Menopause

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February 2025

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- **Quickfire health literacy – getting your message across**
  30 minutes. Learn about the communication barriers patients may encounter, and ways to ensure they get the most from their care.
  Next session 17th February @ 11am

Research

1. **Association of Depression with Age at Natural Menopause: A Cross-Sectional Analysis with NHANES Data.**

Authors: An, Shuaiqi;Ren, Shiyan;Ma, Jiawen and Zhang, Yizhou

Abstract: Purpose: To evaluate the association between depression and age of natural menopause in American women. **Patients and Methods**: This cross-sectional study utilized eight cycles of the National Health and Nutrition Examination Survey (NHANES) conducted from 2005 to 2023. We assessed depression using the Patient Health Questionnaire-9 (PHQ-9). We obtained ANM information from the Reproductive Health questionnaire. We screened menopausal women between the ages of 40 and 70 years, excluding those with surgical menopause. We used multivariable logistic regression models to investigate the association between depression and ANM. Additionally, we conducted subgroup analyses and interaction tests. **Results**: A total of 4732 women were included, and the mean age of natural menopause was 47.9 ± 6.8 years. Of these, 1123 (23.7%) were classified as early menopause, 2971 (62.8%) as normal menopause, and 638 (13.5%) as late menopause. Preliminary analysis showed a positive association between PHQ-9 score and the risk of early menopause (OR = 1.11, 95% CI = 1.06-1.16). After full adjustment in multivariate logistic regression, it was estimated that each one-unit increase in the PHQ-9 score was associated with a 7% increased risk of early menopause (OR = 1.07, 95% CI = 1.02-1.12). After classifying depression into three grades: no, mild, and severe, it was found that, compared with American women without depression, the risk of early menopause increased significantly. American women with major depression had an increased risk of early menopause (OR = 2.49, 95% CI = 1.10-5.63). In College or above (OR = 1.10, 95% CI = 1.02-1.19), PIR≤1 (OR = 1.10, 95% CI = 1.04-1.16), Current smoker (OR = 1.12, 95% CI = 1.00-1.24), the positive association between depression and early menopause was more significant. **Conclusion**: In this cross-sectional study, the severity of depression in American women was positively correlated with the risk of early menopause. This suggests that women should pay more attention to their mental health and actively manage depression. For women with depression, early intervention and treatment may help improve their reproductive health and delay menopause. Copyright © 2025 An et al.

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2. **Clustering of > 145,000 symptom logs reveals distinct pre, peri, and menopausal phenotypes.**

Authors: Aras, Shravan G.;Grant, Azure D. and Konhilas, John P.

Abstract: The transition to menopause is associated with disappearance of menstrual cycle symptoms and emergence of vasomotor symptoms. Although menopausal women report a

variety of additional symptoms, it remains unclear which emerge prior to menopause, which occur in predictable clusters, how clusters change across the menopausal transition, or if distinct phenotypes are present within each life stage. We present an analysis of symptoms in premenopausal to menopausal women using the MenoLife app, which includes 4789 individuals (23% premenopausal, 29% perimenopausal, 48% menopausal) and 147,501 symptom logs (19% premenopausal, 39% perimenopausal, 42% menopausal). Clusters generated from logs of 45 different symptoms were assessed for similarities across methods: hierarchical clustering analysis (HCA), K-Means clustering of principal components of symptom reports, and binomial network analysis. Participants were further evaluated based on menstrual cycle regularity or natural versus medically induced menopause. Menstrual cycle-associated symptoms (e.g., cramps, breast swelling), digestive, mood, and integumentary symptoms were characteristic of premenopause. Vasomotor symptoms, pain, mood, and cognitive symptoms were characteristic of menopause. Perimenopausal women exhibited both menstrual cycle-associated and vasomotor symptoms. Subpopulations across life stages presented with additional correlated mood and cognitive, integumentary, digestive, nervous, or sexual complaints. Symptoms also differed among women depending on the reported regularity of their menstrual cycles or the way in which they entered menopause. Notably, we identified a set of symptoms that were very common across life stages: fatigue, headache, anxiety, and brain fog. Finally, we identified a lack of predictive power of hot flashes for any symptom except night sweats. Together, premenopausal women exhibit menstrual cycle-associated symptoms and menopausal women reported vasomotor symptoms, while perimenopausal women report both. All report high rates of fatigue, headache, anxiety, and brain fog. Limiting focus of menopausal treatment to vasomotor symptoms, or to premenstrual syndrome in premenopausal women, neglects a large proportion of overall symptom burden. Future interventions targeting mood and cognition, digestion, and the integumentary system are needed across stages of female reproductive life. Copyright © 2025. The Author(s).

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3. **Menopausal symptoms in breast cancer survivors on adjuvant endocrine therapy compared with those of menopausal women.**

Authors: Asinaro G.;Massarotti C.;Xholli A.;Londero A.P.;Lambertini M.;Anserini P.;Del Mastro L. and Cagnacci, A.

