Artur Kotwas, et al.
Are hot flashes associated with sleep disturbance during midlife? Results from the STRIDE cohort study	Hanna Xu, Rebecca C Thurston, Karen A Matthews, et al.
Assessment of prevalence of vasomotor menopausal symptoms using a modified menopause rating scale(MRS) in Peri and postmenopausal women	Aariya Srinivasan, Archana Kumari
Association of Menopausal Symptoms with Different Constitutions in Climacteric Women	Hsien-Chang Wu, Kuo-Hu Chen, Jing-Shiang Hwang
Association of Psychosocial Symptoms, Blood Pressure, and Menopausal Status in African-American Women	Carolyn H Still, Frances Payne, Sadia Tahir, et al.

Bladder symptoms in pre-and peri-menopause	Holly J Jones, Alison J Huang, Leslee L Subak, et al.
Bladder Symptoms in the Early Menopausal Transition	Holly J Jones, Alison J Huang, Leslee L Subak, et al.
Bothersome menopausal symptoms amongst postmenopausal Iranian women	E Fooladi, R J Bell, M Masoumi, et al.
Challenging Atrophied Perspectives on Postmenopausal Dyspareunia: A Systematic Description and Synthesis of Clinical Pain Characteristics	Alina Kao, Yitzchak M Binik, Rhonda Amsel, et al.
Changes in heart rate and blood pressure during nocturnal hot flashes associated with and without awakenings	Fiona C Baker, Mohamad Forouzanfar, Aimée Goldstone, et al.
Changes in the meibomian glands in postmenopausal women with primary acquired nasolacrimal duct obstruction: a prospective study	Haili Jin, Hong Zhang
Characteristics of headache at menopause: a clinico-epidemiologic study	I Neria, F Granellab, R Nappi, et al.
Circadian Blood Pressure Variations in Postmenopausal Females with Hypertension	Dan Su, Anqi Song, Bin Yan, et al.
Climacteric symptoms, age, and sense of coherence are associated with sexual function scores in women after menopause	Anastasia Armeni, Eleni Armeni, Areti Augoulea, et al.
Climacteric syndrome: a population-based study in Brazil	Adriana Orcesi Pedro, Aarão Mendes Pinto-Neto, Helena Simões Costa-Paiva, et al.
Clustering of > 145,000 symptom logs reveals distinct pre, peri, and menopausal phenotypes	Shravan G Aras, Azure D Grant, John P Konhilas
Depressed mood through women's reproductive cycle: correlation to mood at menopause	D Becker, A Orr, A Weizman, et al.
Depression during the menopause transition: impact on quality of life, social adjustment, and disability	Bathsheba A Wariso, Gioia M Guerrieri, Karla Thompson, et al.
Depressive Symptoms, Menopausal Status, and Climacteric Symptoms in Women at Midlife	Hayden B Bosworth, Lori A Bastian, Maggie N Kuchibhatla, et al.
Determinants of Menopausal Symptoms and Attitude Towards Menopause Among Midlife Women: A Cross-Sectional Study in South India	Anitha Durairaj, Sriandaal Venkateshvaran
Estradiol and progesterone as resilience markers? -Findings from the Swiss Perimenopause Study	Hannah Süss, Jasmine Willi, Jessica Grub, et al.
Evaluation of association between psychological stress level during menopausal transition period and serum estrogen level among middle-aged women: A cross-sectional study	Ashwini Kishan, Shailaja S Moodithaya, Amrit M Mirajkar
Evaluation of genitourinary syndrome of menopause with the Vulvovaginal Symptoms Questionnaire in Afro-descendants of the Colombian Caribbean	Álvaro Monterrosa-Castro, Velia Redondo-Mendoza, Angélica Monterrosa-Blanco, et al.
Evaluation of quality of life of climacteric women assisted at a school hospital of Recife, Pernambuco, Brazil	Euvaldo Angeline, Silva Filho, Aurélio Molina Da Costa, et al.
Experience and severity of menopause symptoms and effects on health-seeking behaviours: a cross-sectional online survey of community dwelling adults in the United Kingdom	David Roy Huang, Abigail Goodship, Iman Webber, et al.
Features of the clinical picture of affective disorders in women during the menopausal transition and early postmenopause	A A Akhmedova, L N Gorobets
Feeling of the selected climacteric symptoms depending on the climacteric phase and type of menopause	Aleksandra Jadwiga Stachoń

Gap in Sexual Dysfunction Management Between Male and Female Patients Seen in Primary Care: An Observational Study	Elizabeth E Stanley, Elizabeth Pfoh, Laura Lipold, et al.
Health Status of Perimenopausal and Postmenopausal Women at Mangalore, Karnataka, India	C V Divya, Vasantkumar V Bhanushali, E Vinu, et al.
Hearing in women at menopause. Prevalence of hearing loss, audiometric configuration and relation to hormone replacement therapy	Christina Hederstierna, Malou Hultcrantz, Aila Collins, et al.
Higher incidence of hysterectomy and oophorectomy in women suffering from clinical depression: Retrospective chart review	Akio Mantani, Hidehisa Yamashita, Tokumi Fujikawa, et al.
Hot Flash Frequency and Blood Pressure: Data from the Study of Women's Health Across the Nation	Elizabeth A Jackson, Samar R El Khoudary, Sybil L Crawford, et al.
Hot flashes, insomnia, and the reproductive stages: a cross-sectional observation of women from the EPISONO study	Helena Hachul, Laura Siqueira Castro, Andr Eia Gomes Bezerra, et al.
How Menopausal Symptoms are Related to Different Stages of Postmenopausal Years: A Study from Eastern India	Doyel Dasgupta, Subho Roy, Baidyanath Pal, et al.
Impact of Sex and Menopausal Status on Episodic Memory Circuitry in Early Midlife	Emily G Jacobs, Blair K Weiss, Nikos Makris, et al.
JOURNAL OF THE CLIMACTERIC & POSTMENOPAUSE Oral complaints related to menopause	H Ben Aryeh, I Gottlieb, S Ish-Shalom, et al.
Klimakterische Arthralgien und Handarthrose	G Holz Er ', M Metka, J Ltuber'
Low estradiol levels escalate menopausal symptoms leading to mild cognitive impairment in postmenopausal women	Andon Hestiantoro, Shanty Olivia Jasirwan, Martina Wiwie, et al.
Measuring climacteric symptoms in an Ecuadorian population with the Greene Climacteric Scale	Bresilda Sierra, Luis A Hidalgo, Peter A Chedraui
Measuring the impact ofmenopausal symptoms on quality oflife	Edel Daly, Alastair Gray, David Barlow, et al.
Melatonin Patterns and Levels During the Human Menstrual Cycle and After Menopause	Gail A Greendale, Paula Witt-Enderby, Arun S Karlamangla, et al.
Menopausal status, age and management among women living with HIV in the UK	Hajra Okhai, Caroline A Sabin, Katharina Haag, et al.
Menopausal symptoms and ethnicity: the Study of Women’s Health Across the Nation	Nanette Santoro, Robin Green
Menopausal symptoms and health problems of women aged 50-65 years in Southern Jordan	F M N Shakhatreh, D Mas'ad
Menopausal Symptoms and Menopausal Quality of Life during Transitional Period among Military Wives	C K Tan, M S Seghayat, F Amini, et al.
Menopausal symptoms in an intercultural context: a comparison between German women, Chinese women and migrant Chinese women using the Menopause Rating Scale (MRS II)	Grete Hinrichsen, Klaus-D Wernecke, Adelheid Schalinski, et al.
Menopausal symptoms in different substages of perimenopause and their relationships with social support and resilience	Di Zhao, Chunqin Liu, Xiujuan Feng, et al.
Menopausal symptoms, physical activity level and quality of life of women living in the Mediterranean region	Aya El Hajj, Nina Wardy, Sahar Haidar, et al.
Menopausal symptoms: Do life events predict severity of symptoms in peri-and post-menopause?	Filipa Pimenta, Isabel Leal, João Maroco, et al.
Menopausal transitions, symptoms and country of birth: the Australian Longitudinal Study on Women's Health	Gita Mishra, Christina Lee, Wendy Brown, et al.
Menopause Characteristics and Subjective Symptoms in Women with and without Spinal Cord Injury	Claire Z Kalpakjian, Elisabeth H Quint, Tamara Bushnik, et al.

Menopause status is associated with circadian-and sleep-related alterations	Cecilia Go ´mez-Santos, Cristina Bandı, J A Ros Lucas, et al.
Menopause Symptoms' Predictors: The Influence of Lifestyle, Health-and Menopause-Related, and Sociodemographic Characteristics	Filipa Pimenta, Isabel Leal, João Maroco, et al.
Menstrual Cycle Phase, Menopausal Transition Stage, Self-Reports of PMS and Symptom Severity: Observations from the Seattle Midlife Women's Health Study	Ellen Sullivan Mitchell, Nancy Fugate Woods
Midlife Women's Attributions about Perceived Memory Changes: Observations from the Seattle Midlife Women's Health Study	Ellen Sullivan N Mitchell, Nancy Fugate, Woods
Musculoskeletal Pains, Menopausal Symptoms and Depression by Women's Menopausal Stage	Hyun Jung, Sukhee Ahn, Hee
Natural vs. Surgical postmenopause and psychological symptoms confound the effect of menopause on executive functioning domains of cognitive experience	Chloe E Page, Brianna Soreth, Christina A Metcalf, et al.
Nighttime melatonin secretion and sleep architecture: different associations in perimenopausal and postmenopausal women	Elena Toffol, Nea Kalleinen, Sari-Leena Himanen, et al.
Nutritional Risk Factors Associated with Vasomotor Symptoms in Women Aged 40-65 Years	Birgit-Christiane Zyriax, Nataliya Makarova, Alexandra Tijerina, et al.
Patient characteristics, menopause symptoms, and care provided at an interdisciplinary menopause clinic: retrospective chart review	Beate C Sydora, Nese Yuksel, Nicole L Veltri, et al.
Perceived stress across the midlife: longitudinal changes among a diverse sample of women, the Study of Women's health Across the Nation (SWAN)	Elizabeth Hedgeman, Rebecca E Hasson, Carrie A Karvonen-Gutierrez, et al.
Perimenopausal women show modulation of excitatory and inhibitory neuromuscular mechanisms	Heidi Pesonen, Eija K Laakkonen, Pekka Hautasaari, et al.
Perimenopause and incidence of depression in midlife women: a population-based study in Taiwan	C-M Chang, H-L Lin, M-C Hsiao, et al.
Prevalence and severity of menopause symptoms among perimenopausal and postmenopausal women aged 30-49 years in Gulele sub-city of Addis Ababa, Ethiopia	Engida Yisma, Natnael Eshetu, Stephanie Ly, et al.
Prevalence and severity of symptoms in women in menopause: a cross-sectional study	Adrielle De, Souza Santos[1], Amanda Brito Moreira, et al.
Prevalence of Memory Loss Complaints and Other Symptoms Associated with the Menopause Transition: A Community Survey	Gayatri Devi, Katherine Hahn1, Stephen Massimi, et al.
Problems in Midlife Women: A Longitudinal Study	Holly J Jones, Pamela A Minarik, Catherine L Gilliss, et al.
Psychologic distress during tiie menopausal years in women attending a menopause clinic	Donna E Stewart, Katherine H Boydell, Christine Derzko, et al.
Psychometric properties of a menopausal symptom list	Ellen W Freeman, Mary D Sammel, Li Liu, et al.
Psychosocial determinants of climacteric complaints	A Holte, A Mikkelsen, Arne Hohe
Psychosocial factors promoting resilience during the menopausal transition	Hannah Süss, Jasmine Willi, Jessica Grub, et al.
Quality of life after the menopause in Iran: a population study Hossien Fallahzadeh	H Fallahzadeh

Quality of life in middle-aged women in Havana	Daysi Navarro Despaigne, Anabel León Sánchez, Ileana Roca Soler, et al.
Relationship between menopausal symptoms and menopausal status in Australian and Japanese women: Preliminary analysis	Debra Anderson, Toyoko Yoshizawa, Sara Gollschewski, et al.
Relationship between Self-Perception of Aging and Quality of Life in the Different Stages of Reproductive Aging in Mexican Women	Rivera-Ochoa, Frida Sara Rivera-Ochoa, Ixel Venec González-Herrera, et al.
Reproductive health, use of estrogen and experience of symptoms in perimenopausal women: a population-based study	Aila Collins, Britt-Marie Landgren'
Screening the Clinical Parameters in Menopause Women	Babu Sekar, Sowmya S Hariram, P Hamsalatha, et al.
Self-reported anxiety, depressive, and vasomotor symptoms: a study of perimenopausal women presenting to a specialized midlife assessment center	Andreea L Seritan, Ana-Maria Iosif, Ju Hui Park, et al.
Severity of climacteric symptomatology related to depression and sexual function in women from a private clinic	Alexandra Liñan-Bermudez, Jhony Chafloque-Chavesta, Pamela Leon Pastuso, et al.
Sex differences in episodic memory in early midlife: Impact of reproductive aging	Dorene M D Rentz, Blair K Weiss, Emily G Jacobs, et al.
Sexual quality of life and sexual self-efficacy among women during reproductive-menopausal transition stages and postmenopause: a comparative study	Hedyeh Riazi, Fatemeh Madankan, Seyed Ali Azin, et al.
Social Work in Health Care Menopause Symptom Attribution Among Midlife Women in Methadone Treatment Menopause Symptom Attribution	Ellen Tuchman
Symptom experience in Australian men and women in midlife	Eva Calvaresi, Janet Bryan
Symptom experiences of midlife women: observations from the Seattle midlife women's health study	Ellen S Mitchell, Nancy F Woodsb
Symptom prevalence during menopause and factors associated with symptoms and menopausal age. Results from the Norwegian Hordaland Women's Cohort study	Bjørn Gjelsvik, Elin O Rosvold, Jørund Straand, et al.
Symptom reports from a cohort of African American and white women in the late reproductive years	Ellen W Freeman, Jeane Ann Grisso, Jesse Berlin, et al.
The association of depression status with menopause symptoms among rural midlife women in China	Hongyan Zang, Lianping He, Yan Chen, et al.
The effect of menopause on objective sleep parameters: Data from an epidemiologic study in São Paulo, Brazil	Helena Hachul, Cristina Frange, Andréia Gomes Bezerra, et al.
The Longitudinal Relation of Stress during the Menopausal Transition to Fibrinogen Concentrations: Results from the Study of Women's Health Across the Nation	April M Falconi, Ellen B Gold, Imke Janssen
The menopausal transition: a dynamic approach to the pathogenesis of neurovegetative complaints	Francesco Pansini, Paola Albertazzi, Gloria Bonaccorsia, et al.
The Prevalence and Patterns of Menopausal Symptoms in Women Living with HIV	H Okhai, C Sabin, K Haag, et al.
The Prevalence of Hot Flash And Associated Variables among Perimenopausal Women	Bernadine M Feldman, Ann Voda, Evangeline Gronseth, et al.
The Relationship between Social Support, General Health Status, and Severity of Menopause Symptoms among Postmenopausal Women in Northern Iran	Elieh Abasi, Afsaneh Keramat

The role of depressive symptomatology in peri-and post-menopause	Erika Borkoles, Nick Reynolds, David R Thompson, et al.
The severity of menopause and associated factors among middle-aged women residing in Arba Minch, DHSS, Ethiopia, 2022	Begosew Misiker, Kefita Kashala, Direslgne Misker
The sleep quality in women with surgical menopause compared to natural menopause based on Ardakan Cohort Study on Aging (ACSA)	Ahmad Delbari, Mohammad Haddadi, Fatemeh-Sadat Tabatabaei, et al.
Understanding women's experience of memory over the menopausal transition: subjective and objective memory in pre-, peri-, and postmenopausal women	Anne E Unkenstein, Christina A Bryant, Fiona K Judd, et al.
Undesirable stressful life events, impact, and correlates during midlife: observations from the Seattle midlife women's health study	Annette Joan Thomas, Ellen Sullivan Mitchell, Nancy Fugate Woods
Vasomotor and depression symptoms may be associated with different sleep disturbance patterns in postmenopausal women	Eleni Vousoura, Areti C Spyropoulou, Kalliopi L Koundi, et al.
Vasomotor and other menopause symptoms and the prevalence of ideal cardiovascular health metrics among premenopausal stage women	Hye Rin Choi, Yoosoo Chang, Yejin Kim, et al.
Vasomotor symptoms and well-being in the climacteric years	F P M J Groenevelday, F P Baremav, R Barentsend, et al.
Vasomotor symptoms are associated with depression in perimenopausal women seeking primary care	Hadine Joffe, Janet E Hall, Claudio N Soares, et al.
Vasomotor Symptoms in Middle-Aged Women from Policlínico University	Cosme Ordoñez Universitario, Javier Carceller, Maure Barcia, et al.
Women’s health in midlife: findings from a British birth cohort study	Diana Kuh, Rebecca Hardy

Appendix 4 Metadata of the included studies

Study_ID	Title	Authors
Abe-1975	A New Method for the Screening of Unidentified Complaints Syndrome in Pre-, Mid-and Post menopausal Women	Tetsuro Abe, Nobuaki Furuhashi, Ichio Ohashi, Masakuni Suzuki, Takejiro Moritsuka
Avis-2000	Is there an association between menopause status and sexual functioning?	Nancy E Avis, Rebecca Stellato, Sybil Crawford, Catherine Johannes, Christopher Longcope
Avis-2009	Change in health-related quality of life over the menopausal transition in a multiethnic cohort of middle-aged women: Study of Women's Health Across the Nation (SWAN)	Nancy E Avis, Alicia Colvin, Joyce T Bromberger, Rachel Hess, Karen A Matthews, Marcia Ory, Miriam Schocken, Maryfran Sowers, Robert Neer, Joel Finkelstein, Lynda Powell, Gail Greendale, Nanette Santoro, Sherry Sherman, Daniel Mcconnell, Sonja Mckinlay, Chris Gallagher, Susan Johnson
Avis-2009 (Longitudinal)	Longitudinal Changes in Sexual Functioning as Women Transition Through Menopause: Results from the Study of Women's Health Across the Nation (SWAN)	Nancy E Avis, Sarah Brockwell, John F Randolph, Shunhua Shen, Virginia S Cain, Marcia Ory, Gail A Greendale, Lynda Powell, Nanette Santoro, Chris Gallagher, Susan Johnson
Avis-2015	Duration of Menopausal Vasomotor Symptoms Over the Menopause Transition	Nancy E Avis, Sybil L Crawford, Gail Greendale, Joyce T Bromberger, Susan A Everson-Rose, Ellen B Gold, Rachel Hess, Hadine Joffe, Howard M Kravitz, Ping G Tepper, Rebecca C Thurston
Avis-2017	Change in Sexual Functioning Over the Menopause Transition: Results from the Study of Women's Health Across the Nation (SWAN)	Nancy E Avis, Alicia Colvin, Arun S Karlamangla, Sybil Crawford, Rachel Hess, L Elaine Waetjen, Maria Brooks, Ping G Tepper, Gail A Greendale
Baker-2015	Insomnia in women approaching menopause: beyond perception	Fiona C Baker, Adrian R Willoughby, Stephanie A Sassoon, Ian M Colrain, Massimiliano De Zambotti
Berecki-Gisolf-2009	Symptoms reported by women in midlife: menopausal transition or aging?	Janneke Berecki-Gisolf, Nelufa Begum, Annette J Dobson
Bromberger-2003	Persistent Mood Symptoms in a Multiethnic Community Cohort of Pre-and Perimenopausal Women	Joyce T Bromberger, Susan F Assmann, Nancy E Avis, Miriam Schocken, Howard M Kravitz, Adriana Cordal
Bromberger-2010	Longitudinal Change in Reproductive Hormones and Depressive Symptoms Across the Menopausal Transition: Results From the Study of Women's Health Across the Nation (SWAN)	Joyce T Bromberger, Laura L Schott, Howard M Kravitz, Maryfran Sowers, Nancy E Avis, Ellen B Gold, John F Randolph, Karen A Matthews
Bromberger-2011	Major Depression During and After the Menopausal Transition: Study of Women's Health Across the Nation (SWAN)	Joyce T Bromberger, Howard M Kravitz, Yue-Fang Chang, Jill M Cyranowski, Charlotte Brown, Karen A Matthews
Bromberger-2013	Does Risk for Anxiety Increase During the Menopausal Transition? Study of Women's Health Across the Nation (SWAN)	Joyce T Bromberger, Howard M Kravitz, Yuefang Chang, John F Randolph, Nancy E Avis, Ellen B Gold, Karen A Matthews

Brown-2002	Changes in Physical Symptoms During the Menopause Transition	Wendy J Brown, Gita D Mishra, Annette Dobson
Burri-2015	Longitudinal evaluation of sexual function in a cohort of pre-and postmenopausal women	Andrea Burri, Peter Hilpert, Timothy Spector
Callan-2019	Abdominal pain during the menopause transition and early postmenopause: observations from the Seattle Midlife Women's Health Study	Nini G L Callan, Ellen S Mitchell, Margaret M Heitkemper, Nancy F Woods
Campbell-2016	Impact of menopausal status on negative mood and depressive symptoms in a longitudinal sample spanning 20 years	Katherine E Campbell, Lorraine Dennerstein, Sue Finch, Cassandra E Szoeke
Cauley-2023	Self-Reported Sleep Disturbances over the Menopausal Transition and Fracture Risk: The Study of Women's Health Across the Nation	Jane A Cauley, Howard M Kravitz, Kristine Ruppert, Yinjuan Lian, Martica J Hall, Sioban D Harlow, Joel S Finkelstein, Gail Greendale
Cho-2018	Sleep disturbance in women who undergo surgical menopause compared with women who experience natural menopause	Na Young Cho, Soriul Kim, Sara Nowakowski, Chol Shin, Sooyeon Suh
Cohen-2006	Risk for New Onset of Depression During the Menopausal Transition The Harvard Study of Moods and Cycles	Lee S Cohen, Claudio N Soares, Allison F Vitonis, Michael W Otto, Bernard L Harlow
Crandall-2011	Association of Menopausal Vasomotor Symptoms With Increased Bone Turnover During the Menopausal Transition	Carolyn J Crandall, Chi-Hong Tseng, Sybil L Crawford, Rebecca C Thurston, Ellen B Gold, Janet M Johnston, Gail A Greendale
Cray-2012	Identifying symptom clusters during the menopausal transition: observations from the Seattle Midlife Women ' s Health Study	L A Cray, N F Woods, E S Mitchell
Cray-2012 (Symptom)	Symptom Clusters during the Late Reproductive Stage through the Early Postmenopause: Observations from the Seattle Midlife Women's Health Study	Lori A Cray, Nancy Fugate Woods, Jerald R Herting, Ellen Sullivan Mitchell
Dennerstein-2001	Are changes in sexual functioning during midlife due to aging or menopause?	Lorraine Dennerstein, Emma Dudley, Henry Burger
Dennerstein-2007	New findings from non-linear longitudinal modelling of menopausal hormone changes	Lorraine Dennerstein, Philippe Lehert, Henry G Burger, Janet R Guthrie
Dennerstein-2007 (Modeling)	Modeling women's health during the menopausal transition: a longitudinal analysis	Lorraine Dennerstein, Philippe Lehert, Janet R Guthrie, Henry G Burger
deZambotti-2017	Menstrual Cycle-Related Variation in Autonomic Nervous System Functioning in Women in the Early Menopausal Transition with and without Insomnia Disorder	Massimiliano De Zambotti, John Trinder, Ian M Colrain, Fiona C Baker
ElKhoudary-2014	Longitudinal Assessment of the Menopausal Transition, Endogenous Sex Hormones, and Perception of Physical	Samar R El Khoudary, Candace K Mcclure, Trang Vopham, Carrie A Karvonen-Gutierrez, Barbara Sternfeld, Jane A Cauley, Naila Khalil, Kim Sutton-Tyrrell

	Functioning: The Study of Women's Health Across the Nation	
Epperson-2013	Menopause Effects on Verbal Memory: Findings from a Longitudinal Community Cohort	C Neill Epperson, Mary D Sammel, Ellen W Freeman
Ford-2005	A longitudinal study of the predictors of prevalence and severity of symptoms commonly associated with menopause	Kathleen Ford, Maryfran Sowers, Mary Crutchfield, Angela Wilson, Mary Jannausch
Freedman-2004	Lack of sleep disturbance from menopausal hot flashes	Robert R Freedman, Timothy A Roehrs
Freeman-2004	Hormones and Menopausal Status as Predictors of Depression in Women in Transition to Menopause	Ellen W Freeman, Mary D Sammel, Li Liu, Clarisa R Gracia, Deborah B Nelson, Lori Hollander
Freeman-2004 (Premenstrual)	Premenstrual Syndrome as a Predictor of Menopausal Symptoms	E W Freeman, Sammel, P J Rinaudo, L Sheng
Freeman-2005	The role of anxiety and hormonal changes in menopausal hot flashes	Ellen W Freeman, Mary D Sammel, Hui Lin, Clarisa R Gracia, Shiv Kapoor, Tahmina Ferdousi
Freeman-2006	Associations of Hormones and Menopausal Status With Depressed Mood in Women With No History of Depression	Ellen W Freeman, Mary D Sammel, Hui Lin, Deborah B Nelson
Freeman-2007	Symptoms Associated With Menopausal Transition and Reproductive Hormones in Midlife Women	Ellen W Freeman, Mary D Sammel, Hui Lin, Clarisa R Gracia, Grace W Pien, Deborah B Nelson, Li Sheng
Freeman-2008	Symptoms in the Menopausal Transition Hormone and Behavioral Correlates	Ellen W Freeman, Mary D Sammel, Hui Lin, Clarisa R Gracia, Shiv Kapoor
Freeman-2011	Duration of Menopausal Hot Flushes and Associated Risk Factors	Ellen W Freeman, Mary D Sammel, Hui Lin, Ziyue Liu, Clarisa R Gracia
Freeman-2014	THE LONGITUDINAL PATTERN OF DEPRESSIVE SYMPTOMS AROUND NATURAL MENOPAUSE	Ellen W Freeman, Mary D Sammel, David W Boorman, Rongmei Zhang
Freeman-2016	ANXIETY AS A RISK FACTOR FOR MENOPAUSAL HOT FLASHES: EVIDENCE FROM THE PENN OVARIAN AGING COHORT	Ellen W Freeman, Mary D Sammel
Gold-2006	Longitudinal Analysis of the Association Between Vasomotor Symptoms and Race/Ethnicity Across the Menopausal Transition: Study of Women's Health Across the Nation	Ellen B Gold, Alicia Colvin, Nancy Avis, Joyce Bromberger, Gail A Greendale, Lynda Powell, Barbara Sternfeld, Karen Matthews
Gold-2007	Relation of Daily Urinary Hormone Patterns to Vasomotor Symptoms in a Racially/Ethnically Diverse Sample of Midlife Women: Study of Women's Health Across the Nation	Ellen B Gold, Bill Lasley, Sybil L Crawford, Dan Mcconnell, Hadine Joffe, Gail A Greendale
Gold-2017	Longitudinal Analysis of Changes in Weight and Waist Circumference in Relation to Incident Vasomotor	Ellen B Gold, Sybil L Crawford, Janie F Shelton, Ping G Tepper, Carolyn J Crandall, Gail A Greendale, Karen A Matthews, Rebecca C Thurston, Nancy E Avis

	Symptoms: the Study of Women' Health Across the Nation (SWAN)	
Gold-2022	The Longitudinal Relation of Inflammation to Incidence of Vasomotor Symptoms	Ellen B Gold, Nancy E Avis, Sioban Harlow, Hadine Joffe, Karen Matthews, Jelena M Pavlovic, Rebecca C Thurston, L Elaine Waetjen
Gopal-2008	Association of Change in Estradiol to Lower Urinary Tract Symptoms During the Menopausal Transition	M Gopal, Sammel, L A Arya, E W Freeman, H Lin, C Gracia
Gordon-2016	Estradiol Variability, Stressful Life Events and the Emergence of Depressive Symptomatology during the Menopause Transition	Jennifer L Gordon, David R Rubinow, Tory A Eisenlohr-Moul, Jane Leserman, Susan S Girdler
Gordon-2020	Mood sensitivity to estradiol predicts depressive symptoms in the menopause transition	Jennifer L Gordon, Bethany Sander, Tory A Eisenlohr-Moul, Laurie Sykes Tottenham
Greendale-2009	Effects of the menopause transition and hormone use on cognitive performance in midlife women	Gail A Greendale, M.-H Huang, Drph R G Wight, T Seeman, C Luetters, N E Avis, J Johnston, A S Karlamangla, Chris Gallagher, Susan Johnson
Grummisch-2023	Within-person changes in reproductive hormones and cognition in the menopause transition	Julia A Grummisch, Laurie Sykes Tottenham, Jennifer L Gordon
Guthrie-2004	The menopausal transition: a 9-year prospective population-based study. The Melbourne Women's Midlife Health Project	J R Guthrie, L Dennerstein, J R Taffe, P Lehert, H G Burger
Guthrie-2005	Hot flushes during the menopause transition: a longitudinal study in Australian-born women	Janet R Guthrie, Lorraine Dennerstein, John R Taffe, Philippe Lehert, Henry G Burger, Eli Lilly Ltd, Pfizer P Gamble, Lehert
Harlow-2017	It is not just menopause: symptom clustering in the Study of Women's Health Across the Nation	Siobán D Harlow, Carrie Karvonen-Gutierrez, Michael R Elliott, Irina Bondarenko, Nancy E Avis, Joyce T Bromberger, Maria Mori Brooks, Janis M Miller, Barbara D Reed
Hickey-2016	Depressive symptoms across the menopause transition: findings from a large population-based cohort study	Martha Hickey, Danielle A J M Schoenaker, Hadine Joffe, Gita D Mishra
Huang-2024	Musculoskeletal pain among Chinese women during the menopausal transition: findings from a longitudinal cohort study	Feiling Huang, Yubo Fan, Ruiyi Tang, Zhuolin Xie, Lingjin Yang, Xiaonan Ma, Jinghui Liang, Rong Chen, Contributed Equally
HydeRiley-2004	Differential Association of Modifiable Health Behaviors with Hot Flashes in Perimenopausal and Postmenopausal Women	Erika Hyde Riley, Thomas S Inui, Ken Scm, Maureen T Kleinman, Connelly
Jacobs-2017	Reorganization of Functional Networks in Verbal Working Memory Circuitry in Early Midlife: The Impact of Sex and Menopausal Status	Emily G Jacobs, Blair Weiss, Nikos Makris, Sue Whitfield-Gabrieli, Stephen L Buka, Anne Klibanski, Jill M Goldstein
Jang-2025	Menopausal stage transitions and their associations with overall and individual sleep quality in middle-aged Korean women	Yoonyoung Jang, Yoosoo Chang, Junhee Park, Chanmin Kim, Sang Won, Jeonggyu Kang, Ria Kwon, Ga-Young Lim, Kye-Hyun Kim, Hoon Kim, Yun Soo, Jihwan Park, Di Zhao, Juhee Cho, Eliseo Guallar, Hyun-Young Park, Seungho Ryu
Jones-2018	Sleep Disturbances in Midlife Women at the Cusp of the Menopausal Transition	Holly J Jones, Rochelle Zak, Kathryn A Lee

Kalleinen-2021	Sleep during menopausal transition: a 10-year follow-up	Nea Kalleinen, Jenni Aittokallio, Laura Lampio, Matti Kaisti, Päivi Polo-Kantola, Olli Polo, Olli J Heinonen, Tarja Saaresranta, Jenni Aittokallio
Katainen-2018	Climacteric-related symptoms in menopause transition and beyond: a prospective 19-year follow-up study on previously hysterectomized women	Riina Katainen, Janne R Engblom, Pa¨ivi Polo-Kantola
King_2022	Resilience and psychosocial factors linked to symptom experience during the menopause transition for women living with HIV	Elizabeth M King, Angela Kaida, Jerilynn Prior, Arianne Albert, Peggy Frank, Rahma Abdul-Noor, Gladys Kwaramba, Rebecca Gormley, Alexandra De Pokomandy, Mona Loutfy, Melanie C M Murray
Kok-2006	Cognitive function across the life course and the menopausal transition in a British birth cohort	Helen S Kok, Diana Kuh, Rachel Cooper, Yvonne T Van Der Schouw, Diederick E Grobbee, Michael E J Wadsworth, Marcus Richards, D Kuh
Kravitz-2022	Risk of high depressive symptoms after the final menstrual period: The Study of Women's Health Across the Nation (SWAN)	Howard M Kravitz, Alicia B Colvin, Nancy E Avis, Hadine Joffe, Yuqing Chen, Joyce T Bromberger, Kravitz
Kumari-2005	The menopausal transition was associated in a prospective study with decreased health functioning in women who report menopausal symptoms	Meena Kumari, Mai Stafford, Michael Marmot
Lampio-2017	Sleep During Menopausal Transition: A 6-Year Follow-Up	Laura Lampio, Päivi Polo-Kantola, Sari-Leena Himanen, Samu Kurki, Eero Huupponen, Janne Engblom, Olli J Heinonen, Olli Polo, Tarja Saaresranta
Lee-2023	Impact of symptomatic menopausal transition on the occurrence of depression, anxiety, and sleep disorders: A real-world multi-site study	Dong Yun Lee, Carmen Andreescu, Howard Aizenstein, Helmet Karim, Akiko Mizuno, Antonija Kolobaric, Seokyoung Yoon, Yerim Kim, Jaegyun Lim, Ein Jeong Hwang, Yung-Taek Ouh, Hyung Hoi Kim, Sang Joon Son, Rae Woong Park, Sang Joon
Li-2020	Vasomotor symptoms in aging Chinese women: findings from a prospective cohort study	J Li, M Luo, R Tang, X Sun, Y Wang, B Liu, J Cui, G Liu, S Lin, R Chen, Contact Rong Chen
Luo-2020	Insomnia symptoms in relation to menopause among middle-aged Chinese women: Findings from a longitudinal cohort study	Min Luo, Jiayi Li, Ruiyi Tang, Howard J Li, Bing Liu, Yajing Peng, Yuchen Wang, Gaifen Liu, Shouqing Lin, Rong Chen
Maki-2021	Cognitive Changes during the Menopausal Transition: A Longitudinal Study in Women with and without HIV	Pauline M Maki, Gayle Springer, Kathryn Anastos, Deborah R Gustafson, Kathleen Weber, David Vance, Derek Dykxhoorn, Joel Milam, Adaora A Adimora, Seble G Kassaye, Drenna Waldrop-Valverde, Leah H Rubin
Maleki-2019	Longitudinal Course of Vasomotor Symptoms in Perimenopausal Migraineurs	Nasim Maleki, Yu-Chen Cheng, Yiheng Tu, Joseph J Locascio, Maleki
Marsh-2015	Symptom severity of bipolar disorder during the menopausal transition	Wendy K Marsh, Bernice Gershenson, Anthony J Rothschild
Marsh-2017	Lifelong estradiol exposure and risk of depressive symptoms during the transition to menopause and postmenopause	Wendy K Marsh, Joyce T Bromberger, Sybil L Crawford, Katherine Leung, Howard M Kravitz, John F Randolph, Hadine Joffe, Claudio N Soares
Matthews-1994	Influence of the Perimenopause on Cardiovascular Risk Factors and Symptoms of Middle-aged Healthy Women	Karen A Matthews, Rena R Wing, Lewis H Kuller, Elaine N Meilahn, Pam Plantinga, Ms Plantinga

Matthews-2021	Influence of the menopausal transition on polysomnographic sleep characteristics: a longitudinal analysis	Karen A Matthews, Laisze Lee, Howard M Kravitz, Hadine Joffe, Genevieve Neal-Perry, Leslie M Swanson, Marissa A Evans, Martica H Hall
Matthews-2022	Identifying women who share patterns of reproductive hormones, vasomotor symptoms and sleep maintenance problems across the menopause transition: Group-based multitrajectory modeling in Study of Women's Health Across the Nation	Karen A Matthews, Yuefang Chang, Maria M Brooks, Sybil L Crawford, Imke Janssen, Hadine Joffe, Howard M Kravitz, Rebecca C Thurston, Samar R El Khoudary
Maxwell-2023	Perceived quality of sleep across the menopausal transition: A retrospective cohort study	Rose A Maxwell, Keith M Reisinger-Kindle, Traci M Rackett, Jerome L Yaklic, Stefan A Czerwinski, | Miryoung Lee, Keith M Reisinger
Mirer-2017	Sleep-Disordered Breathing and the Menopausal Transition among Participants in the Sleep in Midlife Women Study	Anna G Mirer, Terry Young, Mari Palta, Ruth M Benca, Amanda Rasmuson, Paul E Peppard
Mishra-2012	Health symptoms during midlife in relation to menopausal transition: British prospective cohort study	Gita D Mishra, Diana Kuh
Mitchell-2010	Pain symptoms during the menopausal transition and early postmenopause	E S Mitchell, N F Woods
Mitchell-2015	Hot flush severity during the menopausal transition and early postmenopause: beyond hormones	Ellen Sullivan Mitchell, Nancy Fugate Woods
Mitchell-2017	Depressed mood during the menopausal transition: is it reproductive aging or is it life?	Ellen Sullivan Mitchell, Nancy Fugate Woods
Mulhall-2018	Variation in symptoms of depression and anxiety in midlife women by menopausal status	Stephanie Mulhall, Ross Andel, Kaarin J Anstey
Ozasa-2022	Potential differences in somatosensory function during premenopause and early and late postmenopause in patients with burning mouth syndrome: An observational case control study	Kana Ozasa, Noboru Noma, Andrew Young, Olga A Korczeniewska, Eli Eliav, Yoshiki Imamura
Randolph-2005	The Relationship of Longitudinal Change in Reproductive Hormones and Vasomotor Symptoms during the Menopausal Transition	John F Randolph, Maryfran Sowers, Irina Bondarenko, Ellen B Gold, Gail A Greendale, Joyce T Bromberger, Sarah E Brockwell, Karen A Matthews
Rössler-2016	Does menopausal transition really influence mental health? Findings from the prospective long-term Zurich study	Wulf R€ Ossler, Vladeta Ajdacic-Gross, Anita Riecher-R€ Ossler, Jules Angst, Michael P Hengartner
Samargandy-2022	Trajectories of Blood Pressure in Midlife Women: Does Menopause Matter?	Saad Samargandy, Karen A Matthews, Maria M Brooks, Emma Barinas-Mitchell, Jared W Magnani, Rebecca C Thurston, Samar R El Khoudary
Schmidt-2004	A Longitudinal Evaluation of the Relationship Between Reproductive Status and Mood in Perimenopausal Women	Peter J Nazli Schmidt, M A Haq, R David, Rubinow, Schmidt
Schnall-2019	Ecological momentary assessment of HIV versus reproductive health symptoms in women of differing reproductive stages living with HIV	Rebecca Schnall, Jianfang Liu, Nancy Reame

Shardell-2021	Association of Vaginal Microbiota With Signs and Symptoms of the Genitourinary Syndrome of Menopause Across Reproductive Stages	Michelle Shardell, Patti E Gravitt, Anne E Burke, Jacques Ravel, Rebecca M Brotman, Michal Masternak
Sowers-2007	Physical functioning and menopause states	Maryfran Sowers, Kristin Tomey, Mary Jannausch, Aimee Eyvazzadeh, Mary Crutchfield, Bin Nan, John Randolph
Strauss-2011	The reciprocal relationship between menopausal symptoms and depressive symptoms: A 9-year longitudinal study of American women in midlife	Judy R Strauss
Tang-2019	Symptoms of anxiety and depression among Chinese women transitioning through menopause: findings from a prospective community-based cohort study	Ruiyi Tang, Min Luo, Jiayi Li, Yajing Peng, Yuchen Wang, Bing Liu, Gaifen Liu, Yaping Wang, Shouqing Lin, Rong Chen
Tang-2020	Relationships Between Vasomotor Symptoms and Mood in Midlife Urban Chinese Women: Observations in a Prospective Study	Ruiyi Tang, Min Luo, Jiayi Li, Yajing Peng, Yuchen Wang, Bing Liu, Gaifen Liu, Yaping Wang, Shouqing Lin, Rong Chen
Taylor-Swanson-2018	The Dynamics of Stress and Fatigue across Menopause: Attractors, Coupling and Resilience	Lisa Taylor-Swanson, Macom Eamp, Alexander E Wong, David Pincus, Jonathan E Butner, Jennifer Hahn-Holbrook, Mary Koithan, Kathryn Wann, Nancy Fugate Woods
Tepper-2016	Characterizing the Trajectories of Vasomotor Symptoms Across the Menopausal Transition	Ping G Tepper, Maria M Brooks, John F Randolph, Sybil L Crawford, Samar R El Khoudary, Ellen B Gold, Bill L Lasley, Bobby Jones, Hadine Joffe, Rachel Hess, Nancy E Avis, Sioban Harlow, Daniel S Mcconnell, Joyce T Bromberger, Huiyong Zheng, Kristine Ruppert, Rebecca C Thurston, Robert Neer, Nanette Santoro, Karen Matthews, Marcia Ory, Kim Sutton-Tyrrell, Susan Johnson
Than-2023	Cognitive trajectories during the menopausal transition	Galit Weinstein, Anne Sieben, David Geldmacher, Chris Moran, Stephanie Than, Richard Beare, Amanda Vincent, Emma Lane, Annabelle Collyer, Michele L Callisaya, Velandai Srikanth
Thurston-2013	Adipokines, adiposity, and vasomotor symptoms during the menopause transition: findings from the Study of Women's Health Across the Nation	Rebecca C Thurston, Yuefang Chang, Peter Mancuso, Karen A Matthews
Tirkkonen-2021	Bidirectional associations between cognitive functions and walking performance among middle-aged women	Anna Tirkkonen, Tiia Keka¨la¨inen, Pauliina Aukee, Urho M Kujala, Eija K Laakkonen, Katja Kokko, Sarianna Sipila¨
Waetjen-2008	Factors Associated with Worsening and Improving Urinary Incontinence Across the Menopausal Transition	L Elaine Waetjen, Wen-Ying Feng, Jingjing Ye, Wesley O Johnson, Gail A Greendale, Carolyn M Sampselle, Barbara Sternfield, Siobán D Harlow, Ellen B Gold
Waetjen-2009	Association between Menopausal Transition Stages and Developing Urinary Incontinence	L Elaine Waetjen, Jingjing Ye, Wen-Ying Feng, Wesley O Johnson, Gail A Greendale, Carolyn M Sampselle, Barbara Sternfield, Siobàn D Harlow, Ellen B Gold
Waetjen-2011	Serum Estradiol Levels Are Not Associated with Urinary Incontinence in Mid-life Women Transitioning through Menopause	L Elaine Waetjen, Wesley O Johnson, Guibo Xing, Wen-Ying Feng, Gail A Greendale, Ellen B Gold

Waetjen-2018	Factors associated with developing vaginal dryness symptoms in women transitioning through menopause: a longitudinal study	L Elaine Waetjen, Sybil L Crawford, Po-Yin Chang, Barbara D Reed, Rachel Hess, Nancy E Avis, Sioban D Harlow, Gail A Greendale, Sheila A Dugan, Ellen B Gold
Weber-2021	Cognitive profiles in perimenopause: hormonal and menopausal symptom correlates	M T Weber, L H Rubin, R Schroeder, T Steffenella, P M Maki
Woods-2002	Patterns of depressed mood across the menopausal transition: approaches to studying patterns in longitudinal data	Nancy Fugate Woods, Anne Mariella, Sullivan Mitchell
Woods-2006	Increased urinary cortisol levels during the menopausal transition	Nancy F Woods, Molly C Carr, Eunice Y Tao, Heather J Taylor, Ellen S Mitchell, Nancy Fugate Woods
Woods-2008	Depressed mood during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women-s Health Study	Nancy Fugate Woods, Kathleen Smith-Dijulio, Donald B Percival, Eunice Y Tao, Anne Mariella, Ellen Sullivan Mitchell
Woods-2010 (Sexual)	Sexual Desire During the Menopausal Transition and Early Postmenopause: Observations from the Seattle Midlife Women's Health Study	Nancy Fugate, Sullivan Mitchell, Kathy Smith-Di Julio
Woods-2010 (Sleep)	Sleep Symptoms During the Menopausal Transition and Early Postmenopause: Observations from the Seattle Midlife Women's Health Study	Nancy Fugate Woods, Ellen Sullivan Mitchell
Woods-2016	The Seattle Midlife Women's Health Study: a longitudinal prospective study of women during the menopausal transition and early postmenopause	Nancy Fugate Woods, Ellen Sullivan Mitchell
Woods-2014	Endocrine Biomarkers and Symptom Clusters during the Menopausal Transition and Early Postmenopause: Observations from the Seattle Midlife Women's Health Study	Nancy F Woods, Lori A Cray, Ellen S Mitchell, Jerald R Herting
Young-2003	Menopausal Status and Sleep-disordered Breathing in the Wisconsin Sleep Cohort Study	Terry Young, Laurel Finn, Diane Austin, Andrea Peterson

Appendix 5 Eligibility and participant criteria of the included studies

Study_ID	Eligibility Criteria	Participant Characteristics
Abe-1975	P: Pre-, mid-, and post-menopausal women with unidentified complaints syndrome; E: Intravenous injection of 20 mg of conjugated estrogen (Premarin); C: Double-blind test with conjugated estrogen or placebo; O: Change in Kupperman's menopausal index; S: Clinical setting; Exc: Women with identifiable gynecological or other somatic diseases	- Age range: 40-69 years - Menopausal status: Pre-, mid-, and post-menopausal - Health conditions: Unidentified complaints syndrome; exclusion of identifiable gynecological or other somatic diseases - Psychiatric conditions: Neurosis and schizophrenia
Avis-2000	P: Women transitioning through menopause from the Massachusetts Women's Health Study 11; E: Menopause status; C: Not mentioned; O: Satisfaction, desire, frequency of sexual intercourse, belief that interest declines with age, arousal compared with a younger age, difficulty reaching orgasm, and pain; S: Population-based in Massachusetts; Exc: Surgical menopause (hysterectomy or bilateral oophorectomy)	- Age range: 51-62 years old - Menopausal status: Pre-, peri-, or postmenopausal - Health conditions: Not HRT users, no surgical menopause - Other criteria: Intact uterus and ovaries, less than 12 months of amenorrhea, no major internal organ cancers
Avis-2009	P: Women aged 42-52 years; E: Menopausal transition; C: Different stages of menopause (premenopausal, early perimenopausal, late perimenopausal, postmenopausal); O: Health-related quality of life (HRQL) using SF-36 subscales; S: Seven US sites across the United States; Exc: Surgical menopause, missing all follow-up SF-36 measurements, hysterectomy without bilateral oophorectomy before postmenopause	- Age range: 42-52 years - Menopausal status: Pre- or early perimenopausal - Health conditions: Intact uterus, at least one ovary, not using exogenous hormones - Racial/ethnic groups: White (47.8%), African American (27.4%), Hispanic (7.5%), Chinese (8.2%), Japanese (9.1%)
Avis-2009 (Longitudinal)	P: Women aged 42-52 years with an intact uterus and at least one ovary, pre- or early perimenopausal, and identified with specific racial/ethnic groups; E: Menopause transition; C: Not explicitly mentioned, but comparison across different menopausal stages; O: Self-reported ratings of importance of sex, frequency of sexual desire, arousal, masturbation, sexual intercourse, and pain during intercourse, as well as emotional satisfaction and physical pleasure; S: Seven US sites across the United States; Exc: Women with a hysterectomy but keeping at least one ovary, bilateral oophorectomy, and current use of exogenous hormones.	- Age range: 42-52 years - Menopausal status: Premenopausal or early perimenopausal - Health conditions: Intact uterus, at least one ovary, not using exogenous hormones - Racial/ethnic composition: Half white, half from minority groups (African-American, Japanese, Chinese, Hispanic) - Mean age: 46.2 years - Sexual activity: 78% sexually active at baseline, 71% at visit 06

Avis-2015	P: Women aged 42-52 years; E: Frequent VMS; C: Not mentioned; O: Total duration of frequent VMS and post-FMP persistence; S: SWAN at 7 US sites; Exc: Hysterectomy or bilateral oophorectomy, initiation of hormone therapy before first report of VMS, no visits with frequent VMS	- Age range: 42 to 52 years - Menopausal status: Premenopausal, early perimenopausal, late perimenopausal, postmenopausal - Health conditions: Frequent VMS - Inclusion criteria: Intact uterus and at least one ovary, not pregnant, lactating, or using oral contraceptives or hormone therapy - Demographics: Race/ethnicity (African American, non-Hispanic white, Chinese, Hispanic, Japanese), marital status, financial strain, education level, smoking status, BMI, symptom sensitivity, anxiety, perceived stress, depressive symptoms
Avis-2017	P: Women aged 42-52; E: Menopause transition or hysterectomy; C: Natural menopause vs. hysterectomy; O: Change in sexual functioning scores; S: Community-based across 7 sites in the United States; Exc: Bilateral oophorectomy without hysterectomy	- Age range: 42-52 years - Menopausal status: Pre-or early perimenopausal at baseline - Health conditions: Intact uterus and at least one ovary, not using hormone therapy - Ethnicity: Multi-ethnic, with half white and half from minority populations (African-Americans, Japanese, Chinese, or Hispanic) - Hysterectomy: Some participants underwent a hysterectomy before menopause
Baker-2015	P: Women aged 43-57 years in the menopause transition; E: Development of clinical insomnia; C: Women in the menopause transition without insomnia; O: Sleep quality, total sleep time, sleep efficiency, WASO, presence of objective hot flashes; S: Laboratory setting, San Francisco Bay Area community; Exc: Use of hormone therapy, severe medical conditions (e.g., hypertension, diabetes), current sleep medication or antidepressant use	- Age range: 43-57 years - Menopausal status: In the menopause transition (early or late) - Health conditions: Excluded if using hormone therapy, severe medical conditions (e.g., hypertension, diabetes), or current sleep/antidepressant medications - BMI: ≤ 32 kg/m² - Racial distribution: 27 Caucasian in insomnia group, 26 Caucasian in control group
Berecki-Gisolf-2009	P: Middle-aged women aged 45-50 years participating in the Australian Longitudinal Study on Women's Health; E: Menopausal transition; C: Premenopausal phase; O: Symptoms such as hot flushes, night sweats, stiff or painful joints, difficulty sleeping, and poor/fair self-rated health; S: Australian Longitudinal Study on Women's Health; Exc: Hysterectomy before the first survey, persistent use of HT or OAC, menopause status could not be determined due to hysterectomy, oophorectomy, hormone treatment, or missing data	Participants were middle-aged women aged 45-50 years at the start of the study in 1996. They were included if their natural menopause status could be determined, excluding those with hysterectomy, oophorectomy, or on hormone treatment. The sample was randomly selected from the Medicare Australia database, representing a diverse ethnic background. The median age at menopause was 51.9 years.

