

Menopause

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January 2026

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helen.clemow@nhs.net

Research

1. Unraveling the association between obesity and climacteric symptoms: a generalized structural equation modeling approach.

Authors: Aedo, Socrates;Blumel, Juan Enrique;Vallejo, Maria Soledad;Rey, Claudia;Rodrigues, Marcio Alexandre;Rodriguez-Vidal, Doris;Salinas, Carlos;Tserotas, Konstantinos;Calle, Andres;Dextre, Maribel;Elizalde, Alejandra;Escalante, Carlos;Espinoza, Maria Teresa;Gomez-Tabares, Gustavo;Monterrosa-Castro, Alvaro;Ojeda, Eliana and Nanez, Monica

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 48–56

Abstract: OBJECTIVE: To assess the direct and indirect associations between obesity and

the severity of menopausal symptoms in postmenopausal women, considering related conditions such as chronic diseases and physical activity. **METHODS:** This observational subanalysis utilized data from the REDLINC XII multinational study, which included 722 postmenopausal women aged 70 or younger from 9 Latin American countries. Menopausal symptoms were measured using the Menopause Rating Scale (MRS). Clinical, behavioral, and sociodemographic data were obtained through physician-administered surveys. Generalized Structural Equation Modeling was employed to examine the direct and indirect relationships between obesity, chronic cardiovascular and respiratory diseases, chronic hypertension, diabetes mellitus, and physical activity, and MRS scores. Odds ratios (ORs) were calculated to enhance interpretability. **RESULTS:** A total of 722 participants were included. Obesity was directly associated with higher MRS scores (OR = 1.75). In addition, obesity exhibited indirect associations with MRS scores, with an odds ratio of 19.07, through chronic arterial hypertension, diabetes mellitus, physical inactivity, and chronic cardiovascular or respiratory diseases. The total association between obesity and MRS scores was reflected in an OR of 33.45. Furthermore, physical inactivity and the use of antidepressants were associated with greater symptom severity, whereas higher educational attainment, regular physical activity, and menopausal hormone therapy were associated with lower MRS scores. **CONCLUSIONS:** Obesity is strongly associated with more severe menopausal symptoms, both directly and through related chronic conditions and behavioral factors. Longitudinal studies are needed to establish temporal and causal inferences.

2. Insulin levels early in perimenopause inform vasomotor symptom incidence across the menopausal transition.

Authors: Athar, Faria;Gregory, Sarah;Houston, Emma J. and Templeman, Nicole M.

Publication Date: 2026

Journal: Journal of Clinical Endocrinology & Metabolism

Abstract: **CONTEXT:** Metabolic health impacts the menopausal transition. Metabolic characteristics like body mass index (BMI) affect vasomotor syndrome incidence, but the role of elevated insulin, an early marker of metabolic dysfunction, remains understudied. **OBJECTIVE:** To determine whether midlife insulin levels are associated with vasomotor symptom incidence or reproductive hormone trajectories. **METHODS:** Longitudinal analyses of community-based data from the Study of Women's Health Across the Nation (SWAN) were conducted. We analyzed the 704 SWAN participants (of 3302) without oophorectomy or hysterectomy who had metabolic data for age 47 and did not take insulin/medications for hyperglycemia. Mean fasting insulin at 47 was 10.117 microIU/mL (SD = 6.711), with 27.0 kg/m² BMI (SD = 6.6); mean age of final menstrual period for these participants was 51.0 years (SD = 2.3). Main outcome measures included vasomotor symptom timings and durations, and trajectories of estradiol, follicle-stimulating hormone (FSH), and testosterone across the menopausal transition. **RESULTS:** Higher insulin at 47 predicted younger onsets of hot flashes and night sweats, longer durations of hot flashes and cold sweats, and greater testosterone rise. BMI associations with vasomotor symptoms paralleled those of insulin, but BMI appeared more closely linked to slower estradiol decline and blunted FSH rise. In Cox proportional hazards models, elevated age-47 insulin was associated with increased likelihood of hot flashes; this remained significant with BMI and glucose as

covariates. **CONCLUSIONS:** Perimenopausal fasting insulin and BMI show complementary but distinct associations with menopausal changes. Elevated insulin predicts earlier and prolonged vasomotor symptoms, and is associated with higher testosterone.

3. HIV and menopause: current evidence, gaps, and future directions for integrated care

Authors: Chakalisa, Unoda A.; Cole-Haley, Susan; Morrioni, Chelsea and Nwokolo, Nneka

Publication Date: Feb 01 ,2026

Journal: Current Opinion in Infectious Diseases 39(1), pp. 16–21

Abstract: PURPOSE OF REVIEW: To synthesize current evidence on menopause in women living with HIV, highlighting the biological, psychosocial, and structural determinants of health, and to identify research and implementation gaps to inform integrated models of care. **RECENT FINDINGS:** With increasing life expectancy, more women with HIV are transitioning through menopause. Data from international cohorts suggest that menopause may occur approximately three years earlier in women with HIV than in HIV-negative peers. Symptom burden - including vasomotor, psychological, and sexual health disturbances - appears greater and is compounded by stigma, multimorbidity, and socioeconomic disadvantage. Evidence on the safety of menopausal hormone therapy, drug-drug interactions with antiretroviral therapy, and long-term cardiometabolic and bone outcomes remains sparse, particularly in low-income and middle-income countries (LMICs). Intersectional inequities affecting racially minoritized and migrant women are increasingly recognized but under-researched. **SUMMARY:** Menopause in women with HIV remains an under-prioritized aspect of care despite its significant clinical and psychosocial implications. Future efforts should focus on longitudinal and interventional studies, integration of menopause assessment within HIV services, and culturally sensitive, multidisciplinary care models that address inequities across global settings.

4. The effectiveness of 12.5 and 25 micrograms 17beta-estradiol vaginal gel for postmenopausal vaginal atrophy: A randomized non-inferiority trial.

Authors: Chantrapanichkul, Panicha; Tanmahasamut, Prasong; Nanthiphatthanachai, Arphamart; Wongwananuruk, Thanyarat; Indhavivadhana, Suchada; Rattanachaiyanont, Manee and Sa-Nga-Areekul, Nutchaya

Publication Date: Jan ,2026

Journal: International Journal of Gynaecology & Obstetrics 172(1), pp. 363–372

Abstract: OBJECTIVE: To compare the effectiveness of two dosages (12.5 and 25 mcg) of 17beta-estradiol vaginal gel for treating postmenopausal vaginal atrophy. **METHODS:** A randomized non-inferiority trial was conducted in the Gynecologic Endocrinology and Menopause Clinic of a university hospital from June 2022 to February 2023. A total of 80 postmenopausal women were randomly assigned to receive a 12.5 mcg (half-dose) or 25 mcg (full-dose) 17beta-estradiol vaginal gel daily for 14 days, followed by twice-weekly for 10 weeks. Efficacy outcomes were vaginal maturation value (VMV), vaginal health index (VHI),

vaginal pH, most bothersome symptoms (MBSs), and female sexual function index (FSFI). Safety outcomes were endometrial thickness, serum estradiol level, and adverse events. All study outcomes were evaluated at three time points: baseline, week 4, and week 12. **RESULTS:** At week 12, both the half-dose and full-dose groups displayed a significant improvement in the VMV, with median (25th-75th percentile) of 67.3 (59.1-72.9) and 71.8 (60.3-79.5), respectively. While the full-dose group exhibited slightly greater improvement in VMV, the difference was not statistically significant. The upper bound of the 95% confidence interval (CI) for the median difference in VMV was below the predefined non-inferiority margin of 15 (4.5, 95% CI: -0.5, 10.0; P = 0.082). Additionally, both groups demonstrated significant improvements from baseline in all efficacy outcomes without any safety concerns. **CONCLUSION:** Both 12.5 and 25 mcg doses of 17beta-estradiol vaginal gel are safe and effectively improve vaginal atrophy in postmenopausal women. The non-inferiority of the half-dose to the full-dose suggests its potential as a cost-effective treatment option with comparable benefits.