Abstract: Objectives: To compare menopausal symptoms of breast cancer survivors on adjuvant endocrine therapy with those of menopausal women. Study design: In a retrospective nested case-control study menopausal symptoms were compared of breast cancer survivors in pre-, peri- or post-menopause at the time of diagnosis, on tamoxifen or an aromatase inhibitor, plus a gonadotrophin-releasing hormone analogue, if pre- or peri-menopausal, and age-matched control women either in the late peri-menopause, or in surgical or in physiological post-menopause on no hormone replacement therapy. Differences between women on tamoxifen and those on aromatase inhibitors were also evaluated. Weighted and non-weighted t-tests, chi-square tests, and linear or logistic regressions were applied as appropriate. Main outcome measures: Score on the Greene's Climacteric Scale and so of its subscales

evaluating vasomotor, anxiety, depression, somatisation and sexuality symptoms. Results: A total of 99 breast cancer survivors (45 on tamoxifen, 54 on aromatase inhibitors) and 554 controls (173 in late perimenopause, 353 in natural and 28 in surgical menopause) were enrolled. The score on the Greene's Climacteric Scale was similar in cases and controls (means ± standard deviation) (21.3 ± 10.4 vs. 22.8 ± 11.5, p = 0.199), as were the subscale scores for vasomotor symptoms, anxiety, and somatisation. The depression score was lower (4.63 ± 3.3 vs. 5.98 ± 3.8; p = 0.001) in breast cancer survivors on adjuvant endocrine therapy, mainly due to a lower score of -2.132 (95 % confidence interval - 3.858/-0.407; p = 0.016) for users of aromatase inhibitors. The sexuality score was higher (1.76 ± 1.1 vs. 1.50 ± 1.1, p = 0.011) than in controls. Differences remained significant when corrected for age, menarche, body mass index, menopausal status (peri- or post-), type of menopause (natural, surgical), use of gonadotrophin-releasing hormone analogues, years of amenorrhea, smoking, alcohol use, and for breast radiotherapy, chemotherapy, tamoxifen or aromatase inhibitors. Among breast cancer survivors, women on aromatase inhibitors had lower scores for anxiety (5.75 ± 2.5vs.5.75 ± 2.5; p = 0.045) and depression (3.89 ± 2.5 vs. 5.13 ± 3.6; p = 0.046) than women on tamoxifen. Conclusions: In breast cancer survivors, adjuvant therapy induces symptoms similar in type and intensity to those of symptomatic menopausal women. Compared with menopausal women, breast cancer survivors, particularly those on aromatase inhibitors, appear to experience less severe depressive symptoms.

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4. **A bio-psycho-social investigation of menopause transition and job satisfaction.**

Authors: Atkinson C.;Carmichael F. and Duberley, J.

Publication Date: 2025

Journal: Maturitas 193(pagination), pp. Article Number: 108187. Date of Publication: February 2025

Abstract: Objectives: To examine the implications of menopause transition for job satisfaction within a framework that integrates bio-psycho-social factors and effects. Study design: The study analyses quantitative and qualitative data from a survey of 1684 women in three UK police forces, where growing numbers work during menopause transition within what has been termed a hyper-masculine culture. Results: We evidence that job satisfaction is negatively impacted by experience of menopause symptoms. Attitudes towards age and menopause are also important: job satisfaction is lower for peri- and post-menopausal women with negative attitudes and higher for women with more positive and open attitudes. Some workplace factors such as shift working and the gender balance of the workplace also have a significant impact on the job satisfaction of women transitioning menopause. Conclusion: Our results highlight the need for human resource practices that go beyond the typical focus on symptoms. Support mechanisms need to address attitudes towards menopause and develop more inclusive workplaces in order to maintain women's job satisfaction and retain them in the workplace during menopause transition.

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5. **Prevalence and predictors of genitourinary syndrome of menopause: a population-based study in middle-aged Brazilian women.**

Authors: Bevilacqua, Mariana Rosa Ribeiro;Costa-Paiva, Lucia and Pedro, Adriana Orcesi

Abstract: OBJECTIVE: This study aimed to determine the prevalence and predictors of genitourinary syndrome of menopause (GSM) in Brazilian women. **METHODS**: A cross-sectional population-based household survey was conducted among 749 women aged 45 to 60 years. The dependent variable was the presence of GSM, which was assessed using a pretested structured questionnaire. The independent variables included sociodemographic data, health-related habits and morbidities, self-perception of health, and gynecological background. **RESULTS**: The mean age of the participants was 52.5 +/- 4.4 years, and the mean age of menopause was 46.4 +/- 6.2 years. GSM was prevalent in 51.4% of the women. The most prevalent symptoms were dyspareunia (35%), daily vaginal dryness (25.1%), and intercourse vaginal dryness (24%). Poisson regression analysis demonstrated that global GSM was associated with having a partner, topical estrogen treatment (TET), depression/anxiety, and rheumatological diseases. The genital symptoms of GSM were related to peri/postmenopausal status, TET, multimorbidity, sexual activity, and the absence of vaginal birth. Factors associated with GSM urinary symptoms were negative self-perception of health, having at least one vaginal birth, depression/anxiety, and rheumatological diseases. Sexual symptoms were associated with having a partner, using TET, depression/anxiety, and rheumatic disease. GSM affected the lives of 42.8% of the women to some degree, and 43% discussed their symptoms with their gynecologists. **CONCLUSIONS**: GSM was prevalent in half of the women in this study, and several factors were associated with its presence. These results highlight the compelling need to understand these factors, improve diagnoses, and increase access to treatment. Copyright © 2025 by The Menopause Society.