Bromberger-2003	P: Women aged 42-52 years; E: Early perimenopausal status; C: Premenopausal women; O: Persistent mood symptoms (irritability, nervousness, frequent mood changes); S: Community-based; Exc: Not having had menses within the previous 3 months, not having a uterus and at least one ovary, being pregnant, having used reproductive hormones or birth control pills within the previous 3 months.	Participants were pre-and early perimenopausal women aged 42-52 years, ethnically diverse (White, African-American, Chinese, Hispanic, Japanese), with criteria including recent menses, having a uterus and ovary, not pregnant, and no recent hormone use. The sample size was 3,161 women.
Bromberger-2010	P: Women aged 42-52 years; E: Serum hormone levels; C: Not mentioned; O: Depressive symptoms; S: Community-based; Exc: Exogenous reproductive hormones, pregnancy, lactation, surgical menopause (bilateral oophorectomy or hysterectomy)	- Age range: 42 to 52 years - Menopausal status: Premenopausal and early perimenopausal at baseline - Ethnicity: Multiethnic - Health conditions: Not using exogenous reproductive hormones, menstruating - Other demographics: Varied race/ethnicity, BMI, education level
Bromberger-2011	P: Women aged 42-52, African American and Caucasian, premenopausal at entry; E: Menopausal transition (perimenopause and postmenopause); C: Premenopausal state; O: Major depressive episodes (MDEs); S: Community-based, Pittsburgh site of SWAN; Exc: Surgical menopause, hormone therapy use	- Age range: 42-52 years - Menopausal status: Premenopausal at study entry - Ethnicity: African American and Caucasian - Health conditions: No specific health conditions mentioned as inclusion criteria - Other characteristics: Intact uterus, at least one menstrual period in the past 3 months, no use of reproductive hormones in the previous 3 months
Bromberger-2013	P: Women aged 42-52; E: Menopausal transition; C: Different menopausal stages; O: High anxiety; S: Community-based; Exc: Hysterectomy and/or oophorectomy	- Age range: 42-52 years old - Menopausal status: premenopausal, early perimenopausal, late perimenopausal, postmenopausal - Health conditions: intact uterus, no use of reproductive hormones in the previous three months - Ethnicity: multiethnic, including white, African American, Chinese, Hispanic, Japanese
Brown-2002	P: Women aged 45 to 50 years in 1996; E: Menopause transition status; C: Premenopausal women; O: Physical symptoms during menopause transition; S: Australian Longitudinal Study on Women's Health; Exc: Hysterectomy or oopherectomy, short version of Survey 2	- Age range: 45 to 50 years in 1996 - Menopausal status: Premenopausal, perimenopausal, postmenopausal, and on HRT - Exclusion criteria: Women who had undergone a hysterectomy or oopherectomy - Demographics: Mean age at Survey 1 was 47.7 years;

		selected randomly from Australia with overrepresentation of rural and remote areas
Burri-2015	P: Women aged 18-85 years from the UK Adult Twin Registry; E: Changes in sexual functioning over time; C: Premenopausal vs. postmenopausal women; O: Stability and changes in sexual functioning as assessed by FSFI; S: UK Adult Twin Registry; Exc: Women never sexually active, homosexual, not in a relationship, high number of missing items	- Total participants: 507 women - Menopausal status: 178 premenopausal, 329 postmenopausal - Age range: 18 to 85 years - Mean age: 56.3 years - Ethnicity: Caucasian twins from the UK Adult Twin Registry - Inclusion criteria: Excluded women who were never sexually active, homosexual, not in a relationship, or had a high number of missing items
Callan-2019	P: Women aged 35-55 years; E: Natural menopausal transition and associated biomarkers and perceptions; C: Not mentioned; O: Abdominal pain severity; S: Greater Seattle area, community-based; Exc: Use of hormone replacement therapy, incomplete health diary entries, a hysterectomy, inadequate calendar data, or receiving chemotherapy or radiation therapy.	- Age range: 35-55 years - Menopausal status: Late reproductive stage or early/late menopause transition stages - Health conditions: Had a period within the previous 12 months; had at least one ovary and an intact uterus; not pregnant or lactating - Demographics: Mean age 41.5 years; predominantly White (82%); majority employed (87%); majority married or partnered (71%)
Campbell-2016	P: Women aged 45-55 years; E: Menopausal status; C: Not mentioned; O: Negative mood and depressive symptoms; S: Community-based in Melbourne, Australia; Exc: Not mentioned	- Age range: 45 to 55 years at baseline - Geographic location: Melbourne, Australia - Menopausal status: Assessed using Stages of Reproductive Ageing Workshopþ10 criteria - Health conditions: Community-dwelling women; separate groups for hormone therapy users and surgical menopause
Cauley-2023	P: Women aged 42 to 52 years with an intact uterus and at least one ovary, still menstruating, and not using oral contraceptives or postmenopausal hormone therapy; E: Self-reported sleep disturbances across the menopausal transition; C: Not mentioned; O: Incident fractures that occurred after baseline; S: Community-based at seven clinical sites; Exc: Women who only had a baseline visit; women not meeting the inclusion criteria (e.g., not menstruating, using oral contraceptives or postmenopausal hormone therapy)	- Age range: 42 to 52 years - Menopausal status: Premenopausal or in early stages of menopause - Racial/ethnic diversity: White, Black, Japanese, Chinese, Hispanic - Health conditions: Various health and lifestyle factors considered
Cho-2018	P: Women aged 50 to 79 years; E: Surgical menopause; C: Natural menopause;	- Age range: 50 to 79 years - Mean age: 60.2 years - Menopausal status: Postmenopausal

	O: Sleep quality, insomnia symptoms, relationship between sleep-interfering behaviors and insomnia symptoms; S: Population-based cohort study in Ansan, South Korea; Exc: Not mentioned	- Menopause type: Natural menopause (81.6%) and surgical menopause (18.4%) - Significant differences between NM and SM groups: Age of menopause, hormonal medication use, menopausal duration
Cohen-2006	P: Premenopausal women aged 36 to 45 years with no lifetime diagnosis of major depression; E: Entering the perimenopause; C: Women who remained premenopausal; O: Incidence of new onset of depression; S: Population-based cross-sectional sample in 7 Boston, Mass, metropolitan area communities; Exc: Women taking oral contraceptives at study enrollment, those who became menopausal, and those lost to follow-up after baseline enrollment.	- Age range: 36 to 45 years - Menopausal status: Premenopausal at baseline, with some transitioning to perimenopause - Health conditions: No lifetime history of major depression - Residence: Boston, Mass, metropolitan area communities - Education: Varied, with some high school graduates, some college/vocational school, college graduates, and graduate school attendees - Parity: Varied, with nulliparous, 1-2 live births, and ≥3 live births - Prior use of oral contraceptives: Varied, with some never using, some using for ≤1 year, and some using for >1 year
Crandall-2011	P: Women aged 42 to 52 years; E: Presence of menopausal VMS; C: Women without VMS; O: Urinary N-telopeptide level (NTX); S: Community-based; Exc: Hysterectomy, bilateral oophorectomy, pregnancy, breast-feeding, use of medications influencing osteoporosis	- Age range: 42 to 52 years at baseline - Menopausal status: Premenopausal or early perimenopausal - Health conditions: Excluded women taking medications that might influence osteoporosis - Demographics: Mean age 45.8 years, mean BMI 28.0 kg/m², 49% white, diverse racial/ethnic groups
Cray-2012	P: Women in late reproductive or early/late menopausal transition stages or early postmenopause; E: Not mentioned; C: Not mentioned; O: Symptom clusters across menopausal stages; S: Seattle Midlife Women's Health Study; Exc: Women using hormone therapy	- Sample size: 195 women in late reproductive stage, 169 in early menopausal transition, 103 in late menopausal transition, 65 in early postmenopause - Racial/ethnic distribution: 76.9% White, 11.4% African American, 3.3% Native American, 8.3% Asian American or Pacific Islander, 1.9% other - Education: Mean education of 15.7 years, range from completion of tenth grade to completion of a graduate degree - Marital status: Majority married or partnered (68.3%) - Employment status: Majority employed (86.2%) - Menopausal status: Late reproductive, early menopausal transition, late menopausal transition, early postmenopause - Criteria for menopausal stages: Defined by menstrual irregularity and final menstrual period

Cray-2012 (Symptom)	P: Women from the Seattle Midlife Women's Health Study; E: Symptom clusters during menopausal transition; C: Not mentioned; O: Identification of symptom clusters and their severity levels; S: Community-based; Exc: Inability to stage due to hormone use, chemotherapy, pregnancy, or having had a hysterectomy and/or bilateral oophorectomy	- Age: Mean age of 46 years (SD=5.0) - Menopausal Status: Late reproductive stage, early or late menopausal transition stages, or early postmenopause - Education: Mean education level of 15.8 years (SD=2.6) - Income: Median family income of $38,800 (SD=$15,000) - Employment: 86% employed - Marital Status: 71% married or partnered, 22% divorced or separated, 7% never married - Ethnicity: 82% White, 7% African American, 9% Asian American - Exclusion Criteria: Hormone use, chemotherapy, pregnancy, hysterectomy, bilateral oophorectomy
Dennerstein-2001	P: Women aged 45-55 years, Australian-born, still menstruating at baseline; E: Natural menopausal transition; C: Control group A (premenopausal or early perimenopausal for 7 years), Control group B (postmenopausal for 5 years); O: Changes in sexual functioning as assessed by the Personal Experiences Questionnaire; S: Population-based, assessments in own homes; Exc: Dropouts, surgical menopause during the study, oral contraceptive use at any year	- Age range: 45-55 years - Menopausal status: Still menstruating at baseline; natural menopausal transition - Health conditions: Excluded if taking oral contraceptives or hormone replacement therapy - Demographics: Mean age 48.5 years (SD ł 2.3); 37% with more than 12 years education; median parity 3; 86% married or living with a partner at baseline
Dennerstein-2007	P: Australian-born women aged 45-55 years; E: Changes in FSH and E2 levels; C: Not mentioned; O: Symptoms (hot flushes, night sweats, sleeping problems, vaginal dryness), self-rated health, mood, sexual function, CHD risk; S: Prospective, population-based study in Australia; Exc: Women who dropped out, already in late menopausal transition at baseline, did not reach late menopausal transition, frequent missing data, used OCP, had surgical menopause before final menstrual period, used hormone therapy for more than three years.	- Age range: 45-55 years - Menopausal status: Not in late menopausal transition at baseline; post-menopause defined as amenorrhoea for at least 12 months - Health conditions: Excluded if using OCP or hormone therapy at baseline; excluded if had surgical menopause before final menstrual period - Demographics: All participants were Caucasian
Dennerstein-2007 (Modeling)	P: Women aged 45-55 years, Australian-born E: Natural menopausal transition C: Not mentioned O: Hormone levels, sociodemographic variables, attitudes and lifestyle variables, self-rated health and well-being, bothersome symptoms, coronary heart disease risk, bone mineral density, and sexuality S: Australia, prospective observational study	- Age range: 45 to 55 years at baseline - Menopausal status: Late reproductive, early menopausal transition, late menopausal transition, postmenopausal - Health conditions: Not taking oral contraceptive pills or hormone therapy at baseline - Demographics: Australian-born women; education level varied; majority married or living with a partner; varied employment status; exercise and smoking habits varied

	Exc: Surgical menopause, oral contraceptive pill use, dropouts, refusal of blood sampling	
deZambotti-2017	P: Women in the menopausal transition; E: Insomnia disorder; C: Menopausal transition controls without insomnia; O: Heart rate and heart rate variability during sleep; S: Laboratory setting with sound-attenuated and temperature-controlled bedrooms; Exc: BMI ≥33 kg/m², recent hormone therapy, hysterectomy or bilateral oophorectomy, amenorrhea for ≥12 months, severe medical conditions, certain psychiatric disorders, high apnea-hypopnea or periodic leg movement indices, use of certain medications or supplements	- Age: 49.0±3 years for MTI, 48.8±2.6 years for controls - Menopausal status: Early menopausal transition (17 MTI, 22 controls), late menopausal transition (4 MTI, 3 controls) - Health conditions: Excluded if BMI ≥33 kg.m^{-2}, taking hormone therapy, severe medical conditions, current Axis I disorders, apnea-hypopnea index >5, periodic leg movement index >10 - Demographics: Similar in ethnicity, BMI, education, caffeine and alcohol consumption - Symptoms: MTI reported more severe psychological and VMS
ElKhoudary-2014	P: Women aged 45-57 from the Study of Women's Health Across the Nation; E: Menopausal transition and changes in endogenous sex hormones; C: Premenopausal women; O: Self-reported physical functioning limitations; S: Multi-site study as part of the Study of Women's Health Across the Nation; Exc: Women without an intact uterus or at least one ovary, those who had used hormone therapy within the past 3 months, and those with missing data on physical functioning, menopausal status, or sex hormones.	- Age range: 45-57 years - Menopausal status: Predominantly pre- or early perimenopausal at start; 92% natural or surgical postmenopausal by end - Ethnicity: African American, Caucasian, Chinese, Japanese - Health conditions: Excluded if using hormone therapy; tracked changes in physical functioning
Epperson-2013	P: Caucasian and African American premenopausal women; E: Natural menopause transition; C: Not mentioned; O: Verbal memory performance (BSRT); S: Community-based; Exc: Current use of psychotropic or hormonal medications, pregnancy, breastfeeding, serious health problems affecting ovarian function, alcohol or drug abuse	- Age range: 35 to 47 years - Menopausal status: Premenopausal at enrollment - Racial groups: Caucasian and African American - Health conditions: Excluded if using psychotropic or hormonal medications, pregnant, breastfeeding, or having serious health problems
Ford-2005	P: Women aged 24 to 44 years; E: Hormone levels (estradiol, FSH, testosterone), menopause status, BMI, smoking; C: Premenopausal women; O: Prevalence and bother of symptoms related to sexuality, vasomotor, sleep/fatigue, negative mood, hair/skin, and urinary problems; S: Population-based, Michigan Bone Health Study; Exc: Declined participation, moved from the area, significant health impairments, death, pregnancy	- Age range: 24 to 44 years at baseline - Menopausal status: Primarily premenopausal at baseline - Ethnicity: White women - Health conditions: Not specifically mentioned, but participants were part of a bone health study - BMI: Average BMI at baseline was 26.8 kg/m^2

Freedman-2004	P: Symptomatic and asymptomatic postmenopausal women and premenopausal women aged 46-51 years; E: Hot flashes; C: Premenopausal asymptomatic women and postmenopausal asymptomatic women; O: Sleep electroencephalogram recordings, sternal skin conductance, multiple sleep latency test, simple and divided attention performance tests, sleep and fatigue questionnaires; S: Controlled laboratory setting at a university medical center; Exc: Failing drug screen, sleep apnea, periodic limb movements, BMI >30, hypertension, other disorders affecting sleep or thermoregulation	- Age range: 46-51 years - Menopausal status: Premenopausal asymptomatic (cycling), postmenopausal asymptomatic, postmenopausal symptomatic - Health conditions: Excluded disorders affecting sleep or thermoregulation, BMI >30, smoking, shift-work, prescription medication use
Freeman-2004	P: Women aged 35-47 years; E: Transition to menopause; C: Not mentioned; O: Depressive symptoms (CES-D), DSM-IV MDD diagnosis; S: Philadelphia County; Exc: Current use of psychotropic or hormonal medications, pregnancy or breastfeeding, serious health problems, alcohol or drug abuse, non-English speaking	- Age range: 35 to 47 years at enrollment, with a mean age of 44.6 years at the end point - Menopausal status: All participants were premenopausal at enrollment - Racial distribution: Equal numbers of African American and white women - Education: 59% had education beyond high school - Employment: 82% were employed - Exclusion criteria: Current use of psychotropic or hormonal medications, pregnancy, breastfeeding, serious health problems, alcohol or drug abuse, non-English speaking
Freeman-2004 (Premenstrual)	P: Women aged 35-47 years; E: Premenstrual syndrome (PMS); C: Not mentioned; O: Menopausal hot flushes, depressed mood, poor sleep, decreased libido; S: Philadelphia county; Exc: Current use of hormonal or psychotropic medications, hysterectomy, pregnancy or breastfeeding, serious health problems, alcohol or drug abuse within the past year	- Age range: 35-47 years at enrollment - Menopausal status: Premenopausal at enrollment - Health conditions: Excluded if using hormonal or psychotropic medications, serious health problems, or alcohol/drug abuse - Demographics: Equal numbers of African-American and white women
Freeman-2005	P: Women aged 35-47 years; E: Anxiety; C: Not mentioned; O: Occurrence, severity, and frequency of hot flashes; S: Population-based; Exc: Current use of hormonal or psychotropic medications, pregnancy or breastfeeding, serious health problems, alcohol or drug abuse within the past year	- Age range: 35 to 47 years at enrollment - Menopausal status: Premenopausal at enrollment; varied at 6-year endpoint (48% premenopausal, 32% early transition, 12% late transition, 8% postmenopausal) - Racial diversity: Equal numbers of African American and white women - Health criteria: Regular menstrual cycles, intact uterus and at least one ovary - Exclusion criteria: Current use of hormonal or psychotropic

		medications, pregnancy, breastfeeding, serious health problems, substance abuse
Freeman-2006	P: Premenopausal women aged 35-47 years with no history of depression; E: Transition to menopause and changes in reproductive hormones; C: Premenopausal status; O: High CES-D scores and diagnosed depressive disorders; S: Population-based cohort in Philadelphia County, Pennsylvania; Exc: Current use of psychotropic or hormonal medications, pregnancy or breastfeeding, serious health problems compromising ovarian function, alcohol or drug abuse within the past year.	- Age range: 35 to 47 years - Menopausal status: Premenopausal at enrollment - Health conditions: No history of depression; normal menstrual cycles; intact uterus; at least one ovary - Exclusion criteria: Current use of psychotropic or hormonal medications; pregnancy or breastfeeding; serious health problems; alcohol or drug abuse
Freeman-2007	P: Women aged 35-47 years, premenopausal with regular menstrual cycles, intact uterus, and at least one ovary; E: Menopausal transition; C: Not mentioned; O: Prevalence and severity of menopausal symptoms (hot flushes, aches, joint pain, stiffness, depressed mood, poor sleep, decreased libido, vaginal dryness); S: Penn Ovarian Aging Study, Philadelphia County, Pennsylvania; Exc: Current use of psychotropic or hormonal medications, pregnancy or breastfeeding, serious health problems compromising ovarian function, alcohol or drug abuse within the past year.	- Age range: 35 to 47 years at enrollment - Menopausal status: Premenopausal at enrollment - Health conditions: Excluded if using psychotropic or hormonal medications, pregnancy or breastfeeding, serious health problems (e.g., diabetes, liver disease, breast or endometrial cancer), alcohol or drug abuse - Racial composition: Stratified sampling for equal numbers of African American and white women
Freeman-2008	P: Women aged 35-47 years, premenopausal with regular menstrual cycles and intact uterus and at least one ovary; E: Not mentioned; C: Not mentioned; O: Symptoms such as headache, irritability, mood swings, anxiety, and concentration difficulties; S: Population-based cohort in Philadelphia County, Pennsylvania; Exc: Current use of hormonal or psychotropic medications, pregnancy or breastfeeding, serious health problems that compromise ovarian function, alcohol or drug abuse, current diagnosis of mood disorder, observations censored or set to missing for pregnancy, breastfeeding, hormone use, hysterectomy, or cancer treatment.	- Age range at enrollment: 35 to 47 years - Initial menopausal status: Premenopausal - Exclusion criteria: Current use of hormonal or psychotropic medications, pregnancy or breastfeeding, serious health problems affecting ovarian function, alcohol or drug abuse within the past year - Inclusion criteria: No current diagnosis of mood disorder - Mean age at baseline: 42.2 years - Menopausal status at endpoint: 5% premenopausal or late premenopausal, 38% early transition, 22% late transition, 35% postmenopausal
Freeman-2011	P: Women aged 35-47 years, African American and white women; E: Natural progression of menopause and hot flushes; C: Not mentioned; O: Duration of moderate to severe hot flushes; S: 13-year follow-up, approved by the Institutional Review Board of the University of Pennsylvania;	- Age range: 35-47 years - Menopausal status: Premenopausal with regular menstrual cycles - Racial composition: Equal numbers of African American and white women - Health conditions: Excluded if using hormonal therapies,

	Exc: Current use of hormonal contraception, hormonal therapies, psychotropic medications; pregnancy or breast-feeding; serious health problems known to compromise ovarian function; breast or endometrial cancer; alcohol or drug abuse in the past year.	pregnant, breast-feeding, or having certain health conditions like diabetes or cancer - Hot flush experience: Moderate to severe hot flushes
Freeman-2014	P: Women aged 35-48 years, premenopausal at baseline, reached natural menopause during follow-up; E: Not mentioned; C: Not mentioned; O: Depressed mood assessed by CES-D; S: Philadelphia County, PA; Exc: Current use of hormone or psychotropic medication, alcohol or drug abuse, major psychiatric disorder in the past year, pregnancy or breastfeeding, serious health problems known to compromise ovarian function, uncontrolled hypertension	- Age range at baseline: 35-48 years - Mean age at baseline: 42.77 years - Mean age at FMP: 51.10 years - Menopausal status: Premenopausal at baseline, reached natural menopause during follow-up - Health conditions: Generally healthy, exclusion criteria included current use of hormone or psychotropic medications, alcohol or drug abuse, major psychiatric disorders, pregnancy or breastfeeding, and serious health problems - Ethnicity: 47% African American, 53% white
Freeman-2016	P: Women in the Penn Ovarian Aging Study (POAS) cohort; E: Anxiety dimensions; C: Not mentioned; O: Moderate or severe hot flashes; S: 14-year follow-up with annual assessments; Exc: Current use of hormonal or psychotropic medications, alcohol or drug abuse, major psychiatric disorder in the past year, pregnancy or breastfeeding, uncontrolled hypertension, serious health problems compromising ovarian function, and women who had a hysterectomy prior to natural menopause.	- Number of participants: 233 - Age range at enrollment: 35-47 years - Menopausal status at enrollment: Premenopausal - Follow-up period: 14 years - Exclusion criteria: Current use of hormonal or psychotropic medications, alcohol or drug abuse, major psychiatric disorders, pregnancy or breastfeeding, uncontrolled hypertension, serious health problems affecting ovarian function - Ethnicity: Stratified to include equal numbers of African American and white women
Gold-2006	P: Women aged 42-52 years; E: VMS during menopausal transition; C: Not mentioned; O: Frequency and severity of VMS; S: Community-based; Exc: Missing baseline data, hysterectomy, bilateral oophorectomy, menopausal hormone therapy	- Age range: 42 to 52 years - Menopausal status: Premenopausal, early perimenopausal, late perimenopausal, postmenopausal - Racial/ethnic groups: Black or African American, non-Hispanic White, Chinese or Chinese American, Japanese or Japanese American, Hispanic - Health conditions: Intact uterus and at least one ovary, not using exogenous hormones affecting ovarian function, menstrual period in the previous 3 months
Gold-2007	P: Women aged 43 to 54 years; E: Daily urinary hormone patterns (PdG levels); C: Not mentioned; O: VMS reporting;	- Age range: 43 to 54 years - Menopausal status: Premenopausal or early perimenopausal - Health conditions: Intact uterus and at least one ovary - Exclusion criteria: Use of exogenous hormones, pregnancy

	S: SWAN; Exc: No intact uterus or more than one ovary, use of exogenous hormones within 3 months, pregnancy, no menstruation in the prior 3 months	- Racial/ethnic diversity: African American, Hispanic, Chinese, Japanese, Caucasian
Gold-2017	P: Women aged 42-52 years, pre- or early peri-menopausal; E: Concurrent BMI and waist circumference, changes in weight and waist circumference; C: Not mentioned; O: Incidence of VMS (any and frequent VMS); S: Seven-site longitudinal cohort study (SWAN); Exc: Prevalent cancer diagnosis, missing baseline VMS or BMI information, initiation of menopausal hormone therapy, hysterectomy or bilateral oophorectomy, pregnancy or breastfeeding with reported VMS	- Age range: 42-52 years at enrollment - Menopausal status: Pre- or early peri-menopausal - Racial/ethnic groups: Five racial/ethnic groups - Health conditions: Excluded if had prevalent cancer diagnosis, missing information about baseline VMS or BMI, initiated menopausal hormone therapy, had incident cancer, hysterectomy or bilateral oophorectomy, or were pregnant or breastfeeding with reported VMS
Gold-2022	P: Women aged 42-52 years; E: High-sensitivity C-reactive protein (hs-CRP) and interleukin-6 (IL-6); C: Not mentioned; O: Incident VMS; S: Community-based; Exc: Missing data about VMS, cancer diagnosis, missing menopause transition stage due to hormone therapy use, hysterectomy or bilateral oophorectomy	- Age range: 42-52 years - Menopausal status: Menopausal transition stage - Health conditions: Excluded women with cancer diagnoses or missing menopause transition stage data due to hormone therapy use - Racial/ethnic diversity: Included African American, White, Chinese, Japanese, and Hispanic women - Other characteristics: Intact uterus and at least one ovary, not using exogenous hormones within three months prior to recruitment
Gopal-2008	P: Women aged 35-47 with normal menstrual cycles and an intact uterus with at least one ovary; E: Change in estradiol levels over time through the menopausal transition; C: Not mentioned; O: Lower urinary tract symptoms (urinary incontinence, filling symptoms, voiding dysfunction); S: Penn Ovarian Aging Study, a prospective longitudinal cohort study; Exc: Use of current hormonal medications, oral contraceptive pills within the last three months, use of psychotropic medications, history of alcohol or drug abuse, pregnancy or breastfeeding, serious medical problems, major psychiatric disorders, prior incontinence surgery	- Age range at enrollment: 35-47 years - Mean age at study: 50.6 years - Mean parity: 3.2 - Menopausal status: Premenopausal, early transition, late transition, menopause - Exclusion criteria: Current hormonal medications, oral contraceptive pills, psychotropic medications, history of alcohol or drug abuse, pregnancy or breastfeeding, serious medical problems, major psychiatric disorders - Health conditions: No prior incontinence surgery
Gordon-2016	P: Women aged 45-60 in the menopause transition or early postmenopause; E: Estradiol variability; C: Not mentioned; O: Depressive symptoms and emotional responses to psychosocial stressor; S: Community-based;	- Age range: 45-60 years - Menopausal status: Menopause transition or early postmenopause - Health conditions: Medically healthy; excluded if current psychiatric diagnosis, severe substance use, or certain medical

	Exc: Current psychiatric diagnosis of MDD or other severe psychiatric conditions, history of severe substance use, use of certain medications, endometrial hyperplasia, abnormal uterine anatomy, history of thrombophlebitis or thromboembolic disorders, history of estrogen-dependent neoplasias, body mass index > 35.	conditions - Socioeconomic status: Above average - Racial demographics: 73% Caucasian, 23% African American, 4% other - Very stressful life events: 38.5% of participants reported at least one - History of major depressive disorder: 30.8% - Menopausal status at baseline: Most in late menopause transition - Menopausal status at month 14: Majority remained in menopause transition
Gordon-2020	P: Women aged 45-55 years, perimenopausal E: Estrone-3-glucuronide (E1G) levels C: Not mentioned O: Depressive symptoms and major depressive episodes S: Community-based Exc: Current psychiatric diagnosis of major depressive disorder, bipolar disorder, or other severe psychiatric conditions; current use of medications affecting mood or ovarian hormone levels; pregnant or nursing	- Age range: 45-55 years - Menopausal status: Perimenopausal - Health conditions: Excluded if current psychiatric diagnosis of major depressive disorder, bipolar disorder, psychotic disorder, or other severe psychiatric conditions; excluded if using medications affecting mood or ovarian hormone levels; excluded if pregnant or nursing - Demographics: See Table 5 for detailed demographic information

Greendale-2009	P: Women aged 42 to 52 years from the SWAN;
	E: Time spent in different menopause transition stages and hormone use (prior and current);
	C: Different menopause transition stages (premenopausal, early perimenopausal, late perimenopausal, postmenopausal) and hormone use status;
	O: Cognitive performance in processing speed (SDMT), verbal episodic memory (EBMT), and working memory (DSB);
	S: Community-based, multisite, longitudinal study within the SWAN cohort;
	Exc: No current use of estrogens or other medications affecting ovarian function at baseline, no self-reported history of stroke, determinable menopause transition stage, and permanent censoring for those who underwent a hysterectomy without bilateral oophorectomy prior to the final menstrual period.
		- Age range: 42 to 52 years at cohort entry
		- Mean age at start of analysis: 45 years
		- Mean age at follow-up four: 50 years (range 45 to 57)
		- Menopausal status:
		  - Premenopausal: 8%
		  - Early perimenopausal: 49%
		  - Late perimenopausal: 12%
		  - Postmenopausal not taking hormones: 27%
		  - Postmenopausal currently using hormones: 4%
		- Other characteristics: intact uterus and at least one ovary; no current use of estrogens or other medications known to affect ovarian function; self-identification as Caucasian, African American, Hispanic, Chinese, or Japanese

Grummisch-2023	P: Women aged 45-55 years in the menopause transition; E: Within-person changes in estradiol levels (E1G); C: Not mentioned; O: Objective measures of attention, memory, and executive function; subjective measures of cognitive performance; S: Research setting as part of the FEMM study;	- Age range: 45-55 years - Menopausal status: Perimenopausal, defined by STRAW criteria - Exclusion criteria: Psychiatric disorders, certain medications, psychotherapy, pregnancy/nursing, non-English speakers, health conditions affecting cognitive function

	Exc: Psychiatric disorders; medications affecting mood or cognitive function; psychotherapy; pregnancy or nursing; not fluent in English; health conditions affecting cognitive function	- Menopause transition stage: Majority in late transition, six in early transition - Intellectual functioning: Median NART-R FSIQ score of 112.2 - Past major depressive disorder: 35%
Guthrie-2004	P: Australian-born women aged 45-55 years; E: Natural menopausal transition; C: Not mentioned; O: Hormonal changes, quality of life, bone mineral density, body composition, cardiovascular disease risk, memory; S: Melbourne, Australia; Exc: Women too young or too old, not born in Australia, unsure of hysterectomy or bilateral oophorectomy status, using oral contraceptive pill	- Age range: 45-55 years at baseline - Menopausal status: premenopausal, perimenopausal, naturally postmenopausal, surgically menopausal - Health conditions: not taking hormone therapy or oral contraceptive pill; intact uterus and at least one ovary - Sociodemographic characteristics: detailed in tables (education level, marital status, employment status)
Guthrie-2005	P: Women aged 45-55 years, Australian-born, menstruating at baseline; E: Factors associated with hot flushes during menopause transition; C: Not mentioned; O: Presence, severity, and frequency of hot flushes; S: Melbourne, Australia; Exc: Women still premenopausal after 8 years, those on hormone therapy or antidepressants for 4+ years without prior hot flushes, induced menopause	- Age range: 45 to 55 years at baseline, 45 to 64 years over the study period - Menopausal status: Menstruating at baseline, not using hormone therapy - Health conditions: Excluded if still premenopausal after 8 years or if using hormone therapy or antidepressants for extended periods - Demographics: Australian-born, better self-rated health, current employment, more than 12 years of education, exercising at least once a week
Harlow-2017	P: Women aged 42-52 years in the multiethnic SWAN cohort; E: Not mentioned; C: Not mentioned; O: Symptom clustering and association with demographic characteristics and self-reported health status; S: Multiethnic cohort study at seven clinical sites in the United States; Exc: Hysterectomy, bilateral oophorectomy, use of reproductive hormones in the past 3 months, pregnancy or lactation, missing data on more than 10 symptoms	- Age range: 42-52 years old - Menopausal status: Premenopausal, early peri-menopausal, late peri-menopausal, postmenopausal - Health conditions: Excludes women who have used reproductive hormones in the past 3 months, are pregnant, or lactating - Demographics: Multiethnic cohort with 28.3% Black, 47.0% White, 7.6% Chinese, 8.5% Hispanic, and 8.5% Japanese
Hickey-2016	P: Women aged 45 to 50 years; E: Menopause transition; C: Not mentioned; O: Depressive symptoms measured by CESD-10; S: Australian Longitudinal Study on Women's Health; Exc: Oral contraceptive pill use, missing data on depressive symptoms or menopause status, missing data on covariates	- Age range: 45 to 50 years at baseline - Menopausal status: At baseline, 25% premenopausal, 10% postmenopausal; by survey 7, 63% naturally postmenopausal, 23.9% hysterectomy alone, 13.1% hysterectomy plus oophorectomy - Health conditions: History of depression diagnosis or treatment, hot flashes, night sweats

		- Demographics: Australian born, urban/rural residence, marital status, occupation, body mass index, smoking status, physical activity, alcohol consumption
Huang-2024	P: Women aged 35-64 years; E: Not mentioned; C: Not mentioned; O: Prevalence and severity of musculoskeletal symptoms; S: Urban Chinese community; Exc: Estrogen hormone use, hysterectomy/oophorectomy before FMP, pregnancy during observation, missing STRAW 110 stage data, premature ovarian failure or polycystic ovary syndrome	- Age range: 35 to 64 years - Menopausal status: Premenopausal, early menopausal transition, late menopausal transition, early postmenopausal, late postmenopausal - Health conditions: No history of severe systemic diseases, no reproductive endocrinologic disorders, no use of hormone medications in the previous 3 months, not pregnant or lactated in the previous 6 months - Average age at baseline: 48.4 years - Average BMI: 25.0 ± 3.29 kg/m²
HydeRiley-2004	P: Female members aged 40 to 65, specifically perimenopausal and postmenopausal women; E: Modifiable health behaviors such as smoking, body mass index, and alcohol use; C: Not mentioned; O: Self-reported measure of hot flashes; S: Mixed-model health maintenance organization serving approximately 800,000 Massachusetts residents; Exc: Women with chronic conditions precluding study participation, breast, ovarian, or endometrial cancer, bilateral oophorectomy, missing data for menopausal status or hot flashes, women younger than 55 with a history of a hysterectomy	- Age range: 40 to 65 years - Menopausal status: Perimenopausal and postmenopausal - Demographics: Majority white, college-educated, nonsmoking - Exclusion criteria: Women with breast, ovarian, or endometrial cancer; bilateral oophorectomy; missing data on menopausal status or hot flashes; women younger than 55 with a history of a hysterectomy
Jacobs-2017	P: Midlife men and women aged 46-53 years; E: Sex and menopausal status; C: Men and women across different reproductive stages; O: Task-evoked responses in dorsolateral prefrontal cortex and hippocampus, functional connectivity within working memory circuitry; S: Brigham and Women's Hospital Outpatient Clinical Research Center; Exc: History of neurologic disease, CNS damage, endocrine disorders, heart disease, alcohol-related diseases, psychosis, current use of hormonal contraceptives, MRI contraindications, women using hormone replacement therapy.	- Age range: 46-53 years - Menopausal status: Premenopause (n=26), Perimenopause (n=25), Postmenopause (n=20) - Health conditions: Excluded were those with neurologic disease, CNS damage, endocrine disorders, heart disease, alcohol-related diseases, psychosis, and other significant medical illnesses - Ethnicity: 93% Caucasian, 7% African American - Education: Average of 2 years of college - Verbal IQ: Average >115 - Handedness: 91% right-handed, 9% left-handed
Jang-2025	P: Women aged 42-52 years in the pre-menopause stage at baseline; E: Menopausal stage transitions over time;	- Age range: 42-52 years - Menopausal status: Pre-menopause at baseline

	C: Not mentioned; O: Changes in sleep quality and its components as measured by the PSQI; S: Kangbuk Samsung Health Study, Kangbuk Samsung Hospital Total Healthcare Centers in Seoul and Suwon, South Korea; Exc: History of hysterectomy, oophorectomy, or hormone replacement therapy; amenorrhea lasting >60 days; history of chronic diseases such as kidney failure, malignancy, hypothyroidism, or hyperthyroidism; withdrawal from the study; not being in the pre-menopausal stage at baseline; missing data on PSQI, BMI, or percentage body fat.	- Exclusion criteria: History of hysterectomy, oophorectomy, hormone replacement therapy, amenorrhea lasting >60 days, chronic diseases (kidney failure, malignancy, hypothyroidism, hyperthyroidism) - Average age at baseline: 44.5 years - Median follow-up duration: 5.9 years - Participants from the Kangbuk Samsung Health Study - Baseline characteristics include age at menarche, smoking status, alcohol consumption, parity, marital status, education, BMI, and physical activity level
Jones-2018	P: Women aged 40-50 years; E: Not mentioned; C: Late premenopausal vs. early perimenopausal women; O: Sleep quality and duration; S: Community-based, University of California San Francisco (UCSF) Midlife Women's Health Study; Exc: Undergoing hormone therapy, major health problems (cancer, stroke, diabetes), recent hospitalization or surgery, hysterectomy, pregnancy, hormone initiation, absence of menses for 12 months	- Age range: 40 to 50 years - Menopausal status: Late premenopausal and early perimenopausal - Geographic location: San Francisco Bay area - Ethnicity: White, African American, Latina - Health conditions: Excluded if undergoing hormone therapy or having major health issues like cancer, stroke, diabetes - Other characteristics: Regular menstrual periods, not planning pregnancy
Kalleinen-2021	P: Women aged 46 years at baseline; E: Change in S-FSH levels and aging; C: Not mentioned; O: Changes in sleep architecture and S-FSH levels; S: Part of the "Woman 46" study, approved by the Ethics Committee of the Hospital District of Southwest Finland; Exc: Coronary heart disease, respiratory insufficiency, sleep apnea, neurological disease, liver disease, malignancies, alcohol abuse, use of menopausal hormone therapy (MHT)	- Age: Mean age 46 years at baseline - Menopausal status: Premenopausal at baseline, postmenopausal at 10-year follow-up - Health conditions: Excluded if had coronary heart disease, respiratory insufficiency, sleep apnea, neurological disease, liver disease, malignancies, or alcohol abuse - Medication: Excluded if using menopausal hormone therapy (MHT)
Katainen-2018	P: Hysterectomized peri or postmenopausal women; E: Natural progression of climacteric-related symptoms and use of hormone therapy; C: Not mentioned; O: Changes in climacteric-related symptoms; S: Clinical setting; Exc: Women with malignancy, severe neurological, cardiovascular, endocrinological, or mental diseases; use of central nervous system medications; alcohol or drug abuse	The study included 65 peri or postmenopausal women who had undergone hysterectomy for benign reasons. Participants were not using systemic hormone therapy at the time of inclusion and were required to have a serum follicle-stimulating hormone level of at least 30 IU/L. Women with serious health conditions or those using certain medications were excluded. The mean age and other demographic details are provided in the tables.

King_2022	P: Women living with HIV aged 40 years or older; E: Not mentioned; C: Not mentioned; O: Midlife experiences assessed as a composite measure and by each respective symptom; S: Community-based in British Columbia, Ontario, and Quebec; Exc: Prior hysterectomy (without oopherectomy), prior bilateral oophorectomy, current pregnancy, current breastfeeding, or hormonal contraception that alters menstrual patterns	- Age: 40 years or older - Sex: Assigned female at birth - Health condition: Living with HIV - Menopausal status: Peri- and menopausal - Geographic location: Three Canadian provinces (British Columbia, Ontario, Quebec) - Sampling strategy: Purposive sampling to include diverse populations
Kok-2006	P: Women aged 53 years born in March 1946; E: Menopause status and menopause age; C: Not mentioned; O: Cognitive function tests (NART, verbal memory, search speed and concentration); S: Home visits; Exc: Women who did not complete all tests, lost to follow-up, previously refused participation, untraced, or deceased	- Age: 53 years - Menopausal status: Premenopause, perimenopause, postmenopause, hysterectomy with/without hormone therapy - Health conditions: Cardiovascular disease, respiratory symptoms - Lifestyle factors: Smoking status, body mass index - Educational attainment: Varied levels of education - Childhood cognitive ability: Assessed at age 8
Kravitz-2022	P: Midlife women aged around 45.8 years; E: Menopausal transition; C: Not mentioned; O: High depressive symptoms (CES-D ≥16); S: Community-based; Exc: Missing all follow-up CES-D scores, data during pregnancy/breastfeeding, undetermined FMP due to loss to follow-up, hormone therapy use, hysterectomy/bilateral salpingo-oophorectomy, or missed visits.	- Age range: 42-52 years - Menopausal status: Premenopausal or early perimenopausal - Health conditions: Intact uterus and at least one ovary, not pregnant/lactating or using sex steroid hormones - Follow-up period: Average of 17.5 years - Baseline menopausal status: 57.1% premenopausal, 42.9% early perimenopausal - Racial/ethnic distribution: Almost 50% White - Baseline health: Generally better physical and mental health
Kumari-2005	P: Women aged 39-64 years; E: Menopausal symptoms (vasomotor and depression); C: Not mentioned (comparator inferred as women without symptoms); O: Changes in health functioning (SF-36); S: Whitehall II study (British civil servants); Exc: Hysterectomy	- Age range: 39-64 years - Menopausal status: premenopausal, perimenopausal, postmenopausal - Employment grade: administrative, professional/executive, clerical/support - Health conditions: self-rated health, long-standing illnesses - BMI: measured at phase 3 - Smoking status: never smokers, ex-smokers, current smokers
Lampio-2017	P: Women aged 46.0 years (SD 0.9) at baseline, transitioning through menopause; E: Menopausal transition; C: Baseline measurements; O: Changes in sleep stages and continuity (TST, SE, transitions from SWS to	- Age: Mean age 46.0 years at baseline - Menopausal status: All premenopausal at baseline; transitioned into different stages of menopause at follow-up - Health conditions: Excluded if had coronary heart disease,

	wake, WASO, awakenings/hour, ARI); S: Sleep laboratory with PSG recordings; Exc: Coronary heart disease, respiratory insufficiency, sleep apnea, neurological disease, liver disease, malignancies, alcohol abuse, technically insufficient sleep data, missing S-FSH values, hormone replacement therapy	respiratory insufficiency, sleep apnea, neurological disease, liver disease, malignancies, or alcohol abuse - Medication: Some used CNS-affecting medications at baseline and follow-up - Ethical considerations: Approved by Ethics Committee; informed consent obtained
Lee-2023	P: Women aged 45-64 years; E: Symptomatic menopausal transition; C: Women without symptomatic menopausal transition; O: First-time diagnosis of depression, anxiety, and sleep disorder; S: Five electronic health record databases in South Korea; Exc: History of gynaecological diseases, artificial menopause, psychiatric disorders before perimenopause, oestrogen exposure for those without symptomatic menopausal transition	- Age range: 45-64 years - Menopausal status: With and without symptomatic menopausal transition - Exclusion criteria: - History of gynaecological diseases (ovarian, endometrial, cervical, and breast cancer) - Artificial menopause (hysterectomy, radiotherapy, and chemotherapy) - History of psychiatric disorders (depressive disorder, anxiety disorder, and sleep disorder) before perimenopause - History of oestrogen exposure for those without symptomatic menopausal transition
Li-2020	P: Midlife women in an urban Chinese community; E: Not mentioned; C: Not mentioned; O: Prevalence, duration, and severity of VMS during menopause; S: Community-based in the TieEr community, Xicheng District, Beijing, China; Exc: Using estrogen or progestogen hormone replacement therapy around menopause period; undergoing hysterectomy and/or oophorectomy; use of any exogenous hormones 12 months before FMP; pregnancy during observation; missing baseline values.	- Age range: 37-53 years - Menopausal status: Premenopause, early menopausal transition, late menopausal transition - Health conditions: General good health, no severe systemic diseases or reproductive endocrinologic disorders - Smoking and drinking status: Non-smoking and non-drinking - Self-reported health: Moderate health level
Luo-2020	P: Women aged 37-64 years; E: Menopausal transition; C: Premenopausal stage; O: Prevalence of insomnia symptoms (trouble falling asleep, early morning awakenings); S: Urban Chinese community, PALM study; Exc: Use of estrogen hormone during the study, hysterectomy and/or oophorectomy before FMP, pregnancy during observation period	- Age range: 37-64 years - Menopausal status: Premenopausal (20.74%), Menopausal transition (17.03%), Postmenopausal (62.23%) - Health conditions: Generally healthy, intact uterus and at least one ovary, no severe systemic diseases or premenopausal endocrinologic disorders - Exclusion criteria: Use of estrogen hormone during the study, undergoing hysterectomy and/or oophorectomy before FMP, pregnancy during the observation period
Maki-2021	P: Women aged 35-70 years; E: Menopausal transition;	- Age range: Median age 42 years (IQR 38-46) - Menopausal status: Classified into premenopausal, early

	C: Not mentioned; O: Cognitive performance changes; S: Women's Interagency HIV Study (WIHS); Exc: Did not complete at least one neuropsychological assessment while premenopausal or did not have at least one assessment in the peri- or postmenopausal stages.	perimenopausal, late perimenopausal, and postmenopausal stages - Health conditions: Women with HIV (WWH) and sociodemographically similar women without HIV - Racial demographics: 69% African American, 18% Hispanic - Education: Median years of education 12 - Income: 45% had annual household incomes less than $12,000 - HIV status: 64% of WWH on cART, 55% with undetectable viral loads
Maleki-2019	P: Women aged 42-52 years with an intact uterus and at least one ovary, not using oral contraceptives or hormone therapy; E: Self-reported prior migraine diagnosis; C: Women without prior migraine diagnosis; O: Frequency of VMS (hot flashes and night sweats) during menopausal transition; S: Study of Women's Health Across the Nation; Exc: Missing values for hot flashes, night sweats, or vaginal dryness; only one visit with nonmissing values; data after surgical menopause	- Age range: 42 to 52 years - Menopausal status: Women in menopausal transition - Health conditions: Women with and without a history of migraine - Ethnicity: African American, Caucasian, Chinese, Hispanic, Japanese - Inclusion criteria: Intact uterus and at least one ovary, not using oral contraceptives or hormone therapy
Marsh-2015	P: Women aged 40-60 years with bipolar disorder; E: Menopausal transition; C: Not mentioned; O: MADRS and YMRS scores; S: Community and academic psychiatry clinic; Exc: Women on oral contraceptives; active illicit substance abuse	- Age range: 40-60 years - Menopausal status: Experiencing menopausal symptoms or up to 5 years since final menstrual period - Health condition: Diagnosed with bipolar disorder (I, II, NOS) based on DSM IV criteria - Current psychiatric provider required - Menopausal stages: Early transition (late reproductive or early perimenopause) and late/early post-transition (late perimenopause or early postmenopause)
Marsh-2017	P: Women aged 42 to 52 years; E: Duration of estrogen exposure from menarche to menopausal transition onset; C: Not mentioned; O: Incidence of high depressive symptoms (CES-D); S: Longitudinal, multiethnic, multisite, community-based; Exc: Already in early menopause at baseline, hormone therapy use, hysterectomy and/or bilateral oophorectomy, missed visits before first MT/postmenopausal visit without HT use, atypically older age at first MT visit, no MT/postmenopausal visits.	- Age range: 42 to 52 years at study entry - Menopausal status: Premenopausal at baseline, transitioning through menopause - Health conditions: Excluded if pregnant, lactating, or using exogenous hormone therapy - Ethnicity: Multiethnic study with African American, White, Chinese, Hispanic, and Japanese participants - Education: Varied levels of education - Employment: Varied employment status - Smoking status: Current vs not smoking - Marital status: Varied marital status

Matthews-1994	P: Women aged 42 to 50 years; E: Transition from premenopause to perimenopause and postmenopause; C: Premenopausal controls; O: Changes in cardiovascular risk factors and psychological and physical symptoms; S: Community-based in Allegheny County, Pennsylvania; Exc: Surgical menopause, hormone replacement therapy, certain medications influencing biological risk factors	- Age range: 42 to 50 years - Menopausal status: Premenopausal at study entry - Health conditions: Healthy, no surgical menopause, diastolic blood pressure < 100 mm Hg, not on medications influencing biological risk factors - Education: Similar level of education, with 31.6% and 26.6% having a high school degree or less and the remainder having at least some college
Matthews-2021	P: Women aged 40-55 who were initially pre-or early perimenopausal; E: Change in menopausal status to late perimenopause or postmenopause; C: Women who remained pre-or early perimenopausal; O: Increase in beta NREM EEG power; S: In-home ambulatory polysomnography; Exc: Hysterectomy, bilateral oophorectomy, hormone therapy, ongoing cancer treatment, current oral corticosteroid use, >4 alcoholic drinks/day, noncompliance with core SWAN procedures, regular night shift work	- Age: Around 51 years at the first assessment - Menopausal status: Initially pre-or early perimenopausal - Health conditions: Few health problems, moderate depressive symptoms, overweight - Exclusion criteria: Hysterectomy or bilateral oophorectomy, hormone therapy use, ongoing cancer treatment, excessive alcohol consumption, night shift work - Racial distribution: Majority white, followed by Black and Chinese
Matthews-2022	P: Women aged 42-52 years; E: Natural menopausal transition; C: Not mentioned; O: Patterns of FSH, VMS, and sleep maintenance problems; S: Multi-site observational study; Exc: Pregnant or breastfeeding, on hormone therapy, no menstrual period in the last 3 months, hysterectomy or bilateral oophorectomy	- Age range: 42 to 52 years - Menopausal status: Premenopausal at recruitment - Health conditions: Not pregnant or breastfeeding, not on hormone therapy - Racial/ethnic groups: White, Black, Chinese, Hispanic, Japanese - Follow-up duration: Approximately 18 years - Inclusion criteria for analytic sample: At least two measures of FSH, VMS, and sleep complaints; no hormone therapy use
Maxwell-2023	P: Females aged 18 years or older; E: Menopausal status (natural vs. surgical); C: Pre-M, Peri-M, Nat Post-M, Surg Post-M; O: Sleep quality (PSQI, ESS), health-related quality of life; S: Fels Longitudinal Study; Exc: Not mentioned	- Age: 18 years or older - Menopausal status: Premenopausal, perimenopausal, postmenopausal (natural and surgical) - Health conditions: Thyroid disease, cancer history, cardiovascular diseases - Education level: High school or higher - Marital status: Varied
Mirer-2017	P: Women aged 38-62 years; E: Progression through menopause; C: Premenopausal stage; O: Apnea-hypopnea index (AHI); S: Home-based polysomnography studies;	- Age range: 38-62 years - Menopausal status: Determined through daily diaries and hormonal medication use - Health condition: Sleep-disordered breathing