5. Unveiling the link between menopausal age and cognitive decline in Chinese women: The role of depressive symptoms.

Authors: Chen, Fei;Wang, Yangyang;Kong, Chuiran;Huang, Jing;Ye, Suni;Song, Linyang;Xia, Honghong and Qiu, Peiyuan

Publication Date: Jan 15 ,2026

Journal: Journal of Affective Disorders 393(Pt B), pp. 120444

Abstract: OBJECTIVES: Previous studies on the relationship between menopausal age and cognitive function have reported inconsistent findings. We aim to investigate the impact of menopausal age on cognitive function in Chinese women, and whether depressive symptoms partially mediate this relationship. **METHOD:** Postmenopausal women from the China Health and Retirement Longitudinal Study (CHARLS) were included. Cognitive function was evaluated using the Telephone Interview for Cognitive Status (TICS) and depressive symptoms were assessed using the Center for Epidemiological Studies Depression (CES-D) scale in all waves. We examine the association between menopausal age and cognitive function using linear mixed-effects model (LMM) and further estimate the mediating role of depressive symptoms on this relationship. **RESULTS:** A total of 7768 postmenopausal women were included, with the median follow-up time of 7.17 years (ranges from 2 to 9 years). Overall, 5.9 % of the participants experienced menopause before age 40, 12.4 % experienced menopause between 41 and 45, and 81.7 % experienced menopause after age 46. The results showed that premature menopausal age (≤ 40 years) ($\beta = -0.433$, 95 %CI: -0.743, -0.123) and early menopausal age (41-45 years) ($\beta = -0.822$, 95 %CI: -1.260, -0.383) were associated with poorer average cognitive function. Moreover, depressive symptoms mediated the association between premature menopausal age and cognitive function (8.72 %, indirect effect = -0.072, 95 %CI: -0.122, -0.021). **DISCUSSION:** We found that both premature and early menopause were associated with poorer average cognitive function in Chinese postmenopausal women. Additionally, depressive symptoms partially mediated this relationship.

6. Trends in obesity among premenopausal and postmenopausal women in the United States between 1999 and 2018: results from the National Health and Nutrition Examination Survey.

Authors: Cook, Claire E.;Kim, Chris;Abid, Mahrukh;Wasser, Alexandra and Banack, Hailey R.

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 20–29

Abstract: OBJECTIVE: The objective of the present work is to: (1) describe the trends in obesity among premenopausal and postmenopausal women in the United States between 1999 and 2018, and (2) describe the effect of aging on body mass index in women, using novel BMI-for-age percentile curves. **METHODS:** Data from the National Health and Nutrition Examination Survey (NHANES) collected between 1999 and 2018, including self-identified female participants older than 20 years, was used. Menopause status was self-reported, and body mass index (BMI, kg/m²) was calculated based on measured height and weight. Mean BMI across year is described according to menopause status and race/ethnicity. BMI-for-age percentiles and curves were created to describe adult BMI in the context of age. **RESULTS:** Mean BMI among premenopausal women increased from 27.7 (7.1) kg/m² in 1999 to 30.2 (8.8) kg/m² in 2018. In postmenopausal women, mean BMI increased from 28.7 (6.2) kg/m² in 1999 to 29.7 (7.1) kg/m² in 2018. Among premenopausal women, BMI values in the 50th percentile range from 25.0 kg/m² at age 20 to 28.6 kg/m² at age 60. Among postmenopausal women, BMI values in the 50th percentile range from 27.1 kg/m² at age 41 to 28.3 kg/m² at age 60, and 26.5 kg/m² at age 80. **CONCLUSIONS:** The present findings describe an increase in BMI by both calendar year and chronological age during the years before menopause leading to higher BMI levels among postmenopausal women. These findings highlight the premenopausal period and the menopause transition as an important opportunity for obesity screening, identification, and prevention.

7. Jazz dance and concurrent training for menopausal symptom relief: evidence from the MenosPausa mais movimento project.

Authors: Fausto, Danielly Y.;Martins, Julia B. B.;Bohn, Lucimere;Aleixo, Ines and Guimaraes, Adriana C. A.

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 57–66

Abstract: OBJECTIVE: To analyze the effects of two 16-week physical exercise programs (jazz dance [JD] and concurrent training [CT]) compared with a control group (CG), as well as the impact of detraining (6 mo and 12 mo follow-ups), on menopausal symptoms in postmenopausal women. **METHODS:** This is a randomized clinical trial with follow-up at 6 and 12 months. A total of 70 postmenopausal women (mean age: 53.19 +/- 3.39 y) were included. Participants were randomly allocated into 3 groups: jazz dance, concurrent training, and control. The severity of menopausal symptoms was assessed using the Menopause Rating Scale (MRS). A linear mixed-effect model with random effects was used for statistical analysis

under 2 approaches: intention-to-treat (ITT) and protocol adherence. A paired t test analysis of score changes was also conducted as a complementary descriptive analysis, between baseline and subsequent time points. **RESULTS:** Significant time-related changes in somatic, psychological, urogenital, and total symptoms were observed in both the ITT and per-protocol analyses ($P < 0.005$), although no significant group \times time interactions were identified. All 3 groups (JD, CT, and even the CG) showed improvements in menopausal symptoms over time, with benefits persisting during follow-up. Regarding changes over time, the CT group experienced the greatest reduction in symptoms over time, reducing the total questionnaire score by more than 7 points postintervention, more than 9 points at the 6-month follow-up, and maintaining the benefits even after one year. JD also reduced symptoms, but to a lesser extent compared with CT, by almost 4 points postintervention, and 6 points at the 6-month follow-up, with benefits also persisting after 1 year. Although the CG also showed some improvement, it was less pronounced compared with the intervention groups. **CONCLUSIONS:** Although improvements in menopausal symptoms were observed over time within all groups, including the control group, no significant group \times time interactions were found. Therefore, this study did not demonstrate a superior effect of JD or CT compared with the CG, only the results that compare the interventions and CG over time are interpretable.

8. How the Intensity of Menopausal Symptoms Affects the Quality of Life in Menopausal Diabetic Women in Greece? A Cross-Sectional Study.

Authors: Giannaraki, Anastasia;Plakas, Sotirios;Koreli, Alexandra;Mastrogiannis, Dimos;Adamakidou, Theodoula;Dokoutsidou, Eleni;Parissopoulos, Stelios;Zartaloudi, Afroditi;Mantoudi, Alexandra;Apostolara, Paraskevi;Mastrogianni, Triantafyllia Evdoxia;Vlachou, Eugenia;Govina, Ourania and Mantzorou, Marianna

Publication Date: 2026

Journal: Advances in Experimental Medicine & Biology 1489, pp. 263–273

Abstract: Menopause is a dynamic period of transition to reproductive ageing, resulting in menopausal symptoms with variable intensity, which affect women's daily life and psychosocial well-being.

Purpose To investigate the quality of life of menopausal women with diabetes mellitus and its correlation with the intensity of menopausal symptoms. A cross-sectional correlational study was conducted on 157 menopausal women with diabetes who completed three questionnaires: (a) a sociodemographic and clinical data questionnaire, (b) the Utian quality of life (UQOL) scale questionnaire, and c) the Symptom Scale Klaas Heinenmann's Menopause Rating Scale (MRS). The mean age of the participants was 52.4 years (SD = 3.5 years). More than half of the women (53.5%) had type 1 diabetes, while the largest percentage, 94.9%, was receiving medication. The main comorbidities observed in menopausal women with diabetes were hypertension (44.6%), thyroid diseases (38.9%), and hyperlipidemia (35.7%). The sample presented a low-to-moderate quality of life (mean value 68.3, SD = 15.5). The quality of life of menopausal women with diabetes appeared to be greatly reduced by the intensity of menopausal symptoms ($p < 0.001$) and coexisting comorbidities. According to the multivariable linear regression, as the age of menopausal women increased, their quality of life decreased ($p = 0.001$). **Conclusions :** As the intensity of menopausal symptoms negatively affects the quality of life of women with diabetes, the education of women should be a matter

of high priority in primary health care. It is imperative to develop strategies not only to prevent but also treat women's menopausal symptoms.