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6. **Microbiota analysis of perimenopausal women experiencing recurrent vaginitis in conjunction with urinary tract infection.**

Authors: Bi, Yingying;Wang, Yuezhu;Li, Wu;Chen, Yuhang;Qin, Jinlong and Zheng, Huajun

Abstract: BACKGROUND: Recurrent vaginitis in conjunction with urinary tract infection (RV/UTI) in perimenopausal women is a common clinical condition that impacts both doctors and patients. Its pathogenesis is not completely known, but the urogenital microbiota is thought to be involved. We compared the urogenital and gut microbiotas of perimenopausal women experiencing RV/UTI with those of age-matched controls to provide a new microbiological perspective and scheme for solving clinical problems. **RESULTS**: Fifty women of perimenopausal age who were diagnosed with RV/UTI and 50 age-matched healthy controls were enrolled. The urogenital and intestinal microbiota were analyzed via 16S ribosomal RNA gene sequencing by collecting samples from the mouth, anus, urine, cervix, and upper and lower vaginal ends. Among the microbiota of healthy perimenopausal women, the mouth had the highest richness, whereas the anus and mouth had the highest levels of diversity. Compared with those in healthy controls, in the microbiota of patients with RV/UTI, the evenness of the upper vaginal end, anus and cervix significantly increased, whereas the

richness and diversity of the cervix significantly decreased. Lactobacillus accounted for 40.65% of the bacteria in the upper vaginal end and 39.85% of the bacteria in the lower vaginal end of healthy women of perimenopausal age, and there were no significant differences in Lactobacillus abundance among the patients with RV/UTI. The relative abundances of 54 genera and 97 species were significantly different between patients and healthy individuals, particularly in the cervix and urine. A total of 147 predicted pathways were significantly different between patients and healthy controls, with the microbiota of the anus exhibiting the greatest number of functional changes, followed by the urine microbiota. A random forest model composed of 16 genera in the lower vaginal end had the highest discriminatory power (AUC 81.48%) to predict RV/UTI. **CONCLUSIONS**: Our study provides insight into the nature of the urogenital and intestinal microbiota in perimenopausal women, and reveals significant changes in the microbiota in patients with RV/UTI. This information will help characterize the relationship between the urogenital microbiota and RV/UTI, potentially aiding in the development of diagnostic and therapeutic strategies. Copyright © 2024. The Author(s).

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7. **Unilateral Oophorectomy and Age at Natural Menopause: A Longitudinal Community-Based Cohort Study.**

Authors: Brennand E.A.;Scime N.V.;Manion R. and Huang, B.

Publication Date: 2025

Journal: BJOG: An International Journal of Obstetrics and Gynaecology 132(3), pp. 337–345

Abstract: Objective: To determine the association between unilateral oophorectomy (UO) and age at natural menopause. Design: Secondary analysis of survey data from Alberta's Tomorrow Project (2000–2022). Setting: Prospective cohort study in Alberta, Canada. Population: 23 630 women; 548 experienced UO and 23 082 did not experience UO. Methods: Flexible parametric survival analysis was used to analyse age at natural menopause, and logistic regression was used to analyse early menopause and premature ovarian insufficiency by UO status, controlling for birth year, parity, age at menarche, past infertility, hormonal contraceptive use and smoking. Main Outcome Measures: Age at natural menopause occurred by a final menstrual period without medical cause and sub-classified as early menopause (< 45 years) and premature ovarian insufficiency (< 40 years). Results: Compared to no UO, any UO was associated with elevated risk of earlier age at natural menopause, which was strongest in early midlife (adjusted HR at age 40 1.71, 95% CI 1.31–2.19) and diminished over time. Compared to age 55 years at UO, risks of earlier age at natural menopause were largest and uniform in magnitude when UO occurred between approximately ages 20–40 years (adjusted HR for UO at age 30 2.32, 1.46–3.54) and then diminished as age at UO approached the average age at natural menopause. Any UO was associated with higher odds of early menopause (adjusted OR 1.90, 1.30–2.79) and premature ovarian insufficiency (adjusted OR 3.75, 1.72–8.16). Conclusions: Unilateral oophorectomy is associated with earlier age at natural menopause, particularly when performed before 40 years of age.