	Exc: Observations with missing covariate data; prioritization of women in perimenopause	- Racial/ethnic composition: Predominantly non-diverse, with only seven women of color
Mishra-2012	P: Women aged 47-54 years who experienced natural menopause; E: Not mentioned; C: Not mentioned; O: Symptom profiles and their relation to menopausal transition; S: Longitudinal cohort study in England, Scotland, and Wales; Exc: Hysterectomy or hormone treatment	- Age range: 47 to 54 years - Menopausal status: Natural menopause - Health conditions: Excluded those who had undergone hysterectomy or received hormone treatment - Geographic location: England, Scotland, and Wales
Mitchell-2010	P: Mid-life women in late reproductive, early or late menopausal transition stages, or early postmenopause; E: Menopausal transition-related factors (E1G, FSH, testosterone), stress-related factors, symptoms, health-related factors, social factors; C: Not mentioned; O: Levels of back pain and joint pain; S: Seattle Midlife Women's Health Study (SMWHS); Exc: Data during hormone use	- Age: Mean age of 41.4 years (SD 4.3 years) - Menopausal status: Late reproductive, early or late menopausal transition stages, or early postmenopause - Education: Mean of 15.9 years (SD 2.8 years) - Family income: Median of $38,800 (SD $15,000) - Employment: 87% currently employed - Marital status: 71% married or partnered, 22% divorced or separated, 7% never married - Ethnicity: 82% Caucasian, 7% African-American, 9% Asian-American - Exclusion criteria: Data from periods of hormone use were excluded
Mitchell-2015	P: Women aged 35-55 years; E: Hot flash severity during menopausal transition and early postmenopause; C: Not mentioned; O: Hot flash severity; S: Seattle Midlife Women's Health Study (SMWHS); Exc: Did not keep a daily diary, hormone use, inadequate calendar data, hysterectomy, chemotherapy, radiation therapy	- Age: Mean age of 41.5 years - Menopausal status: Late reproductive, early or late MT stages, or within 5 years from FMP - Education: Mean 15.9 years - Family income: Median $38,200 - Employment: 87% currently employed - Marital status: 71% married or partnered, 22% divorced or separated or widowed, 7% never married or partnered - Ethnicity: 7% African American, 9% Asian American, 82% Caucasian - Exclusion criteria: Data from periods of hormone use were excluded
Mitchell-2017	P: Women aged 35-55 in menopausal transition stages; E: Menopausal transition stages and related factors; C: Not mentioned; O: Depressed mood severity; S: Community-based;	- Age range: 35-55 years - Menopausal status: Late reproductive, early MT, late MT, early postmenopause - Health conditions: Not pregnant or lactating, at least one ovary, period within the previous 12 months - Demographics: Mean age 41.5 years, 15.9 years of education,

	Exc: Did not keep a daily diary, hormone use, inadequate calendar data, hysterectomy, chemotherapy, radiation therapy	median family income $38,200, 87% employed, 71% married/partnered, racial/ethnic identity: African American (7%), Asian American (9%), White (82%)
Mulhall-2018	P: Women aged 50.6 ± 1.5 years; E: Menopausal status; C: Premenopausal controls; O: Symptoms of depression and anxiety; S: Longitudinal study within the PATH Through Life Project; Exc: Not premenopausal at wave 1, indeterminable menopause cause, incomplete data, hysterectomy, oophorectomy, hormone therapy, hormonal contraceptives	- Age: Mean age 50.6 years - Menopausal status: Premenopausal, perimenopausal, postmenopausal - Health conditions: Excluded those with hysterectomy, oophorectomy, current hormone therapy, or hormonal contraceptive use - Demographics: Predominantly Caucasian
Ozasa-2022	P: Women with BMS and healthy controls; E: Presence of BMS; C: Age- and sex-matched healthy volunteers; O: QST results and severity of burning mouth sensation; S: Tertiary outpatient pain clinic of Nihon University Dental Hospital in Tokyo; Exc: Intraoral burning sensation for only 1 month, candida albicans growth, nonburning dysesthetic sensation, unknown menopause status	- Participants: 36 female participants with BMS and 42 age- and sex-matched healthy volunteers. - Age ranges: - Premenopausal BMS: 40.1 ± 6.0 years - Early postmenopausal BMS: 53.2 ± 2.7 years - Late postmenopausal BMS: 70.1 ± 5.0 years - Premenopausal control: 45.2 ± 2.4 years - Early postmenopausal control: 55.6 ± 2.8 years - Late postmenopausal control: 64.9 ± 10.8 years - Exclusion criteria: intraoral burning sensation for less than a month, candida albicans growth, nonburning dysesthetic sensation, unknown menopause status. - Additional demographic information: systemic diseases and medications as detailed in the tables.
Randolph-2005	P: Women aged 42-52 years, menstruating, with an intact uterus and at least one ovary; E: Longitudinal serum concentrations of E2, FSH, T, DHEAS, SHBG, FEI, and FTI; C: Not mentioned; O: Prevalence and frequency of VMS; S: Community-based, multisite study across seven clinical sites in the US; Exc: Hysterectomy, pregnancy, cancer, and use of hormone therapy during the study.	- Age range: 42-52 years - Menopausal status: Premenopausal or early perimenopausal at baseline; shifted to include postmenopausal and late perimenopausal by follow-up 4 - Ethnic groups: Caucasian, African-American, Japanese, Chinese, Hispanic - Health conditions: Excluded if had hysterectomy, pregnancy, or cancer; not using exogenous hormones at baseline
Rössler-2016	P: Women aged 21-50 from a Swiss community cohort; E: Menopausal transition; C: Not mentioned (comparator is implicit within the cohort); O: Occurrence of hot flushes/night sweats, sleep disturbances, irritability/nervousness, prevalence rates of major depressive episode and anxiety	- Age range: 21 to 50 years - Menopausal status: Pre-menopausal, peri-menopausal, post-menopausal - Health conditions: Major depressive episodes, anxiety disorders

	disorders; S: Community-based; Exc: Premature menopause	
Samargandy-2022	P: Women aged 42 to 52 years; E: Menopause transition; C: Not mentioned; O: Trajectories of SBP, DBP, PP, MAP; S: SWAN (Study of Women's Health Across the Nation); Exc: No intact uterus or ovary, pregnant or breastfeeding, hormone therapy in past 3 months	- Age range: 42 to 52 years at baseline - Menopausal status: Pre- or perimenopausal at baseline - Racial and ethnic groups: White, Black, Chinese/Chinese American, Hispanic, Japanese/Japanese American - Health conditions: Not pregnant or breastfeeding; no hormone therapy in the past 3 months - Follow-up period: Up to 17 visits - Average age at FMP: 52.15 years - Presence of VMS: 39.2% - Estradiol and FSH levels: Documented
Schmidt-2004	P: Asymptomatic women aged 40-50 years; E: Perimenopausal transition; C: Not mentioned; O: Onset of depression; S: Clinic-based; Exc: Evidence of PMS symptoms, abnormal physical or laboratory findings, current axis I psychiatric illness within the past 2 years, significant medical illnesses or use of psychotropic medications.	- Age range: 40 to 50 years at the start of the study - Menopausal status: Asymptomatic premenopausal women transitioning to postmenopause - Health conditions: Excluded current axis I psychiatric illnesses; some had past histories of depression - Geographic location: Washington, D.C., suburban area - Socioeconomic status: Middle-class - Ethnicity: Predominantly Caucasian - Medications: No psychotropic medications during the study; some used vitamin or mineral supplements
Schnall-2019	P: Women living with HIV (WLWH), black non-Hispanic or Latina, aged 18 years or older, taking antiretroviral therapy (ART); E: Different menopause stages (premenopause, perimenopause, postmenopause); C: Not mentioned; O: Symptom frequency and attribution (HIV-related and reproductive health symptoms); S: Community-based organizations and a university-affiliated outpatient clinic in New York City; Exc: Hormonal birth control or hormone therapy within the last 3 months, pregnant or breastfeeding within the last 3 months, history of hysterectomy, not self-identifying as cis-gender	- Age range: 24 to 67 years - Menopausal status: 10 premenopausal, 20 perimenopausal, 43 postmenopausal - Ethnicity: Majority black non-Hispanic (74%) - Smoking status: 38% occasional or regular smokers, 62% nonsmokers - Education: Some high school education (68%) - Income: Less than $20,000 annual income - HIV status: HIV-positive, taking antiretroviral therapy - Substance use: Significant difference in marijuana use across menopause groups - Viral load: Detectable in only one participant (1.4%)
Shardell-2021	P: Women aged 35-60 years; E: Vaginal microbiota; C: Different CSTs of vaginal microbiota; O: GSM endpoints (vaginal atrophy, vaginal dryness, urinary	- Age range: 35-60 years - Menopausal status: Postmenopausal, perimenopausal, premenopausal

	incontinence, low libido); S: Clinical setting in Baltimore, Maryland; Exc: History of HIV infection or organ transplantation	- Eligibility criteria: English speakers, intact uterus, no HIV infection or organ transplantation, informed consent - Demographics: Majority White (75.5%), college graduates (62.7%), few smokers (9.9%)
Sowers-2007	P: Women aged 40-55; E: Menopausal status (natural and surgical); C: Pre-and perimenopausal women; O: Physical functioning measures; S: Population-based; Exc: Unverified surgeries	- Age range: Midlife women, mean age 44.8 years - Menopausal status: Pre-, peri-, and postmenopausal women - Health conditions: Varied health status, with most considering their health excellent to very good - Ethnicity: Caucasian women - BMI: Average BMI around 28.2 kg/m² - Smoking status: 17% reported smoking
Strauss-2011	P: Women aged 39.9 years at Time 1, non-institutional, n = 986 E: Depressive symptoms and menopausal symptoms C: Not mentioned O: Menopausal symptoms and symptoms of depression S: National Survey of Midlife Development in the United States (MIDUS) Exc: Institutionalized women, incomplete data on measures	- Age range: Mean age = 39.9 years at Time 1; Median age = 39 at Wave I, 48 at Wave II - Menopausal status: Most not post-menopausal at Wave I; Approximately two-thirds post-menopausal at Wave II - Education: Median education = 1-2 years of college at Wave I, 3 years at Wave II - Financial status: Most had enough or more than enough money to meet their needs - Health conditions: Not specifically mentioned
Tang-2019	P: Women aged 35-64 years who had transitioned through natural menopause; E: Symptoms of anxiety and depression during menopause; C: Not mentioned; O: Symptoms of anxiety and depression measured using HADS; S: Community-based in Beijing, China; Exc: History of severe systemic diseases, reproductive endocrinologic disorders, use of hormone medications in the previous 3 months, pregnancy or lactation in the previous 6 months, hysterectomy after enrollment, and use of hormone therapy during the study.	- Age range: 35-64 years - Menopausal status: Premenopausal (16.3%), menopausal transition (28.1%), postmenopausal (55.6%) - Mean age: 52.47 years - Mean menopausal age: 50.4 years - Health conditions: No severe systemic diseases, no reproductive endocrinologic disorders - Demographics: Lower education level in postmenopausal women, more likely to be widowed, poorer health status
Tang-2020	P: Midlife Chinese women who had experienced natural menopause; E: Presence of VMS and their bother scores; C: Not mentioned; O: Associations between VMS bother scores and symptoms of anxiety and depression; S: Community-based in the TieEr community, Xicheng District, Beijing, China; Exc: Women who had not attained menopause, those who had a hysterectomy after enrollment, those who did not complete HADS and VMS assessments more than twice, and observations during hormone use.	The study included 430 midlife Chinese women aged 35 to 64 years who had experienced natural menopause. Key inclusion criteria were having an intact uterus and at least one ovary, no history of severe systemic diseases or reproductive endocrinologic disorders, no use of exogenous reproductive hormones in the previous 3 months, and not being pregnant or lactating in the previous 6 months. Participants were part of a community-based longitudinal study in Beijing, China.

Taylor-Swanson-2018	P: Women aged 35-55; E: Dynamics of stress and fatigue during menopausal transition; C: Not mentioned; O: Dynamics of stress and fatigue, impact on resilience; S: Longitudinal study; Exc: Prior hysterectomy, chemotherapy, radiation therapy	- Age range: 35-55 years - Menopausal status: Late reproductive, early menopausal transition, late menopausal transition, early post-menopausal - Health conditions: Excluded those with prior hysterectomy, chemotherapy, or radiation therapy - Demographics: Mean age 35 years, mean education 16 years, median family income $22,660, 93% employed, 73% married/partnered, 91% White
Tepper-2016	P: Women from five racial/ethnic groups transitioning through menopause with non-surgical menopause; E: Trajectories of VMS; C: Not mentioned; O: Four distinct trajectories of VMS; S: Multi-site longitudinal community-based study; Exc: Women with surgical menopause, those using hormone therapy during the menopausal transition	- Age range at enrollment: 42-52 years - Menopausal status: Non-surgical menopause - Racial/ethnic groups: White, Black, Japanese, Chinese, Hispanic - BMI categories: Normal weight, Overweight, Obese - Smoking status: Never, Past, Current - Educational attainment: ≥College, <College - Health conditions: Not using medications known to affect ovarian function, not pregnant or lactating
Than-2023	P: Women aged 40-60 years from the UK Biobank study; E: Menopausal transition (premenopause, perimenopause, postmenopause); C: Premenopausal, perimenopausal, and postmenopausal groups; O: Cognitive functions (reaction time, verbal-numeric reasoning, prospective memory, visual memory, attention/working memory); S: UK Biobank study; Exc: History of bilateral oophorectomy or breast cancer	- Age range: 40 to 60 years at the first visit - Menopausal status: Premenopausal, perimenopausal, postmenopausal - Exclusion criteria: History of bilateral oophorectomy or breast cancer - Health conditions: Higher prevalence of hypertension, hyperlipidemia, ischemic heart disease, and stroke in postmenopausal women - MHT use: More prevalent in postmenopausal women - Apolipoprotein E ε4 allele: Similar proportions across groups
Thurston-2013	P: Women aged 42-52 years E: Adipokine profile (adiponectin, HMW adiponectin, leptin, soluble leptin receptor, MCP-1) C: Not mentioned O: VMS (hot flashes, night sweats) S: Community-based Exc: No uterus or ovary, pregnant or lactating, using oral contraceptives or hormone therapy, no menstruation in preceding 3 months, surgically menopausal or unknown menopause status	- Age range: 42-52 years - Menopausal status: Premenopausal and early perimenopausal - Health conditions: Not pregnant or lactating, not using oral contraceptives or hormone therapy - Racial/ethnic demographics: African American (60.23%), White (39.77%) - Average age: 46 years - Average BMI: 32.06 (indicating obesity)
Tirkkonen-2021	P: Women aged 47-55 years, categorized as early or late perimenopausal; E: Transition from perimenopause to postmenopause, cognitive and walking	- Age range: 47 to 55 years - Menopausal status: Early or late perimenopausal

	performance assessments; C: Not mentioned; O: Changes in cognitive functions and walking performance; S: Clinical setting; Exc: Estrogen-containing medications, bilateral oophorectomy, pregnancy, lactation, polycystic ovary syndrome, severe obesity, musculoskeletal disorders, started hormone therapy during follow-up, unclear menopausal status	- Health conditions: Relatively good health, no estrogen-containing medications, no bilateral oophorectomy, no pregnancy, no lactation, no polycystic ovary syndrome, no severe obesity, no musculoskeletal disorders - FSH levels: Early perimenopausal (17-25 IU/L), Late perimenopausal (25-30 IU/L) - Menstrual cycle: Irregular for early perimenopausal, occasional menstrual bleeding for late perimenopausal - Exclusion criteria: Started hormone therapy during follow-up, unclear menopausal status, did not participate in follow-up cognitive function measurements
Waetjen-2008	P: Women aged 42-52 years who reported monthly or more incontinence; E: Not mentioned; C: Not mentioned; O: Changes in urinary incontinence symptoms over 6 years; S: Multi-center, multi-ethnic, prospective study at seven clinical sites in the United States; Exc: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period in greater than 3 months or hysterectomy and/or bilateral oophorectomy prior to enrollment; current use of oral contraceptives, estrogens, progestins, or luteinizing hormone agonists.	- Age range: 42-52 years - Menopausal status: Pre-menopausal, early peri-menopausal, late peri-menopausal, post-menopausal - Health conditions: Urinary incontinence, fibroids, anxiety symptoms - Ethnicity: Multi-ethnic, including Caucasian, African American, Chinese, Japanese, Hispanic - Education: High school or less, college or higher - Marital status: Single, married, separated/divorced/widowed
Waetjen-2009	P: Women aged 42-52 years from specific racial/ethnic groups; E: Menopausal transition stages; C: Not mentioned; O: Development of urinary incontinence; S: Seven clinical sites across the United States; Exc: Inability to speak certain languages, no menstrual period in the past three months, hysterectomy and/or bilateral oophorectomy, current pregnancy, lactation, or hormone use.	- Age range: 42-52 years - Racial/ethnic groups: African American, Hispanic, Chinese, Japanese, Caucasian - Exclusion criteria: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period in greater than 3 months before enrollment; hysterectomy and/or bilateral oophorectomy prior to enrollment; current pregnancy, lactation, or hormone use - Menopausal status: Classified based on menstrual bleeding patterns into premenopause, early peri-menopause, late peri-menopause, and postmenopause - Baseline condition: Continent at baseline (no urinary incontinence)
Waetjen-2011	P: Women aged 42-52 years transitioning through menopause; E: Annually measured serum endogenous estradiol levels; C: Not mentioned; O: Development or worsening of stress and urge incontinence symptoms; S: Community-based;	- Age range: 42-52 years - Menopausal status: Transitioning through menopause - Racial/ethnic groups: Five racial/ethnic groups - Exclusion criteria: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period in greater than 3

	Exc: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period in greater than 3 months before enrollment; having had a hysterectomy and/or bilateral oophorectomy prior to enrollment; current pregnancy or hormones use; starting systemic hormones during the study.	months before enrollment; having had a hysterectomy and/or bilateral oophorectomy prior to enrollment; current pregnancy or hormones use - Follow-up period: Eight annual follow-up visits
Waetjen-2018	P: Women aged 42-52 years; E: Menopausal transition; C: Not mentioned; O: Development of vaginal dryness, pain during intercourse, changes in sexual intercourse frequency; S: Community-dwelling; Exc: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period within three months before enrollment; prior hysterectomy or bilateral oophorectomy; use of reproductive hormone therapy at enrollment; pregnancy or lactation; missing data on vaginal dryness at baseline; use of antineoplastic medication	- Age range: 42-52 years - Menopausal status: Premenopausal, early perimenopausal, late perimenopausal, postmenopausal - Race/ethnicity: African-American, Hispanic, Japanese, Chinese, white - Exclusion criteria: Inability to speak English, Spanish, Japanese, or Cantonese; no menstrual period within three months before enrollment; previous hysterectomy or bilateral oophorectomy; use of reproductive hormone therapy at enrollment; pregnant or lactating
Weber-2021	P: Women aged 40-60 years; E: Hormonal changes and menopausal symptoms during perimenopause; C: Not mentioned; O: Cognitive profiles and their association with hormonal variability and menopausal symptoms; S: University of Rochester Medical Center (URMC) and affiliated clinics; Exc: History of neurological disease; history of psychiatric illness; surgical menopause; use of exogenous hormone preparations in the prior 3 months.	- Age range: 40-60 years - Menopausal status: Perimenopause - Health conditions: No history of neurological disease, psychiatric illness, surgical menopause, or recent use of exogenous hormone preparations - Demographics: Mean age 49.4 years, 92% White, all with at least 12 years of education
Woods-2002	P: Midlife women from the Seattle Midlife Women's Health Study, mean age 46.7 years; E: Menopausal transition stages (early, middle, late), hormone users, postmenopause; C: Comparisons between menopausal stages and between women with and without hormone therapy; O: Patterns of depressed mood as measured by the CESD scale; S: Longitudinal cohort study; Exc: Initially excluded women using hormone therapy, later included in some analyses.	- Age: Mean age of 46.7 years in 1997 - Menopausal Status: Divided into early, middle, late transition, postmenopause, and hormone users - Education: Mean of 15.9 years of education - Family Income: Median family income of US$42,000 - Employment: 88% currently employed - Marital Status: 68% married or partnered, 24% divorced or separated, 5.7% never married or partnered - Ethnicity: 6.5% African American, 8.3% Asian American, 83.5% Caucasian, 0.9% Hispanic, 0.9% mixed ethnicity - Inclusion Criteria: Provided at least six yearly measures of depressed mood
Woods-2006	P: Women in the middle or late menopausal transition or early postmenopause stages; E: Cortisol levels;	- Age range: Mean age 46.6 years (SD = 4.4) - Menopausal status: Middle or late menopausal transition or early postmenopause

	C: Not mentioned; O: Changes in cortisol levels and association with symptoms and stress; S: Community-based (Seattle Midlife Women`s Health Study); Exc: Women using estrogen, progestin, or glucocorticoids within 2 months of data collection; outlier values	- Ethnicity: Predominantly white (84.4%), with smaller percentages of other ethnicities - Employment status: Mostly employed (88%) - Family income: Median $42,000 - Exclusion criteria: Not using estrogen, progestin, or glucocorticoids within 2 months of data collection
Woods-2008	P: Women in one of four reproductive aging stages (late reproductive, early MT, late MT, or early PM) not taking hormones; E: Menopausal transition and early postmenopause stages; C: Not mentioned; O: Patterns of depressed mood; S: Community-based; Exc: Not taking any hormones, must provide at least one CES-D score	- Age range: 35 to 55 years (median age, 41 years) - Menopausal status: Late reproductive, early MT, late MT, or early PM - Ethnicity: 76.9% Caucasian, 11.4% African American, 8.3% Asian American or Pacific Islander - Education: Median education of 16 years - Marital status: Majority married or partnered - Employment status: Majority employed - Health conditions: Not taking any hormones
Woods-2010 (Sexual)	P: Women in the Seattle Midlife Women's Health Study during menopausal transition stages; E: Hormonal levels (E1G, T, FSH) and hormone therapy use; C: Not mentioned; O: Sexual desire; S: Seattle Midlife Women's Health Study; Exc: Women who had not menstruated within the past 3 months, did not have at least one ovary, attained 5 years postmenopause, or were using hormone therapy at the start of the study.	- Age: Mean age of 41.4 years (SD = 4.3) - Menopausal status: Early reproductive, early and late menopausal transition stages, or postmenopause - Health conditions: Must have menstruated within the past 3 months and have at least one ovary - Education: Mean of 15.9 years (SD = 2.8) - Family income: Median of $38,800 (SD = $15,000) - Employment status: 87% currently employed - Marital status: 71% married or partnered, 22% divorced or separated or widowed, 7% never married or partnered - Racial/ethnic distribution: 7% African American, 9% Asian American, 82% Caucasian
Woods-2010 (Sleep)	P: Women in late reproductive, early or late menopausal transition stages, or early postmenopause; E: Natural progression through menopausal transition stages; C: Not mentioned; O: Severity of sleep symptoms (difficulty getting to sleep, nighttime awakening, early morning awakening); S: Seattle Midlife Women's Health Study; Exc: Data during hormone use (except for hormone therapy effects), medication use that could confound relationships	- Number of participants: 286 - Age: Mean age 41.4 years (SD = 4.3) - Menopausal status: Late reproductive, early menopausal transition, late menopausal transition, early postmenopause - Education: Mean 15.9 years (SD = 2.8) - Family income: Median $38,800 (SD = $15,000) - Employment: 87% currently employed - Marital status: 71% married or partnered, 22% divorced or separated, 7% never married - Ethnicity: 82% Caucasian, 7% African American, 9% Asian American

Woods-2016	P: Women aged 35-55; E: Natural menopausal transition and early postmenopause; C: Not mentioned; O: Type and severity of symptoms during menopausal transition and early postmenopause; S: Community-based; Exc: No intact uterus or ovary, no menstrual period in past 12 months, pregnant or lactating, unable to read and understand English	- Age range: 35-55 years - Menopausal status: Women with at least one menstrual period in the past 12 months, studied up to 5 years postmenopause - Health conditions: Intact uterus and at least one ovary; not pregnant or lactating - Demographics: Detailed in Table 1, including age, education, income, number of live births, perceived stress, employment status, race/ethnicity, and marital status
Woods-2014	P: Midlife women aged 48.5 years with 16.1 years of education; E: Endocrine biomarkers (estrone, FSH, testosterone, cortisol, epinephrine, norepinephrine); C: Not mentioned; O: Symptom severity classes (high-severity hot flash, moderate severity, low severity); S: Seattle Midlife Women's Health Study (SMWHS); Exc: Women with hormone use affecting menstrual calendar assignment; participants using prednisone or prednisolone.	- Age: Mean age of 48.5 years (SD, 4.0) - Menopausal status: Late reproductive, early or late menopausal transition stages, or early postmenopause - Education: Mean of 16.1 years of education - Employment: 98.5% employed - Marital status: 76% married or partnered, 22% divorced, separated or widowed, 2% never married or partnered - Ethnicity: 5.4% African American, 7.7% Asian/Pacific Islander, 86.9% white - Smoking status: Less likely to be a smoker compared to ineligible participants - Body mass index (BMI) and exercise activity level: Similar to ineligible participants
Young-2003	P: Women aged 30-60 years; E: Menopausal status (premenopause, perimenopause, postmenopause); C: Premenopausal women; O: Presence of sleep-disordered breathing (SDB) as indicated by AHI levels; S: Wisconsin Sleep Cohort Study; Exc: Women with unknown ovarian status or missing data on menstrual status	- Age range: 30-60 years - Menopausal status: Premenopausal, perimenopausal, postmenopausal - Health conditions: Controlled for hypertension, cardiovascular disease - Sample size: 589 women - Study design: Longitudinal study
PICOS-Exc: Population, Intervention, Comparison, Outcome, Settings and Exclusion; BMI: Body Mass Index; CES-D: Center for Epidemiologic Studies Depression Scale; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; E2: Estradiol; FSFI: Female Sexual Function Index; FSH: Follicle-Stimulating Hormone; HRQL: Health-Related Quality of Life; HRT: Hormone Replacement Therapy; IU/L: International unit per liter; MDE: Major Depressive Episode; PSQI: Pittsburgh Sleep Quality Index; SD: Standard deviation; SWAN: Study of Women's Health Across the Nation; VMS: Vasomotor Symptoms; WASO: Wake After Sleep Onset;		

Appendix 6 Timeline and women's groups in the included studies

Study_ID	Time Frame and Follow-up Duration	Menopause Stage Definition	Comparison Groups
Abe-1975	3 or 4 days post-injection assessment	Not Mentioned	Psychiatrically abnormal vs. Psychiatrically normal groups within pre-, mid-, and post-menopausal stages
Avis-2000	5-year longitudinal study; Baseline assessment in 1986, follow-ups at yearly intervals until 1991	- Premenopausal: Menses in the previous 3 months - Perimenopausal: Menses in the previous 12 months, but not in the past 3 - Postmenopausal: No menses in the past 12 months	Premenopause vs Perimenopause vs Postmenopause
Avis-2009	7-year longitudinal study; Baseline assessment, followed by six annual follow-up visits; Total follow-up period: 6 years	- Premenopausal: Menses in the previous three months with no change in menstrual regularity in the preceding year. - Early perimenopausal: Menses in the previous three months and changes in regularity in the past year. - Late perimenopausal: No menses in the previous 3 months but menses in the previous 11 months. - Postmenopausal: 12 or more months of amenorrhea.	- Premenopause vs Early Perimenopause - Early Perimenopause vs Late Perimenopause - Late Perimenopause vs Postmenopause - Current HT users vs Non-HT users - Former HT users vs Non-HT users
Avis-2009 (Longitudinal)	7-year longitudinal study with baseline assessment and six annual follow-up visits	- Premenopausal: Menses in previous three months with no change in menstrual regularity in preceding year. - Early Perimenopausal: Menses in previous three months and changes in regularity in past year. - Late Perimenopausal: No menses in previous 3 months but menses in previous 11 months. - Postmenopausal: 12 or more months	- Premenopause vs Early Perimenopause - Premenopause vs Late Perimenopause - Premenopause vs Postmenopause - Early Perimenopause vs Late Perimenopause - Early Perimenopause vs Postmenopause - Late Perimenopause vs Postmenopause

		of amenorrhea. - SM: Women who underwent a bilateral oophorectomy.	
Avis-2015	17-year longitudinal study; Baseline assessment in February 1996, follow-ups approximately annually, total follow-up period of 17.2 years	- Premenopause: Bleeding in the previous 3 months with no change in menstrual regularity in the past year. - Early Perimenopause: Bleeding in the previous 3 months with changes in menstrual regularity in the past year. - Late Perimenopause: Amenorrhea in the previous 3 months but bleeding in the past year. - Postmenopause: More than 12 months of amenorrhea.	- Menopause stages: Premenopause vs Early perimenopause vs Late perimenopause vs Postmenopause - Racial/ethnic groups: African American vs Non-Hispanic white vs Chinese vs Hispanic vs Japanese - Other factors: Age at first report of VMS, Smoking status, BMI, Symptom sensitivity, Anxiety, Perceived stress, Depressive symptoms
Avis-2017	14.5-year longitudinal study	NR	- Natural Menopause vs Hysterectomy - Natural Menopause vs Hysterectomy with Bilateral Oophorectomy - African-American vs White vs Japanese (racial/ethnic differences) - Premenopause vs Perimenopause vs Postmenopause - High vs Low anxiety - Vaginal dryness vs No vaginal dryness - Lubricant use vs No lubricant use - Depression vs No depression - Anxiety vs No anxiety
Baker-2015	Cross-sectional study with a 2-week data collection period for sleep diaries	STRAW criteria	Insomnia vs Non-Insomnia in MT; Early MT vs Late MT
Berecki-Gisolf-2009	11-year longitudinal study; Baseline assessment in 1996, follow-ups in 1998, 2001, 2004, and 2007	Guthrie et al. definitions: - Premenopausal: menstruated in the last 3 months with no change in menstrual frequency. - Perimenopausal: changes in menstrual frequency or 3 to 11 months of amenorrhea. - Postmenopausal: amenorrhea for 12 consecutive months or more.	- Premenopause vs. Menopause (including perimenopause and postmenopause) - Perimenopause vs. Postmenopause - Menopause vs. Age-matched controls (considering the effect of aging)

Bromberger-2003	Baseline assessment between November 1995 and October 1997; ongoing longitudinal study with follow-ups as women transition to postmenopause	STRAW	Premenopause vs Early Perimenopause; Educational level subgroups (less than high school graduation vs higher educational levels)
Bromberger-2010	Baseline assessment in December 1995, follow-ups annually for 8 years, total study duration from December 1995 to January 2008	- Premenopausal: Menstrual period in the past 3 months with no change in regularity in the past 12 months. - Early perimenopausal: Menstrual period in the past 3 months with change in regularity over the previous 12 months. - Late perimenopausal: No menstrual period within the past 3 months but some menstrual bleeding within the past 12 months. - Postmenopausal: No menstrual period within the past 12 months. Similar to WHO and STRAW definitions.	Postmenopause vs Premenopause, Early Perimenopause vs Premenopause, Late Perimenopause vs Premenopause
Bromberger-2011	10-year longitudinal study with annual follow-ups	The menopause stage definition used in the study is based on menstrual bleeding patterns over the previous 12 months and is similar to those recommended by the WHO.	Perimenopause vs Premenopause, Postmenopause vs Premenopause, Early Postmenopause vs Premenopause, Late Postmenopause vs Premenopause
Bromberger-2013	10-year longitudinal study with annual follow-ups from baseline to visit 10	- Premenopausal: Menstrual period in the past 3 months with no change in regularity in the past 12 months. - Early perimenopausal: Menstrual period in the past 3 months with change in regularity over the previous 12 months. - Late perimenopausal: No menstrual period within the past 3 months, but some menstrual bleeding within the past 12 months.	- Premenopause vs Early Perimenopause - Premenopause vs Late Perimenopause - Premenopause vs Postmenopause - Premenopause vs Postmenopause with Hormone Therapy - Low Baseline Anxiety vs High Baseline Anxiety

		- Postmenopausal: No menstrual period within the past 12 months. - Similar to WHO recommendations.	
Brown-2002	2-year longitudinal study; Baseline assessment in 1996, follow-up at 2 years	- Postmenopause: No menstrual bleeding in the last 12 months. - Perimenopause: Menstrual bleeding in the last 12 months, but not in the last 3 months or with different menstrual frequency compared with the previous year. - Premenopause: Menstrual bleeding in the last 3 months and in the last 12 months with the same frequency as in the year prior to that.	- Premenopause vs Perimenopause - Premenopause vs Postmenopause - Premenopause vs HRT - Perimenopause vs Postmenopause - Perimenopause vs HRT - Postmenopause vs HRT - Premenopause vs Premenopause (pre-pre) - Premenopause vs Perimenopause (pre-peri) - Perimenopause vs Perimenopause (peri-peri) - Perimenopause vs Postmenopause (pre/peri-post) - Postmenopause vs Postmenopause (post-post) - HRT vs Premenopause
Burri-2015	4-year longitudinal study; Baseline assessment in 2008/2009, follow-up in 2013	Age-based definition: premenopausal (age ≤ 49), postmenopausal (age ≥ 50)	Postmenopause vs Premenopause
Callan-2019	23-year longitudinal study from 1990 to 2013 with annual follow-ups	STRAW recommendations	- Menopause stages: Late reproductive vs Early MT vs Late MT vs Early PM - Anxiety vs Low anxiety - Age as a continuous predictor
Campbell-2016	Baseline assessment in 1991, follow-ups annually from 1991 to 1999, and then in 2002, 2004, and 2012; total follow-up period of 20 years	STRAW+10 criteria	- Late reproductive stage vs. MT - Late reproductive stage vs. early postmenopause (stages +a, +b,+c, - Late reproductive stage vs. late postmenopause - MT vs. early postmenopause (stages +a, +b,+c, - MT vs. late postmenopause - Early postmenopause (stages +a, +b,+c, vs. late postmenopause
Cauley-2023	Baseline assessment at enrollment, follow-ups at approximately 18-month intervals, total follow-up period of up to 15 years	- Premenopause: Experienced at least one menstrual period in the last 3 months with no change in the regularity of menstrual bleeding during the last year. - Early Perimenopause: Experienced at least one menstrual period in the last 3	Fracture vs. No Fracture; Premenopause vs. Early Perimenopause

		months with some change in the regularity of menstrual bleeding during the last year. - Late Perimenopause: Experienced no menstrual bleeding in the last 3 months but some menstrual bleeding during the last 11 months. - Postmenopause: Experienced at least 12 consecutive months of amenorrhea.	
Cho-2018	11-year study from 2001 to 2012	Menopause status was determined based on the presence or absence of menstruation in the last 12 months. NM was defined as menopause induced by aging without medical intervention, and SM was defined as menopause resulting from gynecological surgeries.	SM vs NM
Cohen-2006	Baseline assessment at study enrollment, follow-ups every 6 months for 36 months, and a final follow-up between 59 and 92 months after enrollment (approximately 4.9 to 7.7 years)	The study uses the WHO's definition of perimenopause and criteria consistent with the STRAW to classify women in premenopause, perimenopause, or postmenopause.	Premenopause vs Perimenopause; Perimenopause with vs without vasomotor symptoms; Perimenopause with vs without hormonal intervention; Perimenopause with vs without history of adverse life events
Crandall-2011	9-year longitudinal study with baseline assessment and annual follow-ups through visit 8	- Premenopausal: menstruation in the past 3 months with no change in menstrual regularity in the past year. - Early perimenopausal: menstruation in the past 3 months with decreased regularity in the past year. - Late perimenopausal: no menses for 3 to 11 months. - Postmenopausal: no menses for the past 12 months.	- Early perimenopausal women with any VMS vs. early perimenopausal women with no VMS - Late perimenopausal women with any VMS vs. late perimenopausal women with no VMS - Early perimenopausal women with frequent VMS vs. early perimenopausal women without frequent VMS - Late perimenopausal women with frequent VMS vs. late perimenopausal women without frequent VMS - Postmenopausal women with frequent VMS vs. postmenopausal women without frequent VMS
Cray-2012	20-year longitudinal study; Initial assessment in 1990-1992; Follow-ups	STRAW	Late reproductive stage vs Early MT vs Late MT vs Early postmenopause

	monthly through 2000, then quarterly thereafter		
Cray-2012 (Symptom)	Baseline assessment in 1990-1992, follow-ups annually for 5 years, then quarterly after 2000, with a total follow-up period of up to 20 years	STRAW	Late reproductive stage vs Early MT vs Late MT vs Early postmenopause
Dennerstein-2001	Baseline assessment in 1991, follow-ups at annual intervals for 8 years	- Premenopause: No change in menstrual frequency. - Early perimenopause: Change in menstrual frequency. - Late perimenopause: At least 3 months but less than 12 months of amenorrhea. - Postmenopause: 12 months or more of amenorrhea.	- Premenopause/Early Perimenopause vs Late Perimenopause - Late Perimenopause vs Postmenopause - Control Group A (Premenopause/Early Perimenopause) vs Control Group B (Postmenopause)
Dennerstein-2007	13-year longitudinal study; Baseline assessment in 1991, follow-ups annually for years 1-8 and then years 11-13	STRAW definitions as adapted from Soules et al., 2001	Postmenopause vs Premenopause
Dennerstein-2007 (Modeling)	9-year longitudinal study with annual follow-ups	STRAW	- Late reproductive vs Early MT - Late reproductive vs Late MT - Late reproductive vs Postmenopausal - Early MT vs Late MT - Early MT vs Postmenopausal - Late MT vs Postmenopausal - Using hormone therapy vs Other stages
deZambotti-2017	Not mentioned (the paper does not provide information on a long-term follow-up or total study duration beyond the initial recordings)	STRAW criteria	MT Insomnia (MTI) vs MT Controls
ElKhoudary-2014	11-year longitudinal study; Initial assessment in 2000 (visit-04), final follow-up in 2011 (visit-12); Total	- Premenopausal: menses in the last 3 months with no change in regularity in the last 12 months - Early perimenopausal: menses in the	Postmenopause vs Premenopause, Early Perimenopause vs Premenopause, Late Perimenopause vs Premenopause, Surgical Postmenopause vs Premenopause, Hormone users/unknown vs Premenopause

	follow-up period: maximum of 11.2 years, median follow-up time: 9.7 years	last 3 months with some change in regularity during the prior 12 months - Late perimenopausal: no menses within the last 3 months, but some menstrual bleeding over the prior 12 months - Postmenopausal: no menses within the last 12 months - Surgical postmenopausal: history of hysterectomy or bilateral oophorectomy - Hormone users/unknown: postmenopausal women using hormone therapy and women with undetermined menopausal status due to hormone therapy use	
Epperson-2013	15-year longitudinal study; Initial assessment time point: 1996-1997; Follow-up assessment intervals: approximately 8-mo intervals through Year 5, then yearly thereafter with a 2-y gap between Period 10 and Period 11; Total follow-up period: 15 years	STRAW	Postmenopause vs Premenopause, Early Transition vs Premenopause, Late Transition vs Premenopause
Ford-2005	10-year longitudinal study; Baseline assessment in 1992, follow-ups annually for 10 years (excluding 1996-1997)	- Postmenopause: Absence of menstrual bleed for 12 months or history of bilateral oophorectomy. - Premenopause: Implied as the baseline group, but not explicitly defined. - No specific guidelines like STRAW, STRAW+10, or WHO definitions mentioned.	Postmenopause vs Premenopause; High vs Low FSH; High vs Low BMI; Current smoker vs Non-smoker; Hormone therapy use vs Non-use
Freedman-2004	3 consecutive nights in the laboratory	- Premenopausal: Regular menstrual cycles, no hot flashes - Postmenopausal Asymptomatic: Ceased menses for at least 1 year, no	- Premenopause vs Postmenopause (asymptomatic) - Premenopause vs Postmenopause (symptomatic) - Postmenopause (asymptomatic) vs Postmenopause (symptomatic)

		hot flashes - Postmenopausal Symptomatic: Ceased menses for at least 1 year, at least six hot flashes in 24 hours	
Freeman-2004	4-year longitudinal study with initial assessment at enrollment and follow-ups at approximately 8-month intervals	Staging System for Reproductive Aging in Women	- Premenopause vs Early Transition - Premenopause vs Late Transition - Premenopause vs Postmenopause - Age groups: 35-39 vs 40-44 vs 45-49 vs 50-54 years - FSH levels: Rapidly increasing vs Stable - Estradiol levels: Increasing vs Decreasing
Freeman-2004 (Premenstrual)	5-year longitudinal study; Initial assessment time point: 1996-1997; Follow-up assessment intervals: Approximately every 8 months for the first 6 periods, with a final assessment 1 year after the sixth period; Total follow-up period: 5 years	STRAW criteria	- African-American vs White women - Age groups: 35-39, 40-44, 45-49, 50-54 years - Menstrual status groups: premenopausal, late premenopausal, early transition, late transition, postmenopausal - PMS at enrollment vs no PMS at enrollment
Freeman-2005	6-year longitudinal study; Initial assessment time point: Baseline; Follow-up assessment intervals: First six periods at 8-month intervals, subsequent periods at 1-year intervals; Total follow-up period: 6 years	STRAW	- Menopause stages: Postmenopause vs Premenopause, Early transition vs Premenopause, Late transition vs Premenopause - Anxiety levels: High vs Low anxiety, Moderate vs Low anxiety - Racial groups: African American vs White
Freeman-2006	8-year longitudinal study	STRAW	MT vs Premenopause
Freeman-2007	9-year longitudinal study; Initial assessment time point: Period 2; Follow-up assessment intervals: Periods 2-6 at 9-month intervals, periods 7-10 at annual intervals, period 11 approximately 2 years after the previous assessment; Total follow-up period: 9 years	STRAW	- Premenopause vs Late Premenopause - Premenopause vs Early Transition - Premenopause vs Late Transition - Premenopause vs Postmenopause - Late Premenopause vs Early Transition - Late Premenopause vs Late Transition - Late Premenopause vs Postmenopause - Early Transition vs Late Transition - Early Transition vs Postmenopause - Late Transition vs Postmenopause

Freeman-2008	9-year longitudinal study; Initial assessment time point: 1996-1997; Follow-up assessment intervals: 9-month intervals for Periods 2-6, annual intervals for Periods 7-10, and a final assessment approximately 2 years after the previous one; Total follow-up period: 9 years	STRAW	- Menopausal stages: Premenopause vs Late Premenopause, Premenopause vs Early Transition, Premenopause vs Late Transition, Premenopause vs Postmenopause - Hormone levels: Estradiol, FSH, Testosterone - Other factors: PMS (yes/no), Perceived stress, History of depression, Smoking, Current age, Race
Freeman-2011	13-year longitudinal study; Initial assessment time point: 9 months after enrollment; Follow-up assessment intervals: 9-month intervals for the first 5 years, then annually for the next 9 years; Total follow-up period: 13 years	STRAW	- Menopausal stages: Pre-/late premenopausal vs Early transition vs Late transition/postmenopausal - Age groups: <40 years vs 40-44 years vs 45-49 years vs ≥50 years - Racial groups: African American vs White - BMI groups: Non-obese vs Obese
Freeman-2014	14-year longitudinal study; Initial assessment in 1996, follow-ups at approximately 9-month intervals for the first 5 years and then annually, with a 2-year gap between assessments 10 and 11; Total follow-up period: 14 years	STRAW (Staging System for Reproductive Aging in Women)	- Premenopause vs Postmenopause - MT vs Postmenopause - History of Depression vs No History of Depression - First Depressive Symptoms in Study vs No Depression Before FMP - High vs Low FSH Rate of Change
Freeman-2016	14-year longitudinal study; baseline assessment when participants were premenopausal; follow-ups at approximately 9 months for the first five years, then annually with a two-year gap between assessments 10 and 11; total follow-up period of 14 years	STRAW	- Menopause stages: Premenopause vs Early Transition vs Late Transition vs Early Postmenopause vs Late Postmenopause - Anxiety symptom groups: High Somatic Anxiety vs Low Somatic Anxiety; High Affective Anxiety vs Low Affective Anxiety
Gold-2006	6-year longitudinal study; Baseline assessment in 1996, follow-ups at annual intervals, total follow-up period of 6 years	- Premenopause: A menstrual period in the previous 3 months with no change in menstrual regularity in the preceding year. - Early Perimenopause: Menses in the previous 3 months with changes in regularity in the past year. - Late Perimenopause: No menses in the previous 3 months but menses in	- Racial/Ethnic Groups: African American vs. White, Hispanic vs. White, Chinese vs. White, Japanese vs. White - MT Stages: Premenopause vs. Early Perimenopause, Early Perimenopause vs. Late Perimenopause, Late Perimenopause vs. Postmenopause - Sociodemographic Factors: Education level (High school or less vs. College or more), Income (Less than $20,000 vs. More than $75,000), Employment status (Employed vs. Unemployed), Marital status (Single vs. Married/Partnered)

		the preceding 11 months. - Postmenopause: 12 or more months of amenorrhea.	- Lifestyle Factors: Smoking status (Current smoker vs. Non-smoker), Physical activity (High vs. Low) - Psychological Factors: Symptom sensitivity (High vs. Low), Anxiety (High vs. Low), Depressive symptoms (High vs. Low)
Gold-2007	Not mentioned (the paper does not specify the total study duration or follow-up intervals)	- Premenopause: Women who have had menstrual bleeding in the past 3 months with no decreased predictability in menses. - Early Perimenopause: Women who have had menstrual bleeding in the past 3 months but with decreased menstrual cycle predictability.	High PdG vs Low/Medium PdG; Premenopause vs Early Perimenopause; Collections ending with bleeding vs No bleeding; High BMI vs Low BMI
Gold-2017	10-year longitudinal study; Baseline assessment in 1995-1997, follow-ups at annual intervals for 10 years	- Premenopausal: Menstrual period in the prior three months with no change in menstrual regularity in the prior year. - Early perimenopausal: Menses in the prior three months with changes in regularity in the prior year. - Late perimenopausal: No menses in the prior three months but menses in the prior 11 months. - Postmenopausal: ≥12 months of amenorrhea.	Early stage (pre- and early perimenopause) vs Late stage (late peri- and postmenopause)
Gold-2022	13-year longitudinal study with approximately annual follow-up visits starting from 1996	- Premenopausal: Having a menstrual period in the prior three months and no change in menstrual regularity in the prior year. - Early peri-menopausal: Having menses in the prior three months and changes in regularity in the prior year. - Late peri-menopausal: Indicating no menses in the prior three months but menses in the prior 11 months. - Postmenopausal: Indicating >12 months of amenorrhea.	- Premenopause vs Other Menopause Stages - Japanese Women vs Other Ethnic Groups - Chinese Women vs Other Ethnic Groups

Gopal-2008	10-year longitudinal study; Initial recruitment in 1996-1997; Follow-ups at 8-month intervals until assessment period 6, then yearly until assessment period 11	STRAW guidelines	- Sharp decline in estradiol vs No change in estradiol - Age 45-49 vs Age > 55 - BMI > 35 vs Normal weight range - High anxiety vs Normal anxiety
Gordon-2016	12-month longitudinal study; Initial assessment at enrollment, follow-ups at months 1, 8, and 14	STRAW+10 criteria: - Early perimenopause: menstrual cycle length 7+ days longer than usual - Late perimenopause: ≥ 2 skipped cycles and an interval of amenorrhea ≥ 60 days but within one year of the last menstrual period - Early postmenopause: an interval of amenorrhea between one and two years	MT stages: Early perimenopause vs Late perimenopause vs Early postmenopause
Gordon-2020	12-month longitudinal study: Initial assessment time point for Phase 1 was weekly over 12 weeks, followed by monthly follow-ups for 9 months in Phase 2.	STRAW+10 criteria: Early perimenopause defined as menstrual cycle length 7+ days shorter or longer than usual; Late perimenopause defined as ⩾2 skipped cycles but <1 year since the last menstrual period.	- Early perimenopause vs Late perimenopause - Women without a prior history of depression vs Women with a prior history of depression - Women with fewer baseline stressful life events vs Women with more baseline stressful life events - Women with fewer months since last menstrual period vs Women with more months since last menstrual period
Greendale-2009	4-year longitudinal study; Initial assessment at fourth follow-up visit; Follow-ups at fifth to eighth visits; Total follow-up period: 4 years	- Premenopause: No change in predictability of menses. - Early perimenopause: Decreased predictability of menses without gaps of 3 months or more. - Late perimenopause: No menses for 3-11 months. - Postmenopause: Absence of menses for 12 months or more (natural), or bilateral oophorectomy with or without hysterectomy (surgical).	- Premenopause vs Early Perimenopause - Premenopause vs Late Perimenopause - Premenopause vs Postmenopause - Premenopause vs Postmenopause with current hormone use - Prior hormone use vs No prior hormone use - Current hormone use during postmenopause vs No hormone use during postmenopause
Grummisch-2023	12-week longitudinal study; Initial assessment at enrollment, follow-ups at weeks 3, 6, 9, and 12	STRAW criteria	Early MT vs Late MT