9. Bone mineral density response to romosozumab in post-menopausal women: A prospective observational real-world study.

Authors: Gielen, Evelien;Amini, Nadja;Coppens, Desiree;Dejaeger, Marian;Dupont, Jolan;De Vlam, Kurt;Rossini, Maurizio;Viapiana, Ombretta;Laurent, Michael R. and Adami, Giovanni

Publication Date: Jan ,2026

Journal: Bone 202, pp. 117701

Abstract: **BACKGROUND:** Romosozumab is approved in Europe for severe osteoporosis in postmenopausal women at high risk of fracture including older women, but whether bone mineral density (BMD) response varies with age remains unknown. **PURPOSE:** To examine BMD changes in a real-world cohort of older women treated with romosozumab. We hypothesized that younger, treatment-naive patients and those with lower baseline BMD might experience greater BMD improvements. **METHODS:** Prospective observational study in one Italian and two Belgian centers. Multivariable linear and logistic regression models with imputation of missing data were used to determine the association between baseline variables and % BMD change or $\geq 3\%$ BMD increase after 12 months. **RESULTS:** We included 186 postmenopausal women with a median age of 76 years (range 52-96), lumbar spine T-score of -2.8 (interquartile range - 3.4;-1.8), mean total hip T-score of -2.4 (+/- standard deviation 0.95) and femoral neck T-score of -2.7 (-3.2;-2.2). After 12 months of romosozumab, BMD increased +9.16 % and + 3.00 % at the lumbar spine and total hip, respectively. A $\geq 3\%$ BMD increase was observed in 80.4 % at the spine, 51 % at the hip and 46 % at the femoral neck. Lower baseline BMD was independently associated with greater total hip BMD response. There was no significant association of BMD responses with age. **CONCLUSIONS:** Baseline BMD was associated with total hip BMD response to romosozumab. Age itself was not associated with BMD differences. Our data support the effectiveness of romosozumab in older postmenopausal women in routine clinical practice.

10. The effect of a symptom management program developed based on story theory on vasomotor symptoms and sleep quality in postmenopausal women: a mixed methods study.

Authors: Guven, Emel and Altay, Birsen

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 73–82

Abstract: **OBJECTIVE:** This study examined the effect of a symptom management program developed based on story theory on vasomotor symptoms and sleep quality in postmenopausal women. **METHODS:** The research was conducted as a mixed methods study using an interventional design, one of the advanced mixed methods designs. The study population consisted of postmenopausal women who presented to 5 family health centers. A

total of 76 women were enrolled, with 38 in the experimental group and 38 in the control group. The symptom management program developed based on story theory was applied individually to women in the experimental group. A personal information form, the Menopause Symptoms Assessment Scale, the Pittsburgh Sleep Quality Index, and a story theory-based semistructured interview form were employed as data collection tools. The independent 2-sample *t* test, Mann-Whitney U test, generalized linear model, Tukey test, and Robust ANOVA test were used for the analysis of quantitative data, while content analysis was applied to qualitative data. **RESULTS:** The Menopause Symptoms Assessment Scale total and subdimension scores and the total Pittsburgh Sleep Quality Index score were lower in the experimental group than in the control group at the end of the program. Six themes were identified in the study: thoughts about menopause, symptoms experienced during menopause, perception of femininity in menopause, the effect of menopause on daily life, coping with menopause, and expectations in menopause. **CONCLUSIONS:** The program reduced vasomotor symptoms and improved sleep quality among the postmenopausal women in the experimental group.

11. The Effects of Cognitive-Behavioral Consultation on Sexual Satisfaction and Quality of Life in Postmenopausal Women: A Randomized Clinical Trial.

Authors: Heydarpour, Sousan;Khoshandam, Sharare;Jalali, Amir and Salari, Nader

Publication Date: Jan ,2026

Journal: Health Science Reports 9(1), pp. e71722

Abstract: Background and Aim: Ensuring a high quality of life during menopause is a critical aspect of women's health. This study aimed to evaluate the effects of cognitive-behavioral consultation on sexual satisfaction and quality of life in postmenopausal women. **Method:** This randomized controlled trial included 70 postmenopausal women recruited from healthcare centers in Kermanshah, western Iran. Participants were randomly assigned to either an experimental group ($n = 35$) or a control group ($n = 35$) using a simple randomization method. The experimental group participated in 8 weekly sessions of group cognitive-behavioral consultation, each lasting 70-90 min. Both groups completed the Menopause-Specific Quality of Life and Women's Sexual Satisfaction Scale before and 1 month after the intervention. Recruitment took place between June and October 2018, and 70 participants completed the study. Data were analyzed using the Mann-Whitney test, paired *t*-test, and independent *t*-test with SPSS (25), and significance was set at $p < 0.05$. **Results:** Before the intervention, no significant differences were observed between the groups in mean sexual satisfaction scores ($p = 0.71$) or quality of life mean scores ($p = 0.128$). However, post-intervention, the experimental group demonstrated a statistically significant improvement in both sexual satisfaction ($p = 0.001$) and quality of life ($p = 0.001$) compared to the control group. No significant adverse events or side effects were reported. **Conclusion:** The findings suggest that group cognitive-behavioral consultation can effectively improve sexual satisfaction and quality of life among postmenopausal women. These results underscore its potential as a valuable therapeutic approach to address challenges associated with menopause and enhance overall well-being in this population. **Trial Registration Clinical Trials:** Iranian Registry of clinical trials-Beta version, <https://irct.behdasht.gov.ir/trial/14006>. (IRCT2017052814333N75) registered (06-04-

2017).

12. Utilization of fezolinetant for the treatment of moderate-to-severe vasomotor symptoms of menopause in a real-world setting.

Authors: Hsu, Christine D.;Carpenter, Rebecca M.;Richardson, Gwyn;Guo, Fangjian;Adekanmbi, Victor;Hoang, Thao N. and Berenson, Abbey B.

Publication Date: 2026

Journal: Menopause

Abstract: **OBJECTIVE:** Fezolinetant (Veoza) was approved as a nonhormone treatment for moderate-to-severe vasomotor symptoms of menopause in May 2023, providing a novel treatment option for women with contraindications to menopausal hormone therapy. The objective of the study was to characterize the uptake and utilization of fezolinetant in a real-world setting. **METHODS:** We conducted a retrospective cohort study using TriNetX data, which includes 108 health care organizations and over 156 million patients. Females with an initial prescription for fezolinetant between May 1, 2023, and December 31, 2024, were included. We described baseline clinical and demographic characteristics and assessed the uptake of fezolinetant over time. **RESULTS:** Our cohort included 9,853 women, including 1,315 (13.3%) who were over the age of 65 and 2,022 (20.5%) with a breast cancer diagnosis. Among the 7,222 individuals with at least 3 months of continuous enrollment, 1,477 (20.5%) had persistent use, defined as having a second fezolinetant prescription between 28 and 90 days of the initial fezolinetant prescription. Among persistent users, 42% received liver function testing in the 3 months after initiating fezolinetant, though regular monitoring is required after starting treatment. The total number of fezolinetant prescriptions increased over time, from 233 prescriptions between May 1 through July 31, 2023, to 1,871 prescriptions between May 1 and July 31, 2024. **CONCLUSIONS:** Our findings highlight a need for future postmarketing safety and effectiveness studies, especially among survivors of breast cancer and women 65 years and older, who were excluded from the randomized controlled trials.

13. Performance of clinical prediction models for identifying postmenopausal osteoporosis: a systematic review and meta-analysis.