8. **Association of Menopause and Rhinitis Among Adult Women in the United States: Findings from the All of Us Research Program.**

Authors: Chiu, Richard G.;Eldeirawi, Kamal;Dick, Anthony I.;Nyenhuis, Sharmilee M.;Vajaranant, Thasarat Sutabutr;Caskey, Rachel and Lee, Victoria S.

Publication Date: 2025

Journal: Laryngoscope

Abstract: OBJECTIVE: The inflammatory role of female hormones has been garnering increased attention in the literature. Studies suggest a link between estrogen and inflammatory conditions of the airways and nasal mucosa. However, there remains a paucity of literature regarding the associations of hormones with rhinitis. Given the profound hormonal changes that occur during menopause, we sought to better understand the association between menopause and rhinitis. **METHODS**: Data from the All of Us Research Program regarding rhinitis diagnoses, menopause status, demographic variables, socioeconomic status, and comorbidities were extracted for female participants aged 40-60. Crude odds ratios (cORs) and 95% confidence intervals (CIs) were calculated for unadjusted associations between menopause and rhinitis. Variables were then included in multivariable logistic regression models, with separate models for allergic rhinitis (AR) and nonallergic rhinitis (NAR) as the outcome variables. Adjusted odds ratios (aOR) and 95% CI were calculated. **RESULTS**: We identified 40,875 female participants aged 40-60 without any missing data. Compared with participants without rhinitis, a greater proportion of those with AR (51.6% vs. 55.6%; cOR: 1.18; 95% CI: 1.11-1.25) and NAR (51.6% vs. 58.9%; cOR: 1.34; 95% CI: 1.11-1.63) had experienced menopause. However, after controlling for covariates, menopause was associated with a decreased odds of AR (aOR: 0.89; 95% CI: 0.82-0.96) and not associated with NAR (aOR: 0.98; 95% CI: 0.77-1.24). **CONCLUSION**: Menopause was independently associated with a decreased odds of AR but was not associated with NAR. Research should aim to further examine these relationships and hormonal mechanisms underlying the observed protective associations. **LEVEL OF EVIDENCE**: 3 Laryngoscope, 2025.

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9. **The Impact of Menopause on the Mental Health of Women With an Intellectual Disability: A Scoping Review.**

Authors: Corrigan S.;McCarron M.;McCallion P. and Burke, E.

Publication Date: 2025

Journal: Journal of Applied Research in Intellectual Disabilities 38(1) (pagination), pp. Article Number: e70017. Date of Publication: January 2025

Abstract: Background: Negative mental health implications of menopause found in the general population, combined with high rates of mental health conditions found in women with intellectual disabilities, provide rationale to examine the existing literature to determine the impact of menopause on women with intellectual disabilities. Methods: The review was

conducted using scoping review methodology by Arksey and O'Malley. A systematic search was conducted across multiple databases. Relevant articles were screened according to inclusion/exclusion criteria. Braun and Clarke's thematic analysis was utilised to identify themes. Results: After screening, eight articles satisfied the inclusion/exclusion criteria, and after thematic analysis, themes found were: changes in mood, lack of reporting of psychological symptoms and difficulty attributing psychological symptoms to menopause. Conclusions: Findings indicate the paucity of literature and the lack of attention paid to examining the impact of menopause on the experiences and mental health of women with intellectual disabilities.

10. "What women want": Focus group discussions to inform the design of nutrition resources for women impacted by menopause following cancer treatment.

Authors: Cushen S.J.;Murphy M. and Johnston, K. E.

Publication Date: 2025

Journal: Clinical Nutrition Open Science 59, pp. 189–205

Abstract: Background and Aims: Menopause, as a direct result of cancer treatment, is a significant issue facing many female survivors. Uncertainty related to dietary choices to manage menopausal symptoms can be distressing for female cancer survivors, potentially increasing the risk of developing comorbid conditions and reducing quality of life. The aim of this study was to assess the burden of menopausal symptoms, explore the nutritional information needs of cancer survivors and their preferences for the mode of delivery to inform future interventions on nutrition. Methods: A qualitative study using focus groups (n=3) was conducted with female cancer survivors (aged ≥18 years). Cancer survivors were defined as women diagnosed with cancer at any stage, including those undergoing active treatment or with a past cancer history, who were experiencing menopausal symptoms as a result of their cancer treatment. Results: Participants (n=16) were survivors of breast (n=14), ovarian (n=1) and endometrial (n=1) cancer. Mean age was 50.4 years (SD= 6.4). Four major themes emerged: (i) desire for control (ii) menopausal symptom management (iii) participants feeling lost during survivorship and (iv) the need for accessible, and tailored nutrition resources. Conclusions: Managing menopausal symptoms post-treatment can be difficult and burdensome for cancer survivors, affecting their quality of life. These women report feeling lost with significant needs for information on nutrition and supplementation related to recovery and symptom management. These women desire a menopause specific nutrition resource that is evidence-based and tailored to the needs of cancer survivors.