Guthrie-2004	9-year longitudinal study; Initial assessment in 1991, follow-ups annually for 8 years, final follow-up in the 9th year	- Premenopause: No changes in menstrual frequency or flow in the prior 12 months. - Perimenopause: Changes in menstrual frequency or flow in the prior 12 months. - Postmenopause: 12 months of amenorrhea. - Early Perimenopause: Self-reporting of changes in menstrual frequency over the last year. - Late Perimenopause: Self-reporting of 3-11 months of amenorrhea. - Early MT (EMT): Variation in menstrual cycle length with a monotropic FSH rise. - Late MT (LMT): Similar to late perimenopause, with 3-11 months of amenorrhea.	- Natural MT vs. premenopause - Natural MT vs. postmenopause - Hormone therapy users vs. non-users - MT vs. aging (using control groups A and B)
Guthrie-2005	9-year longitudinal study; Baseline assessment in 1991, annual follow-ups for 9 years	- Premenopause: No change in menstrual frequency in the prior 12 months. - Early MT: Menstruated in the previous 3 months with changes in menstrual frequency. - Late MT: At least 3 months but less than 12 months of amenorrhea. - Postmenopause: At least 12 months of amenorrhea.	- Non-hot flush group vs Hot flush group - Premenopause vs Early MT vs Late MT vs Postmenopause
Harlow-2017	Baseline assessment in 1996/1997, follow-ups approximately annually, total follow-up period of approximately 15 years	- Premenopause: Had a menstrual period in the previous 3 months and reported no change in menstrual regularity in the past 12 months. - Early Perimenopause: Reported decreased regularity in their menses in the past 12 months and had had a menstrual period in the previous 3	- Premenopause vs. Early Perimenopause - Premenopause vs. Late Perimenopause - Premenopause vs. Postmenopause - Early Perimenopause vs. Late Perimenopause - Early Perimenopause vs. Postmenopause - Late Perimenopause vs. Postmenopause

		months. - Late Perimenopause: Had no menses in the past 3-11 months. - Postmenopause: Had no menses for the past 12 or more months. - SM: Defined by report of either hysterectomy or bilateral oophorectomy.	
Hickey-2016	Baseline assessment in 1996, follow-ups at 3-year intervals until 2013, total follow-up period of over 15 years	STRAW (2001 STRAW criteria)	- Perimenopause vs Postmenopause - Hysterectomy with/without oophorectomy vs Postmenopause - Hormone Therapy (HT) users vs Non-HT users - Starting or stopping HT vs Postmenopause
Huang-2024	17-year longitudinal study from July 2005 to 2022 with annual follow-ups	STRAW 110 criteria: - Premenopausal: Regular menstrual periods with no change in frequency. - Early MT: Cycles with a difference in length of more than 7 days. - Late MT: Amenorrhea interval of more than 60 days. - Early postmenopausal: Amenorrhea for 12 or more consecutive months within 8 years after the FMP. - Late postmenopausal: Amenorrhea for 12 or more consecutive months beyond 8 years after the FMP.	- Premenopause vs MT - MT vs Postmenopause - Premenopause vs Postmenopause - High vs Low Anxiety - High vs Low Depression - High vs Low BMI
HydeRiley-2004	Cross-sectional study with baseline assessment in 1999; no follow-up duration reported.	- Perimenopause: Change in menstrual cycle frequency, duration, quantity, or associated premenstrual syndrome-like symptoms during the previous 3 to 11 months. - Postmenopause: Cessation of periods for 12 months or more, or history of a hysterectomy without oophorectomy and age 55 years or older.	Perimenopause vs Postmenopause

Jacobs-2017	20-year longitudinal study	STRAW-10 guidelines	- Premenopause vs Perimenopause vs Postmenopause - Men vs Premenopausal Women - Men vs Postmenopausal Women
Jang-2025	5.9-year longitudinal study; Initial assessment in 2014, follow-ups at intervals of approximately 1.9 years, total follow-up period of 5.9 years	STRAW+10 criteria: - Pre-menopause: Does not meet criteria for other stages - Early transition: Persistent difference of ≥7 days in consecutive menstrual cycles - Late transition: Amenorrhea for ≥60 days - Post-menopause: Amenorrhea for ≥12 months	- Pre-menopause vs Early transition - Pre-menopause vs Late transition - Pre-menopause vs Post-menopause - Stratified by BMI: above and below 23.0 kg/m² - Stratified by body fat percentage: above and below 30%
Jones-2018	5-year longitudinal study; initial assessment at enrollment; follow-ups every 6 months; total follow-up period up to 5 years	STRAW criteria	Late premenopause vs Early perimenopause
Kalleinen-2021	Baseline assessment in 2001, follow-ups at 6 and 10 years	- Postmenopause: S-FSH level > 30 IU/L and amenorrhea > 12 months for those without hysterectomy. - No specific guideline mentioned (e.g., STRAW, STRAW+10, WHO Definition).	Premenopause vs Postmenopause; Menopausal hormonal changes vs Aging
Katainen-2018	Baseline assessment, follow-ups at 6 and 19 years, total follow-up period of approximately 19 years	Not mentioned (the paper does not specify a particular guideline like STRAW, STRAW+10, or WHO Definition for menopause stage classification)	Peri or postmenopausal women at baseline vs. the same women at 6-year follow-up vs. the same women at 19-year follow-up
King_2022	5-year longitudinal study; Baseline assessment in 2013, follow-ups at 18 months and 36 months	- Menopause definition: WHO definition - Menopause stage classification: Adapted from STRAW (STRAW+10) - Perimenopause: Cycles more than a month apart but menstruated within the last year	Perimenopause vs 1-2 years post-FMP vs 2-5 years post-FMP vs >5 years post-FMP

		- Postmenopause: 1-2 years after FMP, 2-5 years post-FMP, >5 years post-FMP	
Kok-2006	53-year longitudinal study; Initial assessment time point: birth in March 1946; Follow-up assessment intervals: cognitive testing at ages 43 and 53 years; Total follow-up period: 53 years	- Postmenopausal: periods ceased for more than 12 months - Perimenopausal: periods ceased for between 3 and 12 months or were less regular - Premenopausal: still having regular periods	- Premenopause vs Perimenopause vs Postmenopause - Premenopausal women vs Perimenopausal women vs Postmenopausal women - Hysterectomy, no HT vs Hysterectomy, + HT vs HT users
Kravitz-2022	Baseline assessment in 1996, follow-ups every 1-2 years until 2017, total follow-up period of 21 years	- Premenopausal: Menses in the past 3 months with no change in menstrual bleeding regularity. - Early perimenopausal: Menses in the past 3 months with change in regularity. - Late perimenopausal: No menses within the past 3 months, but some menstrual bleeding within the past 12 months. - Postmenopausal: No menses within the past 12 months. Similar to WHO and STRAW+10 definitions.	- Postmenopause vs. Premenopause - Postmenopause vs. MT (MT) - Consistently low CES-D scores vs. Moderate CES-D scores vs. High CES-D scores
Kumari-2005	Baseline assessment in 1991-1993, follow-ups at 1995, 1997-1999, and 2001; total follow-up period of approximately 8 years	- Premenopausal: Women who reported current and regular periods. - Perimenopausal: Women who reported that their period had not stopped at one phase but reported that it had by the next phase, or women who reported that their period had not stopped but that it had become less regular in the last 12 months. - Postmenopausal: Women who reported that their periods had stopped.	- Premenopausal vs Perimenopausal vs Postmenopausal - Symptom-experiencing women vs Non-symptom-experiencing women

Lampio-2017	6-year longitudinal study	The study used S-FSH concentration as a continuous marker of MT and did not apply a specific guideline like STRAW or WHO definitions for classification.	The study compares the effects of aging and hormonal changes (measured by S-FSH concentration) on sleep architecture in women transitioning from premenopause to different stages of menopause.
Lee-2023	10-year longitudinal study with initial assessment and follow-ups at 5 and 10 years	Not mentioned (the paper does not specify a guideline or definition for classifying women into premenopause, perimenopause, or postmenopause)	Symptomatic MT vs Non-symptomatic MT
Li-2020	7-year longitudinal study with ongoing follow-up; initial assessment in 2005; follow-up intervals not specified; total follow-up period at least 7 years on average	STRAW+10 criteria	- Premenopause vs Early MT (Stage -2) - Premenopause vs Late MT (Stage -1) - Premenopause vs Postmenopause - Early MT (Stage -2) vs Late MT (Stage -1) - Early MT (Stage -2) vs Postmenopause - Late MT (Stage -1) vs Postmenopause
Luo-2020	Baseline assessment in January 2005, follow-ups ongoing with an average follow-up time of 7.72 ± 5.0 years for a subgroup of participants	STRAW+10 criteria	- Postmenopause vs Premenopause - MT vs Premenopause - Women with insomnia symptoms in premenopause vs those without insomnia symptoms in premenopause
Maki-2021	- Initial assessment time point: October 1, 2008 - Follow-up assessment intervals: Every two years - Total follow-up period: 5.8 years	- Premenopausal: Menses in the past 3 months with no changes in regularity. - Early perimenopausal: Menses in the past 3 months with change in regularity. - Late perimenopausal: No menses within the past 3 months but some menstrual bleeding within the past 12 months. - Postmenopausal: No menses within the past 12 months.	- Premenopause vs Early Perimenopause - Premenopause vs Late Perimenopause - Premenopause vs Postmenopause - Overall sample vs Women with HIV (WWH)
Maleki-2019	12-year longitudinal study from 1996-1997 to 2008 with annual follow-ups	STRAW+10 criteria	Migraine vs No Migraine; VMS vs Vaginal Dryness; VMS vs Back Pain; Premenopause vs Early Perimenopause vs Late Perimenopause vs Postmenopause
Marsh-2015	Enrollment from January 2010 to July 2012; 4-month observational	STRAW+10	Early transition (late reproductive/early perimenopause) vs Late and early-post transition (late perimenopause/early postmenopause)

	longitudinal evaluation; follow-up visits up to 6 weeks apart or once a month		
Marsh-2017	10-year longitudinal study with annual follow-ups	WHO Definition (1996)	- MT (MT) vs Postmenopause - Early Transition vs Late Transition - Early Postmenopause vs Late Postmenopause - Duration of estrogen exposure from menarche to MT onset
Matthews-1994	Baseline assessment from 1983 to 1984, follow-ups by February 1988 and February 1992, total follow-up period of approximately 9 years	- Premenopause: Not explicitly defined in the paper. - Perimenopause: Women who have ceased menstruating for 3 months (not due to surgery) and are not using hormone replacement therapy. - Postmenopause: Women who have ceased menstruating for 12 months and are not using hormone replacement therapy.	Perimenopause vs Premenopause; Postmenopause vs Premenopause; Perimenopause to Postmenopause within the same group
Matthews-2021	Baseline assessment in 2002-2005, follow-up at approximately 3½ years later in 2006-2008	- Premenopause: Menstrual bleeding in the prior three months with no change in regularity. - Early perimenopause: Menstrual bleeding in the prior three months with change in regularity. - Perimenopause: Menstrual bleeding within the last year but not in the prior three months. - Postmenopause: 12 months or more of amenorrhea not due to SM.	- Pre-or early perimenopause vs Late perimenopause - Pre-or early perimenopause vs Postmenopause - Women who remained pre-or early perimenopausal vs Women who transitioned to late perimenopause or postmenopause
Matthews-2022	Baseline assessment in 1995-1997, follow-ups approximately annually with longer intervals in later years, total follow-up period of nearly 18 years	- Natural menopause: No bleeding for at least 12 months not due to hysterectomy or oophorectomy. - Final Menstrual Period (FMP): Date of the last menstrual period before being classified as postmenopausal. - Premenopause and early perimenopause: Defined based on	- Group 1: Low symptoms/high FSH rise - Group 2: Moderate symptoms/low FSH rise - Group 3: Dominant sleep symptoms/high FSH rise - Group 4: Dominant VMS/high FSH rise - Group 5: High symptoms/intermediate FSH rise

		bleeding patterns and medical history, but specific criteria not detailed.	
Maxwell-2023	Longitudinal study from 1929 to the time of data extraction; exact follow-up duration not specified	- Premenopause: Women under the age of 40 and still having menstrual cycles. - Perimenopause: Women with abnormal FSH (>25 mIU/mL) either with cycles or a last menstrual period within 1 year before the visit date. - Postmenopause: Women who have not had a menstrual cycle for more than 1 year before the visit date and who also had an abnormal FSH (>25 mIU/mL) level at that visit.	- Premenopause vs Perimenopause vs Natural Postmenopause vs Surgical Postmenopause - Natural Postmenopause vs Surgical Postmenopause
Mirer-2017	18-year longitudinal study; Initial assessment time point: 1989; Follow-up assessment intervals: every six months; Total follow-up period: 18 years	STRAW	- Premenopause vs Perimenopause - Premenopause vs Postmenopause - Premenopause vs Undetermined Peri/Postmenopause - Perimenopause vs Postmenopause - Years in menopause (continuous time in menopause)
Mishra-2012	7-year longitudinal study; Baseline assessment in 1993, follow-ups annually until 2000	Not mentioned (the paper does not specify any particular guideline or definition for menopause stages)	- Psychological symptoms vs. Age at Menopause - Somatic symptoms vs. Age at Menopause - Vasomotor symptoms vs. Age at Menopause - Sexual discomfort vs. Age at Menopause - Sociodemographic factors (e.g., social class, education level) vs. Symptom Profiles - Health behaviors (e.g., smoking status, body mass index) vs. Symptom Profiles
Mitchell-2010	16-year longitudinal study; Initial assessment time point: 1990-1992; Follow-up assessment intervals: Annual; Total follow-up period: 1990-2006	STRAW	- Late reproductive stage vs Early MT stage - Late reproductive stage vs Late MT stage - Late reproductive stage vs Early postmenopause - Early MT stage vs Late MT stage - Early MT stage vs Early postmenopause - Late MT stage vs Early postmenopause
Mitchell-2015	15-year longitudinal study; Initial assessment time point: 1990; Follow-up	STRAW	- Late Reproductive Stage vs Early MT vs Late MT vs Early PM - High vs Low Anxiety

	assessment intervals: Annual; Total follow-up period: 15 years		
Mitchell-2017	23-year longitudinal study; Initial assessment time point: 1990; Follow-up assessment intervals: Annual; Total follow-up period: 1990-2013	STRAW	Late reproductive vs Early MT (MT) vs Late MT vs Early postmenopause (PM)
Mulhall-2018	8-year longitudinal study with initial assessment at age 40-44 and follow-ups at 4-year intervals	- Premenopause: No change in frequency of menstruation - Perimenopause: Decreased predictability of menstrual periods - Postmenopause: Menstruation ceased entirely	- Premenopause vs Perimenopause - Premenopause vs Postmenopause - Perimenopause vs Postmenopause - Women without a history of probable MDD or GAD vs Women with a history of probable MDD or GAD
Ozasa-2022	2-year observational study from April 2019 to March 2021	- Premenopause: Women who have menstruated normally in each of the last three months, and whose ages are between 30 and 50 years. - Postmenopause: Women whose last menstrual period occurred >12 months prior. - Early Postmenopause: Postmenopausal women who reached menopause 5 years prior. - Late Postmenopause: Postmenopausal women who reached menopause >5 years prior. - WHO Definition: Menopause is the permanent cessation of menstruation resulting from the loss of ovarian follicular activity, recognized after 12 consecutive months of amenorrhea.	- Premenopausal BMS vs. Premenopausal controls - Early postmenopausal BMS vs. Early postmenopausal controls - Late postmenopausal BMS vs. Late postmenopausal controls
Randolph-2005	5-year longitudinal study with baseline assessment and annual follow-ups at years 1, 2, 3, and 4	- Premenopausal: Bleeding in the 3 months before examination with no decrease in the predictability of menses in the year before examination. - Early Perimenopausal: Bleeding in the past 3 months with a decrease in	- Premenopause vs Early Perimenopause - Early Perimenopause vs Late Perimenopause - Late Perimenopause vs Postmenopause - Samples within d 2-5 window (premenopausal and early

		predictability in the past year. - Late Perimenopausal: No menses for 3-11 months. - Postmenopausal: No menses for 12 or more months.	perimenopausal) vs samples outside d 2-5 window (late perimenopausal or postmenopausal)
Rössler-2016	30-year longitudinal study; Baseline assessment in 1978, follow-ups at ages 41 and 50	- Postmenopausal: Last menstruation occurred more than 12 months before. - Perimenopausal: Last menstruation occurred within the past 12 months with no menstruation in the preceding two months, or last menstrual cycle occurred less than one month before with menstrual irregularities. - Premenopausal: Most recent menstruation occurred within the past month with no menstrual irregularities during the past 12 months.	- Pre-menopause vs Peri-menopause - Pre-menopause vs Post-menopause - Peri-menopause vs Post-menopause
Samargandy-2022	28-year longitudinal study with a median follow-up of 19.1 years	The study uses the final menstrual period (FMP) as a reference point, defining it as the last menstrual period before 12 consecutive months of amenorrhea. No specific guideline like STRAW, STRAW+10, or WHO Definition is mentioned.	- Low-accelerated rise vs Medium-linear rise vs High-slow decline/High-accelerated decline for SBP, DBP, PP, and MAP trajectories - Younger age at menopause vs Older age at menopause - Higher FSH levels vs Lower FSH levels - Presence of vasomotor symptoms vs Absence of vasomotor symptoms
Schmidt-2004	5-year longitudinal study; initial assessment at enrollment, follow-ups every 6 months, adjusted to every 3 months as needed; total follow-up period: average of 5.2 years (range: 1.4-10.6 years)	STRAW	Depressed vs. Non-Depressed during Perimenopause
Schnall-2019	46-day study with initial in-person assessment followed by ecological momentary assessment using text messages for 46 days	STRAW (Staging of Reproductive Aging in Women) criteria	Postmenopause vs Perimenopause vs Premenopause

Shardell-2021	2-year longitudinal study with initial assessment at baseline and follow-ups at 6, 12, 18, and 24 months	STRAW (2001) and STRAW+10 (2011)	Postmenopause vs Premenopause, Perimenopause vs Premenopause, Postmenopause vs Perimenopause
Sowers-2007	5-year longitudinal study from 2000/1 to 2005/6 with annual follow-ups	- Premenopause: No menstrual irregularity in the previous year, defined as 9 or less cycles in the past 12 months. - Perimenopause: Having menstrual irregularity. - Postmenopause: At least twelve consecutive months of amenorrhea associated with no other medical cause.	- SM vs. pre-and perimenopausal women - Natural postmenopause vs. pre-and perimenopausal women - SM with ovarian conservation or HT vs. pre-and perimenopausal women - Natural postmenopause without HT vs. pre-and perimenopausal women - Postmenopausal women using HT vs. pre-and perimenopausal women
Strauss-2011	9-year longitudinal study; Initial assessment in 1994-1996, follow-up in 2004-2006	Postmenopause: defined as not having had a period for one year or more. No specific guidelines mentioned for premenopause or perimenopause.	Pre-menopausal vs Peri-menopausal vs Post-menopausal
Tang-2019	10-year longitudinal study; Initial assessment in 2006, annual follow-up visits, final follow-up in 2015	STRAW+10 (2011 STRAW þ10 criteria)	- Premenopause vs MT - Premenopause vs Postmenopause - MT vs Postmenopause
Tang-2020	10-year longitudinal study; Initial assessment in July 2005; Annual follow-up assessments; Total follow-up period: 10 years	STRAW+10 (2011 STRAW +10 criteria)	- Menopausal stages: Premenopause vs. Early MT vs. Late MT vs. Early postmenopause vs. Late postmenopause - Mood symptoms: Presence vs. absence of anxiety symptoms; Presence vs. absence of depression symptoms
Taylor-Swanson-2018	Approximately 5.75-year longitudinal study with initial enrollment between 1990 and 1992, and follow-ups at monthly intervals	STRAW+10 criteria	Late Reproductive (LR) vs Early Transition (ET) vs Late Transition (LT) vs Early Post-Menopause (EPM)
Tepper-2016	Baseline assessment in February 1996, follow-ups over a median period of 15.4 years, with observations ranging from 12 years before to 15 years after the final menstrual period (FMP)	- Premenopause: Bleeding in the 3 months before interview with no change in variability in the past year. - Early perimenopause: Bleeding in the past 3 months with increased variability in the past year. - Postmenopause: No menses for at	- Early onset VMS vs Low VMS - Late onset VMS vs Low VMS - High VMS vs Low VMS - Comparisons based on race/ethnicity, BMI, education, smoking status, alcohol use, and hormonal levels

		least 12 months after the final menstrual period (FMP).	
Than-2023	8-year longitudinal study with initial recruitment from 2006 to 2010 and a mean follow-up period of 8.3 years	- Premenopausal: Women who reported being premenopausal at all timepoints. - Perimenopausal: Women who reported being premenopausal at baseline and postmenopausal in subsequent assessments. - Postmenopausal: Women who reported being postmenopausal at all timepoints or were over 60 years of age.	Premenopause vs Perimenopause vs Postmenopause
Thurston-2013	8-year longitudinal study with annual follow-ups from baseline to year 8	- Premenopausal: Bleeding in the previous 3 months with no change in cycle predictability. - Early perimenopausal: Bleeding in the previous 3 months with a decrease in cycle predictability. - Late perimenopausal: More than 3 and less than 12 months of amenorrhea. - Postmenopausal: More than 12 months of amenorrhea.	Pre-/early perimenopause vs Late peri-/postmenopause
Tirkkonen-2021	Baseline assessment during perimenopause, follow-ups every 3 to 6 months, total follow-up period of approximately 1.2 to 1.5 years.	- Early perimenopausal: FSH levels between 17 and 25 IU/L, irregular menstrual cycle. - Late perimenopausal: FSH levels between 25 and 30 IU/L, occasional menstrual bleeding in the past 3 months. - Postmenopausal: FSH >30 IU/L and no menstrual bleeding in the past 6 months, or FSH>39 IU/L and no menstrual bleeding in the past 3	Early perimenopausal vs Late perimenopausal; Perimenopausal vs Postmenopausal within each group

		months, or FSH>130 IU/L with possible occasional bleeding.	
Waetjen-2008	6-year longitudinal study; Baseline assessment in 1995, follow-ups at annual intervals from 1996 to 2002	- Pre-menopause: less than three months of amenorrhea and no menstrual irregularities in the previous year - Early Peri-menopause: less than three months of amenorrhea and some menstrual irregularities in previous year - Late Peri-menopause: three to 11 months of amenorrhea - Post-menopause: 12 consecutive months of amenorrhea with no apparent medical cause - SM: hysterectomy (with or without oophorectomy) or bilateral oophorectomy	- Postmenopause vs Premenopause - Early Peri-menopause vs Premenopause - Late Peri-menopause vs Premenopause - Menopause stages with hormone use vs without hormone use - Weight gain vs no weight gain - Smoking status (never smoked vs smoked) - Anxiety symptoms (increased vs decreased)
Waetjen-2009	7-year longitudinal study with annual follow-up visits from 1995 to 2002	- Premenopause: Less than three months of amenorrhea and no menstrual irregularities in the previous year. - Early Peri-menopause: Less than three months of amenorrhea and some menstrual irregularities in the previous year. - Late Peri-menopause: Three to 11 months of amenorrhea. - Postmenopause: 12 consecutive months of amenorrhea.	- Premenopause vs Early Peri-menopause - Premenopause vs Late Peri-menopause - Premenopause vs Postmenopause - Follow-up cohort vs Drop-out cohort (for baseline characteristics)
Waetjen-2011	8-year longitudinal study from 1995 to 2004 with annual follow-up assessments	- Premenopause: Less than three months of amenorrhea and no menstrual irregularities in the previous year. - Early peri-menopause: Less than three months of amenorrhea and some	Women with worsening incontinence vs. women whose incontinence improved or did not change

		menstrual irregularities in the previous year. - Late peri-menopause: Three to 11 months of amenorrhea. - Post-menopause: 12 consecutive months of amenorrhea.	
Waetjen-2018	17-year longitudinal study with approximately annual follow-ups from 1996 to 2013	- Premenopausal: Less than three months of amenorrhea and no menstrual irregularities in the previous year. - Early Perimenopausal: Less than three months of amenorrhea and some menstrual irregularities in the previous year. - Late Perimenopausal: Three to 11 months of amenorrhea. - Postmenopausal: At least 12 consecutive months of amenorrhea.	- Premenopause vs Early Perimenopause vs Late Perimenopause vs Postmenopause - Women using Hormone Therapy (HT) vs Women not using HT - Sexually Active vs Not Sexually Active - High Anxiety vs Low Anxiety - Married vs Not Married
Weber-2021	11-year longitudinal study; Initial assessment in 2005; Follow-ups at baseline, 6 months, 1 year in Waves I and II, and bi-annually for 5 years in Wave III; Total follow-up period: 1-9 years (mean 2.47 years)	STRAW+10	- Profile 1 (cognitively normal) vs. Profile 2 (weakness in verbal learning and memory) - Profile 1 vs. Profile 3 (strength in verbal learning and memory) - Profile 1 vs. Profile 4 (strength in attention and executive function)
Woods-2002	6-year longitudinal study; Initial assessment time point: 1990-1992; Follow-up assessment intervals: Annual until late 1996; Total follow-up period: Approximately 6 years	- Postmenopause: Absence of menses for at least 12 months without any other explanation for amenorrhea. - MT: - Early: Changes in flow or cycle length since age 35 with no changes in cycle regularity. - Middle: Irregular cycles since age 35 with no skipping of periods. - Late: One or more episode of a skipped period, defined as double the modal cycle length or more.	MT vs Postmenopause; Early transition vs Middle transition vs Late transition; Emerging depression pattern vs Resolving depression pattern vs Low level symptoms vs Moderate level symptoms

Woods-2006	Baseline assessment in 1990, follow-ups annually from 1990 to 2003, with more frequent assessments for a subset starting in 1997; total follow-up period of approximately 6 years for this analysis	- Early transition: Changes in menstrual flow or cycle length at 35 years or older without irregularity. - Middle transition: Irregularity of more than 6 days between consecutive cycles without skipped periods. - Late transition: Skipping one or more menstrual periods. - Postmenopause: At least 12 months without any bleeding or spotting.	- Women transitioning from early to middle MT stage vs. those transitioning from middle to late MT stage vs. those transitioning from late to postmenopause. - Women with increased cortisol (>10 ng/mg creatinine) during the late MT stage vs. those without increased cortisol.
Woods-2008	15-year longitudinal study from 1990 to 2005 with annual follow-ups	STRAW	Late reproductive vs Early MT vs Late MT vs Early PM
Woods-2010 (Sexual)	15-year longitudinal study from 1990 to 2005 with annual follow-ups	STRAW	Late reproductive stage vs. Late MT stage vs. Early postmenopause stage
Woods-2010 (Sleep)	17-year longitudinal study; Initial assessment in 1990-1992, follow-ups annually from 1990 to 2007	STRAW	Late reproductive stage vs Early MT stage vs Late MT stage vs Early postmenopause
Woods-2016	23-year longitudinal study; Initial assessment in 1990; Follow-up assessment intervals varied; Total follow-up period: 23 years	STRAW staging approach	- MT stages: Early vs Middle vs Late transition - Postmenopause vs MT stages - Hormone therapy users vs Non-users
Woods-2014	20-year longitudinal study; Initial assessment time point: 1990-1992; Follow-up assessment intervals: Monthly until 2000, then quarterly; Total follow-up period: Approximately 20 years	STRAW	High-severity Hot Flash vs Low Severity; Moderate Severity vs Low Severity; High-severity Hot Flash vs Moderate Severity
Young-2003	Baseline assessment, follow-ups at 4-year intervals, total follow-up period not explicitly stated in years	- Menopausal status was determined from menstrual history, gynecologic surgery, hormone replacement therapy, follicle-stimulating hormone, and vasomotor symptoms. - Perimenopause/postmenopause: Defined as having had HRT for over 1	- Premenopause vs Perimenopause - Premenopause vs Postmenopause - Postmenopause with HRT vs Postmenopause without HRT

		year with a bleeding cycle within the previous year or having had a hysterectomy without bilateral oophorectomy and vasomotor symptoms. - Classification involved examining concordance with age, FSH, HRT use, vasomotor symptoms, and date of last menstrual period.	

BMI: Body Mass Index; CES-D: Center for Epidemiologic Studies Depression Scale; DBP: Diastolic Blood Pressure; EMT: Early Menopausal Transition; FMP: Final Menstrual Period; FSH: Follicle-Stimulating Hormone; GAD: Generalized Anxiety Disorder; HRT: Hormone Replacement Therapy; HT: Hormone Therapy; LMT: Late Menopausal Transition; MAP: Mean Arterial Pressure; MDD: Major Depressive Disorder; MT: Menopausal Transition; NM: Natural Menopause; PdG: Pregnanediol Glucuronide; PM: Postmenopause; PP: Pulse Pressure; SBP: Systolic Blood Pressure; SM: Surgical Menopause; STRAW: Stages of Reproductive Aging Workshop; VMS: Vasomotor Symptoms; WHO: World Health Organization.

Appendix 7 Symptoms and causal attribution context

Study_ID	Symptoms Studied	Adjusted variables	Differential Diagnosis
Abe-1975	1. Vasomotor/Cardiovascular Symptoms: hot flushes, sweats, chilly sensation, palpitation,2. Psychological/Cognitive Symptoms: hyperirritability, worrying, general malaise,3. Musculoskeletal/Pain Syndromes: numbness, stiff shoulders, headache,4. Others: vertigo, formication	Sociodemographic Factors:,Age,Diseases/Clinical Diagnoses:,Psychiatric abnormalities (neurosis, schizophrenia),Other Adjusted Variables:,Kupperman's menopausal index (before and after conjugated estrogen administration)	- Neurosis n=16 (Discriminant function based on Kupperman's menopausal indices),- Schizophrenia n=1 (Discriminant function based on Kupperman's menopausal indices)
Avis-2000	1. Gynecological/Sexual/Urogenital Symptoms: such as lower sexual desire, belief that interest declines with age, decreased arousal, pain during intercourse,2. Vasomotor/Cardiovascular Symptoms: hot flashes, night sweats,3. Psychological/Cognitive Symptoms: depression, psychological symptoms (lack of energy, feeling blue or depressed, loss of appetite, nervous tension, trouble sleeping)	Sociodemographic Factors:,- Age,- Education level,- Employment status,- Marital status,Health Factors:,- Self-assessed health,- Physical symptoms (persistent cough, backaches, headaches, aching or stiffness in the joints, upset stomach, diarrhea and/or constipation, sore throat, or dizzy spells),- VMS (hot flashes and/or night sweats),- Restriction of usual activity,- Surgery within the past year,- Bladder or urinary tract infection,- Physical limitations or illness restricting sexual activity,Psychological Variables:,- Depression,- Psychological symptoms (lack of energy, feeling blue or depressed, loss of appetite, nervous tension, and trouble sleeping),- Stress from people other than husband/partner,Partner Variables:,- Recent stress caused by partner,- Partner's physical limitations or illness restricting sexual activity,Lifestyle Factors:,- Current cigarette smoking,- Regular exercise (more than once a week),- Alcohol consumption (as measured by the K.havari index and log-transformed),- BMI,Other Adjusted Variables:,- Menopause status	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for specific conditions)
Avis-2009	1. Gynecological/Sexual/Urogenital Symptoms: Leaking urine,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats,3. Psychological/Cognitive Symptoms: Sleep disturbances	Sociodemographic Factors:,- Age,- Marital status,- Race/ethnicity,- Educational attainment,- Difficulty paying for basics,Medical Conditions:,- Arthritis,- Migraines,Lifestyle Factors:,- Physical activity,Psychological Factors:,- Perceived stress,- Stressful life events,- Depressed mood,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use,- VMS,- Urine leakage,- Poor sleep	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for specific conditions)
Avis-2009 (Longitudinal)	1. Gynecological/Sexual/Urogenital Symptoms: such as importance of sex, sexual	Sociodemographic Factors:,- Age,- Education,- Race/ethnicity,Lifestyle Factors:,- BMI,- Smoking,- Alcohol	Not mentioned (the paper does not provide differential diagnoses or

	desire, arousal, masturbation, sexual intercourse, pain during intercourse,2. Vasomotor/Cardiovascular Symptoms: hot flashes, night sweats,3. Psychological/Cognitive Symptoms: attitudes towards aging and menopause, anxiety, depressive symptoms,4. Musculoskeletal/Pain Syndromes: not explicitly mentioned,5. Dermatological/Mucosal Symptoms: not explicitly mentioned,6. Quality of Life (QoL) Impact: racial/ethnic differences, relationship status,7. Others: use of lubricants during intercourse	consumption,Menopausal Factors:,- Hot flashes,- Night sweats,- Vaginal dryness,- Use of lubricants during intercourse,Psychological Factors:,- Attitudes towards aging and menopause,- Anxiety,- Depressive symptoms,- Importance of sex,Social Factors:,- Marital status,- Change in relationship status,- Having children at home,Other Adjusted Variables:,- Study site	specific diagnostic methods for conditions other than menopause-related symptoms)
Avis-2015	1. Vasomotor/Cardiovascular Symptoms: Hot flashes • Night sweats,2. Psychological/Cognitive Symptoms: Anxiety • Depressive symptoms • Perceived stress	Sociodemographic Factors:,- Age,- Self-reported race/ethnicity,- Site (among 7 US sites),- Married or partnered status,- Financial strain (difficulty paying for basics),- Educational level,Lifestyle Factors:,- Smoking,- BMI,Psychosocial Variables:,- Attitudes toward menopause,- Symptom sensitivity,- Anxiety,- Perceived stress,- Depressive symptoms,- Emotional and instrumental social support,Other Adjusted Variables:,- Menopausal transition stage	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for conditions other than VMS)
Avis-2017	1. Gynecological/Sexual/Urogenital Symptoms: vaginal dryness, lubricant use,2. Vasomotor/Cardiovascular Symptoms: hot flashes, night sweats,3. Psychological/Cognitive Symptoms: depression, anxiety	Sociodemographic Factors:,- Age at FMP or hysterectomy,- Race/ethnicity,- Partner status,Lifestyle Factors:,- Hormone therapy use,Diseases/Clinical Diagnoses:,- VMS,- Vaginal dryness,- Depression,- Anxiety,Other Adjusted Variables:,- Overall health status,- Menopause transition status,- Bilateral oophorectomy status,- Site differences	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for specific conditions)
Baker-2015	2. Vasomotor/Cardiovascular Symptoms:, • Hot flushes, • Night sweats,3. Psychological/Cognitive Symptoms:, • Depressive symptoms, • Sleeping disorders,6. Quality of Life (QoL) Impact:, • Daytime functioning impact	Sociodemographic Factors:,- Menopause transition stage,Lifestyle Factors:,- Menstrual cycle phase,Diseases/Clinical Diagnoses:,- Depression symptoms,Other Adjusted Variables:,- Presence of objective hot flashes	Insomnia n=38 (SCID)
Berecki-Gisolf-2009	1. Vasomotor/Cardiovascular Symptoms: hot flushes, night sweats,2. Musculoskeletal/Pain Syndromes: stiff or painful joints, headaches/migraines,3. Psychological/Cognitive Symptoms: overall	Sociodemographic Factors:,- Age,- Age at menopause,- Education,- Socioeconomic status (level of education, ability to manage on available income, area of residence, marital status),Lifestyle Factors:,- Smoking,- BMI,Diseases/Clinical Diagnoses:,- Night sweats,- Mental health,- Parity (for urinary	Depression n= number of women with this diagnosis (physician diagnosis); Mental health issues n= number of women with this

	mental health, doctor-diagnosed depression,4. Gynecological/Sexual/Urogenital Symptoms: leaking urine,5. Sleep Disorders: difficulty sleeping,6. Quality of Life (QoL) Impact: self-rated health	incontinence),Other Adjusted Variables:,- Hormone therapy use,- Oral contraceptive use,- Surgical menopause (hysterectomy and/or oophorectomy),- Prolapse surgery,- Life events (divorce, death of a close family member)	diagnosis (Mental Health Inventory [MHI])
Bromberger-2003	1. Psychological/Cognitive Symptoms: ,- Feeling "blue" or depressed,- Irritability or grouchiness,- Feeling tense or nervous,- Frequent mood changes,2. Sleep: ,- Trouble falling asleep,- Awakening several times during the night,- Waking up earlier than planned and being unable to fall asleep again,3. Psychosocial Variables: ,- Level of social support,- Quality of marital/partner relationship,- Presence of stressful events,4. Lifestyle: ,- Cigarette smoking,- Recreational/sports activity,5. Others: ,- Possible premenstrual syndrome (abdominal cramps, breast pain, weight gain/bloating, increased appetite or food cravings, mood changes, anxiety, back, joint, or muscle pain, headaches)	Sociodemographic Factors:,- Age,- Ethnicity,- Education,Lifestyle Factors:,- Recreational/sports activity,- Smoking,Diseases/Clinical Diagnoses:,- Pain,- Sleep disturbances,- VMS,- Medication use for nervous conditions,- Possible premenstrual syndrome,Other Adjusted Variables:,- Menopausal status,- Site,- Difficulty paying for basic necessities,- Social support,- Stressful life events,- Relationship quality	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods for conditions like depression or thyroid disease)
Bromberger-2010	2. Vasomotor/Cardiovascular Symptoms:, • Hot flushes, • Night sweats,3. Psychological/Cognitive Symptoms:, • Depressive symptoms	Sociodemographic Factors:,- Education,Lifestyle Factors:,- BMI,- Smoking,Diseases/Clinical Diagnoses:,- Medication use for nerves or depression,Other Adjusted Variables:,- VMS,- Social support,- Upsetting life events,- Menopausal status,- Baseline serum hormone values	Depression n=802 (CES-D score ≥16)
Bromberger-2011	1. Gynecological/Sexual/Urogenital Symptoms: Menstrual bleeding patterns,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, night sweats,3. Psychological/Cognitive Symptoms: Major depressive disorders, suicidal ideation	Sociodemographic Factors:,- Age,- Marital status,- Education,- Race,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- History of major depression,- Psychotropic medication use,Other Adjusted Variables:,- Menopausal status,- Upsetting life events,- VMS,- Hormone therapy use,- Reproductive hormones (estradiol, follicle-stimulating hormone, testosterone)	Major Depression n=146 (SCID)
Bromberger-2013	1. Psychological/Cognitive Symptoms: such as irritability, nervousness or tension, feeling fearful for no reason, heart pounding or	Sociodemographic Factors:,- Age,- Race/Ethnicity,- Education,- Study site,Health Factors:,- Number of medical conditions,- Perceived general health,Stressors:,- Difficulty paying for basics,- Experiencing at least one very stressful	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods for

	racing,2. Vasomotor/Cardiovascular Symptoms: such as hot flashes, night sweats	event,Other Adjusted Variables:,- Medication use for a nervous condition,- Frequent VMS,- Baseline anxiety,- Menopausal stage	conditions other than anxiety symptoms)
Brown-2002	1. Vasomotor/Cardiovascular Symptoms: hot flushes, night sweats,2. Musculoskeletal/Pain Syndromes: headaches/migraines, stiff or painful joints, back pain,3. Psychological/Cognitive Symptoms: difficulty sleeping,4. Others: severe tiredness, leaking urine, constipation, eyesight problems	Sociodemographic Factors:,- Age,- Sociodemographic characteristics,Lifestyle Factors:,- Lifestyle behaviors,- Body weight,- Smoking,- Life events,Other Adjusted Variables:,- Survey 1 scores,- Menopausal status	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods)
Burri-2015	1. Gynecological/Sexual/Urogenital Symptoms: ,- Desire,- Arousal,- Lubrication,- Orgasm,- Satisfaction,- Pain	Sociodemographic Factors:,- Education,Other Adjusted Variables:,- Menopausal status,- Relationship dissatisfaction	Sexual dysfunction n= number of women with this diagnosis (FSFI cutoff score of 26.55)
Callan-2019	1. Musculoskeletal/Pain Syndromes: ,- Abdominal pain	Sociodemographic Factors:,- Age,Reproductive Biomarkers:,- E 1 G (estrone glucuronide),- Testosterone,Stress-related Perceptions:,- Anxiety	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods for abdominal pain)
Campbell-2016	1. Psychological/Cognitive Symptoms: ,- Depressive symptoms,- Negative mood	Sociodemographic Factors:,- Age,- Education,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use	Depression (CESD-Brief)
Cauley-2023	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Others: Sleep disturbances - trouble falling asleep, waking up several times during the night, waking up earlier than planned	Sociodemographic Factors:,- Age,- Race/ethnicity,- Study site,- Education,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,- Physical activity,Diseases/Clinical Diagnoses:,- Diabetes,- Depression,Other Adjusted Variables:,- Menopausal status,- Bone beneficial and detrimental medications,- Sleep medications,- Depressive symptoms,- Femoral neck BMD	Depression n=245 (CES-D Scale)
Cho-2018	1. Psychological/Cognitive Symptoms: ,- Insomnia symptoms,- Sleep quality,- Sleep-interfering behaviors,- Depressive symptoms	Sociodemographic Factors:,- Marital status,- Income,Lifestyle Factors:,- Alcohol use,Clinical Factors:,- Age of menopause,- Hormonal medication use,- Menopausal duration	Insomnia n= number of women with this diagnosis (ISI); Depression n= number of women with this diagnosis (BDI)
Cohen-2006	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Vasomotor/Cardiovascular Symptoms: Hot flushes,3. Quality of Life (QoL) Impact: Sleep disruption, impact on daytime functioning	Sociodemographic Factors:,- Age,- Education,- Parity,Lifestyle Factors:,- Prior use of oral contraceptives,Diseases/Clinical Diagnoses:,- History of negative life events,Other Adjusted Variables:,- VMS,- Menopausal status (natural vs. hormonally modulated)	Depression n= number of women with this diagnosis (SCID, CES-D)
Crandall-2011	Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats	Sociodemographic Factors:,- Age,- Race/ethnicity,Lifestyle Factors:,- BMI,- Smoking status,- Alcohol intake,- Physical activity score,Diseases/Clinical Diagnoses:,- Exclusion of	- Hysterectomy (self-reported),- Bilateral oophorectomy (self-reported),- Pregnancy (self-

		women taking medications that influence bone density,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use,- Serum estradiol level,- Serum FSH level	reported),- Breastfeeding (self-reported),- Use of corticosteroid pills (self-reported),- Use of epilepsy medications (self-reported),- Use of tamoxifen (self-reported),- Use of chemotherapy (self-reported),- Use of medications for osteoporosis (self-reported)
Cray-2012	1. Psychological/Cognitive Symptoms: Depressed mood, Problem concentrating, Tired, Forgetful, Irritable, Nervous, Panic, Mood changes, Crying, Tension,2. Vasomotor/Cardiovascular Symptoms: Hot flush, Weight gain, Vaginal dryness, Wake up during night, Cold sweat,3. Musculoskeletal/Pain Syndromes: Backache, Headache, Joint ache,4. Sleep Disturbances: Problem falling asleep, Early awakening	Sociodemographic Factors:,- Age,- Education,- Race/ethnicity,- Employment status,Lifestyle Factors:,- BMI,- Smoking status,- Amount of exercise	Depression n= number of women with this diagnosis (CES-D)
Cray-2012 (Symptom)	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Mood (depressed, mood changes, crying, irritable), Cognitive (problem concentrating, forgetful, irritable),3. Musculoskeletal/Pain Syndromes: Pain (backache, joint ache, headache),4. Others: Sleep (difficulty getting to sleep, night-time awakening, early morning awakening), Tension (panic, nervous, tension)	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,Lifestyle Factors:,- None mentioned,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status	Not mentioned (the study focuses on symptom clusters rather than specific diagnoses)
Dennerstein-2001	1. Gynecological/Sexual/Urogenital Symptoms: ,- Sexual responsivity,- Frequency of sexual activities,- Libido,- Vaginal dyspareunia,- Partner's problems with sexual performance,2. Vasomotor/Cardiovascular Symptoms: ,- Hot flushes	Sociodemographic Factors:,- Age,- Education,Lifestyle Factors:,- None mentioned,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use,- Symptoms and well-being,- Psychosocial factors (interpersonal stress, daily hassles)	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for specific conditions)
Dennerstein-2007	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Gynecological/Sexual/Urogenital Symptoms: Vaginal dryness,3. Psychological/Cognitive Symptoms: Sleeping problems	Sociodemographic Factors:,- Age,Diseases/Clinical Diagnoses:,- CHD risk status,Other Adjusted Variables:,- Baseline level of variables,- Premenopausal value,- Hormone therapy use,- Menopausal status	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for the symptoms studied)

Dennerstein-2007 (Modeling)	1. Gynecological/Sexual/Urogenital Symptoms: such as vaginal dryness,2. Vasomotor/Cardiovascular Symptoms: • Hot flushes • Night sweats,3. Psychological/Cognitive Symptoms: • Sleep problems,4. Others: Other symptoms (respiratory, somatic, etc.)	Sociodemographic Factors:,- Age,- Education,- Employment status,- Marital status,- Parity,Lifestyle Factors:,- Exercise behavior,- Smoking habits,- Alcohol intake,- BMI,Diseases/Clinical Diagnoses:,- Hormone levels (E2, FSH, inhibin, SHBG, testosterone, dehydroepiandrosterone sulfate),- CHD risk,- Menopausal status,Other Adjusted Variables:,- Prior health status,- Daily hassles,- Stress	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions other than menopause-related symptoms)
deZambotti-2017	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Depressive symptoms, Mood swings, Anxiety, Cognitive impairment, Exhaustion/Fatigue, Sleeping disorders, Irritability/Rage episodes,3. Others: Autonomic hyperarousal	Sociodemographic Factors:,- Age,- Ethnicity,- Education,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Hypertension,- Major depressive disorder,- Generalized anxiety disorder,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Menstrual cycle phase (follicular and luteal)	Insomnia n=21 (DSM-IV criteria); Other Axis I disorders (e.g., major depressive disorder, generalized anxiety disorder) n=excluded (structured clinical interview for DSM-IV-TR Axis I Disorders); Sleep disorders (e.g., apnea-hypopnea index >5, periodic leg movement index >10) n=excluded (laboratory clinical PSG assessment)
ElKhoudary-2014	1. Musculoskeletal/Pain Syndromes: Functional limitations in performing daily living activities, reduction in muscle strength and mass.,2. Quality of Life (QoL) Impact: Limitations in activities of daily living (ADL).	Sociodemographic Factors:,- Age at visit-04,- Ethnicity,- Site,Lifestyle Factors:,- BMI at visit-04,- Change in BMI since visit-04,- Physical activity at visit-04,- Change in physical activity since visit-04,Diseases/Clinical Diagnoses:,- Depression,- Osteoarthritis,- Diabetes,- Hypertension,Other Adjusted Variables:,- Economic status (difficulty paying for basics),- Menopausal status,- Endogenous sex hormones (estradiol, testosterone, sex hormone-binding globulin)	- Depression n=416 (Center for Epidemiologic Studies Depression scale),- Osteoarthritis n=311 (self-reported),- Diabetes n=167 (self-reported or fasting glucose levels ≥126 mg/dL),- Hypertension n=778 (systolic blood pressure ≥130 mmHg or diastolic blood pressure ≥85 mmHg or self-reported use of antihypertensive medication)
Epperson-2013	1. Psychological/Cognitive Symptoms: ,- Depressive symptoms (CES-D),- Anxiety symptoms (Zung Self-Rating Anxiety Scale),- Cognitive impairment (Buschke Selective Reminding Test for immediate and delayed verbal recall),- Perceived stress (Perceived Stress Scale)	Sociodemographic Factors:,- Age,- Education,- Race,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Baseline cognitive task scores,- Menopausal status,- Hormone use,- Pregnancy,- Breastfeeding,- Current psychotropic use	- Depression n=166 (CES-D >= 16),- Anxiety n= (Zung Anxiety Scale),- Stress-related conditions n= (Perceived Stress Scale),- Hormonal imbalances n= (Estradiol, FSH, DHEAS, Inhibin B assays),- Menopause-related conditions n= (Menstrual bleeding data and Staging System for Reproductive Aging in Women)

Ford-2005	1. Gynecological/Sexual/Urogenital Symptoms: such as change in sexual desire, vaginal dryness, avoiding intimacy, urinary problems,2. Vasomotor/Cardiovascular Symptoms: such as VMS,3. Psychological/Cognitive Symptoms: such as sleep/fatigue, negative mood,4. Dermatological/Mucosal Symptoms: such as hair/skin changes	Sociodemographic Factors:,- Age,Lifestyle Factors:,- BMI,- Smoking,Hormone Levels:,- Estradiol,- Follicle-stimulating hormone (FSH),Menopausal Status:,- Premenopausal,- Postmenopausal,Other Adjusted Variables:,- Exogenous hormone use	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for the symptoms studied)
Freedman-2004	1. Vasomotor/Cardiovascular Symptoms: Hot flushes,2. Psychological/Cognitive Symptoms: Sleep disturbances	Sociodemographic Factors:,- Age,Lifestyle Factors:,- BMI,- Smoking,- Shift-work,- Use of prescription medications,Diseases/Clinical Diagnoses:,- Diabetes,- Cancer,- Heart disease,- Psychiatric conditions (via SCID),Other Adjusted Variables:,- Hormone levels (17 ␢-E 2),- Menopausal status	- Sleep apnea n=2 (apnea/hypopnea index),- Periodic limb movements n=3 (PLMS index),- Obesity n=4 (BMI >30),- Substance use disorders n=7 (urine drug screen),- Psychiatric disorders n=not specified (SCID),- Hormonal imbalances n=not specified (17 ␢-E 2 levels)
Freeman-2004	1. Psychological/Cognitive Symptoms: Depressive symptoms, Mood swings, Anxiety, Cognitive impairment, Exhaustion/Fatigue, Sleeping disorders, Irritability/Rage episodes,2. Vasomotor/Cardiovascular Symptoms: Hot flashes,3. Others: Poor sleep, Severe premenstrual syndrome (PMS)	Sociodemographic Factors:,- Age,- Race,- Education,- Marital status,- Living children,Lifestyle Factors:,- Employment status,Diseases/Clinical Diagnoses:,- History of depression,- Severe premenstrual syndrome,- Poor sleep,- Hot flashes,Other Adjusted Variables:,- Menopausal status,- Follicle-stimulating hormone profile,- Antidepressant medications	Major Depressive Disorder (MDD) n=126 (Primary Care Evaluation of Mental Disorders)
Freeman-2004 (Premenstrual)	1. Vasomotor/Cardiovascular Symptoms: Hot flushes,2. Psychological/Cognitive Symptoms: Depressed mood, Poor sleep,3. Gynecological/Sexual/Urogenital Symptoms: Decreased libido	Sociodemographic Factors:,- Age,- Race,Diseases/Clinical Diagnoses:,- Major depressive disorder,Other Adjusted Variables:,- Estradiol	- Premenstrual Syndrome (PMS) n=94 (interview questions and severity rating),- Premenstrual Dysphoric Disorder (PMDD) n= (criteria from DSM-IV and daily symptom reports),- Major Depressive Disorder n=47 (Primary Care Evaluation of Mental Disorders)
Freeman-2005	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Anxiety, Depressive symptoms	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- Smoking,- BMI,Diseases/Clinical Diagnoses:,- Depressive symptoms,Other Adjusted Variables:,- Menopause stage,- Estradiol levels,- Time	Not mentioned (the paper does not provide specific differential diagnoses for hot flashes beyond psychological assessments)