Authors: Huang, Xinyi;Gan, Yiwen;Guo, Xiangyun;Li, Yunning;Wang, Liang;Qin, Jinran;Sun, Chuanrui;Yin, Yuhui;Chen, Ming;Xie, Yanming;Guo, Yang;Wei, Xu and Zhang, Yili

Publication Date: 2026

Journal: BMC Musculoskeletal Disorders

Abstract: **PURPOSE:** Early clinical recognition of postmenopausal osteoporosis (PMOP) can be challenging. With the advancement of machine learning, several prediction models for PMOP have been developed. This study assessed their performance by carrying out a systematic review and meta-analysis. **METHODS:** The PubMed, Embase, Cochrane Library, Web of Science, China National Knowledge Infrastructure (CNKI), WanFang database and China Science and Technology Journal Database (VIP) were systematically searched. Studies

with a sample size of at least 100 and involving postmenopausal women were included. Included models were descriptively summarized, and meta-analyses were conducted to derive discrimination estimates. Homogeneous results from different studies were pooled using MedCalc software. **RESULTS:** Out of 37,115 identified studies, 21 were included. Most of the models were developed using data from cross-sectional studies and the sample size of included models ranged from 103 to 12,175, totaling 45,383 participants with 16,008 positive events. Several models contained some similar predictors, including age, prior fractures, and body mass index (BMI). We also conducted a meta-analysis that included 22 models with reported AUC and its 95% confidence interval (95% CI), which demonstrated that the prediction models have good discriminative performance. The most frequently observed predictive variables include age, weight, body mass index (BMI), menopause status, height, fracture history, lower limb cramps, fatigue, waist circumference, diabetes mellitus, hyperlipidemia and glucocorticoids. **CONCLUSIONS:** We found that the PMOP prediction models demonstrated promising performance. However, this review also highlights several potential limitations of current approaches, including a high risk of bias and limited external validation. Future research should aim to refine these models using larger and more diverse populations, as well as by incorporating additional risk factors to improve their clinical applicability.

14. The associations between cardiovascular health, physical activity, and menopausal status in pre- and post-menopausal females living with stroke and transient ischemic attack: a cross-sectional analysis of baseline data from the Canadian Longitudinal Study on Aging.

Authors: Huynh, Eric;Wiley, Elise;Moncion, Kevin;Beauchamp, Marla K.;MacDonald, Maureen J. and Tang, Ada

Publication Date: Jan 01 ,2026

Journal: Applied Physiology, Nutrition, & Metabolism = Physiologie Appliquee, Nutrition Et Metabolisme 51, pp. 1–10

Abstract: In females, menopause reduces estrogen and its cardioprotective effects, doubling cardiovascular disease risk, and nearly doubling stroke risk within 10 years post-menopause. Poor cardiovascular health markers are common post-stroke, increasing recurrent stroke risk. Physical activity improves cardiovascular health in postmenopausal females and post-stroke individuals, yet no studies have explored its relationship with cardiovascular health and menopausal status in females post-stroke. This study investigated (1) the association between physical activity and cardiovascular health in females with stroke and (2) the moderating role of menopausal status on this association. Baseline data from the Canadian Longitudinal Study on Aging were analyzed, including females with stroke who provided menopausal status, self-reported physical activity, cardiovascular outcomes, and covariates. Generalized linear models with analytic weights assessed associations between cardiovascular health measures and physical activity, controlling for age, and smoking history. Subsequent models evaluated the interaction between physical activity and menopausal status. Among 1468 females with stroke ($n = 103$ (7%) pre- or perimenopausal females), physical activity was beneficially associated with reductions in systolic blood pressure ($s = -0.02$, $p = 0.04$), waist circumference ($s = -0.03$, $p = 0.03$), and C-Reactive protein ($s = -0.007$, $p < 0.02$). There were no significant

interactions between physical activity and menopausal status for all outcomes. Physical activity positively impacts cardiovascular health in females with stroke, irrespective of menopausal status. This study lays groundwork for longitudinal research examining cardiovascular differences between pre- and postmenopausal females with stroke.

15. Gonadotropin trajectories among postmenopausal women not using hormone therapy.

Authors: Lima, Sarah M.;Yue, Yihua;Bea, Jennifer W.;Hovey, Kathleen M.;Wactawski-Wende, Jean;Manson, JoAnn E.;Roe, Denise J.;Funk, Janet L.;Odegaard, Andrew;Ziller, Shelby G.;Allison, Matthew;Wallace, Robert;Jung, Su Yon;Cauley, Jane A. and Ochs Balcom, Heather M.

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 3–11

Abstract: OBJECTIVE: While evidence suggests that gonadotropins may play an important role in aging-related changes in body composition and health outcomes, follicle-stimulating hormone (FSH) and luteinizing hormone (LH) patterns have not been well characterized in older women. We characterized patterns of FSH and LH change over time after menopause. **METHODS:** In a sample of 291 postmenopausal women from the Women's Health Initiative OsteoPerio study who were not using hormone therapy, we estimated FSH and LH trajectories over a 20-year period using group-based trajectory modeling. Descriptive statistics identified differences according to hormone trajectory group. **RESULTS:** We estimated 3 FSH trajectories. The low FSH trajectory (36.1% of sample) showed had stable FSH, the moderate FSH trajectory (52.9%) showed FSH increased 30 years after menopause, and the high FSH trajectory (11.0%) showed FSH initially declined then increased 20 years after menopause. The moderate and high FSH trajectory groups were more likely to be never smokers, had lower measures of adiposity, and more severe hot flashes. We estimated 3 LH trajectories. The low LH trajectory (29.6%) showed LH declined over time, the moderate LH trajectory (56.0%) initially declined then increased 30 years after menopause, and the high LH trajectory (14.4%) initially decline then steeply increase 30 years after menopause. The moderate and high LH trajectory groups had lower measures of adiposity at baseline. **CONCLUSION:** There is variability in gonadotropin levels during the postmenopausal period in women not using hormone therapy. Research is needed to study whether postmenopausal gonadotropin patterns are associated with aging-related outcomes.

16. Complementary therapies for management of menopausal symptoms: a systematic review to inform the update of the International Menopause Society recommendations on women's midlife health.

Authors: Maunder, Alison;Mardon, Amelia K.;Rao, Vibhuti;Torkel, Sophia;Metri, Najwa-Joelle;Liu, Jing;Yang, Guoyan;Giese, Nora;Mantzioris, Evangeline;Abdul Jafar, Nur K.;Rodrigues de Souza, Geovanna E.;Al-Kanini, Ieman;Romero, Lorena;Panay, Nick;Pedder, Hugo and Ee, Carolyn

Publication Date: Jan 07 ,2026

Abstract: OBJECTIVE: Menopausal hormone therapy is standard treatment, but some women use complementary therapies. This review examines complementary therapies for menopause to inform International Menopause Society (IMS) recommendations. METHOD: A systematic search of six databases (January 2022-December 2024) identified randomized controlled trials (RCTs) and systematic reviews on complementary therapies for menopause. Outcomes included menopausal, vasomotor, genitourinary, cardiometabolic, sleep symptoms, bone health and safety. The study quality and certainty of evidence were evaluated using Cochrane Risk of Bias (RoB2), A MeaSurement Tool to Assess Systematic Reviews (AMSTAR 2) and Grading of Recommendations, Assessment, Development, and Evaluation (GRADE). RESULTS: From 3187 citations, 158 studies were included: one overview, 36 meta-analyses, seven systematic reviews and 114 RCTs. While promising evidence was found for acupuncture, Chinese herbal medicine (CHM), herbs, nutrients, mind-body/touch therapies for a variety of symptoms, most was of low/very low certainty. High-certainty evidence supports vitamin D safety; and moderate-certainty evidence supports black cohosh (vasomotor/menopausal symptoms), CHM (menopausal symptoms, sleep, blood pressure), acupuncture + CHM (sleep) and vitamin D (fracture risk). Most complementary therapies are safe. CONCLUSION: Vitamin D, black cohosh, CHM and acupuncture + CHM may improve some menopausal symptoms, but overall evidence remains limited. More rigorous research is needed on the efficacy and safety of complementary therapies for menopause.; plain-language-summary Menopausal hormone therapy is the main treatment for menopause symptoms, but many women also use complementary therapies alongside conventional care. This review summarizes the available research on different complementary therapies used by women during and after menopause. Six databases were searched and 158 studies included, such as clinical trials, systematic reviews and meta-analyses on complementary therapies used by menopausal women. Overall, the quality of these trials and reviews was low. Many complementary therapies showed promising results, such as acupuncture, Chinese herbal medicine, herbal medicines, vitamin and nutrient supplements, and mind-body approaches; however, most are supported by low-quality evidence. The strongest evidence supported the safety of vitamin D, while moderate evidence suggested benefits from black cohosh for hot flashes and menopausal scores; Chinese herbal medicine for menopausal scores, sleep quality and blood pressure; acupuncture combined with Chinese herbal medicine for sleep quality; and vitamin D for reducing fracture risk. In summary, complementary therapies including vitamin D, black cohosh and Chinese herbal medicine may help some menopausal symptoms, but more high-quality research is needed to understand how effective and safe these treatments truly are. In general, most complementary therapies appeared safe, with few serious side effects reported. However, more high-quality research on complementary therapies is required to confirm the benefits and risks to menopausal women. Language: English

17. Mental Health and Quality of Life in Perimenopausal and Menopausal Women : Quality of Life in Women.

Authors: Mavrogiorgi, Martha; Apostolara, Paraskevi; Adamakidou, Theodoula; Tsaloglidou, Areti; Tsaras, Konstantinos; Kleisiaris, Christos; Sarafis, Pavlos; Moisoglou, Ioannis; Paralikas, Theodosios; Malliarou, Maria and Papathanasiou, Ioanna V.