11. An exploration of women's occupational participation and identity during menopause: Descriptive qualitative study.

Authors: Daly R. and Hynes, S. M.

Publication Date: 2025

Journal: British Journal of Occupational Therapy (pagination), pp. Date of Publication: 2025

Abstract: Background: The menopause transition is a significant stage of a woman's life, marking the transition from reproductive to postreproductive life. Occupational identity often shifts in response to life transitions but this has not been explored in relation to menopause. Therefore, our study aims to explore women's experiences of menopause through an occupational perspective, in relation to occupational participation and occupational identity. Method: A descriptive qualitative design was implemented. Semistructured interviews were completed with five perimenopausal women online via Microsoft teams. Reflexive thematic analysis was employed to analyse data gathered. Findings: The findings of this study revealed that a lack of understanding and awareness during the initial stages of menopause negatively affected women's well-being. Women faced disruptions to their engagement in meaningful occupations, which in turn, impacted their occupational competence and occupational identity. The experience of menopausal-related changes influenced women's sense of self-efficacy in engaging in occupations and roles that aligned with their occupational identity. Conclusion: Women face significant occupational disruption during the menopause transition. Negative impacts on occupational identity and participation were evident from the participants. This study explores menopausal women's experiences from an occupational perspective and findings offer potential direction for future research.

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12. The Association of Menopausal Age with Sex Hormones and Anthropometric Measures Among Postmenopausal Women in the Multi-Ethnic Study of Atherosclerosis Study.

Authors: Ebong, Imo A.;Wilson, Machelle;Racette, Susan B.;Appiah, Duke;Schreiner, Pamela J.;Allison, Matthew;Watson, Karol;Bertoni, Alain G. and Michos, Erin D.

Abstract: Introduction: We investigated associations of menopausal age category with body mass index (BMI), waist circumference, waist-hip ratio, and waist-height ratio. We also explored the moderating effect of anthropometric measures on associations of menopausal age category with prespecified sex hormones: estradiol, dehydroepiandrosterone (DHEA), sex hormone-binding globulin, bioavailable testosterone, and total testosterone-estradiol (T/E) ratio. **Methods:** In this cross-sectional study, we included 2,436 postmenopausal women from the Multi-Ethnic Study of Atherosclerosis who had menopausal age, anthropometric, and sex hormone data at baseline. Menopausal age was categorized as =55 years (late menopause). Linear models were used for analysis. **Results:** The mean (standard deviation) age was 64.7 (9.2) years. After multivariable adjustment, women who experienced late menopause had higher waist circumference (2.28 cm), waist-hip ratio (0.013 units), and waist-height ratio (0.014 units) but not BMI than those in the referent category. The interaction terms between menopausal age category and anthropometric measures were not significant for prespecified sex hormones (all $P_{interaction}$ >0.05). When compared with the referent category, T/E ratio was 21% (4.72 - 39.8%) higher among women with late menopause while DHEA levels were 9% (1 - 16%) higher among women who experienced menopause between 45 and 49 years in multivariable adjusted models. **Conclusion:** Women with late menopause had higher abdominal adiposity but not generalized adiposity when compared with those who experienced menopause between 50 and 54 years of age. Androgenicity was higher among women who

experienced menopause between 45 and 49 years of age and those with late menopause, based on DHEA and T/E ratios, respectively.

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13. Hyaluronic acid and erbium laser for the treatment of genitourinary syndrome of menopause

Authors: Fidecicchi, Tiziana and Gambacciani, Marco

Publication Date: 2025

Journal: Climacteric 28(1), pp. 87–92

Abstract: Objective: This study aimed to evaluate the effect of the vaginal erbium laser (VEL) in association with vaginal hyaluronic acid (HA) in postmenopausal women suffering from genitourinary syndrome of menopause (GSM). Methods: One hundred sexually active postmenopausal women were selected and divided into three groups using a block randomization method; 10 women declined to participate. The remaining women received three laser applications at 30-day intervals; 22 women dropped out for personal reasons or protocol violations. Group 1 ($n = 25$) received VEL treatment (XS Fotona Smooth®; Fotona, Slovenia) alone; Group 2 ($n = 22$) received daily vaginal HA tablets for 10 days after VEL treatment, followed by a twice a week administration during the follow-up period; and Group 3 ($n = 21$) received daily HA tablets for 10 days before the first VEL treatment and for 10 days after each laser application, followed by a twice a week administration for the follow-up period. Vaginal dryness and dyspareunia were assessed at the screening visit, before VEL treatment, after 1 and 3 months from the last laser treatment, using the visual analog scale. Data were analyzed using one-way analysis of variance and a linear mixed model for repeated measures. The post-hoc test for the interaction between time and treatment was performed using Bonferroni correction. Results: A significant ($p < 0.001$) improvement in both vaginal dryness and superficial dyspareunia was evident, with greater ($p < 0.001$) improvement in Group 2 and Group 3. Conclusions: The results suggest that vaginal HA administration can improve the VEL effects on GSM in postmenopausal women.