Freeman-2006	1. Psychological/Cognitive Symptoms: Depressive symptoms, Poor sleep,2. Vasomotor/Cardiovascular Symptoms: Hot flashes,3. Gynecological/Sexual/Urogenital Symptoms: PMS (premenstrual syndrome),4. Quality of Life (QoL) Impact: Smoking, Changes in employment and marital status	Sociodemographic Factors:,- Employment status,- Marital status,Lifestyle Factors:,- Smoking,- BMI,Clinical Factors:,- Hot flashes,- Premenstrual syndrome (PMS),- Poor sleep,Other Adjusted Variables:,- Menopausal status,- Hormone levels (estradiol, follicle-stimulating hormone, luteinizing hormone)	Major depressive disorder n=26 (PRIME-MD/Patient Health Questionnaire); Other depressive disorders n=33 (PRIME-MD/Patient Health Questionnaire)
Freeman-2007	1. Vasomotor/Cardiovascular Symptoms: hot flushes,2. Psychological/Cognitive Symptoms: depressed mood, poor sleep,3. Musculoskeletal/Pain Syndromes: aches, joint pain, and stiffness,4. Gynecological/Sexual/Urogenital Symptoms: decreased libido, vaginal dryness	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- Current smoking,- BMI,Diseases/Clinical Diagnoses:,- History of depression,Other Adjusted Variables:,- Menopausal stage,- Perceived stress,- Hormone levels (estradiol, follicle-stimulating hormone, inhibin b)	Not mentioned (the paper does not provide information on differential diagnoses or specific diagnostic methods)
Freeman-2008	3. Psychological/Cognitive Symptoms: ,- Headache,- Irritability,- Mood swings,- Anxiety,- Concentration difficulties	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- Smoking,Diseases/Clinical Diagnoses:,- History of depression,Other Adjusted Variables:,- Menopausal stage,- Premenstrual syndrome (PMS),- Perceived stress,- Hormone levels (estradiol, FSH, testosterone)	- Major depressive disorder (n= not specified) (Primary Care Evaluation of Mental Disorders or Patient Health Questionnaire),- Other depression syndromes (n= not specified) (Primary Care Evaluation of Mental Disorders or Patient Health Questionnaire),- Anxiety syndromes (n= not specified) (Primary Care Evaluation of Mental Disorders or Patient Health Questionnaire),- Somatoform disorder (n= not specified) (Primary Care Evaluation of Mental Disorders or Patient Health Questionnaire)
Freeman-2011	2. Vasomotor/Cardiovascular Symptoms:, - Hot flushes, - Night sweats,3. Psychological/Cognitive Symptoms:, - Depressed mood, - Poor sleep	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Anxiety,Other Adjusted Variables:,- Menopausal stage,- Hormone levels (FSH, inhibin b, estradiol)	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for conditions other than menopause-related hot flushes)
Freeman-2014	3. Psychological/Cognitive Symptoms: Depressive symptoms	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,- Current smoking,Diseases/Clinical Diagnoses:,- History of depression,Other Adjusted Variables:,- Current medication use	Depression n=203 (CES-D scale with cut points >=16 and >=25; PRIME-MD interview)

Freeman-2016	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Anxiety (somatic and affective dimensions)	Sociodemographic Factors:,- Age,- Education,- Race,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,- Employment,Diseases/Clinical Diagnoses:,- History of depression,- Use of psychotropic medications,Other Adjusted Variables:,- Menopausal stage,- Estradiol levels,- FSH levels	Not mentioned (the paper does not provide specific differential diagnoses or their diagnostic methods)
Gold-2006	1. Vasomotor/Cardiovascular Symptoms: ,- Hot flashes,- Night sweats,- Cold sweats	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,- Marital status,- Employment status,Lifestyle Factors:,- BMI,- Smoking,Diseases/Clinical Diagnoses:,- Anxiety at baseline,- Depressive symptoms,- Premenstrual symptoms,Other Adjusted Variables:,- Menopausal status,- Symptom sensitivity,- Race/Ethnicity	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for conditions other than VMS)
Gold-2007	Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats	Sociodemographic Factors:,- Age,- Education,- Primary race/ethnicity,- Region,Lifestyle Factors:,- Smoking,- Physical activity,- BMI,Other Adjusted Variables:,- Symptom sensitivity,- Menopausal status	Not mentioned (the study does not discuss differential diagnoses for conditions other than VMS)
Gold-2017	Vasomotor/Cardiovascular Symptoms: • Hot flushes • Night sweats	Sociodemographic Factors:,- Age,- Education,- Race/Ethnicity,Lifestyle Factors:,- Smoking,Diseases/Clinical Diagnoses:,- Baseline depressive symptoms,Other Adjusted Variables:,- Menopausal status,- History of premenstrual symptoms,- Symptom sensitivity	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for VMS)
Gold-2022	Vasomotor/Cardiovascular Symptoms: • Hot flushes • Night sweats	Sociodemographic Factors:,- Race/ethnicity,- Site,- Age group,Lifestyle Factors:,- BMI,- Smoking,- Physical activity score,Diseases/Clinical Diagnoses:,- History of premenstrual symptoms,- Menopause transition stage,- Anxiety score,- Number of comorbidities,Socioeconomic Status:,- Difficulty paying for basics,- Annual household income,Other Adjusted Variables:,- Perceived stress,- Hormone therapy use	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for conditions other than VMS)
Gopal-2008	1. Gynecological/Sexual/Urogenital Symptoms: ,- Urinary incontinence,- Filling symptoms,- Voiding dysfunction,2. Psychological/Cognitive Symptoms: ,- Anxiety	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,- Smoking,Diseases/Clinical Diagnoses:,- Anxiety,- History of prior hysterectomy,Other Adjusted Variables:,- Menopausal status,- Hysterectomy	Not mentioned (the paper does not discuss differential diagnoses for the symptoms studied)
Gordon-2016	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, sweating at night	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- VMS,Other Adjusted Variables:,- Progesterone variability,- Estradiol levels	Depression n=5 (CES-D and psychiatric interview)
Gordon-2020	1. Psychological/Cognitive Symptoms: Depressive symptoms,2.	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,Lifestyle Factors:,- BMI,-	Major Depressive Disorder n=17 (SCID-5)

	Vasomotor/Cardiovascular Symptoms: Hot flashes	Smoking,Diseases/Clinical Diagnoses:,- Major depressive disorder,- Anxiety at baseline,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Past history of depressive symptoms,- PdG levels,- Vasomotor symptom bother,- Number of months since last menstrual period,- Baseline number of stressful life events	
Greendale-2009	3. Psychological/Cognitive Symptoms: ,- Cognitive impairment (specifically in processing speed and verbal episodic memory),- Slowed processing speed,- Lack of improvement in verbal episodic memory during perimenopause	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status (difficulty paying for basics),- Race/ethnicity,- Language used in testing,- Study site,Other Adjusted Variables:,- Number of cognitive test visits attended	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for conditions other than cognitive performance related to menopause transition)
Grummisch-2023	2. Vasomotor/Cardiovascular Symptoms:, • VMS (e.g., hot flushes, night sweats),3. Psychological/Cognitive Symptoms:, • Depressive symptoms, • Cognitive impairment, • Sleeping disorders	Other Adjusted Variables:,- Sleep quality,- Vasomotor symptom bother,- Depressive symptoms	Not mentioned (the study does not provide differential diagnoses related to the cognitive symptoms studied)
Guthrie-2004	1. Gynecological/Sexual/Urogenital Symptoms: such as vaginal dryness, breast tenderness, dyspareunia,2. Vasomotor/Cardiovascular Symptoms: hot flushes, night sweats,3. Psychological/Cognitive Symptoms: depressed mood, changes in well-being,4. Musculoskeletal/Pain Syndromes: aches or stiff joints,5. Quality of Life (QoL) Impact: changes in sexual functioning, well-being	Sociodemographic Factors:,- Education,- Employment status,- Health status,Lifestyle Factors:,- BMI,- Exercise frequency,- Alcohol consumption,Diseases/Clinical Diagnoses:,- VMS,- Vaginal dryness,- Breast tenderness,- Cardiovascular disease risk,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use,- Estradiol levels,- Psychosocial factors (marital status, stress, attitudes towards aging)	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for symptoms)
Guthrie-2005	2. Vasomotor/Cardiovascular Symptoms: • Hot flushes • Night sweats	Sociodemographic Factors:,- Age,- Education,- Employment status,Lifestyle Factors:,- BMI,- Smoking,- Exercise,- Alcohol intake,Diseases/Clinical Diagnoses:,- Estradiol levels,- FSH levels,Other Adjusted Variables:,- Menopause status,- Hormone therapy use,- Negative mood,- Daily hassles	Not mentioned (the paper does not provide information on differential diagnoses or their diagnostic methods)
Harlow-2017	1. Gynecological/Sexual/Urogenital Symptoms: vaginal dryness, involuntary urine loss, sexual desire,2. Vasomotor/Cardiovascular Symptoms: VMS,3. Psychological/Cognitive Symptoms: depressive symptoms, mood symptoms,	Sociodemographic Factors:,- Age,- Education,- Race/ethnicity,Lifestyle Factors:,- Obesity status,- Smoking status,Other Adjusted Variables:,- Financial strain,- Menopausal status	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions)

	stress,4. Musculoskeletal/Pain Syndromes: bodily pain,5. Others: sleep quality, fatigue		
Hickey-2016	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats	Sociodemographic Factors:,- Age,- Occupation,- Area of residence,Lifestyle Factors:,- Smoking,- Physical activity,- Alcohol consumption,- BMI,Diseases/Clinical Diagnoses:,- Night sweats,- History of diagnosis or treatment of depression,Other Adjusted Variables:,- Reproductive stage,- Change in reproductive stage	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions other than depression)
Huang-2024	4. Musculoskeletal/Pain Syndromes: ,- Muscle and joint pain,- Neck pain,- Back pain,- Knee pain	Sociodemographic Factors:,- Education,- Marital status,- Income,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Menopausal stages,- FSH,- E2,- BMD,- Anxiety,- Depression,Other Adjusted Variables:,- General health status,- Age	- Anxiety n= number of women with this diagnosis (HADS),- Depression n= number of women with this diagnosis (HADS)
HydeRiley-2004	1. Vasomotor/Cardiovascular Symptoms: Hot flashes	Sociodemographic Factors:,- Age,- Race/Ethnicity,Lifestyle Factors:,- BMI,- Alcohol consumption,- Dietary fat intake,Diseases/Clinical Diagnoses:,- Depression,- Depressive symptoms within the prior year,Other Adjusted Variables:,- Hormone replacement therapy (HRT) use,- Oral contraceptive (OCP) use	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for such diagnoses)
Jacobs-2017	3. Psychological/Cognitive Symptoms: • Anxiety • Cognitive impairment • Mood swings • Emotional lability (as indicated by mood assessments) • "Brain fog"/Mental sluggishness (implied by working memory focus)	Sociodemographic Factors:,- Age,- Education (implied by adjustment for verbal IQ),- Socioeconomic status (not explicitly mentioned but could be inferred from demographic characteristics),Other Adjusted Variables:,- Reproductive status,- Estimated verbal IQ	Not mentioned (the paper does not provide specific differential diagnoses or their frequencies)
Jang-2025	1. Psychological/Cognitive Symptoms: ,- Sleep disorders,- Poor sleep quality,- Subjective sleep quality,- Sleep latency,- Sleep disturbances,- Use of sleep medications,- Daytime dysfunction	Sociodemographic Factors:,- Age at baseline,- Time-varying age,- Education,- Marital status,- Age at menarche,Lifestyle Factors:,- Smoking,- BMI,Other Adjusted Variables:,- Menopausal stage changes over time	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods for conditions related to sleep quality)
Jones-2018	1. Gynecological/Sexual/Urogenital Symptoms: Urinary frequency, Nocturia,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, Feeling too hot	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Urinary frequency,- Hot flashes,- Night sweats,Other Adjusted Variables:,- Reproductive stage	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods beyond assessing sleep quality and depressive symptoms)
Kalleinen-2021	1. Vasomotor/Cardiovascular Symptoms: • Hot flushes • Night sweats,2.	Sociodemographic Factors:,- Age,- Education (not explicitly mentioned),- Socioeconomic status (not explicitly mentioned),Lifestyle Factors:,- BMI,Diseases/Clinical	Depression n=3 (BDI)

	Psychological/Cognitive Symptoms: • Depressive symptoms	Diagnoses:,- None explicitly mentioned,Other Adjusted Variables:,- VMS (night sweats, hot flashes),- Depressive symptoms (BDI total score),- Medication with central nervous system effects	
Katainen-2018	1. Vasomotor/Cardiovascular Symptoms: VMS,2. Psychological/Cognitive Symptoms: Depressive symptoms, Anxiety/fears, Cognitive difficulties,3. Sexual Symptoms: Sexual functioning,4. Sleep Symptoms: Sleep problems,5. Somatic Symptoms: Somatic symptoms	Sociodemographic Factors:,- Age,- Employment,Lifestyle Factors:,- BMI,Other Adjusted Variables:,- Hormone therapy use	- Anemia n=0 (Hemoglobin),- Thyroid disease n=0 (TSH),- Vitamin B12 deficiency n=0 (Vitamin B12),- Cardiovascular disease n=9 (13.8%) (Clinical assessment),- Diabetes n=0 (Glucose),- Neurological disease n=5 (7.7%) (Clinical assessment),- Mental disease n=0 (Clinical assessment),- Hormone therapy-related conditions n=4 (7.0%) (HT use)
King_2022	1. Vasomotor/Cardiovascular Symptoms: hot flashes,2. Psychological/Cognitive Symptoms: depressed mood, irritability,3. Musculoskeletal/Pain Syndromes: joint and muscle aches,4. Gynecological/Sexual/Urogenital Symptoms: vaginal dryness, bladder problems,5. Other Symptoms: cardiac issues	Sociodemographic Factors:,- Ethnicity,- Annual income,Lifestyle Factors:,- High BMI,- Smoking,- Recreational drug use,Diseases/Clinical Diagnoses:,- Depression,Other Adjusted Variables:,- Reproductive phase,- HIV stigma,- Sexual satisfaction,- Barriers of access to care,- Recent physical or sexual violence,- Resilience	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for conditions other than menopause-related symptoms)
Kok-2006	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Psychological/Cognitive Symptoms: Psychological symptoms (assessed by GHQ28)	Sociodemographic Factors:,- Lifetime social class,- Educational attainment,Lifestyle Factors:,- Smoking,- BMI,- Respiratory symptoms,Diseases/Clinical Diagnoses:,- Cardiovascular disease,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- VMS,- Psychological symptoms,- Earlier cognitive function,- Childhood cognitive ability	Not mentioned (the paper does not provide specific differential diagnoses or their diagnostic methods)
Kravitz-2022	1. Psychological/Cognitive Symptoms: Depressive symptoms, Anxiety, Sleep problems	Sociodemographic Factors:,- Age,- Education,- Marital status,- Financial strain,- Race/Ethnicity,Health-related Factors:,- BMI,- Chronic medical conditions (e.g., diabetes, hypertension),- VMS,Psychosocial Variables:,- Life stress,- Social support,- Anxiety symptom score,- Childhood trauma,Other Adjusted Variables:,- Menopausal status,- Menopausal hormone therapy use,- Medications for nervous	Not mentioned (the study does not provide differential diagnoses or specific diagnostic methods for conditions)

		conditions,- Poor role emotional and role physical scores,- Sleep problems	
Kumari-2005	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Psychological/Cognitive Symptoms: Depression	Sociodemographic Factors:,- Age,- Employment grade,Lifestyle Factors:,- BMI,- Smoking status,Diseases/Clinical Diagnoses:,- Psychological distress (GHQ),- Depression,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use	Depression (GHQ)
Lampio-2017	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Psychological/Cognitive Symptoms: Depressive symptoms, Sleeping disorders	Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Depressive symptoms (BDI total score),Other Adjusted Variables:,- VMS (night sweats, hot flashes)	Depression n= number of women with this diagnosis (Beck Depression Inventory); Sleep Apnea n= number of women with this diagnosis (Apnea-Hypopnea Index)
Lee-2023	1. Psychological/Cognitive Symptoms: Depressive symptoms, Anxiety, Sleep disorders,2. Gynecological/Sexual/Urogenital Symptoms: Postmenopausal bleeding, Postmenopausal atrophic vaginitis,3. Vasomotor/Cardiovascular Symptoms: Not explicitly mentioned but implied through hormonal changes	Sociodemographic Factors:,- Age,Diseases/Clinical Diagnoses:,- Diabetes mellitus,- Hyperlipidaemia,- Obesity,- Cerebrovascular disease,- Hypertension,- Ischaemic heart disease,- Renal failure syndrome,- Chronic liver disease,- Urinary tract infection,- Malignant neoplastic disease,Medication:,- Beta-blocking agents,- Calcium channel blocker,- Diuretics,- ACE inhibitors or angiotensin II antagonist,- Anti-thrombotic agents,- Blood glucose-lowering drugs,- Antibacterial drugs	- Depression: n= not specified (diagnosis and medication prescriptions),- Anxiety: n= not specified (diagnosis and medication prescriptions),- Sleep Disorder: n= not specified (diagnosis and medication prescriptions)
Li-2020	1. Vasomotor/Cardiovascular Symptoms: ,- Hot flashes,- Night sweats	Sociodemographic Factors:,- Age,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Menopausal stages,- Serum hormone levels (FSH),- General stress levels,Other Adjusted Variables:,- Menopausal status	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions other than VMS)
Luo-2020	1. Psychological/Cognitive Symptoms: ,- Insomnia symptoms (trouble falling asleep, waking up early),- Anxiety,- Depression,2. Vasomotor/Cardiovascular Symptoms: ,- Hot flashes,- Night sweats	Sociodemographic Factors:,- Age,- Education,- Income,- Marriage,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- General health status,- Hot flashes (VMS),- Anxiety,- Depression,Other Adjusted Variables:,- Menopausal status (STRAW + 10 stages)	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for insomnia or other conditions)
Maki-2021	1. Psychological/Cognitive Symptoms: ,- Cognitive impairment,- Anxiety,- Irritability,- Sleep disturbances,2. Vasomotor/Cardiovascular Symptoms: ,- VMS	Sociodemographic Factors:,- Age,- Annual household income (<$12,000 per year),- Education,- Socioeconomic status,Lifestyle Factors:,- Current tobacco smoking status,- Heavy alcohol use,- Marijuana use,- Crack, cocaine, and/or heroin use,Diseases/Clinical Diagnoses:,- HIV status,- Hepatitis C antibody positive status,- History of prior AIDS-defining illness,- Nadir log CD4+ count,- Current log CD4+	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions like depression or thyroid disease)

		count,- Current HIV RNA copies per ml of plasma,Other Adjusted Variables:,- Menopausal hormone therapy,- Oral contraceptive use,- Surgical menopause,- Parity	
Maleki-2019	1. Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats,2. Gynecological/Sexual/Urogenital Symptoms: Vaginal dryness,3. Musculoskeletal/Pain Syndromes: Back pain	Sociodemographic Factors:,- Age (linear and quadratic components),- Race,- Menopausal status,Socioeconomic Factors:,- Annual household income,- Smoking condition,Psychological Factors:,- Depression scores,- Anxiety scores,Reproductive Factors:,- Age at first child birth,- Age at menarche,- Use of hormone therapy (estrogen or progesterone),Lifestyle Factors:,- BMI,- Sleep disturbance	Back pain n=152 (self-reported treatment for back pain)
Marsh-2015	1. Psychological/Cognitive Symptoms: ,- Depressive symptoms,- Mood swings,- Anxiety,- Emotional lability,- Low energy and motivation,- Poor concentration,- Interrupted sleep,- Irritability,- Tearfulness	Sociodemographic Factors:,- Age,Diseases/Clinical Diagnoses:,- Duration of illness,- Bipolar disorder characteristics,Other Adjusted Variables:,- Study visit,- Menopausal status,- Past history of mood exacerbation (postpartum mood exacerbation),- Menopausal symptoms (Greene Climacteric Scale)	- Bipolar I disorder (ADE),- Bipolar II disorder (ADE),- Bipolar disorder not otherwise specified (ADE)
Marsh-2017	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Vasomotor/Cardiovascular Symptoms: Hot flashes, cold sweats, night sweats	Sociodemographic Factors:,- Baseline age,- Ethnicity,- Education,- Site,Lifestyle Factors:,- Smoking status,- Baseline height/weight/change in weight,Diseases/Clinical Diagnoses:,- Any premenopausal depression,- Ever-use of antidepressants at baseline,Other Adjusted Variables:,- Duration from menarche to MT,- Concurrent menopause status,- Concurrent antidepressant use,- Hormone therapy use,- Reproductive variables (number of months breastfeeding, number of pregnancies, OC duration),- VMS symptom frequency,- Life events,- Social support	Depression n= number of women with this diagnosis (CES-D ≥16 and >22)
Matthews-1994	1. Vasomotor/Cardiovascular Symptoms: Hot flashes, Cold sweats,2. Musculoskeletal/Pain Syndromes: Joint pain, Aches in the skull and/or neck,3. Psychological/Cognitive Symptoms: Being forgetful	Sociodemographic Factors:,- Age,Lifestyle Factors:,- None mentioned,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Baseline measurements (implied by repeated measures analysis)	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for specific conditions)
Matthews-2021	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Sleep disturbances (trouble falling asleep, waking up multiple times),3. Others: Increased NREM EEG beta power (indicative of physiological hyperarousal during sleep)	Sociodemographic Factors:,- Age,- Race/Ethnicity,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Number of health problems,- CES-D scores (excluding the sleep item),Other Adjusted Variables:,- Menopausal status,- VMS,- Medications that affect sleep,- AHI ≥15,- Time 1 NREM EEG beta power	Not mentioned (the study does not provide specific differential diagnoses related to the symptoms studied; it focuses on physiological changes during menopause and their impact on sleep using PSG as a diagnostic method)

Matthews-2022	1. Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats,2. Psychological/Cognitive Symptoms: Sleep maintenance problems, Depressive symptoms	Sociodemographic Factors:,- Race/ethnicity,- Age,Lifestyle Factors:,- BMI,- Smoking,Diseases/Clinical Diagnoses:,- Depressive symptoms (baseline and changes over time),Other Adjusted Variables:,- Menopausal status (implied by the context of the study)	Not mentioned (the paper does not discuss differential diagnoses or specific diagnostic methods for the symptoms studied)
Maxwell-2023	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Musculoskeletal/Pain Syndromes: Bodily pain,3. Vasomotor/Cardiovascular Symptoms: Hot flashes,4. Gynecological/Sexual/Urogenital Symptoms: Vaginal dryness,5. Quality of Life (QoL) Impact: Impact on physical role functioning, bodily pain affecting daily activities	Sociodemographic Factors:,- Age,- Working status,- Marital status,- Education,- Socioeconomic status,Lifestyle Factors:,- Physical activity levels,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Depression,- Thyroid disease,- Cancer history,- Cardiovascular disease,- Hypertension,- Diabetes,- High cholesterol,- Metabolic syndrome,Other Adjusted Variables:,- Surgical menopause,- Bodily pain,- Vitality	- Sleep disorders n= not specified (self-reported diagnosis),- Hypertension n= not specified (self-reported diagnosis),- Thyroid disease n= not specified (self-reported diagnosis),- High cholesterol n= not specified (self-reported diagnosis),- Metabolic syndrome n= not specified (self-reported diagnosis),- History of malignancy n= not specified (self-reported diagnosis),- Sleep apnea n= Surg Post-M: 13.9%, Nat Post-M: 4.9%, Peri-M: 8.2%, Pre-M: 1.8% (self-reported diagnosis)
Mirer-2017	1. Gynecological/Sexual/Urogenital Symptoms: Menstrual flow, hot flashes,2. Vasomotor/Cardiovascular Symptoms: Hot flashes,3. Others: Sleep-disordered breathing (assessed by apnea-hypopnea index)	Sociodemographic Factors:,- Age,Lifestyle Factors:,- BMI,- Waist girth,- Neck girth,- Alcohol use,- Smoking history,Other Adjusted Variables:,- Hormone therapy use	Not mentioned (the study focuses on the relationship between menopause and sleep-disordered breathing, not on differential diagnoses of other conditions)
Mishra-2012	1. Psychological Symptoms: trouble sleeping, anxiety and depression, tearfulness, irritability, feelings of panic, forgetfulness,2. Somatic Symptoms: aches and pains in joints, pins and needles in hands and feet, dizziness, palpitations, skin crawling sensations, frequent severe headache, breast tenderness, increased frequency of passing urine,3. VMS: cold or night sweats, hot flushes,4. Sexual Discomfort Symptoms: difficulties with intercourse, vaginal dryness	Sociodemographic Factors:,- Social class,- Education level,- Marital status,Lifestyle Factors:,- Smoking status,- BMI,Other Adjusted Variables:,- None explicitly mentioned beyond sociodemographic and lifestyle factors	Not mentioned (the study does not provide specific differential diagnoses or diagnostic methods for the symptoms studied)
Mitchell-2010	1. Musculoskeletal/Pain Syndromes: ,- Back pain,- Joint pain,- Headaches/migraines,- Stiff	Sociodemographic Factors:,- Age,- Education,Lifestyle Factors:,- BMI,- Exercise,- Analgesic use,Diseases/Clinical	Osteoarthritis (X-ray); Depression (not specified)

	or aching joints,- Chest pain on exertion,- Painful urination,- Breast soreness/tenderness,2. Psychological/Cognitive Symptoms: ,- Depressed mood,- Anxiety,- Difficulty concentrating,- Sleep disruption,3. Vasomotor/Cardiovascular Symptoms: ,- Hot flushes,4. Others: ,- Perceived stress,- History of sexual abuse	Diagnoses:,- Hot flushes,- Anxiety,- Difficulty concentrating,- Awakening during the night,Other Adjusted Variables:,- Perceived health	
Mitchell-2015	2. Vasomotor/Cardiovascular Symptoms:, • Hot flushes,3. Psychological/Cognitive Symptoms:, • Anxiety	Sociodemographic Factors:,- Age,- Race,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Anxiety,- Depressive symptoms,Other Adjusted Variables:,- Menopausal transition stage,- Estrone levels,- FSH levels,- Time	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for other conditions)
Mitchell-2017	1. Psychological/Cognitive Symptoms: Depressive symptoms,2. Vasomotor/Cardiovascular Symptoms: Hot flashes,3. Others: Sleep symptoms (difficulty getting to sleep, awakening during the night, early morning awakening)	Sociodemographic Factors:,- Age,Lifestyle Factors:,- BMI,- Alcohol use,- Amount of exercise,Stress Factors:,- Perceived stress,- History of sexual abuse,Social Factors:,- Partner status,- Number of live births,Symptoms:,- Hot flash severity,- Difficulty getting to sleep,- Early awakening,- Awakening at night,Menopausal Transition Factors:,- Menopausal transition stages,- Urinary estrone,- Urinary FSH	Not mentioned (the paper does not provide information on differential diagnoses or specific diagnostic methods for conditions other than depressed mood)
Mulhall-2018	3. Psychological/Cognitive Symptoms: ,- Depressive symptoms,- Anxiety	Sociodemographic Factors:,- Age,- Education,Lifestyle Factors:,- Smoking status,- Employment status,- Financial difficulty,- Number of life events,Diseases/Clinical Diagnoses:,- Self-reported physical health,- Use of antidepressant medication,- Use of anxiolytic medication,- Past history of depressive symptoms (GDS at wave 1),- Past history of anxiety symptoms (GAS at wave 1)	- Depression (CIDI-SF),- Generalized Anxiety Disorder (CIDI-SF)
Ozasa-2022	1. Musculoskeletal/Pain Syndromes: ,- Intraoral numbness,- Stinging,- Burning pain,- Cold pain threshold,- Heat pain threshold,- Pressure pain threshold,- Vibration detection threshold	Sociodemographic Factors:,- Age,- Sex,Diseases/Clinical Diagnoses:,- Intraoral spontaneous pain (assessed using VAS),- Systemic diseases (as listed in Table 1),Other Adjusted Variables:,- Thermal parameters (CDT, WDT, thermal sensory limen, cold pain threshold, heat pain threshold),- Mechanical parameters (MDT, MPT, vibration detection threshold, pressure pain threshold, WUR, MPS),- Serial correlation (adjusted using DurbineWatson statistic)	- Candida albicans infection (swab test),- Nonburning dysesthetic sensation (clinical assessment)
Randolph-2005	2. Vasomotor/Cardiovascular Symptoms: ,- Hot flushes ,- Night sweats	Sociodemographic Factors:,- Age,- Ethnicity,Lifestyle Factors:,- BMI,- Smoking,Socioeconomic Factors:,- Difficulty	Not mentioned (the paper does not provide information on differential

		in paying for basics,Other Adjusted Variables:,- Menopausal status,- Timing of phlebotomy	diagnoses or diagnostic methods for conditions other than VMS)
Rössler-2016	1. Vasomotor/Cardiovascular Symptoms: hot flushes and/or night sweats,2. Psychological/Cognitive Symptoms: depressed mood, irritability and/or nervousness, anxiety and/or panic,3. Gynecological/Sexual/Urogenital Symptoms: sexual problems, urinary incontinence, vaginal dryness,4. Musculoskeletal/Pain Syndromes: joint pain,5. Others: sleep disturbances, physical and mental tiredness	Sociodemographic Factors:,- Time (to account for the influence of aging),Lifestyle Factors:,- Psychosocial distress,- Psychopathological vulnerability,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Duration of reproductive period,- Age at menopause	Major depressive episode n=18.5% (DSM-III-R); Anxiety disorders n=24.1% (DSM-III-R)
Samargandy-2022	1. Vasomotor/Cardiovascular Symptoms: Hot flashes, Night sweats	Sociodemographic Factors:,- Age,- Race and ethnicity,- Education,- Socioeconomic status,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Diabetes,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status (age at menopause),- LDL-C,- Baseline BMI,- Study site	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for specific conditions beyond hypertension)
Schmidt-2004	1. Vasomotor/Cardiovascular Symptoms:, - Hot flushes,2. Psychological/Cognitive Symptoms:, - Depressive symptoms, - Anxiety, - Excessive worry	Sociodemographic Factors:,- Parity,- Family history of mood disorder,Lifestyle Factors:,- Smoking history,- Regular exercise,- Use of vitamin or mineral supplements,Diseases/Clinical Diagnoses:,- Presence of medical illnesses,- FSH level at onset of menstrual cycle irregularity,- FSH level at final menstrual period,- Duration of menstrual cycle irregularity before final menstrual period,- Duration of late perimenopause,- Age at onset of menstrual cycle irregularity,- Age at final menstrual period,Other Adjusted Variables:,- Hot flushes,- Number of exit-type or unpleasant events	Depression n=9 (SCID)
Schnall-2019	1. Gynecological/Sexual/Urogenital Symptoms: ,- Menstrual/menopausal symptoms (not explicitly listed but implied),2. Vasomotor/Cardiovascular Symptoms: ,- Hot flashes,- Fever/chills/sweats,3. Psychological/Cognitive Symptoms: ,- Depression,- Fatigue,4. Musculoskeletal/Pain Syndromes: ,- Muscle aches and pains,- Headache,5. Dermatological/Mucosal	Sociodemographic Factors:,- Education,- Socioeconomic status,Lifestyle Factors:,- Smoking,Diseases/Clinical Diagnoses:,- Number of comorbid conditions (e.g., asthma, cardiovascular disease, chronic obstructive pulmonary disease, diabetes, liver disease, osteoporosis, renal failure, and arthritis),Other Adjusted Variables:,- Menopause status,- Season of the year	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods)

	Symptoms: ,- Not explicitly mentioned,6. Quality of Life (QoL) Impact: ,- Not explicitly mentioned,7. Others: ,- Nausea/vomiting,- Appetite changes,- Diarrhea		
Shardell-2021	1. Gynecological/Sexual/Urogenital Symptoms:,- Vaginal atrophy,- Vaginal dryness,- Urinary incontinence,- Low libido	Sociodemographic Factors:,- Age,- Education,- Race,- Smoking status,Lifestyle Factors:,- Recent sexual activity,- Number of lifetime male sex partners,Diseases/Clinical Diagnoses:,- Menopause stage,Other Adjusted Variables:,- Exogenous hormone use	- CST-IV-A/C n= number of women with this microbiota profile (16S rRNA gene amplicon sequencing),- CST-IV-B n= number of women with this microbiota profile (16S rRNA gene amplicon sequencing),- CST-I n= number of women with this microbiota profile (16S rRNA gene amplicon sequencing),- CST-II/V n= number of women with this microbiota profile (16S rRNA gene amplicon sequencing),- CST-III n= number of women with this microbiota profile (16S rRNA gene amplicon sequencing)
Sowers-2007	1. Musculoskeletal/Pain Syndromes: ,- Strength (2-lb lift, grip, quadriceps),- Flexibility (forward reach distance),- Mobility (time required for stair climb, 40-foot walk, sit-to-stand),- Perception of physical functioning (limitations in activities like vigorous activities, lifting, climbing stairs, bending, walking)	Sociodemographic Factors:,- Age (not included in final models),Lifestyle Factors:,- BMI (body size),- Smoking,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Time	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods for conditions other than menopause status)
Strauss-2011	1. Vasomotor/Cardiovascular Symptoms: hot flashes, heavy sweating,2. Psychological/Cognitive Symptoms: insomnia, irritability, depressed mood, tension, loss of energy, memory and attentional difficulties	Sociodemographic Factors:,- Age,- Education,- Financial security,Diseases/Clinical Diagnoses:,- Initial menopausal symptoms,- Initial depressive symptoms	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods)
Tang-2019	1. Psychological/Cognitive Symptoms: ,- Depressive symptoms,- Anxiety,- Trouble falling asleep,- Early awakening,- Night sweats	Sociodemographic Factors:,- Age,- Education,- Marital status,- Income,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- General health status,- VMS (hot flashes and night sweats),- Sleeping problems (trouble falling asleep and	- Anxiety n= number of women with this diagnosis (HADS-A score R8),- Depression n= number of women with this diagnosis (HADS-D score R8)

		early awakening),Other Adjusted Variables:,- Hormone levels (estradiol and FSH)	
Tang-2020	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Psychological/Cognitive Symptoms: Depressive symptoms, Anxiety	Sociodemographic Factors:,- Age,- Education,- Marital status,- Socioeconomic status (monthly income),Lifestyle Factors:,- BMI,- Smoking,Diseases/Clinical Diagnoses:,- Menopausal stage,- FSH,- Estradiol,Other Adjusted Variables:,- General health status	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods beyond the use of HADS for anxiety and depression)
Taylor-Swanson-2018	1. Psychological/Cognitive Symptoms: ,- Fatigue,- Perceived stress	Sociodemographic Factors:,- Age (35-55 years),- Education (ability to speak and read English),- Socioeconomic status (not explicitly mentioned),Lifestyle Factors:,- None mentioned,Diseases/Clinical Diagnoses:,- None mentioned,Other Adjusted Variables:,- Menopausal status (using STRAW+10 criteria),- Prior hysterectomy (exclusion criterion),- Chemotherapy or radiation therapy (exclusion criterion)	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for specific conditions)
Tepper-2016	1. Vasomotor/Cardiovascular Symptoms: Hot flushes, Night sweats,2. Psychological/Cognitive Symptoms: Anxiety symptoms, Depressive symptoms, Symptom sensitivity	Sociodemographic Factors:,- Age at FMP,- Education,- Race/Ethnicity,Lifestyle Factors:,- BMI,- Smoking status,- Alcohol consumption,Psychosocial Factors:,- Anxiety symptoms,- Depressive symptoms,Hormonal Factors:,- E2 trajectory,- FSH trajectory,Other Adjusted Variables:,- Menopause status,- General health status	Not mentioned (the study does not provide differential diagnoses or diagnostic methods for conditions other than VMS)
Than-2023	2. Vasomotor/Cardiovascular Symptoms:, • Hot flushes, • Night sweats,3. Psychological/Cognitive Symptoms:, • Cognitive impairment, • Brain fog/Mental sluggishness, • Depressive symptoms, • Sleeping disorders	Sociodemographic Factors:,- Age,- Education,- Ethnicity,Genetic Factors:,- APOEε genotype,Other Adjusted Variables:,- Menopausal hormonal therapy (MHT) use	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for the symptoms studied)
Thurston-2013	1. Vasomotor/Cardiovascular Symptoms: ,- Hot flashes ,- Night sweats	Sociodemographic Factors:,- Age,- Race/ethnicity,- Education,Lifestyle Factors:,- BMI,- Smoking,- Physical activity,Diseases/Clinical Diagnoses:,- Diabetes,- Depressive symptoms,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Self-rated health,- Diastolic blood pressure	Not mentioned (the paper does not explicitly discuss differential diagnoses for VMS)
Tirkkonen-2021	1. Vasomotor/Cardiovascular Symptoms: sweating, hot flashes,2. Psychological/Cognitive Symptoms: sleep disturbance and insomnia, fatigue, depression,3. Musculoskeletal/Pain	Sociodemographic Factors:,- Age,- Education,Lifestyle Factors:,- Physical activity,Diseases/Clinical Diagnoses:,- VMS,- Psychological symptoms,- Somatic or pain symptoms,Other Adjusted Variables:,- Follow-up time	Not mentioned (the paper does not discuss differential diagnoses or diagnostic methods related to the symptoms studied)

	Syndromes: headache, joint ache,4. Urogenital Symptoms: vaginal symptoms, urinary symptoms, sexual reluctance		
Waetjen-2008	1. Gynecological/Sexual/Urogenital Symptoms: Urinary incontinence (stress and urge types)	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,- Race,- Ethnicity,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Diabetes,- Hypertension,- Fibroids,- Anxiety at baseline,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Frequency of incontinence at first report,- Life stressors	Not mentioned (the paper does not provide differential diagnoses or diagnostic methods for conditions other than urinary incontinence)
Waetjen-2009	1. Gynecological/Sexual/Urogenital Symptoms: Urinary incontinence (stress and urge),2. Psychological/Cognitive Symptoms: Anxiety symptoms,3. Others: Weight gain, baseline BMI	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,- Race/ethnicity,- Marital status,- Social support,Lifestyle Factors:,- BMI,- Smoking status,Diseases/Clinical Diagnoses:,- Diabetes,- Hypertension,- Anxiety symptoms,- Depressive symptoms,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use,- Weight change,- Waist to hip ratio change,- Change in anxiety symptoms,- Change in depressive symptoms,- Change in stressful life events,- Change in social support scores,- Change in overall health status	Not mentioned (the paper does not provide differential diagnoses or specific diagnostic methods for conditions other than urinary incontinence)
Waetjen-2011	1. Gynecological/Sexual/Urogenital Symptoms: Stress incontinence, Urge incontinence	Sociodemographic Factors:,- Race/ethnicity,- Education level,- Marital status,- Difficulty paying for basics,- Baseline age,Lifestyle Factors:,- Baseline BMI,- Smoking status,- Weight gain,Diseases/Clinical Diagnoses:,- Baseline diabetes,- Baseline hypertension,- Fibroids at baseline,Other Adjusted Variables:,- Menopausal status/window of phlebotomy,- Serum hormone binding globulin,- Change in social support,- Change in life events,- Current anxiety,- Current depression symptoms,- First reported frequency of incontinence	Not mentioned (the paper does not provide information on differential diagnoses or diagnostic methods for conditions other than urinary incontinence)
Waetjen-2018	1. Gynecological/Sexual/Urogenital Symptoms: Vaginal dryness, painful sex, decreased sexual satisfaction,2. Psychological/Cognitive Symptoms: Anxiety symptoms	Sociodemographic Factors:,- Age,- Race/ethnicity,- SWAN study site,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Anxiety at baseline,- Depressive symptoms,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Partner status	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods related to vaginal dryness)
Weber-2021	1. Psychological/Cognitive Symptoms: Depressive symptoms, Anxiety,2. Vasomotor/Cardiovascular Symptoms:	Sociodemographic Factors:,- Age,- Education,- Race (White vs. not White),Other Adjusted Variables:,- Stages of Reproductive Aging Workshop þ 10 (STRAW þ 10) stage	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for

	VMS,3. Psychological/Cognitive Symptoms: Sleep disturbance		conditions like depression or thyroid disease)
Woods-2002	1. Vasomotor/Cardiovascular Symptoms: VMS,2. Psychological/Cognitive Symptoms: Depressive symptoms, life stressors, current stress ratings, history of postpartum blues, history of PMS,3. Quality of Life (QoL) Impact: Perceived poor health, health ratings	Sociodemographic Factors:,- Not mentioned,Lifestyle Factors:,- Not mentioned,Diseases/Clinical Diagnoses:,- Not mentioned,Other Adjusted Variables:,- Life stressors,- Perceived poor health,- VMS,- Endocrine levels (estrone, FSH),- Menopausal transition stages,- Current stress ratings,- Health ratings	- Emerging depressed mood n=24 (CESD),- Low level depressed mood n=39 (CESD),- Resolving depressed mood n=10 (CESD),- Consistently nondepressed mood n=80 (CESD),- Consistently high level depressed mood n=20 (CESD),- Moderately depressed mood n=22 (CESD)
Woods-2006	1. Vasomotor/Cardiovascular Symptoms: Hot flashes, cold sweats,2. Psychological/Cognitive Symptoms: Panic feelings, nervous/jittery, rapid mood changes, depressed/sad or blue, irritable, difficulty concentrating, tearfulness/crying spells, forgetfulness, fatigue/tiredness, difficulty falling asleep, waking during the night, early morning awakening,3. Others: Stress levels (overall, kids, work, and relationship)	Sociodemographic Factors:,- Age,- BMI,Lifestyle Factors:,- Smoking,- Alcohol consumption,- Caffeine intake,- Exercise activity,Hormonal Factors:,- FSH,- E1G,Stress and Symptoms:,- VMS,- Mood symptoms,- Cognitive symptoms,- Sleep disturbances,- Stress indicators,Other Adjusted Variables:,- Urine concentration (corrected using creatinine),- Hydration status (adjusted for E1G),- Nonparallelism (corrected for E1G),- Assay variability (controlled using internal controls)	Not mentioned (the paper does not specify differential diagnoses or diagnostic methods for specific conditions)
Woods-2008	1. Psychological/Cognitive Symptoms: Depressive symptoms, Mood swings, Anxiety, Cognitive impairment, Exhaustion/Fatigue, Sleeping disorders, Irritability/Rage episodes, Emotional lability (tearfulness), ”Brain fog”/Mental sluggishness, Depersonalization episodes, Sensory hypersensitivity (sound/light), Decision fatigue,2. Vasomotor/Cardiovascular Symptoms: Hot flushes,3. Musculoskeletal/Pain Syndromes: None mentioned,4. Dermatological/Mucosal Symptoms: None mentioned,5. Quality of Life (QoL) Impact: None mentioned,6. Others: BMI, Antidepressant use, Sexual abuse history, Postpartum blues, Family history of depression	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,Lifestyle Factors:,- BMI,Diseases/Clinical Diagnoses:,- Family history of depression,- Postpartum blues,- Major depressive disorder,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Past history of depressive symptoms,- Hot flash activity,- Life event stress,- Use of antidepressants	Depression n= number of women with this diagnosis (CES-D); Depression n= number of women with this diagnosis (Primary Care Evaluation of Mental Disorders)
Woods-2010 (Sexual)	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms:	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,Lifestyle Factors:,- Smoking,- Alcohol	Not mentioned (the paper does not provide specific differential

	Depressed mood, Anxiety,3. Musculoskeletal/Pain Syndromes: Fatigue,4. Others: Difficulty getting to sleep, Early morning awakening, Awakening during the night	consumption,- Exercise,Diseases/Clinical Diagnoses:,- Hot flashes,- Depressed mood,- Anxiety,- Fatigue,- Sleep disruption,Other Adjusted Variables:,- Hormone therapy use,- Menopausal transition stage,- Perceived stress,- History of sexual abuse,- Having a partner,- Parenting status,- Employment status	diagnoses or diagnostic methods for conditions related to the symptoms studied)
Woods-2010 (Sleep)	1. Psychological/Cognitive Symptoms: difficulty getting to sleep, nighttime awakening, early morning awakening,2. Vasomotor/Cardiovascular Symptoms: hot flashes,3. Psychological/Cognitive Symptoms: depressed mood, anxiety,4. Musculoskeletal/Pain Syndromes: joint pain, backache	Sociodemographic Factors:,- Age,Lifestyle Factors:,- Alcohol consumption,- Caffeine intake,Diseases/Clinical Diagnoses:,- Hot flashes,- Depressed mood,- Anxiety,- Perceived health,Other Adjusted Variables:,- Hormone therapy use,- Menopausal transition stages,- Hormone levels (estrone glucuronide, FSH, testosterone),- Medication use,- Perceived stress,- History of sexual abuse	Not mentioned (the paper does not provide specific differential diagnoses or diagnostic methods for conditions other than sleep symptoms)
Woods-2016	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Depressed mood, cognitive symptoms (memory problems),3. Musculoskeletal/Pain Syndromes: Pain symptoms (back pain),4. Gynecological/Sexual/Urogenital Symptoms: Decreased sexual desire, urinary incontinence (stress and urge),5. Sleep Disturbances: Sleep disruption symptoms (nighttime awakening)	Sociodemographic Factors:,- Age,- Education,- Socioeconomic status,Lifestyle Factors:,- BMI,- Smoking,- Alcohol consumption,Diseases/Clinical Diagnoses:,- Anxiety,- Major depressive disorder,Other Adjusted Variables:,- Hormone therapy use,- Menopausal status,- Past history of depressive symptoms	Not mentioned (the study does not discuss differential diagnoses or specific diagnostic methods for the symptoms studied)
Woods-2014	1. Vasomotor/Cardiovascular Symptoms: Hot flashes,2. Psychological/Cognitive Symptoms: Depressed, mood changes, crying, irritable, problem concentrating, forgetful, nervous, panic, tension,3. Musculoskeletal/Pain Syndromes: Joint pain, backache, headache,4. Sleep Symptoms: Early awakening, awakening at night, difficulty falling to sleep	Sociodemographic Factors:,- Age,- Education,- Employment status,- Marital status,- Ethnicity,Lifestyle Factors:,- Smoking status,- BMI,- Exercise activity level,Other Adjusted Variables:,- Hormone therapy use	Not mentioned (the study does not provide information on differential diagnoses or diagnostic methods for specific conditions)
Young-2003	1. Sleep-related Symptoms: Snoring, daytime sleepiness, unsatisfactory sleep	Sociodemographic Factors:,- Age,- Body habitus (BMI),Lifestyle Factors:,- Smoking,- Exercise,- Self-rated health status,Diseases/Clinical Diagnoses:,- Hypertension,- Cardiovascular disease,Other Adjusted Variables:,- Menopausal status,- Hormone therapy use	Not mentioned (the study does not consider differential diagnoses or use subjective diagnostic methods for other conditions)
APOEε, Apolipoprotein E epsilon; BDI, Beck Depression Inventory; BMI, Body Mass Index; BMD, Bone Mineral Density; CES-D, Center for Epidemiologic Studies Depression Scale; CHD, Coronary Heart Disease; CIDI-SF, Composite International Diagnostic Interview Short Form; CST, Community State Type; DSM, Diagnostic			

and Statistical Manual of Mental Disorders; E1G, Estrone Glucuronide; E2, Estradiol; EEG, Electroencephalogram; FMP, Final Menstrual Period; FSH, Follicle-Stimulating Hormone; FSFI, Female Sexual Function Index; GAS, Goldberg Anxiety Scale; GDS, Goldberg Depression Scale; GHQ, General Health Questionnaire; HADS, Hospital Anxiety and Depression Scale; HIV, Human Immunodeficiency Virus; ISI, Insomnia Severity Index; LDL-C, Low-Density Lipoprotein Cholesterol; MDD, Major Depressive Disorder; MHI, Mental Health Inventory; NREM, Non-Rapid Eye Movement; OC, Oral Contraceptives; OCP, Oral Contraceptive Pill; PdG, Pregnanediol Glucuronide; PMS, Premenstrual Syndrome; PMDD, Premenstrual Dysphoric Disorder; PRIME-MD, Primary Care Evaluation of Mental Disorders; PSG, Polysomnography; SCID, Structured Clinical Interview for DSM Disorders; SHBG, Sex Hormone-Binding Globulin; STRAW, Stages of Reproductive Aging Workshop; SWAN, Study of Women's Health Across the Nation; TSH, Thyroid-Stimulating Hormone; VAS, Visual Analog Scale; VMS, Vasomotor Symptoms; WUR, Wind-Up Ratio.