Publication Date: 2026

Journal: Advances in Experimental Medicine & Biology 1487, pp. 173–180

Abstract: Although menopause is a normal process, it causes a number of symptoms that affect women's health and quality of life (QoL). Furthermore, mental health problems, including depression and anxiety, in peri- and postmenopausal women are a major public health concern. The aim of this research study was to investigate menopausal symptoms and their association with mental health and quality of life. A cross-sectional study involving 78 women aged 36-58 years who were in the perimenopause or menopause was conducted. The instruments used were the Greek versions of the Menopausal Rating Scale (MRS), the Depression, Stress and Anxiety Assessment Scale (DASS-21), and the World Health Organization Quality of Life Scale (WHOQoL-BREF). According to the results, menopausal symptoms were found to be of low overall severity, a small proportion (7.8%) have mild depressive symptoms and mild anxiety symptoms (9.1%), and all scales of women's quality of life show high mean values, indicating a good to fairly good quality of life. The most important findings of the study are the statistically significant negative correlations between almost all dimensions of the DASS-21 scale and the WHOQoL-BREF dimensions, and between almost all dimensions of the MRS scale and the dimensions of the WHOQOL-BREF scale. In our study, menopause was not associated with poor quality of life at a general level; however, it was confirmed to have a statistically significant negative effect on quality of life, depending on the severity of symptoms and the coexistence of other complications such as depression.

18. Characterizing the spectrum of distress symptoms in midlife women with perimenopausal depression.

Authors: Nathan, Margo D.;Bondy, Erin;Prim, Julianna;Gibson, Kathryn;Rubinow, David R.;Meltzer-Brody, Samantha;Schiff, Lauren D.;Carey, Erin T. and Schiller, Crystal Edler

Publication Date: Jan 01 ,2026

Journal: Journal of Affective Disorders 392, pp. 120219

Abstract: BACKGROUND: Perimenopausal onset depression (PO-MDD) is a common cause of distress and functional impairment, though efforts to describe its clinical symptomatology have been limited. We aimed to characterize affective and anxiety symptoms associated with PO-MDD, and to identify clinical correlates of distress, including anxiety, temperament and climacteric symptoms. **METHODS:** Baseline data from unmedicated women, ages 44-55, with PO-MDD (n = 49) and without PO-MDD (controls; n = 37) in the late-perimenopause (STRAW -1 criteria) recruited for two studies examining estrogen's effect on brain activation were included. The Structured Clinical Interview for DSM-IV-TR (SCID) was used to confirm PO-MDD diagnosis. Depression and anxiety symptoms were characterized using the Inventory of Depression and Anxiety Scale (IDAS). Clinical correlates of distress were examined using the Schedule for Non-Adaptive and Adaptive Personality (SNAP) and Greene Climacteric Scale (GCS). ANCOVAs were conducted to describe group differences, controlling for race. Pearson correlations examined associations between affective, anxiety, and menopausal symptoms. **RESULTS:** PO-MDD reported more severe symptoms than controls on all IDAS scales other than traumatic intrusions and appetite gain (all ps < 0.05). PO-MDD participants

reported more severe irritability and anxiety on the IDAS, higher negative temperament and lower positive temperament scores on the SNAP, and higher GCS scores compared with controls. **LIMITATIONS:** Limited sample and homogeneity in racial and ethnic distribution. **CONCLUSIONS:** Findings show a broad range of perimenopause-onset distress symptoms beyond depressed mood, including anxiety and differences in maladaptive temperament. Correlations between IDAS composite scores and anxiety scales highlight the importance of screening for anxiety related distress in this population. **CLINICALTRIALS:** gov: #NCT0225517 and NCT03740009.

19. Impact of sleep fragmentation and estradiol suppression on positive and negative affect: Results of an experimental model of menopause.

Authors: Nathan, Margo D.;Spagnolo, Primavera A.;Grant, Leilah K.;Rahman, Shadab A.;Gonsalvez, Irene;Harder, Jessica;Kim, Hannah;Wiley, Aleta and Joffe, Hadine

Publication Date: Feb ,2026

Journal: Psychoneuroendocrinology 184, pp. 107690

Abstract: BACKGROUND: The menopausal transition (MT) represents a period of increased risk for depressive symptoms. Emergence of these symptoms may reflect dysregulations in affect caused by fundamental MT characteristics, particularly sleep disturbance, estradiol decline, and vasomotor symptoms (VMS). Using an experimental paradigm mimicking menopause, we examined the effects of MT-related characteristics on affect. **METHODS:** 38 premenopausal women without affective disorders completed a 6-day experimental paradigm comprising 2 nights of unfragmented sleep followed by 3 nights of provoked sleep fragmentation, during the high-estradiol mid-to-late-follicular menstrual phase. A subset (n=27) repeated the paradigm after leuprolide-suppressed estradiol (low-estradiol). Positive affect (PA) and negative affect (NA) ratings were obtained daily using the Positive and Negative Affect Schedule. **RESULTS:** Sleep fragmentation adversely influenced PA and NA acutely after one night of fragmentation ($p < 0.007$). This effect persisted following 3 nights of sleep fragmentation for NA ($p = 0.02$), but not PA ($p = 0.46$). Conversely, estradiol suppression increased PA ($p = 0.03$) but not NA ($p = 0.51$). In the low-estradiol condition, women who developed VMS trended toward having a more pronounced and sustained reduction in PA over three nights of sleep fragmentation compared to those who did not ($p = 0.09$). **CONCLUSIONS:** Our findings show that MT-related characteristics significantly disrupt both positive and negative affect, potentially underlying emergence of depressive symptoms during this reproductive stage. We observed differential effects on positive and negative affect, with sleep fragmentation having a greater effect on NA and estradiol and VMS having a greater effect on PA, suggesting benefit for tailoring interventions that target specific types of affect regulation.

20. Estetrol for the treatment of moderate to severe vasomotor symptoms in postmenopausal women: The design of the E4COMFORT I and II trials

Authors: Panay, Nick;Simoncini, Tommaso;Taziaux, Melanie;Bouchard, Celine;Black, Amanda;Kapoor, Ekta;Utian, Wulf;Foidart, Jean-Michel and Lobo, Rogerio Arnaldo

Publication Date: Jan ,2026

Journal: Maturitas 204, pp. 108781

Abstract: Estetrol is a natural estrogen with a favorable safety profile, showing minimal effects on liver proteins, blood clotting, and breast tissue, which may reduce the risks of blood clots and cardiovascular disease. This review presents the profile of estetrol in support of the rationale of two pivotal phase 3 clinical trials, E4COMFORT I and E4COMFORT II, as well as the design of those. E4COMFORT I and II are aimed at assessing the efficacy and safety of estetrol in the treatment of moderate to severe vasomotor symptoms in postmenopausal women. The E4COMFORT I and II trials were divided into an efficacy part (arms 1-3) and a safety part (arm 4). Efficacy was evaluated through a randomized, double-blind, placebo-controlled study examining two doses of estetrol (15 mg and 20 mg) in postmenopausal participants, both hysterectomized and non-hysterectomized, who experienced 7 or more moderate to severe vasomotor symptoms per day (or 50 or more per week). To comply with Food and Drug Administration and European Medicines Agency guidelines for long-term safety assessments in both groups, these trials evaluated the overall and endometrial safety of unopposed estetrol and of estetrol combined with natural progesterone. The total enrolment across the E4COMFORT I and II trials was 2576 participants. The results of these trials are expected to give a thorough understanding of estetrol 's potential as a new, distinctive treatment option for women with postmenopausal symptoms. CLINICALTRIALS REGISTRATION: NCT04209543 and NCT04090957.