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14. The range and variation in serum estradiol concentration in perimenopausal and postmenopausal women treated with transdermal estradiol in a real-world setting: a cross-sectional study

Authors: Glynne, Sarah;Reisel, Daniel;Kamal, Aini;Neville, Amy;McColl, Lynsey;Lewis, Rebecca and Newson, Louise

Publication Date: 2025

Journal: Menopause (10723714) 32(2), pp. 103–111

Abstract: Objectives: The aims of the study are to explore the range and variation in serum estradiol concentration, and to estimate the prevalence of "poor absorption" (women using licensed estradiol doses with subtherapeutic levels), in perimenopausal and postmenopausal women using transdermal estradiol in the real world. Methods: This is a cross-sectional analysis in a specialist menopause clinic in the UK. Results: Serum samples were obtained

from 1,508 perimenopausal and postmenopausal women. A total of 61.87% were using licensed doses. The median estradiol concentration was 355.26 pmol/L (interquartile range 198.44-646.15 pmol/L). A reference interval for the whole cohort was defined as 54.62-2,050.55 pmol/L. There was substantial interindividual variation across the dose range. Variance was greater in younger women ($P = 0.002$) and gel users ($P = 0.002$). There was a trend toward greater variance in women using higher doses, but the association failed to reach statistical significance ($P = 0.074$). One in four women (24.84%) using the highest licensed dose had subtherapeutic levels (<200 pmol/L). Older women (≥50 y) and patch users were more likely to have low levels (odds ratio 1.77, 95% confidence interval 1.22-2.62, $P = 0.003$; and odds ratio 1.51, 95% confidence interval 1.18-1.95, $P = 0.001$, respectively). Conclusions: The reference interval for perimenopausal and postmenopausal women using on-label and off-label doses of transdermal estradiol in the real world is wide, and there is considerable interindividual variation. The number of estradiol users with low estradiol levels (<200 pmol/L) is higher than previously recognized. Measurement of serum estradiol can be helpful to identify women who may benefit from an off-label dose. Dose customization is key to ensure that all women can reap the benefits of HT.

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15. **Sexual function after treatment with non-invasive radiofrequency device for improvement of the genitourinary syndrome of menopause: A multi-arm randomized clinical trial.**

Authors: Gueldini de Moraes, Anna Valeria;Costa-Paiva, Lucia;Machado, Helymar da Costa and Pedro, Adriana Orcesi

Publication Date: Jan 08 ,2025

Abstract: BACKGROUND: Several anatomical and functional changes occur during menopause and lead to female sexual dysfunction (FSD). The use of energy-based devices to improve women's sexual health brings an innovative scenario. **AIM**: To evaluate the effect of non-invasive radiofrequency (RF) treatment compared to vaginal estrogen therapy (E) and vaginal moisturizer (M) in postmenopausal women with FSD. **MATERIALS & METHODS**: Thirty-two sexually active postmenopausal women aged 45-75 years were enrolled in a single center randomized controlled trial with three intervention arms: non-invasive RF, vaginal estrogen (E), or vaginal moisturizer (M) treatment. Assessments at baseline, and 4 months were conducted using the Female Sexual Function Index (FSFI). The primary outcome of this RCT was an assessment of the effect of RF on FSD compared to that of E and M. **RESULTS**: According to the total FSFI score, 100 % of participants in the RF and E arms and 90 % in the M arm had sexual problems at the baseline. The mean age of the participants was 58+/-5.3, 57.9+/-6.3, and 59.6+/-6.0 years in the RF, E, and M arms, respectively (p = 0.741). After 4 months of follow-up, FSD had ameliorated by 146.1 % in the RF arm (improvement of 17.32 points in the total FSFI score), with no significant improvement in the other arms (p = 0.009). We observed improvements in sexual desire (1.32 points in the partial FSFI score), arousal (2.37 points in the partial FSFI score), and orgasm (2.8 points in the partial FSFI score) only in the RF arm (p = 0.004, p < 0.001, and p < 0.001, respectively). **CLINICAL IMPLICATIONS**: The use of an energy-based device independently of hormonal therapy to improve female SF

is very promising. Our findings may contribute to treatment decisions when there is failure of vaginal estrogen therapy, a need for a combination of treatments, or a patient preference for the use of energy-based devices, in postmenopausal women with FSD. **CONCLUSION**: Non-invasive RF treatment for FSD showed superior efficacy compared to vaginal estrogen therapy and vaginal moisturizer after 4 months of follow-up. Further studies with longer follow-up periods are needed to corroborate these findings and evaluate the long-term effects of non-invasive RF therapy on sexual function. Copyright © 2025 Elsevier B.V. All rights reserved.