Appendix 8 Key findings of the included studies

Study_ID	Source of Symptom Attribution	Key Findings on Symptom-Diagnosis Relationships	Main Quantitative Findings
Abe-1975	- Exclusion of other diagnoses - Participant report (Kupperman's menopausal index) - Temporal association with stage change (hot flushes) - Temporal association with hormonal changes (effect of conjugated estrogen)	1. Symptoms such as hot flushes are directly associated with menopause, while others like depression and irritability are likely of psychological origin. 2. The decrease in menopausal indices after estrogen administration suggests that some symptoms are related to hormonal deficiencies, which can be addressed through hormonal therapy. 3. The "Premarin test" can accurately screen for psychiatric disorders, helping to differentiate between menopausal and psychiatric symptoms.	- Calculative diagnosis agreed with clinical diagnosis in about 88.2% of cases with psychiatric abnormalities and 75.4% of cases without psychiatric abnormalities. - Significant decrease in menopausal index after conjugated estrogen injection in the normal group ($p<0.01$ and $p<0.05$).
Avis-2000	Temporal association with stage change, clinical assessment based on menstrual cycle characteristics	1. Menopause status is significantly related to lower sexual desire, belief in declining interest with age, and decreased arousal. 2. Menopause status is not related to all aspects of sexual functioning, indicating other factors are at play. 3. E2 levels are related to pain, and other factors like health, marital status, mental health, and smoking have a greater impact on sexual functioning than menopause status.	- Menopause status is significantly related to lower sexual desire, belief that interest in sex declines with age, and decreased arousal compared to when in their 40s. - Menopause status is unrelated to other aspects of sexual functioning. - E2 is only related to pain. - Menopause status has a smaller impact on sexual functioning than health or other factors.
Avis-2009	Temporal association with stage change, statistical adjustment, participant report	1. Symptoms such as VMS, urine leakage, poor sleep, and depression are positively related to reduced HRQL across all domains, indicating these symptoms are key factors in HRQL changes. 2. While symptoms explain some changes in HRQL, menopausal status remains a significant factor for certain domains like bodily pain, vitality, role-physical, and social functioning, suggesting these symptoms are not solely attributed to menopausal status. 3. Depressive symptoms are a strong predictor of reduced functioning, indicating a significant relationship between depression and HRQL.	- Menopausal status was initially significant for all HRQL domains, with greater odds of reduced functioning at early, late perimenopause, and postmenopause compared to premenopause. - Symptoms were significantly related to reduced functioning across all domains. - Menopausal status remained significant for bodily pain, vitality, and role-physical domains after adjusting for symptoms. - Adjusted odds ratios for role-physical: late perimenopause OR = 1.46 (CI = 1.08, 1.99), postmenopause OR = 1.49 (CI = 1.09, 2.04). - Symptoms like VMS, urine leakage, arthritis, poor sleep, and depressive

			symptoms were strong predictors of reduced HRQL. - Racial/ethnic differences: African-American and Hispanic women more likely to report reduced functioning in certain domains.
Avis-2009 (Longitudinal)	Statistical adjustment using univariate and multivariable models, including random effects logistic regression models, to control for baseline age, chronological aging, and other covariates.	1. The menopause transition is significantly associated with decreased sexual desire and increased vaginal/pelvic pain, indicating these symptoms can be attributed to the menopausal transition stage. 2. Vaginal dryness is a key risk factor associated with several sexual functioning outcomes, including pain, arousal, and emotional satisfaction. 3. Psychological status, physical health, and relationship status are important risk factors or contributing factors to sexual symptoms, but not all sexual functioning domains are directly related to the menopausal transition stage.	- Menopausal transition is significantly associated with a decrease in sexual desire and an increase in vaginal/pelvic pain. - Odds of reporting frequent desire are lower in late perimenopause (OR: 0.62, CI: 0.44-0.87) and postmenopause (OR: 0.50, CI: 0.34-0.72) compared to pre-menopause. - Odds of reporting vaginal/pelvic pain are greater in early perimenopause (OR: 1.37, CI: 1.01-1.86) and postmenopause (OR: 2.04, CI: 1.25-3.30). - No significant association with frequency, arousal, importance, emotional satisfaction, or physical pleasure. - Vaginal dryness is associated with several sexual functioning domains. - Racial/ethnic differences and psychological status are important factors.
Avis-2015	Temporal association with stage change, statistical adjustment, participant report	1. The median total VMS duration was 7.4 years, with a median post-FMP persistence of 4.5 years, indicating that symptoms can persist for several years during the menopausal transition. 2. The menopausal transition stage at which symptoms first appear is a significant predictor of VMS duration, with premenopausal or early perimenopausal women experiencing the longest durations. 3. Racial/ethnic differences and factors such as younger age, lower educational level, greater perceived stress, symptom sensitivity, depressive symptoms, and anxiety are associated with longer-lasting VMS, indicating these as risk factors for prolonged symptom duration.	- Median total VMS duration: 7.4 years - Median post-FMP persistence: 4.5 years - Longest total VMS duration: Premenopausal or early perimenopausal women (>11.8 years) - Shortest total VMS duration: Postmenopausal women (3.4 years) - Longest total VMS duration by race/ethnicity: African American women (10.1 years) - Factors associated with longer VMS duration: Younger age, lower educational level, greater perceived stress, symptom sensitivity, depressive symptoms, and anxiety

Avis-2017	Temporal association with stage change, statistical adjustment for other potential causes (e.g., VMS, vaginal dryness, lubricant use, depression, anxiety)	1. Sexual function begins to decline approximately 20 months before the FMP and continues to decline at a slower rate after the FMP, indicating a relationship between the menopausal transition stage and sexual functioning. 2. The decline in sexual function is influenced by race/ethnicity, with African-American women experiencing a smaller decline and Japanese women experiencing a larger decline compared to white women, suggesting that race/ethnicity is a risk factor for the rate of decline in sexual function. 3. Symptoms such as VMS, vaginal dryness, lubricant use, depression, and anxiety are not significantly associated with the rate of change in sexual function, indicating that these symptoms do not explain the decline in sexual function during the menopausal transition.	- Sexual function declines by 0.35 annually from 20 months before to one year after the FMP, and by 0.13 annually after one year post-FMP. - African-American women experience a smaller decline, while Japanese women experience a larger decline compared to white women. - After hysterectomy, sexual function declines by 0.21 annually. - The mean cumulative change in sexual function score from two years before to five years after the natural FMP is -1.48 (95% CI=-1.70, -1.25). - The mean accumulated change in sexual function score from two years before to five years after hysterectomy is -1.25 (95% CI=-1.64, -0.86).
Baker-2015	Temporal association with stage change, clinical assessment, exclusion of other diagnoses, objective measurement of hot flashes	1. Insomnia diagnosis is associated with reduced sleep time, efficiency, and increased wakefulness. 2. Hot flashes are more common in insomniacs and predict awakenings, indicating a relationship between hot flashes and sleep disturbances. 3. Insomniacs experience more severe psychological, somatic, and VMS, and higher depression scores, suggesting these symptoms are related to insomnia.	- Women with insomnia during the menopause transition had 43.5 minutes less PSG-measured sleep time ($p<0.001$). - Insomnia predicted PSG-measured total sleep time ($p<0.01$), sleep efficiency ($p=0.01$), and wakefulness after sleep onset (WASO) ($p=0.01$). - Presence of hot flashes predicted the number of PSG-awakenings per hour of sleep ($p=0.03$). - Women with insomnia reported more WASO ($p=0.002$), more night-to-night variability in WASO ($p<0.002$), and more hot flashes ($p=0.012$) compared to controls. - Higher FSH levels and lower E2 levels correlated with more objective nocturnal hot flashes ($R=0.44$, $t=3.87$, $p<0.001$; $R=-0.47$, $t=-4.16$, $p<0.001$).
Berecki-Gisolf-2009	Statistical adjustment using logistic regression models for repeated measures, controlling for confounders such as aging,	- Hot flushes, night sweats, stiff or painful joints, difficulty sleeping, and poor/fair self-rated health are significantly associated with the menopausal transition.	- Hot flushes: odds ratio = 8.6 (95% CI, 7.5-9.9) - Night sweats: odds ratio = 5.5 (95% CI,

	life events, sociodemographics, and lifestyle factors; temporal association with stage change considered through longitudinal data collection.	- Headaches/migraines are negatively associated with aging, indicating they are more related to aging than menopause. - Urinary incontinence is positively associated with aging, suggesting it is more related to aging than menopause.	4.8-6.3) - Stiff or painful joints: odds ratio = 1.6 (95% CI, 1.4-1.8) - Difficulty sleeping: odds ratio = 1.4 (95% CI, 1.2-1.6) - Poor/fair self-rated health: odds ratio = 1.6 (95% CI, 1.3-1.9) - Headaches/migraines: negatively associated with aging - Urinary incontinence: positively associated with aging
Bromberger-2003	Statistical adjustment through logistic regression models controlling for covariates and confounders.	1. Early perimenopausal women have higher rates of persistent mood symptoms compared to premenopausal women, particularly for irritability, nervousness, and frequent mood changes. 2. The effect of being early perimenopausal on overall dysphoric mood is more pronounced in women with lower educational attainment. 3. The study partially supports the hypothesis that certain subgroups of women are more vulnerable to the effects of menopausal status on mood, specifically those with lower educational levels.	- Rates of persistent mood symptoms were higher among early perimenopausal women (14.9%-18.4%) than among premenopausal women (8%-12%). - Adjusted odds ratios for early perimenopausal women were significantly higher for irritability (OR = 1.33), nervousness (OR = 1.54), and frequent mood changes (OR = 1.52). - The effect of being early perimenopausal on overall dysphoric mood was greatest among women with an educational level of less than high school graduation.
Bromberger-2010	Temporal association with stage change, statistical adjustment	1. Higher testosterone levels are significantly associated with higher odds of depressive symptoms during the menopausal transition. 2. Being perimenopausal or postmenopausal is independently associated with higher depressive symptoms compared to being premenopausal. 3. Factors such as less education, being Hispanic, VMS, stressful life events, and low social support are independently associated with higher depressive symptoms.	- Log-transformed testosterone level was positively associated with higher odds of a CES-D score of 16 or higher (odds ratio=1.15; 95% confidence interval, 1.01-1.31). - Increase in log-transformed testosterone from baseline was associated with increased odds of a CES-D score of 16 or higher (odds ratio=1.23; 95% confidence interval, 1.04-1.45). - Being perimenopausal or postmenopausal was associated with higher odds of a CES-D score of 16 or higher compared to being premenopausal (odds ratios ranging from 1.31 to 1.79).

			- Concurrent log T was associated with an OR of 1.20 for the highest CES-D scores and 1.08 for middle CES-D scores. - Change in log T from baseline was associated with an OR of 1.38 for the highest CES-D scores and 1.10 for middle CES-D scores.
Bromberger-2011	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. Women are two to four times more likely to experience major depression during perimenopause and early postmenopause, indicating these stages as risk factors. 2. The increased risk of major depressive episodes during the menopausal transition is independent of history of major depression, life events, medication use, VMS, and changes in reproductive hormones. 3. A history of major depression and recent life stressors significantly increase the risk of major depressive episodes, independent of menopausal status.	Women are two to four times more likely to experience major depressive episodes during perimenopause and early postmenopause compared to premenopause. The odds ratio for early postmenopause is 5.01 (95% CI: 1.66, 15.17), indicating a significantly increased risk. The association is independent of history of major depression, upsetting life events, psychotropic medication use, and reproductive hormone levels.
Bromberger-2013	Temporal association with stage change, statistical adjustment for covariates	1. Women with low anxiety at baseline were more likely to experience high anxiety during the early or late perimenopausal or postmenopausal stages compared to the premenopausal stage. 2. For women with high anxiety at baseline, the menopausal stage did not significantly affect the odds of high anxiety, suggesting chronic anxiety may not be influenced by the menopausal transition. 3. Frequent VMS were strongly associated with high anxiety, regardless of menopausal stage, indicating VMS as a significant risk factor for anxiety.	- Women with low anxiety at baseline were more likely to report high anxiety during early and late perimenopause and postmenopause compared to premenopause, with odds ratios ranging from 1.56 to 1.61. - Women with high anxiety at baseline continued to have high rates of high anxiety, but menopausal stage did not significantly affect these rates.
Brown-2002	Temporal association with stage change, statistical adjustment	1. Perimenopausal women are more likely to report symptoms such as headaches, back pain, stiff joints, tiredness, and difficulty sleeping compared to premenopausal or postmenopausal women. 2. Hot flushes and night sweats are more common among postmenopausal women, indicating a specific symptom-diagnosis relationship with this stage of menopause. 3. Women in the early stages of menopause or perimenopausal are more likely to report certain	- Perimenopausal women were more likely to report headaches, back pain, stiff joints, tiredness, and difficulty sleeping. - Hot flushes and night sweats were more common among postmenopausal women. - Women transitioning from premenopause to perimenopause or remaining perimenopausal were more likely to report severe tiredness, stiff or painful joints, difficulty sleeping, hot flushes, and night

		symptoms, such as tiredness, stiff joints, difficulty sleeping, and hot flushes, compared to those who remain premenopausal.	sweats. - The likelihood of reporting night sweats increased substantially (up to fivefold) across menopause groups, and remained high (OR = 2.5) in the postmenopausal women.
Burri-2015	Temporal association with stage change, statistical adjustment	1. Postmenopausal women had a higher proportion of sexual dysfunction at the start of the study compared to premenopausal women, indicating that menopausal transition may be associated with increased sexual dysfunction. 2. Both groups showed similar rates of developing new sexual problems or improving existing ones over the 4-year period, suggesting that menopausal transition is not a sole determinant of sexual health changes. 3. Desire and arousal were identified as key predictors of changes in sexual functioning and satisfaction, indicating that these symptoms are more closely related to overall sexual health than menopausal status.	- Proportion of postmenopausal women with sexual dysfunction at baseline: 34.3% - Proportion of premenopausal women with sexual dysfunction at baseline: 14.5% - Comparable rates of developing new sexual problems or improving over 4 years: premenopausal 22.2% vs. postmenopausal 23.2% - Autoregressive effects: desire $\beta = 0.35$, arousal $\beta = 0.64$, orgasm $\beta = 0.51$, lubrication $\beta = 0.48$, pain $\beta = 0.33$ - Cross-lag effects: desire predicted by arousal ($\beta = 0.35$), arousal predicted by orgasm ($\beta = 0.36$), lubrication predicted by desire ($\beta = 0.18$) - Desire and arousal are key predictors of changes in sexual functioning and satisfaction
Callan-2019	Temporal association with stage change, statistical adjustment	1. E1Gand testosterone are negatively associated with abdominal pain severity, indicating a role in reducing pain during the menopausal transition. 2. Anxiety is positively associated with abdominal pain severity, suggesting that psychological factors exacerbate pain during this period. 3. Increasing age is negatively associated with abdominal pain severity, consistent with findings that abdominal pain decreases with advancing age.	- Increasing age is negatively associated with abdominal pain severity ($p = 0.001$). - E1Gis negatively associated with abdominal pain severity ($p = 0.04$). - Anxiety is positively associated with abdominal pain severity ($p = 0.00$).
Campbell-2016	Temporal association with stage change, statistical adjustment using general linear mixed models	1. Negative mood and depressive symptoms are highest during the menopausal transition and lowest in the late postmenopause. 2. Increasing age is strongly associated with a reduction in both depressive symptoms and negative mood.	- Negative mood scores decreased significantly from the menopausal transition to the late postmenopause, with a mean decline of 0.10 ($P = 0.002$, CI: 0.03-0.16). - Depressive symptoms (CESD scores) decreased significantly from the

		3. The improvement in mood and reduction in depressive symptoms are more strongly related to increasing age than the specific menopausal stage.	menopausal transition to the late postmenopause, with a mean reduction of 2.77 (P = 0.012). - When controlling for age, no significant difference was found between early and late postmenopause stages for both negative mood and depressive symptoms.
Cauley-2023	Temporal association with stage change, statistical adjustment for menopause transition stage and other factors, exclusion of other diagnoses through adjustment for various covariates.	1. Women who experienced fractures were more likely to report sleep disturbances, indicating a potential link between sleep issues and fracture risk. 2. Sleep disturbances were associated with an increased risk of fractures, particularly nontraumatic fractures, suggesting they could be a risk factor. 3. The relationship between sleep disturbances and fractures is influenced by shared risk factors or physiological pathways, as adjusting for these factors attenuated the associations.	- Women who experienced a fracture were more likely to report sleep disturbances: 35% vs. 30% at baseline, p = 0.02. - Base models: OR = 1.23 for any fracture, OR = 1.36 for nontraumatic fracture. - Fully adjusted models: Associations attenuated to nonsignificance except for waking up several times per night and nontraumatic fractures, OR = 1.27.
Cho-2018	Participant report (self-report questionnaires for menopause status and symptoms), statistical adjustment (logistic regression analysis)	1. Women who undergo surgical menopause (SM) report significantly worse sleep quality compared to those who experience natural menopause (NM), particularly in terms of sleep duration and habitual sleep efficiency. 2. Individuals in the SM group are more likely to have insomnia, with a 2.13 times higher odds ratio compared to the NM group. 3. Sleep-interfering behaviors have a more significant impact on insomnia symptoms in women who undergo SM compared to those who experience NM.	- Women who underwent surgical menopause (SM) were significantly younger by 7.2 years compared to those who experienced natural menopause (NM). - SM women reported worse sleep quality, particularly in sleep duration (P = 0.001) and habitual sleep efficiency (P = 0.010). - SM women had 2.131 times higher odds of having clinical levels of insomnia compared to NM women (95% CI 1.055-4.303, P = 0.027). - Sleep-interfering behaviors had a more significant impact on insomnia symptoms in SM women compared to NM women (ß = 0.26, P = 0.03).
Cohen-2006	Temporal association with stage change, statistical adjustment, participant report (self-reported VMS)	1. Women entering the perimenopause are nearly twice as likely to develop depressive symptoms compared to those who remain premenopausal. 2. The presence of VMS is associated with a greater risk of developing depressive symptoms during the menopausal transition. 3. The risk of depression during the menopausal	- Premenopausal women entering perimenopause are twice as likely to develop significant depressive symptoms compared to those who remain premenopausal. - The risk is greater in women with self-reported VMS.

		transition is influenced by factors such as the timing of the transition and the presence of adverse life events.	- Women with a history of negative life events are at a significantly increased risk of developing depression during the menopausal transition.
Crandall-2011	Temporal association with stage change, statistical adjustment	- VMS are associated with increased bone turnover, as measured by urinary N-telopeptide (NTX) levels, in early and late perimenopausal women. - The association between VMS and NTX levels varies by menopausal stage, with no significant association found in premenopausal women. - VMS may serve as a marker for risk of adverse bone health prior to the FMP.	- Early perimenopausal women with any VMS: mean adjusted NTX level 1.94 nM BCE/mM of creatinine higher than those without VMS ($p < .0001$). - Late perimenopausal women with any VMS: mean adjusted NTX level 2.44 nM BCE/mM of creatinine higher than those without VMS ($p = .03$). - Frequent VMS in early perimenopausal women: mean adjusted NTX level 3.08 nM BCE/mM of creatinine higher than those without frequent VMS ($p < .0001$). - Frequent VMS in late perimenopausal women: mean adjusted NTX level 3.63 nM BCE/mM of creatinine higher than those without frequent VMS ($p < .001$). - No significant association between VMS frequency and NTX level among premenopausal women.
Cray-2012	Temporal association with stage change, participant report, statistical adjustment (factor analysis)	1. The menopausal transition stages are characterized by similar symptom factor structures, including mood, vasomotor, and pain components. 2. The symptom factor structure of one stage can predict the symptom factor structure of the next stage, indicating a relationship between symptoms across different stages. 3. Education level and BMI are significant predictors of certain symptom clusters, suggesting that demographic and lifestyle factors can influence symptom experiences during the menopausal transition.	- The study identified different factor structures for each stage of the menopausal transition, with a three-factor solution for the late reproductive stage and four-factor solutions for the early and late menopausal transition stages and postmenopause. - The variance explained by these factor solutions increased from 54.9% in the late reproductive stage to 60.7% in postmenopause. - Each stage had a mood component, a vasomotor component, and a pain component, with varying specific symptoms across stages. - Regression analysis showed that the symptom factor structure of the previous

			stage significantly predicted the symptom factor structure of the following stage. - Education level was a significant demographic variable affecting symptom factor structure.
Cray-2012 (Symptom)	Temporal association with stage change, exclusion of other diagnoses (e.g., hormone use, pregnancy), participant report	1. The likelihood of experiencing high severity hot flashes (Class 3) is significantly greater during the early and late menopausal transition stages and early postmenopause compared to the late reproductive stage. 2. There is no significant effect of menopausal transition stages on the likelihood of experiencing low hot flash severity with moderate severity for other symptoms (Class 2). 3. Women may experience a range of symptoms during the menopausal transition and early postmenopause, with some experiencing severe hot flashes and others experiencing moderate severity symptoms such as sleep, pain, mood, cognitive, and tension symptoms.	- The likelihood of being in Class 3 (high hot flash severity) is significantly greater during the early and late menopausal transition stages and early postmenopause compared to the late reproductive stage. - The strongest effect is observed in early postmenopause, with a log odds increase of 3.117 for being in Class 3 compared to Class 1. - Distribution of observations: Class 1 (74.9%), Class 2 (13%), Class 3 (12%).
Dennerstein-2001	Temporal association with stage change, statistical adjustment using one-sample t tests, exclusion of other diagnoses (e.g., surgical menopause, oral contraceptive use), and use of a validated questionnaire (Personal Experiences Questionnaire)	1. Sexual responsivity declines significantly during the late perimenopause and is further affected in the postmenopausal phase, indicating it is a symptom related to these stages. 2. Vaginal dyspareunia and partner's problems increase significantly in the postmenopausal phase, suggesting these are symptoms associated with this stage. 3. Psychosocial factors such as feelings for the partner and social stressors affect sexual functioning, indicating these are risk factors for sexual symptoms during the menopausal transition.	- Significant decline in sexual responsivity and total score during late perimenopause. - Further decline in sexual responsivity, frequency of sexual activities, libido, and total score during postmenopause. - Significant increase in vaginal dyspareunia and partner's problems during postmenopause. - Mean change in sexual responsivity: -0.67 (CI: -1.04, -0.31; P=.0005) over 7 years in premenopausal/early perimenopausal group. - Mean change in sexual responsivity: -0.42 (CI: -0.81, -0.03; P=.036) over 5 years in postmenopausal group.
Dennerstein-2007	Statistical association between hormone levels (E 2 range and slope) and symptom severity, based on non-linear regression analysis of longitudinal data.	1. Symptoms such as hot flushes, night sweats, sleeping problems, and vaginal dryness are associated with changes in E2 (E 2) levels during the menopausal transition. 2. The severity of these symptoms is linked to the range and slope of E 2 changes, with higher ranges and	- The median age of transition for E2 is more than a year later than for FSH. - Hot flushes, night sweats, sleeping problems, and vaginal dryness are significantly associated with E2 range and slope.

		faster changes associated with more severe symptoms. 3. These symptoms are not directly related to the age at which the menopausal transition occurs but are influenced by the hormonal changes themselves.	- Sexual response and CHD risk are associated with the final E2 level post-menopause. - Effect sizes and directions for symptoms like hot flushes and night sweats are provided in the tables.
Dennerstein-2007 (Modeling)	Temporal association with stage change, statistical adjustment for hormonal changes	1. Declining E2 levels during the menopausal transition significantly affect VMS (hot flushes, night sweats), vaginal dryness, and sexual response. 2. Well-being is negatively affected by symptoms, hassles, and stress, indicating psychological factors influence symptom experience. 3. Exercise has beneficial effects on hot flushes, well-being, and other health outcomes, suggesting lifestyle factors can influence symptom severity.	- Hot flush index: varies from more than 1 in late reproductive/early menopausal transition to approximately 3 in late menopausal transition and postmenopause. - Night sweats index: peaks in late menopausal transition. - Vaginal dryness index: scores are provided in Table 2. - Falling E2 levels significantly affect hot flushes, night sweats, and vaginal dryness, with severity peaking in late menopausal/postmenopausal periods.
deZambotti-2017	Temporal association with stage change, exclusion of other diagnoses, clinical assessment, participant report	1. Women with menopausal transition insomnia (MTI) experience more severe psychological and VMS compared to controls, indicating these symptoms are related to the menopausal transition stage. 2. MTI participants have poorer sleep quality, as indicated by higher PSQI scores, which is a risk factor for insomnia. 3. MTI is characterized by autonomic hyperarousal, as evidenced by higher heart rates during sleep, which is a risk factor for insomnia.	Women with menopausal transition insomnia (MTI) have a significantly elevated heart rate (~4 bpm higher) compared to controls during both follicular and luteal phases of the menstrual cycle, indicating autonomic hyperarousal. This effect is consistent across sleep stages and is associated with lower nocturnal vagal activity. The heart rate is also higher in the luteal phase compared to the follicular phase for both groups.
ElKhoudary-2014	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. Natural and surgical postmenopausal women had significantly higher odds of functional limitation compared to premenopausal women, indicating that the menopausal transition stage is associated with increased functional limitations. 2. Less reduction in E2 and testosterone since visit-04 were significantly associated with lower odds of functional limitation, while a greater increase in sex hormone-binding globulin was associated with higher odds of functional limitation, suggesting hormonal	- Natural and surgical postmenopausal women had significantly higher odds of functional limitation compared to premenopausal women. - Odds ratio for functional limitation increased by 1.24 for every 7-year increase. - Less reduction in E2 and testosterone levels was associated with lower odds of functional limitation. - Greater increase in sex hormone-binding

		changes as a risk factor. 3. The odds of functional limitation increased over time, with a significant increase in substantial limitation from visit-04 to visit-12, indicating potential disease progression or worsening of symptoms over time.	globulin was associated with higher odds of functional limitation.
Epperson-2013	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. Menopause transition is associated with a decline in verbal memory, as indicated by significant declines in immediate and delayed recall on the BSRT from premenopause to postmenopause. 2. Race is a significant factor affecting cognitive performance, with African American women performing differently than Caucasian women on most tasks, suggesting a racial disparity in cognitive symptoms. 3. Endocrine measures such as E2 and DHEAS are associated with cognitive performance, but only DHEAS remains significant after adjusting for other factors, indicating a potential hormonal influence on cognitive symptoms.	- Immediate verbal recall declined by 0.31 words per menopause stage (95%CI=-0.35, -0.26, P < .0001). - Delayed verbal recall declined by 0.36 words per stage (95%CI=-0.35, -0.26, P < .0001). - Significant decline in delayed recall early in the transition (p<0.002). - Overall decline: 1.19 words (7.5%) for immediate recall and 1.37 words (9%) for delayed recall from premenopause to postmenopause.
Ford-2005	Temporal association with stage change, statistical adjustment for age and other factors, and exclusion of other diagnoses through longitudinal analysis and statistical modeling.	1. Increasing age is a consistent predictor for the development and bother of symptoms, indicating age as a significant risk factor. 2. Transition to postmenopause and higher FSH levels are specifically linked to sexuality and VMS, suggesting these are more directly related to menopause. 3. Higher BMI and smoking are risk factors that exacerbate symptom bother, particularly for VMS, indicating lifestyle factors play a role in symptom severity.	- Increasing age consistently predicted symptom development and bother. - Transition to postmenopause and higher FSH levels predicted sexuality and VMS. - Higher E2 levels were protective against sexuality and VMS. - Vasomotor and sleep/fatigue symptoms were most bothersome. - Predictors for VMS included age (OR = 1.2), BMI log (OR = 6.5), FSH log (OR = 1.7), postmenopausal status (OR = 2.8), and current smoking (OR = 2.8). - Predictors for sexual dysfunctionality included age (OR = 1.1), being married (OR = 2.4), FSH log (OR = 1.4), and high testosterone quartile (OR = 2.0). - Exogenous hormone use increased bother from all symptoms. - Greater BMI was associated with

			increased bother from all constructs except sexuality and negative mood. - Current smoking more than doubled the odds of reporting symptoms and being in the highest quartile of bother for urinary and VMS.
Freedman-2004	The source of symptom attribution is based on the exclusion of other diagnoses and the lack of temporal association between hot flashes and sleep disturbances. The study suggests that sleep disturbances are more likely due to other factors such as normal aging rather than hot flashes, and that the attribution to menopause might be due to "illusory causation."	- Hot flashes do not significantly contribute to sleep disturbances in postmenopausal women. - Sleep disturbances during menopause may be attributed to other underlying conditions such as sleep apnea or drug use. - Reports of sleep disturbances during menopause might be misattributed to hot flashes when they are actually due to normal aging processes.	The study found no significant differences in sleep stage measures among symptomatic postmenopausal women, asymptomatic postmenopausal women, and premenopausal women. Hot flashes did not significantly affect sleep architecture, with an average of 5.2 hot flashes per night in symptomatic women. No significant group differences were found in sleep latency, sleep efficiency, or other sleep parameters. The study concluded that hot flashes do not produce sleep disturbances in symptomatic postmenopausal women.
Freeman-2004	Temporal association with stage change, statistical adjustment, clinical assessment, participant report	1. Depressive symptoms are more likely during the transition to menopause and decrease after menopause. 2. The likelihood of depressive symptoms decreases with age, with older women being less likely to experience these symptoms. 3. Risk factors such as a history of depression, severe premenstrual syndrome, poor sleep, and being African American are associated with an increased likelihood of reporting depressive symptoms.	- Increased likelihood of depressive symptoms during transition to menopause (P = .03). - Women in early transition: 55% more likely to report high CES-D scores (OR, 1.55; 95% CI, 1.04-2.32; P = .03). - Women in late transition: nearly 3 times more likely to report high CES-D scores (OR, 2.89; 95% CI, 1.29-6.45; P = .01). - Depressive symptoms decrease with age: 50-54 years age group 66% less likely to experience symptoms (OR, 0.34; 95% CI, 0.11-1.03; P = .06). - Rapidly increasing FSH levels associated with decreased depressive symptoms (PƷ001). - History of depression: more than twice as likely to report depressive symptoms (OR, 2.45; 95% CI, 1.61-3.72; PƆ.001). - African American women: nearly twice as

			likely to report depressive symptoms (OR, 1.89; 95% CI, 1.35-2.63; PↃ.001).
Freeman-2004 (Premenstrual)	Temporal association with stage change, statistical adjustment using multivariate logistic regression models, and generalized estimating equations (GEE) for repeated measures.	1. Premenstrual syndrome (PMS) decreases with age and changes in menstrual bleeding status, indicating a relationship with the menopausal transition stage. 2. Women with PMS at enrollment are more likely to experience menopausal symptoms such as hot flushes, depressed mood, poor sleep, and decreased libido, suggesting PMS as a risk factor. 3. Fluctuations in E2 are significantly associated with hot flushes, depressive symptoms, and poor sleep, indicating hormonal changes as a risk factor for these symptoms.	- PMS significantly decreases with age (P < .001) and menstrual bleeding status changes (P = .003). - Women with PMS at enrollment are more likely to report menopausal hot flushes (OR 2.09; CI 1.42, 3.08; P < .001), depressed mood (OR 2.34; CI 1.60, 3.43; P < .001), poor sleep (OR 1.72; CI 1.16, 2.53; P = .007), and decreased libido (OR 1.54; CI 1.06, 2.24; P = .024). - The likelihood of PMS decreases by 26% in early transition and 80% in late transition.
Freeman-2005	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, clinical assessment, participant report	1. Anxiety is strongly associated with the occurrence, severity, and frequency of hot flashes, and it precedes these symptoms. 2. Menopause stage and reproductive hormone levels are independently associated with hot flashes, indicating a relationship between these factors and symptom occurrence. 3. Smoking is an independent risk factor for hot flashes, while depressive symptoms are initially associated but become non-significant when adjusted for anxiety.	- Prevalence of hot flashes by menopause stage: 37% premenopausal, 48% early transition, 63% late transition, 79% postmenopausal. - Anxiety association: Moderate anxiety increases hot flash likelihood by nearly three times; high anxiety by nearly five times. - Odds ratios for anxiety and hot flashes: Moderate anxiety OR = 2.83, High anxiety OR = 4.37.
Freeman-2006	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. High depressive symptoms are more than 4 times more likely to occur during the menopausal transition compared to the premenopausal stage. 2. A diagnosis of depressive disorder is 2½ times more likely to occur during the menopausal transition compared to the premenopausal stage. 3. Changes in hormone levels, particularly increased variability of E2 and levels of FSH and LH, are significantly associated with high depressive symptoms during the menopausal transition.	- High CES-D scores are more than 4 times more likely during menopausal transition (OR, 4.29; 95% CI, 2.39-7.72; PↃ.001). - Diagnosed depressive disorders are 2.5 times more likely during menopausal transition (OR, 2.50; 95% CI, 1.25-5.02; P=.01). - Adjusted OR for menopausal transition at high CES-D scores is 5.44 (95% CI, 2.56-11.59; PↃ.001). - Variability of E2 is significantly associated with high CES-D scores (OR, 1.36; 95% CI, 1.02-1.80) and diagnosed depressive disorders (OR, 2.45; 95% CI,

			1.54-3.89; P=Ↄ.001). - Increased FSH and LH levels are associated with diagnosed depressive disorders (OR, 9.33 and 4.47, respectively).
Freeman-2007	- Self-reported symptoms using a validated menopausal symptom questionnaire - Statistical adjustment using generalized linear regression models for repeated measures - Menstrual bleeding patterns to define menopausal stages	1. Hot flushes, aches, joint pain, and stiffness, and depressed mood are significantly associated with menopausal stages, indicating these symptoms can be attributed to the menopausal transition. 2. Poor sleep, decreased libido, and vaginal dryness are not directly linked to menopausal stages, suggesting other factors may be more influential for these symptoms. 3. Perceived stress and history of depression are strong risk factors associated with multiple symptoms, while reproductive hormone fluctuations are independently associated with symptoms, indicating these factors play a significant role in symptom experience.	- Hot flushes: Increased risk in postmenopausal stage (OR 2.87, 95% CI 1.76-4.67, P<.001) - Aches, joint pain, and stiffness: Increased risk in late transition stage (OR 1.63, 95% CI 1.23-2.17, P<.001) - Depressed mood: Increased risk in late premenopausal stage (OR 1.48, 95% CI 1.11-1.99, P=.009); decreased postmenopause (OR 0.64, 95% CI 0.41-1.00, P=.05) - E2 fluctuations associated with hot flushes (P=.004) and aches, joint pain, and stiffness (P=.03) - Lower E2 levels associated with decreased libido (P=.04) - Lower inhibin b levels associated with hot flushes (P=.006), depressed mood (P=.05), and poor sleep (P=.01) - Higher FSH levels associated with hot flushes (P<.001) and aches, joint pain, and stiffness (P=.002)
Freeman-2008	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, clinical assessment, participant report	1. Headache is significantly associated with menopausal stage and decreases as women transition to menopause. 2. Mood swings and irritability are inversely associated with FSH levels, indicating they decrease as FSH levels increase during menopause. 3. Premenstrual syndrome (PMS) and perceived stress are strong independent contributors to symptom severity, while a history of depression is associated with anxiety, mood swings, and concentration difficulties.	- Headache decreased in the transition to menopause and was significantly associated with menopausal stage (P<0.200). - Mood swings were inversely associated with mean FSH levels (P<0.500). - Irritability was inversely associated with mean FSH and testosterone levels (P<0.710 and P<0.800). - Headache was 40% less likely postmenopause compared to premenopause (P=0.003). - Symptoms like irritability, mood swings, and anxiety decreased in the menopausal

			transition, but their association with menopausal stage was not significant. - Self-reported PMS was strongly associated with all symptoms (P<0.001).
Freeman-2011	Temporal association with stage change, statistical adjustment for menopausal stage, exclusion of other diagnoses based on good physical health, clinical assessment using validated symptom list, participant report	1. The duration of moderate to severe hot flushes is strongly associated with the menopausal stage at onset, with earlier onset stages having longer durations. 2. African American women experience a longer duration of hot flushes compared to white women, indicating race as a risk factor. 3. Younger age at onset is inversely associated with the duration of hot flushes, meaning younger women experience longer durations.	- Median duration of moderate to severe hot flushes: 10.2 years - Duration by menopausal stage: - Pre-/late premenopausal: >11.57 years - Early transition: 7.35 years (95% CI 4.94, 8.89) - Late transition to postmenopausal: 3.84 years (95% CI 1.77, 5.52) - Age at onset: Inversely associated with duration; younger ages at onset correspond to longer durations - Race: African American women have longer duration than white women - BMI: Non-obese women have longer duration than obese women
Freeman-2014	Temporal association with stage change, statistical adjustment	- The prevalence of high depressive symptoms decreases significantly from premenopause to postmenopause, with a 15% decrease per year. - A history of depression strongly modifies the incidence of depressive symptoms, with women having a history being over 13 times more likely to experience high symptoms. - The rate of change in FSH levels before menopause predicts a lower risk of depressive symptoms postmenopause, with a 35% decrease for each unit increase in log FSH rate of change.	- Overall prevalence of high depressive symptoms decreased by approximately 15% per year from 10 years before to 8 years after the FMP (odds ratio 0.85, 95% CI: 0.81-0.89, P<0.001). - Women with a history of depression were more than 11 times more likely to have high depressive symptoms (odds ratio =11.61, 95% CI: 5.51-24.47, P<0.001). - Depressive symptoms were approximately 50% more likely in the first 2 years postmenopause than in subsequent years (odds ratio 0.51, 95% CI: 0.37-0.71, P=0.001). - Women with a history of depression were 8 times more likely to have depressive symptoms postmenopause (odds ratio 8.39, 95% CI: 3.66-19.24, P<0.001). - The risk of depressive symptoms after the FMP decreased by 35% for each unit (SD)

			increase in log FSH rate of change (odd ratio 0.65, 95% CI: 0.46-0.91, P=0.01).
Freeman-2016	- Temporal association with stage change: Participants were followed from premenopausal status through postmenopause to identify incident hot flashes. - Statistical adjustment: Models were adjusted for menopausal stage and other covariates to ensure that the association between anxiety and hot flashes was not confounded. - Exclusion of other diagnoses: The study controlled for other potential causes of symptoms by adjusting for various covariates. - Participant report: Symptoms were attributed based on participant reports using a validated menopausal symptom list.	- Seventy-two percent of the sample reported moderate/severe hot flashes during the 14-year interval, indicating a high prevalence of this symptom during the menopause transition. - Somatic anxiety was strongly associated with hot flashes, with a significant increase in risk for each point increase in somatic anxiety scores, indicating it as a risk factor. - Menopausal stage and current age were independent contributors to hot flashes, suggesting these are risk factors for experiencing hot flashes.	- 72% of the sample reported moderate/severe hot flashes. - No significant interaction between anxiety dimensions and menopausal stages. - Somatic anxiety strongly associated with hot flashes: OR 3.03 (95% CI: 2.12, 4.32, P<0.001). - Affective anxiety less associated with hot flashes: OR 1.27 (95% CI: 1.03, 1.57, P=0.024). - Menopausal stage and current age are independent contributors to hot flashes.
Gold-2006	The source of symptom attribution in the study was based on temporal association with stage change, statistical adjustment through multivariate models, clinical assessment of menopausal status, and participant report of symptoms.	- VMS are most strongly associated with the transition to late perimenopause, with an adjusted odds ratio of 6.64. - African American women report VMS at a higher rate than other racial/ethnic groups, with an adjusted odds ratio of 1.63. - Risk factors independently associated with increased reports of VMS include older age, lower educational attainment, anxiety at baseline, increased BMI, smoking, baseline depression, and premenstrual symptoms.	- The transition to late perimenopause is strongly associated with VMS (adjusted OR = 6.64; 95% CI = 4.80, 9.20). - African American women report VMS at a higher rate than other racial/ethnic groups (adjusted OR = 1.63; 95% CI = 1.21, 2.20). - Other risk factors include age (adjusted OR = 1.17; 95% CI = 1.13, 1.21), less than a college education (adjusted OR = 1.91; 95% CI = 1.40, 2.61), increasing BMI (adjusted OR = 1.03 per unit of increase; 95% CI = 1.01, 1.04), smoking (adjusted OR = 1.63; 95% CI = 1.25, 2.12), and anxiety symptoms at baseline (adjusted OR = 3.10; 95% CI = 2.33, 4.12). - Vasomotor symptom reports increase dramatically from premenopause to early perimenopause and further to late perimenopause. - Symptom reporting remains high in

			postmenopause, similar to late perimenopause, except for Japanese and Hispanic women.
Gold-2007	Statistical adjustment and temporal association with stage change (menstrual cycle changes and PdG levels)	1. The absence of menstrual bleeding at the end of a urine collection cycle is significantly associated with increased VMS reporting, independent of PdG excretion level. 2. Different factors are associated with VMS reporting depending on the level of PdG excretion: for high PdG levels, VMS are associated with obesity, early perimenopause, and increasing PdG levels; for lower PdG levels, VMS are associated with no bleeding, smoking, higher age, physical activity, and hormonal levels. 3. Symptom sensitivity is positively related to VMS reporting across all PdG levels, and hormonal balance plays a crucial role in VMS reporting, especially in medium/low PdG collections.	- VMS reporting is 4-fold greater in women whose urine collections ended without bleeding (P = .0005). - High PdG levels are associated with obesity, early perimenopause, and higher PdG levels. - Low/medium PdG levels are associated with no bleeding, smoking, higher age, physical activity, and hormonal changes. - Symptom sensitivity is positively associated with VMS reporting in both high and low/medium PdG groups.
Gold-2017	- Temporal association with stage change: Symptoms were reported at each follow-up visit, and the study focused on new onset of symptoms during the menopausal transition. - Statistical adjustment: Multivariable modeling was used to control for various factors and isolate the effect of menopause on symptom attribution. - Exclusion of other diagnoses: Participants with certain conditions (e.g., initiation of hormone therapy, hysterectomy or bilateral oophorectomy) were excluded or censored from analyses. - Participant report: Symptoms were self-reported by participants, which is the primary basis for symptom attribution.	1. Greater concurrent BMI and waist circumference are associated with a higher incidence of VMS in early menopause but lower risk in late menopause. 2. Changes in weight and waist circumference over time are not significantly related to the incidence of VMS in either menopause stage. 3. There is a significant interaction between menopause stage and the relationship between body composition (BMI and waist circumference) and VMS, indicating stage-specific effects.	- Greater concurrent BMI and waist circumference are associated with a greater incidence of VMS in early menopause and a lower incidence in late menopause. - Percentage weight change since baseline has a shallow U-shaped association with frequent VMS in early menopause and an inverse U-shape in late menopause. - Changes in weight and waist circumference are not significantly related to incident VMS in either menopause stage.
Gold-2022	- Temporal association with stage change: The study used longitudinal data to assess the temporal relationship between inflammation markers and VMS during	1. Elevated levels of pro-inflammatory biomarkers (hs-CRP and IL-6) were not significantly associated with the incidence of VMS during the menopausal transition.	- No significant associations between elevated hs-CRP or IL-6 and incident VMS in general. - Elevated hs-CRP associated with frequent

	different stages of the menopause transition. - Statistical adjustment: The study controlled for various confounding factors through multivariable analyses to ensure that the symptoms were attributed to menopause rather than other factors. - Exclusion of other diagnoses: Women with cancer diagnoses or those using exogenous hormone therapy were excluded to minimize confounding factors. - Clinical assessment: The study used standardized protocols for measuring physical characteristics and collecting blood samples. - Participant report: Symptoms were reported by participants through questionnaires and interviews.	2. The relationship between inflammatory markers and VMS did not vary significantly by menopause transition stage or race/ethnicity. 3. Modest increases in inflammation may be a consequence of VMS rather than a risk factor.	VMS in premenopausal women. - Elevated IL-6 associated with VMS in Chinese women. - No significant interactions by menopause transition stage or race/ethnicity.
Gopal-2008	Temporal association with stage change, statistical adjustment	- A sharp decline in E2 levels during the menopausal transition is associated with lower urinary incontinence scores. - Women aged 45-49 have higher urinary incontinence scores compared to those over 55, indicating age as a risk factor. - High anxiety and a BMI greater than 35 are independently associated with increased urinary incontinence symptoms.	- Sharp decline in E2 levels: Lower urinary incontinence scores (adjusted mean difference=-0.93, 95%CI: -1.8, -0.02). - Age 45-49: Higher urinary incontinence scores compared to age > 55 (adjusted mean difference=1.0, 95%CI: 0.01, 2.1). - BMI > 35: Higher urinary incontinence scores compared to normal weight (adjusted mean difference=1.5, 95%CI: 0.59, 2.3). - High anxiety: Worsening scores in all three LUTS domains. - Sharp decline in E2: Clinically significant decrease in overall incontinence symptom scores.
Gordon-2016	The symptom attribution to menopause is based on temporal association with stage change (using STRAW+10 criteria), statistical analysis of E2 variability, and exclusion of baseline depression to ensure symptoms developed during the menopause transition.	1. E2 variability is associated with increased depressive symptoms in women who have experienced very stressful life events, indicating that these events are a risk factor that moderates this relationship. 2. E2 variability is linked to increased feelings of rejection, which is a symptom that can be attributed to the menopausal transition stage due to hormonal	- E2 variability predicts greater depressive symptoms at month 14 in women with higher VSLEs. - E2 variability is associated with greater feelings of rejection and anger/hostility in response to a laboratory stressor. - Interaction between E2 variability and

		changes. 3. Feelings of rejection, influenced by E2 variability, predict depressive symptoms in women with a history of very stressful life events, highlighting rejection sensitivity as a key factor in the development of depressive symptoms during the menopause transition.	VSLEs is significant for predicting depressive symptoms at month 14.
Gordon-2020	Temporal association with stage change, exclusion of other diagnoses, clinical assessment, statistical adjustment	1. Mood sensitivity to E2 predicts clinically significant depressive symptoms in women without a prior history of depression, with fewer stressful life events, and earlier in the menopause transition. 2. E2 sensitivity is more predictive of depressive symptoms among women with fewer months since their last menstrual period and fewer baseline stressful life events. 3. E2 sensitivity does not predict the occurrence of major depressive episodes (MDEs), indicating a distinction between symptom prediction and diagnosis.	- E1G mood sensitivity strength predicts clinically significant depressive symptoms in Phase 2. - This prediction is stronger among women without a prior history of depression, those with fewer baseline stressful life events, and those earlier in the menopause transition. - The effect size of this prediction is described as "relatively small."
Greendale-2009	Temporal association with stage change, statistical adjustment	1. Cognitive performance varies across menopause transition stages, with late perimenopausal women showing no improvement over time, indicating a relationship between menopause transition stage and cognitive performance. 2. Hormone use prior to the FMP is associated with better cognitive performance, while hormone use after the FMP is linked to poorer performance, highlighting the timing of hormone therapy as a risk factor. 3. Perimenopause is associated with perceived memory difficulties and a decrement in cognitive performance, suggesting that these symptoms are related to the menopausal transition stage rather than a disease.	- Premenopausal, early perimenopausal, and postmenopausal women showed improvement in processing speed (SDMT) and verbal memory (EBMT-delayed). - Late perimenopausal women did not improve in these cognitive areas. - Prior hormone use before the FMP had a beneficial effect on initial scores in processing speed and verbal memory. - Current hormone use after menopause had a detrimental effect on cognitive performance compared to premenopausal women. - Cognitive difficulties during the menopause transition are temporary and improve in postmenopause.
Grummisch-2023	- Temporal association with stage change: Participants reported cognitive difficulties since their menses became irregular. - Clinical assessment: Perimenopausal status was defined using STRAW criteria. - Participant report: Self-reported measures	1. Within-person changes in E2 levels are positively associated with objective measures of attention and subjective measures of memory, indicating that fluctuations in E2 during the menopause transition can impact cognitive function. 2. Women with lower baseline intellectual functioning	- Within-person E1G is positively associated with objective measures of attention and subjective measures of memory. - Perimenopausal women with lower intellectual functioning show a stronger

	were used to assess cognitive difficulties. - Statistical adjustment: The study controlled for potential confounders like VMS, sleep quality, and depressive mood.	exhibit a stronger relationship between E2 changes and cognitive performance, suggesting that cognitive vulnerability is a risk factor for experiencing cognitive symptoms. 3. Depressive mood, poor sleep, and VMS are negatively associated with cognitive function but do not fully explain the relationship between E2 and cognition, indicating they may exacerbate symptoms rather than being primary causes.	relationship between E1G changes and objective cognitive performance. - Depressive mood, poor sleep, and VMS are negatively associated with cognitive function but do not explain the E1G-cognition relationship. - Cognitive deficits are generally mild and transient. - A 2.8-point increase in RBANS Attention subtest score for every 1 SD increase in person-centered E1G.
Guthrie-2004	Temporal association with stage change, clinical assessment, participant report	1. The menopausal transition is directly associated with an increase in VMS, vaginal dryness, and dyspareunia, as well as a decrease in breast tenderness and bone mineral density. 2. An increase in cardiovascular disease risk is linked to weight gain and changes in hormone levels, specifically increases in free testosterone index and decreases in E2. 3. Depressed mood is increased by symptoms and stressors during the menopausal transition, and a history of premenstrual complaints can predict a more symptomatic transition.	- Late MT is associated with hormonal changes: decreases in E2, increases in FSH and free testosterone index. - Symptoms increase during late MT: 75% reported hot flushes, with frequency peaking 2 years post-FMP. - Number of women reporting five or more symptoms increases from early to late MT. - Menopause directly linked to increased CVD risk, central abdominal fat, and decreased sexual functioning.
Guthrie-2005	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, clinical assessment, participant report	1. The experience of bothersome hot flushes is significantly associated with relatively young age, low exercise levels, low E2 levels, high FSH levels, smoking, being in the late menopause transition, and being postmenopausal. 2. The hot flush index score increases with higher FSH levels, entering the late menopause transition, and becoming postmenopausal, but decreases with increasing age and exercise levels. 3. The increase in FSH levels and decrease in E2 levels during the menopause transition are strongly associated with hot flush reporting.	- 17% of women never reported bothersome hot flushes during the menopause transition. - Factors significantly associated with reporting bothersome hot flushes: young age ($P < 0.001$), low exercise levels ($P < 0.05$), low E2 levels ($P < 0.001$), high FSH levels ($P < 0.001$), smoking ($P < 0.01$), late menopause transition ($P < 0.001$), postmenopause ($P < 0.001$). - Hot flush index score increased with higher FSH levels ($P < 0.01$), late menopause transition ($P < 0.001$), postmenopause ($P < 0.05$), and decreased with increasing age ($P < 0.001$) and exercise levels ($P < 0.05$).