21. Identifying the content, capabilities, and design features of a mobile-based cognitive behavioral therapy intervention for managing menopausal symptoms.

Authors: Pourshahrokhi, Najmeh;Hunter, Myra;Farokhzadian, Jamileh and Ahmadian, Leila

Publication Date: Feb ,2026

Journal: International Journal of Medical Informatics 206, pp. 106163

Abstract: BACKGROUND AND OBJECTIVE: The lack of alignment between a mobile application and the needs of end users, as the first step in the design and development process of a mobile application, can lead to its rejection. Therefore, this study was conducted to determine the design requirements for a mobile-based cognitive behavioral therapy (CBT) application for managing menopausal symptoms. **METHODS:** A qualitative study was conducted with twenty-five female participants, comprising health professionals and menopausal women. Data were collected through semi-structured interviews and analyzed using the content analysis method proposed by Lundman and Graneheim. Lincoln and Guba's criteria were applied to ensure the reliability of the data. **RESULTS:** Three main themes emerged from the interviews: (i) mobile application content, (ii) mobile application capabilities, and (iii) the design features of the mobile application. Twelve categories and 52 subcategories were also identified. The content of the mobile application included the need for credible scientific information about menopause, education on the principles and techniques of CBT, and recommendations for motivation and morale boosting for users. Initial health assessments to identify symptoms, daily symptom tracking, personalized planning, communication, counseling and support, visual reports for monitoring changes, reminders, and customizable

notifications were determined as necessary capabilities. Participants' recommendations for the structure and user interface of the mobile application, included information presentation, security, and privacy as essential characteristics of the mobile application. **CONCLUSION:** This study identified key information for developing a mobile-based CBT program for managing menopausal symptoms. It also offers insights into the required functionalities when implementing mobile-based interventions.

22. Menopausal experience and sexuality: women's perceptions.

Authors: Renou, Sophie;Assegond, Christele;Marret, Henri and Pragout, David

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 67–72

Abstract: OBJECTIVE: Menopause can result in significant transformations in a woman's life and sexuality. A limited number of studies have investigated women's perceptions at the time of menopause and their potential impact on their sexuality. The aim of this study is to explore women's perceptions of menopause and their impact on their sexuality from a multidimensional perspective, using a qualitative approach. **METHODS:** We conducted 13 semistructured individual interviews with postmenopausal women aged 49 to 63 years. The interviews were recorded, transcribed, and coded by 2 investigators. These codes were then classified into themes and subthemes. **RESULTS:** With regard to menopause, the participants first emphasized the physical and psychological symptoms (hot flashes, genitourinary disorders, weight gain, depression, mood swings) that they experienced during this time, which were sometimes incapacitating. They also reported a complex psychosocial context at the onset of menopause. Most of them went through this experience alone. The combination of these various factors resulted in a highly variable menopausal experience. Their sexuality was primarily influenced by the severity of the genitourinary disorders and the quality of the relationship with their partner, and sexual desire levels varied as a result. **CONCLUSIONS:** The overall experience of menopause widely varies from one woman to another, mainly depending on the intensity of the physical and psychological symptoms, as well as on their life context. Sexuality and sexual desire may change quantitatively and qualitatively. Some women are at greater risk for a negative menopause experience and require special attention from health care professionals.

23. Inflammation and insulin resistance partially mediate the relationship between age at menopause and depression in postmenopausal women: a cross-sectional study of NHANES 2005-2018.

Authors: Riveros, Paula Amado and Riveros Perez, Efrain

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 30–38

Abstract: OBJECTIVE: To evaluate depression in postmenopausal women and to explore the relationship between age at menopause, hormone therapy, and depression, while also

identifying potential mediators that may explain these associations. **METHODS:** This cross-sectional study analyzed data from National Health and Nutrition Examination Survey (NHANES) (2005-2020) for women older than 60 years who completed the Patient Health Questionnaire 9 (PHQ-9) depression questionnaire (n=7,027). Exposures included age at menopause and self-reported hormone therapy; the outcome was depression severity (PHQ-9 ≥ 10). Covariates included sociodemographics, body mass index, medical conditions, and biomarkers (C-reactive protein, homeostatic model assessment of insulin resistance). Survey-weighted logistic regression, Bayesian modeling, and causal mediation analysis were used. Missing data were handled with multiple imputation and inverse probability weighting. Analyses were conducted with R software, with $P < 0.05$ considered significant. **RESULTS:** In this NHANES sample of postmenopausal women older than 60 years, earlier age at menopause was associated with depression ($P < 0.0001$). Hormone therapy did not show a significant association with depression (OR=0.58, 95% CI: 0.23-1.4), while higher education levels were protective (college degree: OR=0.89, 95% CI: 0.85-0.92, $P < 0.001$). C-reactive protein and homeostatic model assessment of insulin resistance partially accounts for the statistical association between menopause and depression ($P < 0.0001$). **CONCLUSION:** Age at menopause is inversely associated with depression in women older than 60 years. This relationship is statistically accounted for by the role of inflammation and insulin resistance. Self-reported hormone therapy is not associated with depression in postmenopausal women.

24. Vaginal use of estradiol is associated with a reduced risk of rectal cancer in postmenopausal women: A Finnish nationwide case-control study.

Authors: Siitonen, Heli; Joensuu, Johanna M.; Savolainen-Peltonen, Hanna; Gissler, Mika; Mikkola, Tomi S. and Ylikorkala, Olavi

Publication Date: Jan ,2026

Journal: Maturitas 204, pp. 108802

Abstract: OBJECTIVE: We assessed the impact of vaginal estradiol on the risk of rectal cancer. **STUDY DESIGN:** We identified in this nationwide case-control study primary rectal cancer cases with five age-matched control cases in 1994-2019 from our dataset of 1.1 million Finnish postmenopausal women. We excluded users of systemic hormone therapy. Then we traced users of vaginal estradiol (10-25 mcg twice a week) from the reimbursement register in 1994-2013, a period in which users could be accurately traced in the database (which was not the case for 2014-2019). **MAIN OUTCOME MEASURES:** Odds ratios with 95 % confidence intervals were calculated for rectal cancer risk with adjusted logistic regression models separately for vaginal estradiol users in 1994-2013 (1640 cases, 7889 controls) and for the whole study period of 1994-2019 (2853 cases, 13865 controls). **RESULTS:** During follow-up, 494 rectal cancer patients (17 %) and 2826 controls (20 %) used vaginal estradiol ($p < 0.001$). Users were diagnosed with rectal cancer on average nine years later than non-users (73.9 vs 65.1 years, $p < 0.001$). Use for ≥ 3 years was associated with a reduced risk of rectal cancer (OR 0.79, 95 % CI 0.63-0.97) in the 1994-2013 cohort. In the extended 1994-2019 follow-up, risk reductions were similar (0.79, 0.68-0.92), appeared already with < 3 years' use (0.85, 0.74-0.97), and persisted for up to 5 years after cessation of vaginal estradiol (0.80, 0.71-0.91). **CONCLUSIONS:** Vaginal estradiol use may be associated with a reduced risk of rectal cancer - perhaps due to estradiol infiltration into the rectal mucosa. This possible protecting effect

could be an important additional health benefit of vaginal estradiol.