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16. **Comparison of phenotypic and genetic traits of ESBL-producing UPEC strains causing recurrent or single episode UTI in postmenopausal women.**

Authors: Kalu, Michelle;Jorth, Peter and Wong-Beringer, Annie

Abstract: BACKGROUND: Recurrent urinary tract infections (rUTIs) occur in over 20% of patients, with postmenopausal women (over 50 years old) carrying the highest risk for recurrence compared to younger women. Virulence factors such as type 1 fimbriae adhesin FimH, the outer membrane protease OmpT, and the secreted pore-forming toxin alpha-hemolysin (HlyA) have been shown to support the formation of intracellular bacterial communities (IBCs) within bladder epithelial cells (BECs), facilitating persistence. This study aims to characterize the virulence expression and intracellular persistence of ESBL-producing uropathogenic E. coli (E-UPEC) strains isolated from postmenopausal women with recurrent or single episode infections. **METHODS**: Study strains included 72 E-UPEC strains collected from patients (36 recurrent; 36 single episode) with a confirmed UTI diagnosis and control UPEC strains (CFT073 and UTI89). Patient demographics and clinical course were collected. Presence of hlyA, ompT, and fimH genes were confirmed by colony PCR, and qRT-PCR was performed using extracted RNA from a subset of 18 strains (12 recurrent; 6 single episode) grown in Luria-Bertani media and isolated from infected BECs to characterize gene expression. Bladder cell line 5637 was infected with study strains at MOI 15 for 2 h, treated with amikacin for 2 h to remove extracellular bacteria, then lysed to enumerate intracellular CFU counts. **RESULTS**: No differences in clinical characteristics between patient groups were observed. Overall prevalence of fimH, ompT, and hlyA was 99% (71/72), 82% (59/72), and 26% (19/72) respectively; presence of all three genes did not differ between recurrent and single-episode strains. Notably, all recurrent strains had significantly more intracellular CFUs compared to single episode strains (median 16,248 CFU/mL vs. 4,118 CFU/mL, p = 0.018). Intracellular expression ompT was significantly increased (p = 0.0312) in the recurrent group compared to LB media, while fimH was significantly decreased (p = 0.0365) in the single episode group compared to expression in LB media. **CONCLUSION**: Our findings indicate strain-specific ability to persist inside BECs with the recurrent strains exhibiting increased ompT expression inside BECs and higher intracellular bacterial burden compared to strains causing single episode UTI. These results emphasize the potential microbial contributions to recurrence in postmenopausal women and warrant future investigations on the impact of antibiotic therapy and host response on IBC-supportive UPEC virulence. Copyright © 2025. The Author(s).

17. The effects of menopausal hormone therapy for the risk of systemic lupus erythematosus: A nationwide cohort study in Korea.

Authors: Kim, Ji Hyoun;Im, Yo Han;Noh, Ji Hyun and Yuk, Jin-Sung

Publication Date: Jan 30 ,2025

Journal: Seminars in Arthritis & Rheumatism 71, pp. 152632

Abstract: OBJECTIVES: This retrospective cohort study aimed to investigate the influence of menopausal hormone therapy (MHT) on the occurrence of systemic lupus erythematosus (SLE) in postmenopausal women. Additionally, the study aimed to examine the specific effects of individual MHT drugs. **METHODS**: In this population-based cohort study conducted in Korea, a total of 452,124 women aged >40 years seeking healthcare for menopause were assessed from January 1, 2011, to December 31, 2014. After employing propensity score matching, 139,331 pairs were included in the MHT and non-MHT groups. Follow-up of participants continued until December 31, 2020. The diagnosis of SLE was based on the International Classification of Diseases 10th edition criteria. **RESULTS**: The median follow-up in the study was 7.9 [6.9-8.9] years. SLE developed in 134 (0.1 %) of the 139,197 participants in the MHT group and 143 (0.1 %) of the 139,188 of the non-MHT group, individually. The risk of SLE in the MHT group did not show a significant increase compared to the non-MHT group {hazard ratio (HR) 1.114, 95 % confidence interval (CI) 0.88-1.41}. Subgroup analysis results indicated no significant differences based on the type of MHT or the duration of MHT use, except tibolone. In the group that used tibolone within 3 years, the HR for SLE risk was 1.45 (95 % confidence interval: 1.051-2.001). **CONCLUSION**: The utilization of MHT did not demonstrate a substantial impact on the development of SLE in postmenopausal women. Caution is required in the early stages of tibolone use. Copyright © 2025 Elsevier Inc. All rights reserved.

18. Exploring weight management beliefs during the menopausal transition (ME-WEL project): A qualitative comparative study based on Health Belief Model.

Authors: Leitao M.;PerezLopez F.R.;Maroco J. and Pimenta, F.