			- Highest mean hot flush index score during late menopause transition (3.32).
Harlow-2017	Temporal association with stage change, statistical adjustment through latent class and transition analysis	- Symptoms can be grouped into six latent classes ranging from highly symptomatic to relatively asymptomatic, with different classes characterized by different symptom intensities and types. - Classification into these symptom classes is strongly associated with risk factors such as financial strain, White race/ethnicity, obesity, and smoking status. - Women in the highly symptomatic classes are more likely to rate their health as fair to poor, indicating a relationship between symptom severity and self-reported health status.	- Six latent classes of symptoms were identified: highly symptomatic (LC1), moderately symptomatic (LC2), moderately symptomatic for specific symptoms (LC3 and LC5), mildly symptomatic (LC4), and relatively asymptomatic (LC6). - Distribution at pre-menopause: LC1 (10%), LC2 (16%), LC3 and LC4 (14%), LC5 (26%), LC6 (20%). - Distribution at post-menopause: LC1 (8%), LC2 (16%), LC3 (12%), LC4 (15%), LC5 (26%), LC6 (24%). - Financial strain, White race/ethnicity, obesity, and smoking status are strongly associated with more symptomatic classes. - Women in highly symptomatic classes more frequently report poor health. - Transition probabilities do not differ significantly by menopausal stage. - Odds ratios for self-reported health: 3.56, 2.94, and 1.60 times higher for postmenopausal vs. premenopausal women; 7.48, 8.21, and 9.73 times higher for LC1 vs. LC6.
Hickey-2016	Temporal association with stage change, statistical adjustment for confounding factors, analysis of changes in reproductive stage	1. Depressive symptoms follow distinct trajectories across the menopause transition, with increasing symptoms more likely in women who have had bilateral salpingo-oophorectomy or are perimenopausal. 2. Perimenopausal status, hysterectomy alone, bilateral salpingo-oophorectomy with or without hysterectomy, and hormone therapy use are associated with higher depressive symptoms compared to postmenopausal women. 3. Starting or stopping hormone therapy is linked to increased depressive symptoms, independent of VMS.	- Four distinct profiles of depressive symptoms: stable low (80.0%), increasing (9.0%), decreasing (8.5%), stable high (2.5%). - Increasing symptoms associated with bilateral salpingo-oophorectomy and perimenopause. - Higher CESD-10 scores in perimenopausal women (0.19, 95% CI 0.02, 0.31), after hysterectomy alone (0.53, 95% CI 0.31, 0.74), and bilateral salpingo-oophorectomy (0.85, 95% CI 0.58, 1.12). - Higher CESD-10 scores in hormone

			therapy users (0.19, 95% CI 0.01, 0.36) and after starting or stopping hormone therapy.
Huang-2024	Temporal association with stage change, statistical adjustment using GEE model, consideration of associated factors like poor health status, BMI, anxiety, and depression	1. The prevalence and severity of musculoskeletal pain increase as menopausal stages progress, with the late menopausal transition being a critical time for the onset of these symptoms. 2. Poor health status, higher BMI, anxiety, and depression are independently associated with muscle and joint pain, indicating these as risk factors. 3. The severity of musculoskeletal pain worsens over time, suggesting a temporal relationship between the progression of menopause and the exacerbation of symptoms.	- The prevalence of muscle and joint pain increases as menopausal stages progress: 43.85% in premenopausal women, 64.29% in menopausal transition women, and 65.74% in postmenopausal women. - Factors independently associated with muscle and joint pain: poor health status (OR 2.245, 95% CI 1.714-2.94), BMI (OR 1.046, 95% CI 1.01-1.084), anxiety (OR 1.601, 95% CI 1.211-2.117), and depression (OR 1.368, 95% CI 1.143-1.639). - Severity of musculoskeletal pain increases with menopausal stages, with significant increases in moderate or severe pain from premenopause to postmenopause.
HydeRiley-2004	Participant report, temporal association with stage change, exclusion of other diagnoses, statistical adjustment	- Perimenopausal women with a BMI ≥ 25 kg/m² are more likely to experience hot flashes compared to those with a lower BMI. - Consuming 1 to 5 alcohol-containing drinks per week is associated with fewer hot flashes in perimenopausal women. - High dietary fat intake is associated with fewer hot flashes in postmenopausal women.	- Approximately 30% of both perimenopausal and postmenopausal women reported experiencing hot flashes. - Perimenopausal women: BMI ≥25 kg/m² (OR, 2.00; 95% CI, 1.28 to 3.12) and alcohol use of 1 to 5 drinks per week (OR, 0.52; 95% CI, 0.31 to 0.86) were significant correlates. - Postmenopausal women: High dietary fat intake (OR, 0.35; 95% CI, 0.15 to 0.81) was the only significant correlate. - Smoking increased hot flashes in perimenopausal women, especially with depression (OR, 2.19; 95% CI, 1.06 to 4.54), but not in postmenopausal women.
Jacobs-2017	- Clinical assessment: Reproductive histories and hormonal evaluations were used to determine menopausal status. - Exclusion of other diagnoses: Exclusionary criteria included other potential causes of symptoms. - Statistical adjustment: Hormonal changes	1. The menopausal transition stage is associated with changes in brain activity and connectivity related to working memory tasks, independent of chronological age. 2. Postmenopausal women show increased reliance on DLPFC-hippocampal connectivity for working memory performance compared to premenopausal	- Increased activity in left DLPFC in postmenopausal and perimenopausal women compared to premenopausal women ($F = 4.06$, $P = 0.022$, $r = 0.33$). - Decreased hippocampal deactivation with menopause transition ($F_{3,129} = 3.12$, $P = 0.028$, $r = 0.26$).

	were statistically adjusted for. - Clinical guidelines: STRAW-10 guidelines were used for categorizing menopausal stages.	women. 3. The decline in ovarian E2 during menopause may lead to compensatory changes in brain activity and connectivity, affecting working memory circuitry.	- Strong relationship between decreased hippocampal deactivation and decline in E2 (P = 0.012, β= -0.30) and progesterone (P = 0.003, β= -0.34). - Heightened DLPFC-hippocampal connectivity in postmenopausal women (r = 0.55, P [2-tailed] = 0.017).
Jang-2025	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, clinical assessment	1. Sleep health declines during late transition and post-menopause stages compared to pre-menopause, indicating a symptom-diagnosis relationship where these stages are associated with worsening sleep quality. 2. Sleep latency and sleep disturbance are significantly worse during late transition and post-menopause, further supporting the association between these stages and specific sleep symptoms. 3. Being overweight is a risk factor for poor sleep health, as it worsens PSQI scores and components, although it does not change the association between menopausal stages and sleep quality.	- Overall decline in sleep health during late transition and post-menopause compared to pre-menopause. - PSQI scores significantly higher during late transition and post-menopause. - Coefficients for PSQI score changes: early transition = 0.14 (95% CI: -0.05, 0.32), late transition = 0.28 (95% CI: 0.10, 0.45), post-menopause = 0.38 (95% CI: 0.15, 0.61). - Significant worsening of PSQI scores and components during late transition and post-menopause.
Jones-2018	The source of symptom attribution is based on statistical differences between premenopausal and perimenopausal women, using self-reported data from the PSQI and telephone interviews, and controlling for other factors in multivariate analyses.	1. Poor sleep quality is a significant issue for midlife women, with 42% of the cohort experiencing it. 2. Premenopausal women are more likely to awaken to use the bathroom, while perimenopausal women are more likely to awaken due to feeling too hot, indicating a symptom-diagnosis relationship linked to menopausal stages. 3. Perimenopausal women report shorter sleep duration and worse sleep quality compared to premenopausal women, suggesting a relationship between the menopausal transition stage and sleep quality.	- Poor sleep quality was experienced by 42% of the total cohort. - Awakening to use the bathroom was the most frequent reason for sleep disturbance (81%). - Premenopausal women were more likely to awaken to use the bathroom (P = .047). - Perimenopausal women were more likely to awaken due to feeling too hot (P = .002). - Perimenopausal women reported shorter sleep duration (P = .007) and worse sleep quality (P = .05). - PSQI scores were significantly higher for perimenopausal women (52% had PSQI score > 5). - Sleep duration was inversely related to FSH values (r = -.141, P = .017). - Race and reproductive stage were

			significant predictors of sleep duration (R 2 = .126, F 11, 262 = 3.3, P < .001).
Kalleinen-2021	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, clinical assessment, participant report	1. Higher S-FSH levels, indicative of menopausal transition, were associated with longer sleep latency. 2. Aging was associated with shorter sleep latency and increased slow-wave sleep, suggesting age as a significant factor in sleep architecture changes. 3. VMS like hot flashes increased during the follow-up, but their impact on sleep fragmentation was equivocal, while higher BMI was linked to more fragmented sleep.	- Higher S-FSH level is associated with longer sleep latency (B 0.45, 95% CI: 0.07 to 0.83). - Aging of 10 years is associated with: - Shorter sleep latency (B -46.8, 95% CI: -77.2 to -16.4). - Shorter latency to stage 2 sleep (B -50.6, 95% CI: -85.3 to -15.9). - Decreased stage 2 sleep (B -12.4, 95% CI: -21.4 to -3.4). - Increased slow-wave sleep (B 12.8, 95% CI: 2.32 to 23.3). - Changes are more age-related than menopause-related.
Katainen-2018	Temporal association with stage change, statistical adjustment, participant report, exclusion of other diagnoses	1. VMS significantly decreased over the follow-up period, directly related to the menopausal transition stage. 2. Sleep problems and cognitive difficulties showed minor decreases, suggesting multifactorial etiologies not solely dependent on the climacteric. 3. The etiology of other symptoms like sleep problems and cognitive difficulties is multifactorial, influenced by factors beyond menopause, such as weight, sleep apnea, diabetes, medications, or emotions.	- VMS decreased significantly over the 19-year follow-up period (P < 0.001; baseline vs 6-year follow-up: d = -0.83 [SD 0.17], baseline vs 19-year follow-up: d = -1.40 [SD 0.17], and 6-year follow-up vs 19-year follow-up: d = -0.57 [SD 0.17]). - Sleep problems decreased from baseline to 19-year follow-up (P = 0.029, d = -0.36 [SD 0.13]). - Cognitive difficulties decreased from baseline to 19-year follow-up (P = 0.007, d = -0.40 [SD 0.12]). - No significant changes were found in other symptoms.
King_2022	Temporal association with stage change, statistical adjustment, participant report, standardized assessment using Menopause Rating Scale (MRS)	- The most common symptoms experienced by women living with HIV during the menopause transition are joint/muscle stiffness, depressed mood, and hot flashes. - Resilience is a protective factor against symptom intensity, while depressive symptoms and recreational drug use are risk factors that increase symptom intensity. - Symptoms are most intense during the perimenopause	- 88% of WLWH experienced at least one mild symptom; 75% moderate; 55% severe. - Most common symptoms: joint/muscle stiffness (67%), depressed mood (67%), hot flashes (57%). - Resilience: symptom score 1.37 lower with higher resilience (P = 0.004). - Depressive symptoms and recreational drug use: symptom scores 1.71 and 2.89

		phase and decrease as women progress further into menopause.	higher, respectively (P = 0.002 and P < 0.001). - Symptoms most intense in perimenopause, declining with increasing menopausal years (P = 0.03). - Odds of severe symptoms higher in perimenopause vs. >5 years post-FMP (OR = 4.66, 95% CI: 2.36-9.21).
Kok-2006	Participant report (temporal association with stage change, participant self-reporting of symptoms)	1. There is weak evidence for the effect of natural menopause on cognitive function, suggesting that symptoms related to cognitive decline are not strongly attributed to the menopausal transition itself. 2. Trends in cognitive function across different stages of menopause were observed, with postmenopausal women having lower cognitive function in certain areas, but these trends were not explained by vasomotor or psychological symptoms. 3. Higher levels of vasomotor and psychological symptoms were associated with lower cognitive scores, but these symptoms did not modify the effects of menopause status on cognitive function.	- Weak effect of natural menopause on cognitive function, particularly in search speed and concentration. - Postmenopausal women had the lowest cognitive function in NART and search speed. - Positive trend in verbal memory with later menopause age (P = 0.004). - Weak positive trend in NART with later menopause age (P = 0.052). - Trends attenuated after adjusting for childhood cognitive ability and other confounders.
Kravitz-2022	Temporal association with stage change, statistical adjustment, participant report	1. Postmenopause is associated with a higher risk of high depressive symptoms compared to premenopause, but not compared to perimenopause. 2. Pre-FMP depressive symptom trajectories are predictive of postmenopausal depressive symptoms, with moderate and high symptom groups having significantly higher odds of high depressive symptoms. 3. Specific risk factors associated with higher odds of depressive symptoms during postmenopause include childhood trauma, poor role physical score, high anxiety, sleep problems, and high VMS symptoms, while chronological aging and social support are protective factors.	- Women have higher odds of reporting high depressive symptoms during postmenopause compared to premenopause (OR=1.49, 95% CI, 1.09-2.04). - Moderate and high pre-FMP CES-D score groups have significantly higher odds of reporting high depressive symptoms during postmenopause compared to the consistently low group (OR=2.62, 95% CI, 1.89-3.66 for moderate; OR=6.88, 95% CI, 4.72-10.02 for high). - Factors associated with higher odds of depressive symptoms during postmenopause include childhood trauma, poor role physical score, high anxiety symptom score, sleep problems, and high VMS symptoms. - Factors associated with lower odds of depressive symptoms during postmenopause

			include chronological aging and social support prior to FMP.
Kumari-2005	Participant self-reporting, statistical adjustment, and association with health functioning declines	1. Menopausal symptoms, particularly VMS and menopause-associated depression, are strongly linked to declines in health functioning as measured by the SF-36. 2. Specific risk factors for these symptoms include low socioeconomic position, high body mass index, limiting long-term illness, smoking, and depression, which are not directly related to the menopausal transition itself. 3. Menopause-associated depression may be more reflective of underlying depression rather than a direct result of the menopausal transition, indicating that psychological conditions play a significant role in symptom severity.	- Women experiencing VMS or menopause-associated depression show significant declines in health functioning. - Decline in physical functioning for perimenopausal women with severe VMS: 3.3 points (SE = 1.1). - Decline in role limitation-emotional for perimenopausal women with severe menopause-associated depression: 18.4 points (SE = 2.3). - Predictors of VMS: low socioeconomic position, high body mass index, limiting long-term illness. - Predictors of menopause-associated depression: low socioeconomic position, high body mass index, smoking, depression.
Lampio-2017	The symptom attribution to menopause is based on the use of serum follicle-stimulating hormone (S-FSH) concentration as a marker of menopausal state, statistical adjustment for confounding factors, and temporal association observed in a prospective study design.	1. Aging from 46 to 52 years is associated with significant deterioration in sleep continuity, indicating aging as a risk factor for sleep disturbances. 2. The transition from premenopausal to menopausal state, marked by higher S-FSH concentrations, is associated with increased slow-wave sleep, suggesting an adaptive response to age-related sleep fragmentation. 3. VMS have a mild impact on sleep architecture, indicating they are not the primary cause of sleep disturbances during menopause.	- Aging over 6 years resulted in: - Shorter total sleep time (B -37.4, 95% CI -71.5 to -3.3) - Lower sleep efficiency (B -6.5, 95% CI -12.7 to -0.2) - Increased transitions from SWS to wakefulness (B 1.0, 95% CI 0.1 to 1.9) - Increased wake after sleep onset (B 37.7, 95% CI 12.5 to 63.0) - Increased awakenings per hour (B 1.8, 95% CI 0.8 to 2.8) - Increased arousal index (B 2.3, 95% CI 0.1 to 4.4) - Higher S-FSH concentration was associated with increased SWS (B 0.09, 95% CI 0.01 to 0.16)
Lee-2023	- Clinical assessment using ICD-10-CM codes for symptomatic menopausal transition. - Exclusion of other diagnoses (psychiatric disorders, gynaecological diseases,	1. Symptomatic menopausal transition is associated with an increased risk of depression, anxiety, and sleep disorders. 2. The use of hormone replacement therapy (HRT) is associated with an increased risk of depression and	- Symptomatic menopausal transition is associated with an increased risk of depression (HR: 2.10; 95% CI: 1.63-2.71), anxiety (HR: 1.64; 95% CI: 1.01-2.66), and sleep disorders (HR: 1.47; 95% CI: 1.16-

	artificial menopause). - Temporal association with stage change (index date for symptomatic menopausal transition diagnosis). - Statistical adjustment through propensity score matching.	sleep disorders. 3. Age-specific associations show that symptomatic menopausal transition is linked to increased risks of depression, anxiety, and sleep disorders in women aged 45-54 years, and only depression in women aged 55-64 years.	1.88). - HRT is associated with an increased risk of depression (HR: 2.21; 95% CI: 1.07-4.55) and sleep disorders (HR: 2.51; 95% CI: 1.25-5.04). - Age subgroup analysis shows increased risk of depression in both age groups (45-54 and 55-64 years), but increased risk of anxiety and sleep disorders only in the 45-54 age group.
Li-2020	- Participant report: Participants completed questionnaires about their symptoms. - Clinical assessment: Menopausal stages were determined by an experienced clinician using menstrual diaries and the STRAW þ 10 criteria. - Statistical adjustment: Used Kaplan-Meier analyses, Cox proportional hazard regression models, and generalized linear mixed models to assess relationships between VMS and menopausal stages. - Temporal association with stage change: Measured prevalence of VMS relative to menopausal stages and changes over time.	1. The prevalence of VMS in Chinese women was higher than previously reported and consistent with Western women, indicating a significant symptom-diagnosis relationship related to menopause stages. 2. The duration of VMS was shorter in Chinese women compared to Western women, suggesting a difference in symptom persistence across ethnic groups. 3. The presence and duration of VMS were significantly associated with menopause stages, serum follicle stimulating hormone levels, general distress levels, and baseline body mass index, indicating these as risk factors or predictors for symptom severity and duration.	- Prevalence of hot flashes: 83.4% - Prevalence of night sweats: 82.9% - Median duration of hot flashes and night sweats: 4.5 years - Significant associations in generalized linear mixed model: menopause stages, FSH levels, general distress levels, baseline BMI - Prevalence increase from premenopause to postmenopause: from 9% to over 50% - Most frequent and severe symptoms after Stage -1 - Duration significantly associated with menopause stage at VMS onset
Luo-2020	Temporal association with stage change, clinical assessment, statistical adjustment	1. The prevalence of insomnia symptoms (trouble falling asleep and early morning awakenings) significantly increases during menopausal transition and postmenopause compared to premenopause. 2. Anxiety and depression are independently associated with trouble falling asleep, indicating these psychological factors as risk factors for insomnia. 3. Premenopausal insomnia is a strong predictor of moderate to severe insomnia during menopausal transition and postmenopause.	- The prevalence of trouble falling asleep increased from 37.50% in premenopause to 65.95% in postmenopause. - The prevalence of early morning awakenings increased from 28.12% in premenopause to 50.29% in menopausal transition and remained high at 53.71% in postmenopause. - Anxiety and depression were independently associated with trouble falling asleep. - FSH levels were associated with trouble falling asleep. - Women with premenopausal insomnia had a higher risk of moderate to severe insomnia

			in menopausal transition (OR = 11.33) and postmenopause (OR = 16.67).
Maki-2021	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. Cognitive performance declines across the menopausal transition, particularly in verbal learning, memory, and attention/working memory, independent of age and menopausal symptoms. 2. Women with HIV (WWH) are more susceptible to cognitive dysfunction due to the compounding effect of HIV-related cognitive difficulties with menopause-related changes. 3. Lower-income women with multiple risk factors may experience longer-lasting cognitive effects of menopause compared to higher-income women without HIV.	- Significant declines in verbal learning, memory, and attention/working memory from premenopause to early perimenopause and postmenopause. - Predicted probability of learning impairment increases by 8% from premenopause to perimenopause and remains at 23% in postmenopause. - Predicted probability of memory impairment increases by 11% from premenopause to perimenopause and remains at 32% in postmenopause. - Odds of impairment in learning, memory, and attention/working memory increase by 60%, 71%, and 41%, respectively, from premenopause to early perimenopause. - Odds of impairment in memory and attention increase by 76% from premenopause to postmenopause.
Maleki-2019	- Participant report: Symptoms were self-reported by participants. - Statistical adjustment: Linear mixed regression models adjusted for various factors to evaluate associations. - Temporal association with stage change: Significant interaction between migraine history and menopausal status.	1. A history of migraine is associated with an increased frequency of VMS during menopausal transition, but not with vaginal dryness. 2. There is a significant interaction between migraine history and menopausal status in predicting VMS, with higher burden during late-stage perimenopause. 3. VMS are also associated with psychological factors such as depression, anxiety, and sleep disturbance, but not with back pain.	- A history of migraine predicts an increased frequency of VMS during menopausal transition. - The burden of VMS is higher during late-stage perimenopause in women with migraine. - Significant interaction between migraine history and menopausal status for VMS prediction. - Increased frequency of hot flashes ($p = 0.0036$) and night sweats ($p = 0.0138$) in migraineurs.
Marsh-2015	Temporal association with stage change, statistical adjustment, participant report	1. Women in the late menopausal transition and early postmenopause stages had significantly higher depression and mood elevation symptoms compared to those in the early menopausal stage. 2. Menopausal symptoms were associated with concurrent depression but not mood elevation severity.	- MADRS scores were 4.43 points higher in the late transition/early postmenopausal stage compared to the early menopausal stage, indicating a roughly 10% increase in depressive symptoms. - YMRS scores were 2.54 points higher in

		3. A history of postpartum mood exacerbations may be associated with greater mood elevation symptoms during the menopausal transition.	the late/early postmenopausal stage compared to the early menopausal stage, indicating a roughly 10% increase in mood elevation symptoms. - The MADRS difference is considered clinically meaningful, while the YMRS difference is statistically significant but less likely to be clinically significant.
Marsh-2017	The symptom attribution is based on a combination of temporal association with stage change (menopause status defined by menstrual patterns), statistical adjustment (random-effects binomial logistic regression), exclusion of other diagnoses (exclusion of hormone therapy users), clinical assessment (hormone measurements), and participant report (questionnaires).	1. Longer duration of estrogen exposure from menarche to menopause onset is protective against depressive symptoms during the menopausal transition and postmenopause. 2. The age at menopause onset is a significant predictor of depression risk, with later onset associated with lower risk. 3. Non-hormonal factors such as ethnicity, life events, and social support influence depression risk, with Hispanic ethnicity and smoking associated with higher risk, and being Chinese and having higher social support associated with lower risk.	- A longer interval between menarche and MT onset is protective against high depressive symptoms, with each additional year associated with a 5% lower odds of depression (OR 0.95, 95% CI 0.92-0.98) in unadjusted analyses and a 15% lower odds (OR 0.85, 95% CI 0.78-0.92) in adjusted analyses. - The duration of estrogen exposure from menarche to MT onset is inversely related to depression risk, with a 15% decrease in odds for each additional year of exposure. - Age at MT onset is a more significant predictor of depression risk than age at menarche. - Reproductive events like pregnancy and lactation are not significantly associated with depression risk. - Longer OC use is protective against depressive symptoms.
Matthews-1994	Temporal association with stage change, statistical adjustment (correlation with estrogen levels)	- Perimenopausal women experience a greater number of symptoms such as hot flashes, cold sweats, joint pain, and forgetfulness, which are more pronounced during this stage. - Hot flashes are associated with low concentrations of serum estrogens, indicating a direct relationship between hormonal changes and symptom occurrence. - The total number of symptoms peaks during the perimenopause and then declines, with symptoms like joint pain and forgetfulness possibly being subclinical	- Perimenopausal women reported a greater number of symptoms, especially hot flashes, cold sweats, joint pain, aches in the skull and/or neck, and being forgetful. - Odds of reporting these symptoms increased between twofold and ninefold at the perimenopausal examination. - Decline in HDL-2 cholesterol from 0.53 to 0.43 mmol/L and increase in LDL cholesterol from 3.14 to 3.33 mmol/L during the transition from perimenopause to

		signs of underlying biological changes due to hormonal shifts.	postmenopause. - Total number of symptoms peaked at the perimenopausal examination and then declined. - Hot flashes were associated with low concentrations of serum estrogens.
Matthews-2021	Temporal association with stage change, statistical adjustment for potential covariates	1. Women transitioning to postmenopause showed increased beta NREM EEG power, indicating physiological hyperarousal during sleep independent of self-reported hot flashes. 2. The association between increased NREM EEG beta power and menopausal transition was independent of age, race/ethnicity, BMI, and VMS. 3. No significant changes were observed in sleep duration, continuity, or NREM delta power across menopausal transition stages, suggesting selective impact on sleep physiology.	- Women transitioning to postmenopause had increased beta NREM EEG power compared to those remaining pre-or early premenopausal. - This association was independent of age, race/ethnicity, site, BMI, and duration between assessments. - No significant differences were found in sleep duration, WASO, or NREM delta power among menopausal transition groups.
Matthews-2022	Temporal association with stage change (FMP), statistical adjustment through group-based multi-trajectory modeling, participant report	1. Women can be categorized into five distinct groups based on their symptom and hormone trajectories during the menopause transition, indicating variability in symptom experiences across different stages. 2. Risk factors such as race/ethnicity, BMI, and depressive symptoms predict group membership, suggesting these factors influence symptom experiences. 3. Symptoms are not uniformly experienced by all women, and individualized approaches are necessary, indicating that symptoms are influenced by multiple factors rather than solely by the menopausal transition stage.	- Five distinct groups of women were identified based on patterns of FSH, VMS, and sleep maintenance problems during the menopause transition. - Group 1 (39%): Low symptoms, high FSH rise. - Group 2 (12%): Moderate symptoms, low FSH rise. - Group 3 (14%): Dominant sleep symptoms, high FSH rise. - Group 4 (21%): Dominant VMS, high FSH rise. - Group 5 (13%): High symptoms, intermediate FSH rise. - Predictors of group membership: Race/ethnicity, BMI, CES-D scores.
Maxwell-2023	Temporal association with stage change, clinical assessment, statistical adjustment	1. Postmenopausal women, particularly those with surgical menopause, were more likely to experience sleep problems such as sleep apnea and restless leg syndrome. 2. Predictors of poor sleep quality included depression, bodily pain, and vitality, indicating these symptoms are	- No significant differences in overall sleep quality among the three reproductive stages or between natural and surgical menopause ($p = 0.61$). - Postmenopausal women more likely to have major sleep problems and restless leg

		related to sleep quality rather than directly to the menopausal transition stage. 3. Postmenopausal women were more likely to experience nocturia, which is a symptom that can disrupt sleep.	syndrome ($p < 0.001$). - Predictors of poor sleep quality: depression, bodily pain, vitality, and surgical menopause ($p < 0.001$). - Surgical postmenopausal group had higher scores on PSQI Sleep Medications scale ($p = 0.006$). - Surgical postmenopausal group reported more sleep apnea ($p = 0.002$). - Postmenopausal women more likely to experience nocturia ($p < 0.001$).
Mirer-2017	Temporal association with stage change, statistical adjustment, clinical assessment, participant report	1. The apnea-hypopnea index (AHI) increases with progression through menopause stages, indicating a symptom-diagnosis relationship where menopausal transition stages are associated with increased sleep-disordered breathing (SDB) severity. 2. Each additional year in menopause is associated with a 4% increase in AHI, suggesting a temporal relationship between menopause progression and SDB severity. 3. The association between menopause progression and SDB severity is independent of aging and changes in body habitus, indicating that menopause itself is a risk factor for SDB.	- AHI is 21% higher in perimenopause, 31% higher in postmenopause, and 41% higher in undetermined peri-postmenopause compared to premenopause. - Each additional year in menopause is associated with a 4% increase in AHI. - There is a monotonic increase in AHI from premenopause to postmenopause. - Each additional year in menopause is associated with 7% greater odds of having AHI ≥ 15.
Mishra-2012	Temporal association with stage change, participant report	1. Psychological symptoms can be attributed to the menopausal transition stage, with a small proportion of women experiencing severe symptoms peaking at or after menopause. 2. VMS are influenced by the menopausal transition stage, with early and late severe profiles related to the timing of menopause. 3. Social class and education level are risk factors for severe VMS, with non-manual social class and degree level qualifications associated with lower odds of these symptoms.	- 10% of women had a severe psychological symptom profile peaking at or after menopause. - 14% of women had an early severe vasomotor symptom profile peaking at menopause and declining postmenopause. - 11% of women had a late severe vasomotor symptom profile increasing during perimenopause and remaining high postmenopause. - 14% of women had a late severe sexual discomfort profile increasing until menopause and persisting postmenopause. - Women from non-manual social classes or with degree-level qualifications were less

			likely to have severe VMS (OR 0.79, 95% CI 0.57 to 1.01; OR 0.37, 95% CI 0.18 to 0.77). - Married women were more likely to have late severe or moderate sexual discomfort profiles (OR 2.40, 95% CI 1.30 to 4.41).
Mitchell-2010	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, participant report	1. Back pain significantly increases during the early and late menopausal transition stages and early postmenopause, indicating a direct relationship between these stages and back pain. 2. Perceived stress and lower cortisol levels are associated with more severe back pain, suggesting that stress-related factors contribute to back pain. 3. Symptoms such as hot flushes, depressed mood, anxiety, and difficulty concentrating are significantly associated with both back and joint pain, indicating that these symptoms can be linked to pain experiences.	- Back pain significantly increases during the early ($p = 0.003$) and late menopausal transition stages ($p = 0.002$) and early postmenopause ($p = 0.02$). - Joint pain is significantly associated with age ($p < 0.0001$) rather than menopausal transition stages. - Symptoms like hot flushes, night-time awakening, depressed mood, and difficulty concentrating are significantly associated with joint pain ($p < 0.0001$). - Poorer perceived health, more exercise, higher BMI, and greater analgesic use are associated with both back and joint pain. - History of sexual abuse is significantly related to joint pain severity ($p = 0.024$).
Mitchell-2015	The symptom attribution to menopause is based on temporal association with stage changes, statistical adjustment, exclusion of other diagnoses, clinical assessment, and participant report.	1. Hot flash severity is strongly associated with the late menopausal transition stage and early postmenopause, peaking during these periods. 2. Anxiety is a significant contributor to hot flash severity, suggesting that psychological factors play a role in symptom severity. 3. Endocrine factors such as higher FSH and lower estrone levels are associated with increased hot flash severity, indicating a link between hormonal changes and symptom severity.	- Hot flash severity peaks during the late MT stage and diminishes after the second year of PM. - Being in the late MT stage increases hot flash severity by .36 compared to the late reproductive stage. - Being in early PM increases hot flash severity by .92 compared to the late reproductive stage. - Anxiety contributes to hot flash severity with a .03 increase for every unit increase in anxiety.
Mitchell-2017	Statistical adjustment and multilevel modeling were used to attribute symptoms to menopause, considering factors such as age, exercise, partnership status, perceived stress, and sleep symptoms.	1. Being in the early postmenopause stage is associated with less severe depressed mood. 2. Perceived stress, history of sexual abuse, difficulty getting to sleep, and early awakening are risk factors for higher depressed mood severity.	- Being in the early postmenopause stage is associated with less severe depressed mood. - Exercising more is associated with less severe depressed mood. - Being partnered is associated with less

		3. Hot flashes and hormonal markers like estrone and FSH are not significantly associated with depressed mood severity.	severe depressed mood. - Greater perceived stress is associated with more severe depressed mood. - History of sexual abuse is associated with more severe depressed mood. - Difficulty getting to sleep and early awakening are associated with more severe depressed mood.
Mulhall-2018	Statistical adjustment, exclusion of other diagnoses, participant report	- Being perimenopausal is associated with an increased risk of symptoms of depression, while being postmenopausal is associated with an increased risk of symptoms of anxiety. - These associations are significant in women without a history of major depressive disorder or generalized anxiety disorder, indicating that the menopausal transition itself can contribute to the development of these symptoms. - For women with a history of these disorders, the menopausal transition stage does not significantly affect the risk of symptoms.	- Perimenopause is associated with a 29% increased risk of symptoms of depression (IRR = 1.29, p = 0.001). - Postmenopause is associated with a 15% increased risk of symptoms of anxiety (IRR = 1.15, p = 0.041). - In women without a history of depression or anxiety: - Perimenopause is associated with a 35% increased risk of symptoms of depression (IRR = 1.35, p = 0.008). - Postmenopause is associated with a 31% increased risk of symptoms of depression (IRR = 1.31, p = 0.029). - Postmenopause is associated with a 32% increased risk of symptoms of anxiety (IRR = 1.32, p = 0.006). - Perimenopause is associated with a 22% increased risk of symptoms of anxiety (IRR = 1.22, p = 0.030).
Ozasa-2022	Temporal association with stage change, clinical assessment, participant report, and the influence of hormonal changes during menopause on somatosensory function.	1. In the late postmenopausal stage, there was a gain of function for cold and heat pain thresholds, indicating hyperalgesia and suggesting that symptoms of BMS are more pronounced in terms of thermal sensitivity during this stage. 2. The vibration detection threshold was predictive of the severity of burning mouth sensation in premenopausal women, indicating that mechanical sensitivity is a factor in the early stages of menopause. 3. The pressure pain threshold was significantly lower in premenopausal BMS patients compared to controls,	- Late postmenopausal BMS group: Gain of function for cold pain threshold (Z = 2.08) and heat pain threshold (Z = 3.38). - Premenopausal BMS group: Vibration detection threshold predicts burning mouth sensation severity (explains 17.1% of variance). - Premenopausal BMS group: Pressure pain threshold significantly decreased compared to controls (p < 0.01). - Early postmenopausal BMS group:

		suggesting that mechanical pain sensitivity is also affected in the premenopausal stage.	Vibration detection threshold significantly decreased compared to controls ($p < 0.01$). - Late postmenopausal BMS group: Cold and heat hyperalgesia indicated by significant differences in cold and heat pain thresholds ($p < 0.01$ and $p < 0.05$, respectively).
Randolph-2005	Temporal association with stage change, statistical adjustment, participant report	1. FSH concentrations are positively associated with the prevalence and frequency of VMS, indicating that higher FSH levels are linked to more frequent and severe symptoms. 2. While E2, SHBG, and FEI are associated with VMS when modeled independently, they lose significance when modeled with FSH, suggesting FSH is the primary hormonal predictor of VMS. 3. Certain risk factors such as smoking behavior and psychosocial stress are positively associated with VMS, and there are ethnic differences in the reporting of VMS, with African-American women being more likely to report symptoms.	Higher serum FSH concentrations are significantly associated with increased prevalence and frequency of VMS during the menopausal transition. For each unit increase in serum log FSH, the odds of reporting any VMS increased by 29% in women with samples outside the d 2-5 window and by 58% in women without menses for at least 3 months. In contrast, higher log E2 concentrations are associated with decreased VMS prevalence only when modeled independently of FSH. Other hormones like testosterone (T), DHEAS, and FTI were not associated with VMS prevalence.
Rössler-2016	- Temporal association with stage change: The study analyzed symptoms in relation to menopause stages. - Statistical adjustment: Adjusted for duration of reproductive period or age at menopause. - Clinical assessment: Used SPIKE interview and SCL-90-R to assess symptoms and psychopathology. - Participant report: Participants rated distress related to symptoms. - Exclusion of other diagnoses: Used DSM criteria for major depressive episode and anxiety disorders.	1. Hot flushes/night sweats and sleep disturbances are more common in peri- and post-menopausal women, indicating a direct relationship with menopausal transition stages. 2. Irritability/nervousness in peri-menopausal women is attributed to neuroticism trait scores at age 30, rather than the menopausal transition itself. 3. Menopausal transition stages are not significantly related to changes in prevalence rates of major depressive episodes or anxiety disorders, nor to changes in psychopathological syndromes.	- Hot flushes/night sweats: Significantly more frequent in peri- and post-menopausal women (OR 2.79 and 3.04, respectively). - Sleep disturbances: More common in peri- and post-menopausal women (OR 2.26 and 2.58, respectively). - Irritability/nervousness: Increased in peri-menopausal women, but association explained by neuroticism (OR 1.67 for neuroticism). - No significant association with major depressive episodes or anxiety disorders. - No significant change in psychopathological syndromes related to menopause status.
Samargandy-2022	Temporal association with stage change, statistical adjustment	1. The low SBP, PP, and MAP trajectories showed a significant accelerated rise 1 year after menopause,	- The low SBP, PP, and MAP trajectories show a significant accelerated rise 1 year

		indicating a menopause contribution. 2. A younger menopause age predicted the low SBP, PP, and MAP trajectories, suggesting that menopause timing influences blood pressure patterns. 3. VMS predicted higher SBP, PP, and MAP levels over time, while greater FSH levels predicted lower SBP and PP levels, indicating that these symptoms and hormone levels are risk factors for blood pressure changes.	after menopause, indicating a menopause contribution. - A younger age at menopause predicts the low SBP, PP, and MAP trajectories. - Greater FSH levels predict lower SBP and PP levels. - VMS predict higher SBP, PP, and MAP levels.
Schmidt-2004	Temporal association with stage change, clinical assessment of hormonal changes	1. The risk of depression significantly increases during the 24 months surrounding the FMP, indicating a temporal relationship between menopausal transition and depression onset. 2. Specific symptoms or characteristics could not be identified to distinguish women who developed depression from those who did not, suggesting that symptoms alone are not reliable predictors of depression during the perimenopause. 3. The timing of depression episodes suggests an endocrine mechanism related to the late perimenopause, particularly E2 withdrawal, which may contribute to the pathophysiology of perimenopausal depression.	The main quantitative finding is that the risk for onset of depression is 14 times higher during the 24 months surrounding the FMP compared to a 31-year premenopausal period, with a calculated risk of 6.5 episodes per 500 months during this time. This suggests an increased risk of depression during the late perimenopause and early postmenopause relative to the premenopause.
Schnall-2019	Participant self-report and self-identification of symptoms as either HIV-related or menopause-related. The study relied on participants' own perceptions and descriptions of their symptoms to attribute them to either condition.	1. Postmenopausal women are more likely to experience HIV symptoms such as fatigue, muscle aches, nausea, and diarrhea compared to those in peri- or premenopause. 2. HIV-related depression is specifically associated with the perimenopausal stage. 3. Muscle aches and pains are more prevalent in premenopausal women, while fever/chills/sweats vary significantly across menopause stages, indicating stage-specific symptom profiles.	- Postmenopause is associated with more fatigue, muscle aches and pains, nausea/vomiting, and diarrhea compared to peri- or premenopause. - HIV-related depression is more common in the perimenopausal stage. - Muscle aches and pains show significant differences across menopause stages, with premenopausal women experiencing these symptoms more frequently (post: 35%, peri: 45%, pre: 80%, P=0.03). - Fever/chills/sweats vary significantly across menopause stages (post: 42%, peri: 15%, pre: 0%, P=0.01). - Risk ratios for symptoms: - Perimenopausal vs. postmenopausal:

			Fatigue (RR: 1.87, 95% CI: 1.30-2.69), Cramps (RR: 2.41, 95% CI: 1.38-4.22), Headaches (RR: 0.28, 95% CI: 0.15-0.54), Muscle joint aches (RR: 0.34, 95% CI: 0.19-0.62). - Premenopausal vs. postmenopausal: Cramps (RR: 2.41, 95% CI: 1.34-4.35), Depression (RR: 0.19, 95% CI: 0.09-0.43), Hot flashes (RR: 0.08, 95% CI: 0.03-0.22).
Shardell-2021	- Temporal association with stage change: Symptoms are more common during menopause due to low estrogen. - Clinical assessment: Women are categorized based on menstrual cycle history and hormone use. - Participant report: Symptoms are assessed through interviews. - Statistical adjustment: Use of weighted generalized estimating equations (WGEE) and marginal structural logistic models.	1. Low-Lactobacillus vaginal microbiota communities were more prevalent in postmenopausal women, indicating a potential risk factor for symptoms associated with the genitourinary syndrome of menopause (GSM). 2. Lactobacillus-dominant communities were associated with lower odds of vaginal atrophy, vaginal dryness, and low libido, particularly in postmenopausal women, suggesting that these symptoms can be attributed to vaginal microbiota composition. 3. High Gardnerella vaginalis relative abundance and diverse anaerobes were associated with higher odds of GSM symptoms, indicating a potential risk factor.	- Low-Lactobacillus vaginal microbiota communities were observed at 21.2% (premenopausal), 22.9% (perimenopausal), and 49.7% (postmenopausal) of person-visits. - Lactobacillus-dominant communities were associated with lower odds of vaginal atrophy, dryness, and low libido in postmenopausal women: - Vaginal atrophy: OR = 0.25 (95% CI: 0.08, 0.81) for L crispatus-dominated communities. - Vaginal dryness: OR = 0.36 (95% CI: 0.12, 1.06) for L gasseri/L jensenii-dominated communities. - Low libido: OR = 0.28 (95% CI: 0.10, 0.74) for L gasseri/L jensenii-dominated communities. - More advanced menopause stages were associated with higher prevalence of symptoms: - Vaginal atrophy: 50.9% (postmenopausal) vs 14.9% (premenopausal). - Vaginal dryness: 58.0% (postmenopausal) vs 13.8% (premenopausal). - Low libido: 45.8% (postmenopausal) vs 16.5% (premenopausal).

Sowers-2007	Temporal association with stage change, statistical adjustment for body size and smoking behavior, use of longitudinal mixed models	1. Women with surgical menopause experienced significant declines in physical functioning compared to pre- and perimenopausal women, particularly in tasks like lifting, stair climbing, and walking. 2. Postmenopausal women without hormone therapy showed diminished physical functioning, but to a lesser extent than those with surgical menopause. 3. The use of hormone therapy in postmenopausal women did not significantly affect the rate of decline in physical functioning compared to pre- and perimenopausal women.	- Women with surgical menopause had significantly reduced physical functioning compared to pre/perimenopausal women in tasks like the 2-lb lift ($p<0.005$), sit-to-stand ($p<0.01$), timed stair climb ($p<0.01$), timed walk ($p<0.01$), velocity ($p<0.05$), and perception of physical functioning ($p<0.01$). - Postmenopausal women without HT showed diminished functioning in hand grip ($p<0.005$), 2-lb lift ($p<0.05$), sit-to-stand ($p<0.05$), velocity ($p<0.05$), and perceived physical functioning ($p<0.05$). - SF-36 physical functioning scores were lower for surgical menopause (80 and 77 with and without estrogen) compared to pre/perimenopausal women (91). - Annualized rates of change: grip strength (-0.20 kg/yr, 0.8% less/yr), leg strength (-2.2 Nm/yr, 2.6% less/yr), 2-lb lift (+0.04 sec/yr, 2.9% longer/yr), timed stair climb (+0.29 sec/yr, 1.9% longer/yr), walking velocity (-0.69 cm/sec/yr, 0.4% slower/yr).
Strauss-2011	Temporal association with stage change, statistical adjustment, participant report	1. Initial depressive symptoms predict future menopausal symptoms, suggesting a potential causal link where depression may exacerbate menopausal symptoms. 2. Initial menopausal symptoms predict future depressive symptoms, indicating a reciprocal relationship where menopausal symptoms may also contribute to depression. 3. Severe menopausal symptoms are associated with increased depressive symptoms, suggesting a risk factor relationship where addressing menopausal symptoms can reduce depressive symptoms.	- Initial depressive symptoms predict subsequent menopausal symptoms (beta = .074; $p < .05$). - Initial menopausal symptoms predict subsequent depressive symptoms (beta = .110; $p < .001$). - R-squared changes: .005 for depressive symptoms predicting menopausal symptoms; .01 for menopausal symptoms predicting depressive symptoms.
Tang-2019	Temporal association with stage change, statistical adjustment through multivariable analysis, clinical assessment using STRAWþ10 criteria	1. Symptoms of depression were more common than symptoms of anxiety across all menopausal stages. 2. The prevalence of anxiety and depression symptoms increased during the menopausal transition and postmenopause, but these increases were not	- Symptoms of depression are more common than symptoms of anxiety at all stages of menopause. - Prevalence of symptoms of depression: 14.5% (premenopause), 18.2% (menopausal

		statistically significant compared to the premenopausal stage. 3. Specific risk factors such as poor health status, sleep issues, higher BMI, low education status, and night sweats were independently associated with symptoms of anxiety and depression.	transition), 19.6% (postmenopause). - Prevalence of symptoms of anxiety: 3.1% (premenopause), 7.0% (menopausal transition), 7.4% (postmenopause). - Risk factors for anxiety: poor health status, trouble falling asleep, early awakening. - Risk factors for depression: higher BMI, poor health, low education status, night sweats. - Differences in symptom prevalence between stages are not statistically significant.
Tang-2020	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses (e.g., hormone use), clinical assessment, participant report	1. VMS are significantly associated with mood symptoms (anxiety and depression) in Chinese women during the menopausal transition. 2. Menopausal stage, body mass index, general health, follicle-stimulating hormone, and E2 are independent contributors to VMS, indicating they are risk factors. 3. VMS bother scores predict the risk of anxiety and depression symptoms the following year, and anxiety symptoms predict VMS bother, suggesting a bidirectional relationship between VMS and anxiety.	- 78.8% of women experienced VMS during follow-up. - Overall VMS bother score was 1.92 ± 1.32. - Anxiety and depressive symptoms were significantly associated with VMS bother. - Menopausal stage, BMI, general health, FSH, and E2 were independent contributors to VMS. - Anxiety symptoms increased VMS risk by 57% (OR 1.57; 95% CI, 1.08-2.28; P = 0.02). - Depressive symptoms also significantly associated with VMS (OR 1.57; 95% CI, 1.26-1.94; P < 0.001). - Late menopausal transition and early postmenopause had increased VMS risks. - Anxiety symptoms predicted VMS bother (OR 1.37; 95% CI, 1.04-1.81; P = 0.02). - VMS bother scores predicted mood problems with a 19% increased risk for anxiety and a 12% increased risk for depression.
Taylor-Swanson-2018	Not mentioned (the paper does not specify the basis for attributing symptoms to menopause)	1. Symptoms such as stress and fatigue are not static but change dynamically across different stages of the menopausal transition. 2. The structure of symptom networks is predictive of	- Fatigue became less stable from Late Reproductive (LR) to Late Transition (LT) and Early Post-Menopause (EPM). - Stress became more stable from LR to LT.

		resilience, indicating that symptoms are interconnected rather than being solely attributed to a specific stage or risk factor. 3. The regulatory relationship between stress and fatigue changes over the course of the menopausal transition, with fatigue becoming less stable and stress becoming more stable, suggesting that these symptoms are influenced by the transition process rather than being fixed attributes of a specific stage.	- Significant coupling between stress and fatigue was observed in LR and EPM but not in Early Transition (ET). - The dynamics of stress and fatigue differed significantly across the four reproductive aging stages.
Tepper-2016	Temporal association with stage change, participant self-reporting, exclusion of other diagnoses (e.g., hormone therapy use)	1. The study identified four distinct trajectories of VMS during the menopausal transition: Early onset, Late onset, High, and Low, which are associated with different menopausal transition stages and risk factors. 2. The Early onset and High VMS trajectories are linked to more adverse psychosocial and health profiles, indicating that these symptoms can be attributed to a combination of menopausal transition stage and psychosocial factors. 3. The pattern of E2 levels over the menopause is significantly associated with VMS trajectories, and lifestyle factors such as smoking and alcohol use also play a role in symptom patterns.	- Four distinct trajectories of VMS were identified: Early onset (18.4%), Late onset (29.0%), High (25.6%), and Low (27.0%). - Black women were overrepresented in Late onset and High VMS subgroups. - Obese women were underrepresented in the Late onset subgroup. - E2 patterns were significantly associated with VMS trajectories. - Early onset and High VMS groups had more adverse psychosocial profiles.
Than-2023	Temporal association with stage change, self-reported menopause status, and statistical adjustment for age and demographic factors.	1. Perimenopause and post-menopause are associated with cognitive changes, particularly in psychomotor speed. 2. Cognitive changes occur rapidly during the menopausal transition, likely due to sex hormone fluctuations. 3. Menopausal symptoms such as VMS, depression, and sleep disturbances are common but stabilize and resolve in the postmenopausal stage.	- Reaction time: The rate of worsening in reaction time was less in postmenopausal women compared to premenopausal women ($\beta = -1.07$, $p = 0.02$). - Verbal-numeric reasoning: Postmenopausal women had the poorest performance, with no difference in rates of change over time. - Prospective memory: Postmenopausal women had the poorest performance, with no interaction between menopausal group and time. - Visual memory: Premenopausal women had the best performance, with perimenopausal and postmenopausal women showing similar performance. - Attention/working memory: Greatest in

			premenopausal group, poorest in perimenopausal group, with no interaction between menopausal status and time.
Thurston-2013	Temporal association with stage change, statistical adjustment, participant report	1. A poorer adipokine profile (lower adiponectin, lower HMW adiponectin, higher leptin) is associated with higher odds of hot flashes early in the menopause transition but not later. 2. Higher MCP-1 is associated with increased night sweats across all menopausal stages. 3. The relationship between BMI and hot flashes varies by menopause stage, with higher BMI associated with higher odds of hot flashes early in the transition but potentially protective later.	- Early in the menopause transition: Lower adiponectin (OR 0.68, 95% CI 0.51-0.90), lower HMW adiponectin (OR 0.70, 95% CI 0.58-0.85), and higher leptin (OR 1.23, 95% CI 0.99-1.54) are associated with higher odds of hot flashes. - Across all menopausal stages: Higher MCP-1 is associated with more night sweats (OR 1.37, 95% CI 1.06-1.76). - Obesity is related to higher odds of hot flashes early in the transition (overweight: OR 1.50, 95% CI 0.98-2.30; obese: OR 1.91, 95% CI 1.25-2.90) but not later.
Tirkkonen-2021	The source of symptom attribution was primarily participant self-reporting, with statistical adjustment for various factors in the analysis. There is no mention of clinical assessment or exclusion of other diagnoses.	1. Cognitive functions such as psychomotor speed and working memory improved during the transition from perimenopause to postmenopause, suggesting no decline in cognitive function during this transition. 2. Associations between cognitive functions and walking performance were observed only in late perimenopausal women, indicating stage-specific symptom relationships. 3. No longitudinal associations were found between cognitive functions and walking performance, suggesting that perimenopausal symptoms do not predict postmenopausal cognitive or walking performance.	- Significant improvements in psychomotor speed ($P = 0.01$) and working memory ($P < 0.001$) in early perimenopausal women. - Improvements in psychomotor speed ($P = 0.001$), set-shifting ($P = 0.02$), visual memory ($P = 0.002$), and working memory ($P < 0.001$) in late perimenopausal women. - Associations between walking speed ($b = 0.264$, $P = 0.001$), dual-task cost ($b = 0.160$, $P = 0.03$), and cognitive functions like updating and set-shifting in late perimenopausal women. - No longitudinal associations between cognitive functions and walking performance. - Cognitive performance remained stable or improved after reaching postmenopause.
Waetjen-2008	Temporal association with stage change, statistical adjustment using Generalized Estimating Equations (GEE), and clinical assessment through reported menstrual bleeding patterns and hormone therapy use.	1. The menopausal transition is not significantly associated with worsening urinary incontinence symptoms in mid-life women. 2. Weight gain is a modifiable risk factor that increases the odds of worsening incontinence symptoms. 3. Demographic factors such as being African	- Early peri-menopause is associated with improvement in incontinence symptoms (OR 1.19; 95% CI 1.06, 1.35). - Post-menopause reduces the odds of worsening incontinence (OR 0.80; 95% CI 0.66, 0.95).