25. **Genitourinary syndrome of menopause (GSM): recommendations from the Fifth International Consultation on Sexual Medicine (ICSM 2024)**

Authors: Simon, James A.;Nappi, Rossella E.;Chedraui, Peter;Clark, Amanda L.;Gompel, Anne;Nasreen, Shaikh Zinnat Ara;Palacios, Santiago and Wolfman, Wendy

Publication Date: Jan 02 ,2026

Journal: Sexual Medicine Reviews 14(1)

Abstract: INTRODUCTION: Genitourinary syndrome of menopause (GSM) encompasses a cluster of sexual symptoms like dyspareunia associated with genital and urinary symptoms like urinary urgency, which may be variably reported in the clinical setting. **OBJECTIVES:** To provide a comprehensive guide for healthcare professionals (HCPs) in sexual medicine, helping them effectively recognize and manage GSM, a very common chronic and progressive condition with an impact on quality of life and intimate relationships. **METHODS:** An expert committee, invited from seven countries by the 5th International Consultation on Sexual Medicine (ICSM), was comprised of eight researchers and clinicians with expertise in menopause medicine, for the purpose of reviewing and grading the scientific evidence on nosology, etiology, diagnosis, and treatment of GSM. **RESULTS:** Presence of at least one GSM symptom ranges from 14% to 87% in postmenopausal women, with vaginal dryness and dyspareunia being the two most common symptoms. A summary of the recommendations on GSM management deriving from the evaluation of data, subject to its quality published in the scientific literature, is provided. **CONCLUSIONS:** GSM is a relatively new disorder with an expanded definition to further the older long-recognized condition of vulvovaginal atrophy (VVA) in postmenopausal women to include urinary symptoms and anchor the disorder to menopause and the hypoestrogenic state. This new disorder has provided renewed incentives to formalize a significant amount of multidisciplinary research in the last decade. However, many areas ranging from epidemiology to tailored effective and safe treatment options in clinical practice still require in-depth additional investigations.

26. **The effect of leisure-time physical activities on bone mineral density in postmenopausal women: Systematic review and meta-analysis.**

Authors: Siyahtas, Anil;Sayin, Elif Unlugedik and Kurnaz, Dondu

Publication Date: Jan ,2026

Journal: Archives of Gerontology & Geriatrics 140, pp. 106054

Abstract: The aim of this systematic review and meta-analysis was to evaluate the impact of leisure-time physical activity (LTPA) on bone mineral density (BMD) in postmenopausal women. The protocol was developed according to PRISMA guidelines and registered in PROSPERO. Searches were conducted from January to February 2025 across PubMed, The Cochrane Library, EBSCO, Web of Science, PsycINFO, Scopus, National Thesis Center, TR Index, and Turkiye Clinics search engines. The methodological quality of the studies was

assessed using the RoB-2 tool. Data were pooled through meta-analysis, and certainty of evidence was appraised using GRADE. 13 findings of 12 studies with a total sample size of 9836 were included in the meta-analysis. BMD across multiple anatomical sites remained stable in intervention groups, but declined in controls, although differences were not statistically significant ($p > 0.05$). Subgroup analyses suggested varying effectiveness by activity type, ranking them as follows: Structured physical activity modalities > Tai Chi > Pilates = Handball > Step/Dance. Intervention duration appeared most favorable at 6 months, followed by 3, 12, and 9 months. LTPA does not significantly increase BMD overall in postmenopausal women, yet may help maintain bone mass and exert localized benefits depending on activity type and duration. These findings underscore the potential role of structured exercise in mitigating age-related bone loss, although further high-quality trials are warranted.

27. Impact of sleep disturbances on health-related quality of life in postmenopausal women: a systematic review.

Authors: Soares, Claudio N.;Bajbouj, Malek;Schoof, Nils;Kishore, Amit and Caetano, Cecilia

Publication Date: Jan 01 ,2026

Journal: Menopause 33(1), pp. 118–128

Abstract: IMPORTANCE: Sleep disturbances are common during and after the menopause transition, with potential effects on morbidity and quality of life; however, they may be underdiagnosed and undertreated. **OBJECTIVE:** We carried out a systematic literature review to investigate the prevalence and impact of sleep disturbances associated with menopause on women's health-related quality of life across the stages of menopause. **EVIDENCE REVIEW:** Searches were conducted in PubMed and Excerpta Medica Database to identify articles published between 2013 and 2023 containing evidence for the impact of sleep quality on health-related quality of life and the epidemiology of sleep disturbances in women in menopause. **FINDINGS:** In total, 29 publications focusing on epidemiological outcomes of sleep disturbances and 28 studies focusing on the impact of sleep quality on health-related quality of life were identified. Overall, these studies confirmed the high prevalence of sleep disturbances in postmenopausal women. Risk factors for sleep disturbances included menopausal status, depression, vasomotor symptoms, high glycemic index diets, and age. Notably, sleep disturbances were identified even in the absence of vasomotor symptoms. Sleep disturbances were significantly associated with impaired menopause-specific and general health-related quality of life, including depression, anxiety, and musculoskeletal pain. Sleep disturbances were also associated with reduced work productivity and the ability to perform daily activities. **CONCLUSIONS AND RELEVANCE:** Healthy sleep is important at all life stages, including during menopause. Our review indicates that sleep disturbances are highly prevalent during postmenopausal years, even among women without vasomotor symptoms, and can severely impact women's well-being and quality of life. This study highlights the importance of promoting increased awareness and developing tailored treatment strategies for sleep disturbances in midlife and beyond.

28. Exploring Perimenopausal and Menopausal Women's Oral Health Perceptions and Practices in Australia-A Qualitative Study.

Authors: Thomas, Namitha;Peters, Kath;Reilly, Kate O';Sousa, Mariana S. and George, Ajesh

Publication Date: 2026

Journal: Gerodontology

Abstract: OBJECTIVE: To explore the perceptions and practices of women in peri/menopause towards oral healthcare in Australia. **BACKGROUND:** Hormonal changes associated with peri/menopause create a period where women may be more prone to developing oral health problems, which can significantly impact their quality of life. While healthcare providers are capable of addressing women's oral health needs across various life stages, limited evidence exists on the management of oral health by women in peri/menopause and the role of non-dental healthcare providers in promoting oral health. **MATERIALS AND METHODS:** Seventeen semi-structured interviews were conducted with Australian women in peri/menopause using maximum variation and snowball sampling. A hybrid thematic analysis was used to construct themes and subthemes. **RESULTS:** Women who self-identified as being in peri/menopause with an age range of 43-59 years and residing across different Australian states participated in the study. Dry mouth was the most commonly reported oral health issue by participants, followed by tooth sensitivity, tooth decay, gum problems, and bad breath. Participants reported that these oral health problems impacted their mental health, lifestyle, and dietary choices. Barriers such as cost, lack of awareness of the impact of peri/menopause on oral health, systemic illness, carer responsibilities, and limited support from healthcare providers, including dentists, restricted participants in accessing oral healthcare. Women suggested that raising awareness, providing cost-effective dental services, and oral health promotion through their health care providers are needed to overcome the oral health challenges women face in peri/menopause. **CONCLUSION:** Women undergoing peri/menopause may experience greater susceptibility to oral health problems and encounter a range of challenges in managing their oral healthcare. These findings underscore the need for clinically informed, patient-centred strategies, including proactive screening, tailored preventive guidance, and improved access to care to support oral health during this transitional stage.

29. Hormone Replacement Therapy is Associated With Reduced Rates of Otologic Surgery in Postmenopausal Women.

Authors: Wang, Naomi C.;Oliver, Jamie R.;VandeVelde, Cole W.;Farrokhian, Nathan;Lin, James and Villwock, Jennifer A.

Publication Date: Feb 01 ,2026

Journal: Otology & Neurotology 47(2), pp. e358–e361

Abstract: OBJECTIVE: To evaluate the association between hormone replacement therapy (HRT) use and the likelihood of undergoing otologic surgery in postmenopausal women with otitis media. **STUDY DESIGN:** Retrospective cohort study. **SETTING:** TriNetX Global Collaborative Network, aggregating electronic health records from multiple health care settings. **PATIENTS:** Women aged 55 years or older with a diagnosis of otitis media and no prior ear surgery were included. After 1:1 propensity score matching by age and race, 2 cohorts were generated: HRT users (n=23,614) and nonusers (n=23,614). **INTERVENTIONS:**

Exposure to HRT. **MAIN OUTCOME MEASURES:** Incidence of otologic procedures (tympanostomy, myringotomy, tympanoplasty, and mastoidectomy) and a composite surgical outcome over a 5-year period. **RESULTS:** HRT use was significantly associated with reduced risk of all assessed otologic procedures. The incidence of composite ear surgery was 1.3% in the HRT group versus 2.8% in the non-HRT group [absolute risk reduction (ARR) 1.5%, odds ratio (OR) 0.467; 95% CI: 0.408-0.535; P <0.001]. ORs for specific procedures were similarly reduced in the HRT group (all P <0.001): tympanostomy (ARR: 1.0%, OR: 0.466), myringotomy (ARR: 0.3%, OR: 0.478), tympanoplasty (ARR: 0.3%, OR: 0.502), and mastoidectomy (ARR: 0.2%, OR: 0.494). **CONCLUSIONS:** Among postmenopausal women with otitis media, HRT use was associated with a 50%-55% reduction in the odds of undergoing ear surgery over 5 years. This study is the first to demonstrate a potential protective effect of HRT on the need for surgical intervention in otologic disease. Further investigation is warranted to explore underlying mechanisms and clinical implications.

30. Association between childbearing history and depressive symptoms in postmenopausal women: analysis of data from NHANES 2005-2018.

Authors: Zhu, Linling; Yang, Xinyun and Zhang, Dan

Publication Date: Feb ,2026

Journal: Psychiatry Research 356, pp. 116882

Abstract: BACKGROUND: Depression is common in postmenopausal women, yet the link with childbearing history remains poorly understood. **METHODS:** A total of 7387 postmenopausal women were enrolled, gathered from NHANES spanning 2005 to 2018. Multivariable logistic regression models were applied to evaluate the associations between depressive symptoms and both the timing and number of live births. **RESULTS:** After adjusting for potential confounding variables, women with first live birth at the age of ≥ 30 years had 44 % (OR: 0.56, 95 %CI: 0.31-1.00) decreased risk of depressive symptoms, compared to those with first live birth at the age of <20 years. Similarly, compared to women with last live birth at the age of <30 years, those with last live birth at $30 \leq < 35$ years showed a decreased risk of depressive symptoms (OR: 0.75, 95 %CI: 0.56-0.99, p=0.046). On the other hand, after correction for a variety of potential confounding variables, the number of pregnancies and the number of live births showed no significant association with depressive symptoms in postmenopausal women. **CONCLUSIONS:** The ages at first and last live birth, rather than the number of pregnancies and the number of live births, are associated with depressive symptoms during the postmenopausal period. This distinction is crucial for developing targeted interventions and support systems to enhance mental health in postmenopausal women.

31. U-shaped association between sleep duration and depression among postmenopausal women: Evidence from a population-based study.

Authors: Zhu, Yue; Chen, Feng; Fang, Xianyu; Liang, Nina; Na, Guanqiong and Liu, Zhipeng

Publication Date: Mar 15 ,2026

Journal: Journal of Affective Disorders 397, pp. 120934

Abstract: BACKGROUND: Sleep disturbances and depression are prevalent among postmenopausal women, yet their relationship remains unclear. This study investigated the association between sleep duration and depressive symptoms, including severity. **METHODS:** This study utilized data from a large nationwide health survey conducted in the U.S between 2007 and 2016, encompassing 4891 eligible postmenopausal women. Depression was assessed using the PHQ-9, and sleep duration was categorized as 8 h (long). Weighted logistic and multinomial logistic regressions, generalized additive models (GAM), two-piecewise regression, and restricted cubic spline analyses were performed, along with mediation and sensitivity analyses. **RESULTS:** The prevalence of depression was 12.2 %. Compared with 7-8 h, both insufficient and long sleep were associated with higher odds of depression (OR = 2.313, 95 % CI: 1.667-3.211; OR = 1.600, 95 % CI: 1.129-2.268). Insufficient sleep showed a dose-response relationship with depressive severity: mild (OR = 1.531), moderate (OR = 2.144), moderately severe (OR = 3.124), and severe (OR = 4.760) (all $P < 0.001$). Long sleep was related to mild (OR = 1.418), moderately severe (OR = 2.398), and severe depression (OR = 3.282). A U-shaped association was observed, with an inflection at 7.5 h (P for nonlinearity < 0.001). The neutrophil-to-lymphocyte ratio showed no mediating effect ($\beta = 0.000042$, $P = 0.708$). **CONCLUSION:** Sleep duration shows a U-shaped association with depression in postmenopausal women. Both insufficient and long sleep are associated with greater odds of depression, indicating that sleep duration may be a potentially modifiable correlate of depression.

32. Menopause hormone therapy and risk of mild cognitive impairment or dementia: a systematic review and meta-analysis

Authors: Melville, Melissa;He, Lexi;Desai, Roopal;Nyamayaro, Primrose;Fox, Chris;Kothari, Kavita U.;Condron, Patrick;Miao, Miao;Hickey, Martha and Spector, Aimee

Publication Date: 2025

Journal: The Lancet Healthy Longevity 6(12)

Abstract: Background: Globally, dementia disproportionately affects women. Changes in circulating sex steroids over the menopause transition might contribute to this sex difference. Menopause hormone therapy (MHT) is recommended by the UK National Institute for Health and Care Excellence to manage menopausal symptoms, but whether MHT use affects dementia risk and how this association might vary by age at menopause is unclear. We aimed to assess whether MHT (vs no MHT) affects the risk of mild cognitive impairment or dementia in peri-menopausal or post-menopausal women, including those with premature ovarian insufficiency or early menopause (with normal cognition or mild cognitive impairment), and whether MHT type, duration, or age at initiation influence this risk.

Methods: We systematically searched MEDLINE via OVID, Embase via Elsevier, Cochrane via OVID, and PsycINFO via OVID for systematic reviews published between Jan 1, 2000, and Dec 19, 2024. As no existing review met our quality or scope criteria, we proceeded to conduct a systematic review and meta-analysis of primary studies published from Jan 1, 2000, to Oct 20, 2025. Eligible primary studies included randomised controlled trials (RCTs), non-randomised intervention studies, and prospective observational studies examining the association between MHT—including oestrogen-only MHT, combined MHT, testosterone, and

tibolone—and incident mild cognitive impairment or dementia. Two reviewers independently screened studies, extracted data, and assessed risk of bias using RoB 2 and ROBINS-E, with certainty of evidence rated using GRADE. Meta-analyses pooled relative risk estimates in a random-effects model. The protocol was preregistered on PROSPERO (CRD42025639384).

Findings: Of 5914 records, ten studies (one RCT and nine observational studies) with a total of 1 016 055 participants were included. Certainty of evidence ranged from moderate to very low. No included studies examined testosterone or use in premature ovarian insufficiency. No significant association was found between MHT use and risk of mild cognitive impairment or dementia. Subgroup analyses by timing, duration, and type of MHT showed no significant effects.

Interpretation: This review found no evidence that MHT use either increases or decreases the risk of dementia in post-menopausal women. This reinforces current clinical guidance, that MHT prescription should be based on other perceived benefits and risks and not for dementia prevention. High-quality, long-term studies are needed to clarify the role of MHT and dementia risk, particularly regarding formulation, dose, route, timing, and duration of treatment, with a focus on women with premature ovarian insufficiency, early menopause, or mild cognitive impairment.

In the news

Menopause and prostate conditions prioritised for NHS’s new online hospital

NHS England, 5 January 2026

“Menopause and prostate problems will be among the priorities for the NHS’s revolutionary new online hospital when it launches next year.”

<https://www.england.nhs.uk/2026/01/menopause-and-prostate-conditions-prioritised-for-nhss-new-online-hospital/>

What is ‘menopause washing’ and how can nurses challenge it?

Madeleine Anderson, 12 January 2026

“Women seeking help for menopausal symptoms are increasingly being persuaded to buy supplements that are of no benefit, as part of a worrying process of ‘menopause washing’ by industry, a nurse specialist has warned.”

<https://www.nursinginpractice.com/clinical/womens-health/what-is-menopause-washing-and-how-can-nurses-challenge-it/>

Sources used:

The following were used in the creation of this bulletin: MEDLINE, Emcare, and Google.

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