		American or Hispanic, and experiencing stressful life events, are associated with worsening incontinence symptoms.	- Weight gain increases the odds of worsening incontinence (OR 1.04; 95% CI 1.03, 1.05) and reduces the odds of improving (OR 0.97; 95% CI 0.96, 0.98). - The menopausal transition has either no or a weak positive effect on incontinence symptoms.
Waetjen-2009	Temporal association with stage change, statistical adjustment	- Early and late peri-menopause stages are associated with an increased risk of developing monthly or more frequent incontinence. - Postmenopause is associated with a decreased risk of developing incontinence. - Worsening anxiety symptoms, high baseline BMI, weight gain, and new onset diabetes are risk factors for developing more frequent incontinence.	- Early peri-menopause: 1.34 times more likely to develop monthly or more frequent incontinence. - Late peri-menopause: 1.52 times more likely to develop monthly or more frequent incontinence. - Postmenopause: Approximately half as likely to develop this degree of incontinence. - Similar patterns for stress and urge incontinence. - Baseline BMI, weight gain, and anxiety symptoms are also associated with incontinence development.
Waetjen-2011	Statistical adjustment for covariates and temporal association with stage change through discrete Cox survival models and generalized estimating equations with time-dependent covariates.	- E2 levels are not associated with the development or worsening of urinary incontinence in women transitioning through menopause. - Changes in E2 levels from one year to the next do not affect the development or worsening of incontinence. - Other hormones like FSH, testosterone, and DHEAS are not associated with the development or worsening of incontinence.	- E2 levels are not associated with the development of any, stress, or urge incontinence (HR = 0.99, 95% CI 0.99, 1.01). - E2 levels are not associated with worsening of any, stress, or urge incontinence (OR = 1.00, 95% CI 0.99, 1.01). - Change in E2 levels is not associated with development (HR = 0.98, 95% CI 0.97, 1.00) or worsening (OR = 1.03, 95% CI 0.99, 1.05) of incontinence.
Waetjen-2018	Temporal association with stage change, statistical adjustment	1. The prevalence of vaginal dryness increases with advancing menopausal stage, indicating a strong association between menopausal transition and the development of vaginal dryness. 2. Surgical menopause and anxiety are risk factors for developing vaginal dryness, suggesting that these	- Prevalence of vaginal dryness increased from 19.4% at baseline to 34.0% at the thirteenth visit. - Advancing menopausal stage, surgical menopause, anxiety, and being married are positively associated with developing

		factors can contribute to the symptom. 3. Higher levels of endogenous E2 are inversely associated with vaginal dryness, indicating that lower estrogen levels may be a contributing factor to the symptom.	vaginal dryness. - Higher concurrent levels of endogenous E2 are inversely associated with vaginal dryness (multivariable-adjusted hazard ratio: 0.94 per 0.5 standard deviation increase, 95% confidence interval: 0.91-0.98).
Weber-2021	Temporal association with stage change, statistical adjustment, clinical assessment, participant report	1. Profile 2, characterized by weaknesses in verbal learning and memory, is associated with less hormonal variability and more sleep disturbances compared to the cognitively normal Profile 1. 2. Depressive, vasomotor, and sleep symptoms differ significantly across cognitive profiles, with Profile 2 showing more sleep symptoms and a trend towards more depressive symptoms. 3. Profile 3, which shows strengths in verbal learning and memory, is associated with fewer depressive and VMS compared to Profile 1.	- Profile 2 (weaknesses in verbal learning and memory) is associated with less hormonal variability and more sleep disturbances compared to Profile 1 (cognitively normal). - Profile 2 has less variability in FSH and E2 compared to Profile 1. - Profile 3 (strengths in verbal learning and memory) has fewer depressive and VMS compared to Profile 1. - Profile 4 (strengths in attention and executive function) shows a trend towards fewer sleep symptoms compared to Profile 1.
Woods-2002	Temporal association with stage change, statistical adjustment through cluster analysis	1. For most women, the menopausal transition is not a time when new episodes of depression occur, indicating that menopause itself is not a primary cause of depression. 2. Life stressors, perceived poor health, and VMS are associated with patterns of depressed mood, suggesting these are risk factors rather than symptoms directly attributed to menopause. 3. The study found that certain menopausal stages are associated with specific patterns of depression, such as emerging depression in the middle transition stage and resolving depression in postmenopause.	- Most women do not experience a new episode of depression during the menopausal transition. - A minority of women become depressed during the transition. - The most prevalent pattern is non-depressed mood across the menopausal transition years. - Factors associated with depressed mood include life stressors, perceived poor health, and VMS.
Woods-2006	Temporal association with stage change and statistical association with increased cortisol levels during the menopausal transition stage.	1. Increased cortisol levels during the late menopausal transition stage are associated with more severe VMS. 2. Elevated cortisol levels are linked to cognitive symptoms, sleep disturbances, and cardiovascular disease risk, suggesting they are risk factors for these conditions.	Cortisol levels increased significantly from 7 to 12 months before to 7 to 12 months after the late menopausal transition stage (40.2 to 74.1 ng/mg creatinine, $t = 3.31$, $P = 0.003$). Women with increased cortisol (>10 ng/mg creatinine) had more severe VMS (P

		3. Increased cortisol during the menopausal transition may influence the accumulation of central abdominal fat, contributing to cardiovascular disease risk.	= 0.045 and P = 0.05). Mean increase in cortisol was 33.8 ng/mg creatinine, with a median increase of 13.1 ng/mg creatinine.
Woods-2008	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses	1. The late menopausal transition stage is significantly related to depressed mood, indicating a symptom-diagnosis relationship specific to this stage. 2. Hot flash activity is a significant factor increasing CES-D scores, suggesting a symptom-diagnosis relationship during the menopausal transition. 3. Factors such as life stress, family history of depression, postpartum blues, sexual abuse, high BMI, and antidepressant use are significant risk factors for depressed mood, not directly attributed to the menopausal transition stage.	- Age is negatively related to CES-D scores, with a decrease of −0.18 per year. - The late MT stage is significantly related to increased CES-D scores, with an increase of 1.37. - Hot flash activity increases CES-D scores by 0.8. - Antidepressant use increases CES-D scores by 4.09. - Stress increases CES-D scores by 1.02. - BMI increases CES-D scores by 0.14. - Postpartum blues history increases CES-D scores by 2.37. - Having no live births increases CES-D scores by 2.33.
Woods-2010 (Sexual)	Temporal association with stage change, statistical adjustment	1. Sexual desire decreases significantly during the late menopausal transition stage and early postmenopause. 2. Symptoms like hot flashes, fatigue, depressed mood, anxiety, and sleep disturbances are associated with lower sexual desire. 3. Perceived health and alcohol intake are positively related to sexual desire, while perceived stress, depressed mood, fatigue, and sleep problems are negatively related.	- Significant decrease in sexual desire during late MT stage ($p < 0.01$) and early PM ($p < 0.0001$). - Higher E1G and T levels associated with higher sexual desire ($p < 0.0001$, 0.06, 0.0002). - Higher FSH levels associated with lower sexual desire ($p < 0.0001$). - Hormone therapy use associated with higher sexual desire ($p = 0.02$). - Perceived stress negatively affects sexual desire ($p < 0.0001$). - Better perceived health, more exercise, and alcohol intake associated with higher sexual desire ($p < 0.0001$). - Symptoms like hot flashes, fatigue, and sleep disturbances negatively affect sexual desire (p range <0.03 to 0.0001). - Having a partner associated with lower sexual desire.

Woods-2010 (Sleep)	Statistical adjustment and modeling, temporal association with stage change, exclusion of other diagnoses through multivariate analysis	1. Sleep symptoms during the menopausal transition are associated with a range of factors including symptoms (hot flashes, depressed mood, anxiety), stress-related factors (perceived stress, history of sexual abuse), and health-related factors (perceived health, alcohol use). 2. Age is a significant risk factor for sleep symptoms, particularly nighttime awakening and early morning awakening. 3. Symptom management strategies should focus on managing symptoms like hot flashes and enhancing perceived health, indicating that these symptoms are interrelated and can be managed through strategies that address overall health rather than just the menopausal transition.	- Severity of self-reported problems going to sleep is associated with all symptoms, perceived stress, history of sexual abuse, perceived health (-), alcohol use (-) (all $P < 0.001$), and lower cortisol ($P = 0.009$). - Severity of nighttime awakening is significantly associated with age, late MT stage, early PM, FSH, E1G (-), hot flashes, depressed mood, anxiety, joint pain, backache, perceived stress, history of sexual abuse, perceived health (-), and alcohol use (-) (all $P < 0.001$, except E1G for which $P = 0.030$). - Severity of early morning awakening is significantly associated with age, hot flashes, depressed mood, anxiety, joint pain, backache, perceived stress, history of sexual abuse, perceived health (-) (all $P \leq 0.001$, except E1G for which $P = 0.02$ and epinephrine ($P = 0.038$), but not MT stages or FSH. - Nighttime awakening worsens with progression through the late menopausal transition and early postmenopause, associated with lower estrone and higher FSH levels. - Difficulty getting to sleep is less severe during the early PM, and early morning awakening is associated with lower estrone levels. - Multivariate models show positive effects of age, hot flashes, and depressed mood on nighttime awakening, and negative effects of perceived health. - Multivariate models for early morning awakening show positive effects of age, hot flashes, depressed mood, and anxiety, and negative effects of perceived health.

Woods-2016	Temporal association with stage change, statistical adjustment, participant report	- Hot flash severity is strongly associated with the Late MT stage, peaking during this stage and diminishing after the second year of PM. - Nighttime awakening and depressed mood symptoms are linked to multiple factors including MT stages, hormonal changes, and personal health factors. - Pain symptoms, particularly back pain, increase during the Early and Late MT stages and early PM, but are not directly linked to hormonal changes.	- Age of onset for Early MT stage: 46.4 years (SD = 3.4), duration: 2.8 years (SD = 1.5) - Age of onset for Late MT stage: 49.4 years (SD = 2.7), duration: 2.5 years (SD = 1.3) - FMP age: 52.1 years (SD = 2.9) - Hormonal changes: Estrone levels drop significantly in early PM; FSH levels rise in Late MT and early PM - Hot flash severity peaks in Late MT stage and diminishes after second year PM - Nighttime awakening severity associated with Late MT stage, higher FSH, lower estrone - Depressed mood symptoms associated with Late MT stage, hot flash severity, life stress - Pain symptoms increase with age, significant in Early and Late MT stages and early PM - Sexual desire reduction significant in Late MT stage and early PM - Urinary incontinence symptoms associated with worse perceived health, history of live births, education level
Woods-2014	Temporal association with stage change, statistical adjustment, exclusion of other diagnoses, participant report	1. Lower estrogen levels and higher FSH levels are significantly associated with the High-severity Hot Flash class. 2. Lower epinephrine and higher norepinephrine levels increase the likelihood of belonging to the High-severity Hot Flash class. 3. Lower epinephrine levels are associated with the Moderate Severity class.	- Lower estrogen levels and higher FSH levels are associated with a higher likelihood of being in the High-severity Hot Flash class compared to the Low Severity class (OR for estrogen = 0.016, OR for FSH = 2.870). - Lower epinephrine and higher norepinephrine levels are associated with a higher likelihood of being in the High-severity Hot Flash class (OR for epinephrine = <0.001, OR for norepinephrine = 10.507). - Lower epinephrine levels are associated with a higher likelihood of being in the

			Moderate Severity class compared to the Low Severity class (OR = 0.001).
Young-2003	- Clinical assessment: Menopausal status determined from menstrual history, gynecologic surgery, hormone replacement therapy, follicle-stimulating hormone, and VMS. - Statistical adjustment: Multivariable logistic regression used to adjust for confounding factors. - Temporal association with stage change: Longitudinal data used to track changes over time. - Participant report: Use of participant data on menstrual history and symptoms.	1. The menopausal transition is significantly associated with an increased likelihood of having sleep-disordered breathing, independent of known confounding factors. 2. Postmenopause without HRT use is associated with SDB, while postmenopause with HRT is not, suggesting HRT may reverse the risk. 3. Symptoms like snoring, daytime sleepiness, or unsatisfactory sleep in perimenopausal and postmenopausal women should prompt evaluation for SDB.	- Odds ratios for an AHI of 5 or more: Perimenopause = 1.2 (0.7, 2.2), Postmenopause = 2.6 (1.4, 4.8) - Odds ratios for an AHI of 15 or more: Perimenopause = 1.1 (0.5, 2.2), Postmenopause = 3.5 (1.4, 8.8) - Postmenopause without HRT: OR = 4.3 (1.1, 17.3) - Postmenopause with HRT: OR = 0.9 (0.1, 5.8)

AHI: Apnea-Hypopnea Index; BMI: Body Mass Index; BMS: Burning Mouth Syndrome; CES-D: Center for Epidemiologic Studies Depression Scale; CI: Confidence Interval; DHEAS: Dehydroepiandrosterone Sulfate; DLPFC: Dorsolateral Prefrontal Cortex; E1G: Estrone Glucuronide; E2: Estradiol; EEG: Electroencephalogram; FMP: Final Menstrual Period; FSH: Follicle-Stimulating Hormone; GEE: Generalized Estimating Equations; GSM: Genitourinary Syndrome of Menopause; HMW: High Molecular Weight; HRQL: Health-Related Quality of Life; HRT: Hormone Replacement Therapy; IRR: Incidence Rate Ratio; LUTS: Lower Urinary Tract Symptoms; MADRS: Montgomery-Åsberg Depression Rating Scale; MAP: Mean Arterial Pressure; MCP-1: Monocyte Chemoattractant Protein-1; MDE: Major Depressive Episode; NREM: Non-Rapid Eye Movement; NTX: N-Telopeptide; OR: Odds Ratio; PdG: Pregnanediol Glucuronide; PMS: Premenstrual Syndrome; PP: Pulse Pressure; PSG: Polysomnography; PSQI: Pittsburgh Sleep Quality Index; RBANS: Repeatable Battery for the Assessment of Neuropsychological Status; SBP: Systolic Blood Pressure; SDB: Sleep-Disordered Breathing; S-FSH: Serum Follicle-Stimulating Hormone; STRAW: Stages of Reproductive Aging Workshop; VMS: Vasomotor Symptoms; VSLEs: Very Stressful Life Events; WASO: Wake After Sleep Onset; WGEE: Weighted Generalized Estimating Equations; YMRS: Young Mania Rating Scale.

Appendix 9 Sexual changes across the MT stages across 24 studies

Study_ID	Sexual changes
Avis-2000	- Lower sexual desire is better in premenopausal compared to postmenopausal. - Decreased arousal is better in premenopausal compared to postmenopausal. - Dyspareunia and vaginal dryness are worse in postmenopausal compared to premenopausal.
Avis-2009	Vaginal dryness is related to reduced HRQL, but specific changes across menopausal stages are not detailed.
Avis-2009 (Longitudinal)	- Vaginal dryness is worse in late perimenopause and postmenopause compared to premenopause. - Sexual desire is lower in late perimenopause and postmenopause compared to premenopause. - Vaginal/pelvic pain is greater in early perimenopause and postmenopause compared to premenopause. - Masturbation is more frequent in early perimenopause compared to premenopause. - Masturbation is less frequent in postmenopause compared to early perimenopause.
Avis-2017	- Vaginal dryness is worse in the late perimenopause and early postmenopause compared to the early perimenopause. - Lubricant use is better in the late perimenopause and early postmenopause compared to the early perimenopause. - Depressive symptoms and anxiety are worse in the late perimenopause and early postmenopause compared to the early perimenopause. - Increased pain is worse in the late perimenopause and early postmenopause compared to the early perimenopause. - Decreased desire is worse in the late perimenopause and early postmenopause compared to the early perimenopause.
Burri-2015	- Desire is better in premenopausal women compared to postmenopausal women. - Arousal is better in premenopausal women compared to postmenopausal women. - Sexual satisfaction is better in premenopausal women compared to postmenopausal women.
Cray-2012	Vaginal dryness is better in late reproductive stage compared to early postmenopause.
Dennerstein-2001	- Sexual responsivity is worse in late perimenopause compared to premenopause. - Sexual responsivity is worse in postmenopause compared to late perimenopause. - Libido is worse in postmenopause compared to late perimenopause. - Frequency of sexual activities is worse in postmenopause compared to late perimenopause. - Vaginal dyspareunia is worse in postmenopause compared to late perimenopause.

	- Partner problems are worse in late perimenopause compared to premenopause. - Partner problems are worse in postmenopause compared to late perimenopause.
Dennerstein-2007	Sexual response is better in post-menopause compared to pre-menopause when final E2 levels are higher. Frequency of sexual activities is better in post-menopause compared to pre-menopause when baseline state is higher.
Dennerstein-2007 (Modeling)	Vaginal dryness is worse in postmenopausal compared to late menopausal transition, and worse in late menopausal transition compared to late reproductive stage.
Ford-2005	- Change in sexual desire is worse in postmenopause compared to premenopause. - Vaginal dryness is worse in postmenopause compared to premenopause. - Avoiding intimacy is worse in postmenopause compared to premenopause.
Freeman-2004 (Premenstrual)	Decreased libido is more prevalent in the late transition stage compared to the premenopausal stage.
Freeman-2007	-Decreased libido and vaginal dryness do not show significant changes across different menopausal transition stages. -There is a marginal association of decreased libido with the late transition stage, but it is not significant. -Lower estradiol levels are associated with decreased libido, indicating a hormonal influence.
Guthrie-2004	- Sexual dysfunction is worse in late menopausal transition compared to early menopausal transition. - Sexual responsivity is worse in late menopausal transition compared to early menopausal transition. - Libido is worse in late menopausal transition compared to early menopausal transition. - Dyspareunia is worse in late menopausal transition compared to early menopausal transition.
Katainen-2018	- Involvement in sexual activities decreased from early to late postmenopause. - Importance of sex, sexual desire, arousal, emotional satisfaction, and physical pleasure decreased during the follow-up period. - Vaginal dryness and dissatisfaction with sexual relationships may have contributed to decreased sexual activity.
Maleki-2019	Vaginal dryness is more frequent in late perimenopause compared to premenopause and early perimenopause. Vaginal dryness is less frequent with the use of progestin hormone. There is no significant difference in vaginal dryness between women with and without a history of migraine.
Maxwell-2023	Vaginal dryness is more prevalent in postmenopausal women (Nat Post-M and Surg Post-M) compared to premenopausal women (Pre-M).

Mishra-2012	Vaginal dryness is worse in postmenopause compared to premenopause. Sexual discomfort symptoms are worse in late perimenopause and postmenopause compared to early perimenopause.
Rössler-2016	- Sexual problems are more common in peri- and post-menopausal women compared to pre-menopausal women. - Vaginal dryness is more common in peri- and post-menopausal women compared to pre-menopausal women.
Schnall-2019	Vaginal dryness is better in premenopausal compared to postmenopausal. Decreased sex drive is better in premenopausal compared to postmenopausal.
Shardell-2021	- Vaginal dryness is better in premenopausal women compared to postmenopausal women. -Low libido is better in premenopausal women compared to postmenopausal women.
Strauss-2011	Painful intercourse is mentioned as a symptom, but no specific comparison across menopause transition stages is provided.
Waetjen-2018	-Vaginal dryness is better in premenopause compared to postmenopause. Painful sex is better in premenopause compared to postmenopause. -Low libido is better in premenopause compared to postmenopause. -Decreased sexual satisfaction is better in premenopause compared to postmenopause.
Woods-2010 (Sexual)	Sexual desire is better in the late reproductive stage compared to the late MT stage and early PM. Vaginal dryness is not related to sexual desire.
Woods-2016	- Sexual desire is better in Early MT stage compared to Late MT stage and early postmenopause. Higher urinary E1G and T levels are associated with better sexual desire compared to higher FSH levels. -Hormone therapy is associated with better sexual desire compared to no hormone therapy. Perceived stress and symptoms like hot flashes and sleep disturbances are associated with worse sexual desire. Having a partner is associated with worse sexual desire.

Appendix 10 Direct QoL evidence across 30 included studies

Study_ID	QoL directly assessed	Standardized Comparison
Avis-2009	Quality of life is reported to be better in premenopause (n=3356) compared to late perimenopause (n=1238)	Better in Pre vs Peri
Avis-2017	Quality of life is reported to be better in premenopause (n=1,164) compared to postmenopause (n=1,164), as indicated by a decline in sexual functioning scores around the final menstrual period and continuing at a slower rate post-FMP.	Better in Pre vs Peri, Better in Pre vs PostBetter in Post vs Peri
Berecki-Gisolf-2009	Quality of life is reported to be better in premenopause compared to postmenopause (n=8,649)	Better in Pre vs Post
Brown-2002	Quality of life is reported to be better in premenopause compared to postmenopause (n=8,623)	Better in Pre vs Post
Campbell-2016	Quality of life is reported to be better in late postmenopause (n=496) compared to menopausal transition (n=1,204)	Better in Post vs Peri
deZambotti-2017	Quality of life is reported to be better in controls (n=25) compared to menopausal transition insomnia (MTI) (n=21)	Better in women without Insomnia
ElKhoudary-2014	Quality of life is reported to be better in premenopause (n=175) compared to postmenopause (n=400, including both natural and surgical postmenopause)	Better in Pre vs Post
Freeman-2004 (Premenstrual)	Quality of life is reported to be better in the late transition (n=23) compared to the early transition (n=82) due to the significant decrease in PMS symptoms, which are linked to diminished functioning and impaired relationships.	Better in Peri vs Pre, Better in Late Peri vs Early Peri
Freeman-2014	Quality of life is reported to be better in postmenopause (n=203) compared to premenopause (n=203)	Better in Post vs Pre
Greendale-2009	Quality of life is reported to be better in postmenopause (n=643) compared to perimenopause (n=1,443) due to improved cognitive performance postmenopause.	Better in Post vs Peri
Harlow-2017	Quality of life is reported to be better in premenopause (n=1761) compared to postmenopause (n=2222)	Better in Pre vs Post
Huang-2024	Quality of life is reported to be better in premenopause (n=260) compared to postmenopause (n=251)	Better in Pre vs Post
Jang-2025	Quality of life is reported to be better in premenopause (n=3305) compared to postmenopause (n=3305)	Better in Pre vs Post
Katainen-2018	Quality of life is reported to be better in postmenopause (n=57) compared to perimenopause (n=65)	Better in Post vs Peri

Kravitz-2022	Quality of life is reported to be better in premenopause (n=882) compared to postmenopause (n=662), as indicated by lower rates of poor role emotional, physical, and social function scores in the premenopausal group.	Better in Pre vs Post
Kumari-2005	Quality of life is reported to be better in premenopausal women (n=573) compared to perimenopausal women (n=651) and postmenopausal women (n=1,265) who experience menopausal symptoms.	Better in Pre vs Peri, Better in Pre vs Post
Luo-2020	Quality of life is reported to be better in premenopause (n=95) compared to postmenopause (n=285)	Better in Pre vs Post
Maki-2021	Quality of life is reported to be better in premenopause (n=443) compared to postmenopause (n=443), as cognitive declines persist into postmenopause.	Better in Pre vs Post
Maleki-2019	Quality of life is reported to be better in premenopause compared to late-stage perimenopause (n=467 with migraine, n=2,466 without migraine)	Better in Pre vs Peri
Matthews-1994	Quality of life is reported to be better in postmenopause (n=105) compared to perimenopause (n=152)	Better in Post vs Peri
Matthews-2021	Quality of life is reported to be potentially affected in postmenopause (n=90) compared to pre/early perimenopause (n=38), due to increased hyperarousal during sleep.	Better in Pre vs Post, Better in Peri vs Post
Maxwell-2023	Quality of life is reported to be better in premenopause (n=163) compared to surgical postmenopause (n=72) in terms of physical role functioning and bodily pain affecting daily activities.	Better in Pre vs Post
Mitchell-2015	Quality of life is reported to be better in early menopausal transition (n=2022) compared to late menopausal transition (n=1009) and early postmenopause (n=583)	Better in Early Peri vs Late Peri, Better in Peri vs Post
Mitchell-2017	Quality of life is reported to be better in early postmenopause (n=234) compared to other stages of the menopausal transition (n=291)	Better in Post vs Pre, Better in Post vs Peri
Shardell-2021	Quality of life is reported to be better in premenopause (n=270) compared to postmenopause (n=716)	Better in Pre vs Post
Sowers-2007	Quality of life is reported to be better in premenopause (n=144) compared to surgical menopause (n=47) and natural postmenopause without HT (n=164)	Better in Pre vs Post
Taylor-Swanson-2018	Quality of life is reported to be better in premenopause compared to postmenopause (n=56)	Better in Pre vs Post
Thurston-2013	Quality of life is implied to be better in late peri-/postmenopause (n=259) compared to pre-/early perimenopause (n=505), as hot flashes are more prevalent in the latter stages.	Better in Late Peri vs Pre, Better in Post vs Pre, Better in Late Peri vs Early Peri, Better in Post vs Peri

Woods-2008	Quality of life is reported to be better in early postmenopause (n=87) compared to late menopausal transition (n=150)	Better in Post vs Peri
Woods-2016	Quality of life is reported to be better in Early stage (n=121) compared to Late stage (n=130)	Better in Early Peri vs Late Peri

Appendix 11 Inferred QoL evidence from 108 included studies based on clinical symptoms and complaints

Study_ID	Inferred QoL Extracted Data	QoL Infered from	Standardised comparison
Abe-1975	Quality of life (based on symptom relief) is reported to be better in women who receive conjugated estrogen compared to those who do not, across pre-, mid-, and post-menopausal stages.	symptom relief	Better with conjugated estrogen
Avis-2000	NA		
Avis-2009	Quality of life (based on symptoms such as VMS, vaginal dryness, urine leakage, and poor sleep) is reported to be better in premenopause compared to late perimenopause, as these symptoms significantly contribute to reduced functioning in HRQL domains.	symptoms such as VMS, vaginal dryness, urine leakage, and poor sleep	Better in Pre vs Late Peri
Avis-2009 (Longitudinal)	Quality of life (based on vaginal dryness and self-assessed health) is reported to be better in premenopause compared to postmenopause.	vaginal dryness and self-assessed health	Better in Pre vs Post
Avis-2015	Quality of life (based on VMS duration and associated symptoms) is reported to be better in postmenopause compared to premenopause or early perimenopause, as indicated by shorter VMS duration and fewer associated symptoms in postmenopause.	VMS duration and associated symptoms	Better in Late Peri vs Pre, Better in Post vs Pre
Avis-2017	Quality of life (based on sexual functioning) is reported to be better in premenopause compared to postmenopause, with a significant decline in sexual function scores averaging half a standard deviation over the 7 years bracketing the menopause transition. African-American women experience a smaller decline, while Japanese women experience a larger decline compared to white women. Symptoms like vaginal dryness, depressive symptoms, and anxiety are independent predictors of greater sexual function decline, indicating their impact on quality of life.	sexual functioning	Better in Pre vs Post
Baker-2015	Quality of life (based on sleep-related symptoms and psychological distress) is reported to be better in women without insomnia compared to those with insomnia during the menopause transition.	sleep-related symptoms and psychological distress	Better in women without insomina
Berecki-Gisolf-2009	Quality of life (based on hot flushes, night sweats, stiff or painful joints, difficulty sleeping, and poor/fair self-rated	hot flushes, night sweats, stiff or painful joints, difficulty sleeping,	Better in Pre vs Post

	health symptoms) is reported to be worse in menopause compared to premenopause.	and poor/fair self-rated health symptoms	
Bromberger-2003	Quality of life (based on mood symptoms and their impact on daily functioning) is reported to be better in premenopause compared to early perimenopause.	mood symptoms and their impact on daily functioning	Better in Pre vs Early Peri
Bromberger-2010	Quality of life (based on depressive symptoms) is reported to be better in premenopause compared to perimenopause and postmenopause.	depressive symptoms	Better in Pre vs Peri, Better in Pre vs Post
Bromberger-2011	Quality of life (based on major depressive episodes) is reported to be better in premenopause compared to perimenopause and postmenopause.	major depressive episodes	Better in Pre vs Peri, Better in Pre vs Post
Bromberger-2013	Quality of life (based on anxiety symptoms) is reported to be better in premenopause compared to perimenopause and postmenopause.	anxiety symptoms	Better in Pre vs Peri, Better in Pre vs Post
Brown-2002	Quality of life (based on physical symptoms such as headaches, back pain, stiff joints, tiredness, and difficulty sleeping) is reported to be better in premenopause compared to perimenopause.	physical symptoms such as headaches, back pain, stiff joints, tiredness, and difficulty sleeping	Better in Pre vs Peri
Burri-2015	Quality of life (based on sexual functioning) is reported to be better in premenopause compared to postmenopause due to lower initial rates of sexual dysfunction, although both groups show similar rates of improvement or decline over time.	sexual functioning	Better in Pre vs Post
Callan-2019	Quality of life (based on abdominal pain symptoms) is reported to be better in postmenopause compared to menopause transition.	abdominal pain symptoms	Better in Post vs Peri
Campbell-2016	Quality of life (based on negative mood and depressive symptoms) is reported to be better in late postmenopause compared to menopausal transition.	negative mood and depressive symptoms	Better in Post vs Peri
Cauley-2023	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to postmenopause, as indicated by the increased prevalence of sleep disturbances and associated fracture risk in later menopausal stages.	sleep-related symptoms	Better in Pre vs Post
Cho-2018	Quality of life (based on sleep-related symptoms) is reported to be better in natural menopause (n=429) compared to surgical menopause (n=97)	sleep-related symptoms	Better in natural vs surgical menopause
Cohen-2006	Quality of life (based on sleep and mood symptoms) is reported to be better in premenopause compared to perimenopause.	sleep and mood symptoms	Better in Pre vs Peri

Crandall-2011	Quality of life (based on VMS and bone turnover) is reported to be better in premenopause compared to perimenopause.	VMS and bone turnover	Better in Pre vs Peri
Cray-2012	Quality of life (based on symptom severity and clustering) is reported to be better in the late reproductive stage compared to the late menopausal transition stage and early postmenopause.	symptom severity and clustering	Better in Pre vs PeriBetter in Pre vs Post
Cray-2012 (Symptom)	Quality of life (based on symptom severity) is reported to be better in the late reproductive stage (class 1) compared to the early and late menopausal transition stages and early postmenopause (class 3), as indicated by lower severity levels of all symptoms in class 1 compared to higher severity hot flashes in class 3.	symptom severity	Better in Pre vs Peri, Better in Pre vs Post
Dennerstein-2001	Quality of life (based on sexual functioning and symptoms) is reported to be better in premenopause compared to postmenopause.	sexual functioning and symptoms	Better in Pre vs Post
Dennerstein-2007	Quality of life (based on hot flushes, night sweats, sleeping problems, and vaginal dryness) is reported to be better in postmenopause compared to perimenopause due to the association with E 2 range and slope. Quality of life (based on sexual response and CHD risk) is reported to be better in postmenopause compared to perimenopause due to the association with final E 2 level.	hot flushes, night sweats, sleeping problems, and vaginal dryness, sexual response	Better in Post vs Peri
Dennerstein-2007 (Modeling)	Quality of life (based on hot flush symptoms) is reported to be better in late reproductive stage compared to late menopausal transition and postmenopause. Quality of life (based on well-being) is reported to be better in stages with higher exercise levels and positive relationship factors. Quality of life (based on vaginal dryness symptoms) is reported to be better in late reproductive stage compared to postmenopause.	hot flush symptoms, vaginal dryness symptoms	Better in Pre vs Late Peri, Better in Pre vs Post
deZambotti-2017	Quality of life (based on psychological, vasomotor symptoms, sleep quality, and mood) is reported to be better in controls (n=25) compared to women with menopausal transition insomnia (n=21).	psychological, vasomotor symptoms, sleep quality, and mood	Better in women without insomina
ElKhoudary-2014	Quality of life (based on physical functioning limitations) is reported to be better in premenopause compared to postmenopause. Natural and surgical postmenopausal women have significantly higher odds of functional limitation compared to premenopausal women, indicating a decline in quality of life during these stages.	physical functioning limitations	Better in Pre vs Post

Epperson-2013	Quality of life (based on depressive symptoms) is reported to be better in postmenopause compared to premenopause. Quality of life (based on obesity) is reported to be worse in postmenopause compared to premenopause.	depressive symptoms	Better in Post vs Pre
Ford-2005	Quality of life (based on sleep related symptoms) is reported to be better in premenopause compared to postmenopause. Quality of life (based on vasomotor symptoms) is reported to be better in premenopause compared to postmenopause. Quality of life (based on overall symptom bother) is reported to be better in premenopause compared to postmenopause.	sleep related symptoms, vasomotor symptoms, Overall symptom bother	Better in Pre vs Post
Freedman-2004	Quality of life (based on sleep related symptoms) is reported to be similar in premenopause (n=11) compared to postmenopause (n=12) and asymptomatic postmenopause (n=8)	sleep related symptoms	Similar in Pre and Post
Freeman-2004	Quality of life (based on depressive symptoms) is reported to be better in postmenopause compared to transition to menopause. Quality of life (based on depressive symptoms) is also reported to be better in older age groups compared to younger age groups.	depressive symptoms	Better in Post vs Peri
Freeman-2004 (Premenstrual)	Quality of life (based on menopausal symptoms such as hot flushes, depressed mood, poor sleep, and decreased libido) is reported to be worse in the transition to menopause compared to premenopause.	menopausal symptoms such as hot flushes, depressed mood, poor sleep, and decreased libido	Better in Pre vs Peri
Freeman-2005	Quality of life (based on hot flash symptoms and anxiety levels) is reported to be better in premenopause compared to postmenopause.	hot flash symptoms and anxiety levels	Better in Pre vs Post
Freeman-2006	Quality of life (based on depressive symptoms and related factors) is reported to be better in premenopause compared to menopausal transition.	depressive symptoms and related factors	Better in Pre vs Peri
Freeman-2007	Quality of life (based on hot flushes, aches, joint pain, and stiffness, and depressed mood) is reported to be worse in postmenopause compared to premenopause. Quality of life (based on aches, joint pain, and stiffness) is reported to be worse in late transition compared to premenopause. Quality of life (based on depressed mood) is reported to be worse in late premenopause compared to premenopause.	hot flushes, aches, joint pain, and stiffness, and depressed mood	Better in Pre vs Late Peri, Better in Pre vs Post
Freeman-2008	Quality of life (based on headache symptoms) is reported to be better in postmenopause compared to premenopause. Quality	headache symptoms, mood swings and irritability symptoms	Better in Post vs Pre

	of life (based on mood swings and irritability symptoms) is reported to be better in postmenopause compared to premenopause, although the association is not statistically significant.		
Freeman-2011	Quality of life (based on hot flushes and associated symptoms) is reported to be better in late transition/postmenopause (n=75) compared to pre-/late premenopause (n=121) due to shorter duration of symptoms.	hot flushes and associated symptoms	Better in Late Peri vs Pre, Better in Post vs Pre
Freeman-2014	Quality of life (based on depressive symptoms) is reported to be better in postmenopause compared to premenopause, especially for women without a history of depression.	depressive symptoms	Better in Post vs Pre
Freeman-2016	Quality of life (based on hot flash symptoms) is reported to be better in premenopause compared to postmenopause, as indicated by the strong association between somatic anxiety and hot flashes, which are more prevalent in later menopausal stages.	hot flash symptoms	Better in Pre vs Post
Gold-2006	Quality of life (based on vasomotor symptoms and psychological factors) is reported to be worse in late perimenopause compared to premenopause.	vasomotor symptoms and psychological factors	Better in Pre vs Late Peri
Gold-2007	Quality of life (based on VMS symptoms) is reported to be better in premenopause (high PdG collections) compared to perimenopause (medium/low PdG collections)	VMS symptoms	Better in Pre vs Peri
Gold-2017	Quality of life (based on vasomotor symptoms) is reported to be better in late menopause (n=1546) compared to early menopause (n=1546)	vasomotor symptoms	Better in Late Peri vs Early Peri
Gold-2022	Quality of life (based on vasomotor symptoms) is reported to be better in postmenopause compared to premenopause, as elevated hs-CRP is associated with frequent VMS only in premenopausal women.	vasomotor symptoms	Better in Post vs Pre
Gopal-2008	Quality of life (based on urinary incontinence symptoms) is reported to be better in women with a sharp decline in estradiol levels from premenopause to menopause compared to those without a change in estradiol levels.	urinary incontinence symptoms	better with sharp decline of E2 from Pre to Post
Gordon-2016	Quality of life (based on mood-related symptoms) is reported to be worse in the menopause transition compared to early postmenopause, as estradiol variability and stress sensitivity contribute to depressive symptoms during this period.	mood-related symptoms	Better in Post vs Peri

Gordon-2020	Quality of life (based on mood-related symptoms) is reported to be better in early perimenopause compared to late perimenopause.	mood-related symptoms	Better in Early Peri vs Late Peri
Greendale-2009	Quality of life (based on cognitive performance) is reported to be better in premenopause compared to perimenopause.	cognitive performance	Better in Pre vs Peri
Grummisch-2023	Quality of life (based on cognitive symptoms) is reported to be better in late menopause transition compared to early menopause transition, as cognitive deficits are generally mild and transient, and compensatory strategies can mitigate these effects.	cognitive symptoms	Better in Late Peri vs Early Peri
Guthrie-2004	Quality of life (based on symptoms and mood changes) is reported to be better in premenopause compared to late menopausal transition.	symptoms and mood changes	Better in Pre vs Late Peri
Guthrie-2005	Quality of life (based on hot flush symptoms) is reported to be better in premenopause compared to late menopause transition and postmenopause.	hot flush symptoms	Better in Pre vs Late Peri
Harlow-2017	Quality of life (based on symptom burden) is reported to be better in premenopause compared to postmenopause, as more women are in less symptomatic classes during premenopause.	symptom burden	Better in Pre vs Post
Hickey-2016	Quality of life (based on depressive symptoms) is reported to be better in postmenopause compared to perimenopause.	depressive symptoms	Better in Post vs Peri
Huang-2024	Quality of life (based on musculoskeletal pain symptoms) is reported to be better in premenopause compared to postmenopause. The prevalence and severity of muscle and joint pain increase as menopausal stages progress, indicating a decline in quality of life due to increased pain in later stages.	musculoskeletal pain symptoms	Better in Pre vs Post
HydeRiley-2004	Quality of life (based on hot flash symptoms) is reported to be better in postmenopausal women (due to high dietary fat intake) compared to perimenopausal women (due to increased BMI and alcohol consumption).	hot flash symptoms	Better in Post vs Peri
Jacobs-2017	NA		
Jang-2025	Quality of life (based on sleep related symptoms) is reported to be better in premenopause compared to postmenopause.	sleep related symptoms	Better in Pre vs Post
Jones-2018	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to perimenopause.	sleep-related symptoms	Better in Pre vs Peri
Kalleinen-2021	Quality of life (based on sleep-related symptoms) is reported to be better in postmenopause compared to premenopause.	sleep-related symptoms	Better in Post vs Pre

Katainen-2018	Quality of life (based on vasomotor symptoms) is reported to be better in postmenopause (n=57) compared to perimenopause (n=65). Quality of life (based on sleep and cognitive symptoms) is slightly better in postmenopause (n=57) compared to perimenopause (n=65), although these changes are minor. Quality of life (based on sexual functioning) is reported to be worse in postmenopause (n=57) compared to perimenopause (n=65).	vasomotor symptoms, sleep and cognitive symptoms	Better in Post vs Peri
King_2022	Quality of life (based on hot flashes and irritability symptoms) is reported to be better in postmenopause (>5 years post-FMP) compared to perimenopause.	hot flashes and irritability symptoms	Better in Post vs Peri
Kok-2006	Quality of life (based on cognitive function) is reported to be better in premenopause compared to postmenopause, as indicated by trends in the National Adult Reading Test and search speed and concentration scores.	cognitive function	Better in Pre vs Post
Kravitz-2022	Quality of life (based on depressive symptoms and psychosocial factors) is reported to be better in premenopause compared to postmenopause.	depressive symptoms and psychosocial factors	Better in Pre vs Post
Kumari-2005	Quality of life (based on vasomotor symptoms and menopause-associated depression) is reported to be better in premenopause compared to perimenopause and postmenopause. For example, perimenopausal women with severe vasomotor symptoms experienced a decline in physical functioning 3.3 points greater than those without symptoms, and those with severe menopause-associated depression experienced an 18.4-point decline in emotional role limitation compared to those without these symptoms.	vasomotor symptoms and menopause-associated depression	Better in Pre vs PeriBetter in Pre vs Post
Lampio-2017	Quality of life (based on sleep related symptoms) is reported to be better in postmenopause (n=60) compared to premenopause (n=60), as indicated by increased slow-wave sleep during menopausal transition.	sleep related symptoms	Better in Post vs Pre
Lee-2023	Quality of life (based on depression, anxiety, and sleep disorders) is reported to be worse in symptomatic menopausal transition compared to non-symptomatic menopausal transition.	depression, anxiety, and sleep disorders	Better in non-symptomtic MT
Li-2020	Quality of life (based on vasomotor symptoms) is reported to be better in postmenopause compared to premenopause and	vasomotor symptoms	Better in Post vs Pre

	menopausal transition, as indicated by shorter duration and lower prevalence of severe symptoms in postmenopause.		
Luo-2020	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to postmenopause.	sleep-related symptoms	Better in Pre vs Post
Maki-2021	Quality of life (based on cognitive performance) is reported to be better in premenopause compared to perimenopause and postmenopause, as indicated by increased probabilities of impairment in learning, memory, and attention/working memory during these stages.	cognitive performance	Better in Pre vs Peri, Better in Pre vs Post
Maleki-2019	Quality of life (based on VMS and associated psychological symptoms) is reported to be better in premenopause compared to late-stage perimenopause.	VMS and associated psychological symptoms	Better in Pre vs Late Peri
Marsh-2015	Quality of life (based on mood symptoms and menopausal symptoms) is reported to be better in early menopause (n=15) compared to late menopause and early postmenopause (n=29)	mood symptoms and menopausal symptoms	Better in Early Peri vs Late Peri, Better in Early Peri vs Post
Marsh-2017	Quality of life (based on depressive symptoms) is reported to be better in postmenopause compared to the menopausal transition (MT), as indicated by lower odds of depression in postmenopause. Additionally, longer duration of estrogen exposure and use of oral contraceptives are associated with better quality of life due to reduced risk of depressive symptoms.	depressive symptoms	Better in Post vs Peri
Matthews-1994	Quality of life (based on symptom reporting) is reported to be worse in perimenopause compared to postmenopause.	symptom reporting	Better in Post vs Peri
Matthews-2021	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to postmenopause, as indicated by lower beta EEG power during NREM sleep in premenopausal women.	sleep-related symptoms	Better in Pre vs Post
Matthews-2022	Quality of life (based on sleep and VMS symptoms) is reported to be better in Group 1 (n=552) compared to Group 5 (n=186)	sleep and VMS symptoms	
Maxwell-2023	Quality of life (based on physical role functioning and bodily pain) is reported to be better in premenopause compared to surgical postmenopause.	physical role functioning and bodily pain	Better in Pre vs Surgical Post
Mirer-2017	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to postmenopause.	sleep-related symptoms	Better in Pre vs Post
Mishra-2012	Quality of life (based on psychological symptoms) is reported to be worse in postmenopause (n=63) compared to premenopause (n=405). Quality of life (based on vasomotor	psychological symptoms	Better in Pre vs Post

	symptoms) is reported to be better in postmenopause (n=83) compared to perimenopause (n=67). Quality of life (based on sexual discomfort symptoms) is reported to be worse in postmenopause (n=85) compared to premenopause (n=60).		
Mitchell-2010	Quality of life (based on back pain symptoms) is reported to be better in the late reproductive stage compared to the early and late menopausal transition stages and early postmenopause. Quality of life (based on joint pain symptoms) is reported to be better in younger ages compared to older ages due to the association with age rather than menopausal transition stages.	back pain symptoms	Better in Pre vs Late PeriBetter in Pre vs Post
Mitchell-2015	Quality of life (based on hot flash severity and anxiety) is reported to be better in early postmenopause (after the second year) compared to the late menopausal transition stage.	hot flash severity and anxiety	Better in Post vs Late Peri
Mitchell-2017	Quality of life (based on depressed mood symptoms) is reported to be better in early postmenopause compared to other menopausal transition stages.	depressed mood symptoms	Better in Post vs Peri, Better in Post vs Pre
Mulhall-2018	Quality of life (based on symptoms of depression and anxiety) is reported to be better in premenopause compared to perimenopause and postmenopause.	symptoms of depression and anxiety	Better in Pre vs Peri, Better in Pre vs Post
Ozasa-2022	Quality of life (based on pain sensitivity and tolerance) is reported to be better in premenopause compared to late postmenopause due to increased sensitivity to cold and heat pain thresholds in late postmenopausal patients with BMS.	pain sensitivity and tolerance	Better in Pre vs Post
Randolph-2005	Quality of life (based on vasomotor symptoms) is reported to be better in premenopause compared to postmenopause, as the frequency of vasomotor symptoms increases from baseline to follow-up 4, indicating a potential decline in quality of life as women progress through menopause.	vasomotor symptoms	Better in Pre vs Post
Rössler-2016	Quality of life (based on hot flushes/night sweats and sleep disturbances) is reported to be better in premenopause compared to peri- and postmenopause.	hot flushes/night sweats and sleep disturbances	Better in Pre vs Peri, Better in Pre vs Post
Samargandy-2022	Quality of life (based on vasomotor symptoms) is reported to be better in premenopause compared to postmenopause, as vasomotor symptoms are associated with higher blood pressure levels and increased discomfort during the postmenopausal stage.	vasomotor symptoms	Better in Pre vs Post

Schmidt-2004	Quality of life (based on mood-related symptoms) is reported to be better in early perimenopause compared to late perimenopause (n=29)	mood-related symptoms	Better in Early Peri vs Late Peri
Schnall-2019	Quality of life (based on physical comfort symptoms like muscle aches and pains) is reported to be better in postmenopause compared to premenopause. Quality of life (based on mental health symptoms like depression) is reported to be better in postmenopause compared to perimenopause.	physical comfort symptoms like muscle aches and pains	Better in Post vs Pre
Shardell-2021	Quality of life (based on symptoms of low libido and vaginal dryness) is reported to be better in premenopause compared to postmenopause.	symptoms of low libido and vaginal dryness	Better in Pre vs Post
Sowers-2007	Quality of life (based on physical functioning and health status) is reported to be better in premenopause compared to surgical menopause.	physical functioning and health status	Better in Pre vs Surgical Post
Strauss-2011	Quality of life (based on depressive symptoms) is reported to be better in premenopause compared to perimenopause, as initial levels of depressive symptoms predict subsequent difficulty with menopausal symptoms. Quality of life (based on menopausal symptoms) is reported to be better in premenopause compared to postmenopause, as initial levels of menopausal symptoms predict subsequent levels of depressive symptoms.	depressive symptoms	Better in Pre vs Peri
Tang-2019	Quality of life (based on symptoms of anxiety and depression) is reported to be better in premenopause compared to postmenopause.	symptoms of anxiety and depression	Better in Pre vs Post
Tang-2020	Quality of life (based on VMS and mood symptoms) is reported to be better in premenopause compared to postmenopause, as indicated by lower VMS bother scores and prevalence of mood symptoms in premenopause.	VMS and mood symptoms	Better in Pre vs Post
Taylor-Swanson-2018	Quality of life (based on stress and fatigue symptoms) is reported to be better in the late reproductive stage compared to the early post-menopause stage.	stress and fatigue symptoms	Better in Pre vs Post
Tepper-2016	Quality of life (based on VMS symptoms) is reported to be better in women with persistently low frequency of VMS compared to those with persistently high or early onset VMS. Additionally, quality of life (based on psychosocial and health profile) is reported to be better in women with low frequency VMS compared to those with high frequency VMS. Quality of	VMS symptoms, psychosocial and health profile	Better with low severity hot flushes

	life (based on racial/ethnic differences) may vary, with black women potentially experiencing a lower QoL due to overrepresentation in high VMS subgroups.		
Than-2023	Quality of life (based on cognitive symptoms) is reported to be better in postmenopause compared to perimenopause.	cognitive symptoms	Better in Post vs Peri
Thurston-2013	Quality of life (based on hot flash symptoms) is reported to be better in late peri-/postmenopause compared to pre-/early perimenopause.	hot flash symptoms	Better in Late Peri vs Early Peri, Better in Late Peri vs Pre, Better in Post vs Early Peri
Tirkkonen-2021	Quality of life (based on cognitive functions and physical performance) is reported to be better in postmenopause compared to perimenopause. Cognitive functions improve or remain stable, and physical performance such as walking distance improves during the follow-up. However, vasomotor symptoms are more prevalent in the late perimenopausal stage, which could negatively impact quality of life.	cognitive functions and physical performance	Better in Post vs Peri
Waetjen-2008	Quality of life (based on urinary incontinence symptoms) is reported to be better in early peri-menopause compared to pre-menopause, and in post-menopause compared to pre-menopause.	urinary incontinence symptoms	Better in Early Peri vs Pre, Better in Post vs Pre
Waetjen-2009	Quality of life (based on urinary incontinence symptoms) is reported to be better in postmenopause compared to peri-menopause.	urinary incontinence symptoms	Better in Post vs Peri
Waetjen-2011	Quality of life (based on urinary incontinence symptoms) is reported to be similar across premenopause, perimenopause, and postmenopause stages, as estradiol levels do not significantly affect incontinence development or worsening.	urinary incontinence symptoms	Similar in Pre, Peri, Post
Waetjen-2018	Quality of life (based on sexual health symptoms) is reported to be better in premenopause compared to postmenopause.	sexual health symptoms	Better in Pre vs Post
Weber-2021	Quality of life (based on sleep and depressive symptoms) is reported to be better in profiles with strengths in verbal learning and memory (Profile 3) and attention/executive function (Profile 4) compared to profiles with weaknesses in verbal learning and memory (Profile 2) during perimenopause.	sleep and depressive symptoms	Better with better cognetive funcions
Woods-2002	Quality of life (based on health ratings and vasomotor symptoms) is reported to be better in women with consistently non-depressed mood (n=80) compared to those with consistently high depressed mood (n=20)	health ratings and vasomotor symptoms	Better with non-depressed mood

Woods-2006	Quality of life (based on vasomotor symptoms) is reported to be better in the early and middle menopausal transition stages compared to the late menopausal transition stage.	vasomotor symptoms	Better in Early Peri vs Late Peri
Woods-2008	Quality of life (based on depressed mood symptoms) is reported to be better in the early menopausal transition stage compared to the late menopausal transition stage.	depressed mood symptoms	Better in Early Peri vs Late Peri
Woods-2010 (Sexual)	Quality of life (based on sexual desire and related symptoms) is reported to be better in the late reproductive stage compared to the late menopausal transition and early postmenopause stages.	sexual desire and related symptoms	Better in Pre vs Peri, Better in Pre vs Post
Woods-2010 (Sleep)	Quality of life (based on sleep related symptoms) is reported to be better in early postmenopause compared to late menopausal transition, as indicated by less severe difficulty getting to sleep and worsening nighttime awakening in the latter stage.	sleep related symptoms	Better in Post vs Late Peri
Woods-2016	Quality of life (based on hot flash severity, nighttime awakening, depressed mood, pain symptoms, and sexual desire) is reported to be better in early postmenopause compared to the Late MT stage.	hot flash severity, nighttime awakening, depressed mood, pain symptoms, and sexual desire	Better in Post vs Late Peri
Woods-2014	Quality of life (based on symptom severity clusters) is reported to be better in the low severity symptom cluster compared to the high severity hot flash cluster during the menopausal transition and early postmenopause.	symptom severity clusters	Better with low severity hot flushes
Young-2003	Quality of life (based on sleep-related symptoms) is reported to be better in premenopause compared to postmenopause.	sleep-related symptoms	Better in Pre vs Post