Publication Date: 2025

Journal: British Journal of Health Psychology 30(1) (pagination), pp. Article Number: e12779. Date of Publication: February 2025

Abstract: Objectives: While most women experience weight gain during the menopausal transition, a subset successfully maintains a healthy weight. This study explores the determinants influencing different weight experiences during the menopausal transition, using the Health Belief Model (HBM). Design: Qualitative design. Methods: Semi-structured individual interviews with 62 Portuguese post-menopausal women were performed. Among them, 31 women maintained a normal weight from pre-menopause to post-menopause, with a variation not exceeding 5% of pre-menopausal weight, while another 31 women transitioned from normal weight in pre-menopause to overweight or obesity in post-menopause, with an increase above 7% of pre-menopausal weight. Deductive-dominant content analysis and

multiple correspondence analysis were performed. Results: Prominent differences exist between the Unhealthy Weight Gain Group (UWG-G) and the Healthy Weight Maintenance Group (HWM-G). The UWG-G lacks perceived susceptibility in pre-menopause and perceives obesity as stigmatizing. They prioritize immediate changes as benefits, while the HWM-G focuses on self-concept. Both groups face barriers like food cravings and weight loss challenges in middle-aged. For cues to action, the UWG-G emphasizes social support and self-care resources, while the HWM-G emphasizes age progression and healthy behaviour adherence. The HWM-G presents higher self-efficacy. Conclusion: This study confirms the suitability of the HBM in understanding weight management beliefs among post-menopausal women, highlighting differences between women who maintain a healthy weight and those who experience weight gain during this life phase. This facilitates identifying key determinants (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy) crucial for future interventions in weight management.

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19. **What happens after menopause? (WHAM): A prospective controlled study of cognition 24 months after premenopausal risk-reducing salpingo-oophorectomy.**

Authors: Maki, Pauline M.;Rubin, Leah H.;Krejany, Efrosinia O.;Brand, Alison and Hickey, Martha

Abstract: OBJECTIVE: Women with BRCA1/2 pathogenic variants considering risk-reducing bilateral oophorectomy (RRSO) may be concerned about potential effects of surgical menopause on cognition. Whether RRSO affects cognition and whether hormone therapy (HT) modifies this effect remains uncertain. This study aimed to prospectively measure the effect of premenopausal RRSO on cognition and the modifying effects of HT up to 24 months. **METHODS**: The design was a prospective, multisite (4 sites in Australia), 24-month observational study. Participants were premenopausal BRCA1/2 carriers (n = 83) planning RRSO referred from gynecology-oncology and familial cancer centers and a premenopausal comparison group (n = 98) not planning oophorectomy or pregnancy who self-referred. Baseline data were collected within 8 weeks of eligibility screening, and RRSO was scheduled between baseline and 3 months. Of 687 screened, 181 were analysed. Cognitive performance (verbal learning and memory, psychomotor speed, fluency) was assessed at baseline, 3, 12 and 24 months with the a priori outcomes of verbal learning and memory. **RESULTS**: After RRSO, 65 % initiated HT. In multivariable models of group differences in cognitive performance over time, RRSO and comparison groups showed similar performance improvements except for verbal learning. The RRSO group showed a small, statistically significant lower improvement in verbal learning vs comparisons, after adjustment for HT and other factors (p = 0.03). After RRSO, verbal learning was higher in HT users vs non-users (p = 0.04). **CONCLUSIONS AND RELEVANCE**: Over 24 months RRSO minimally impacted cognition except for a small adverse effect on verbal learning, partly offset by HT. **TRIAL REGISTRATION**: Australian and New Zealand Clinical Trials Registry (anzctr.org.au); Identifier #: ACTRN12615000082505;
URL: https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=363554&isReview=true

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20. **Fezolinetant and Elinzanetant Therapy for Menopausal Women Experiencing Vasomotor Symptoms: A Systematic Review and Meta-analysis.**

Authors: Menegaz de Almeida, Artur;Oliveira, Paloma;Lopes, Lucca;Leite, Marianna;Morbach, Victoria;Alves Kelly, Francinny;Barros, Italo;Aquino de Moraes, Francisco Cezar and Prevedello, Alexandra

Publication Date: 2025

Journal: Obstetrics & Gynecology

Abstract: OBJECTIVE: To assess the efficacy and safety of fezolinetant and elinzanetant for vasomotor symptoms in menopausal women. **DATA SOURCES**: MEDLINE, EMBASE, and Cochrane databases were systematically searched until August 22, 2024. Because the Cochrane Library included all the identified randomized controlled trials (RCTs), it was unnecessary to search ClinicalTrials.gov. The following words made up the search strategy, which was applied to the three databases: fezolinetant, elinzanetant, vasomotor symptoms, and menopause. **METHODS OF STUDY SELECTION**: Only RCTs comparing fezolinetant and elinzanetant with placebo for vasomotor symptoms in menopausal women were included. **TABULATION, INTEGRATION, AND RESULTS**: We extracted the number of patients, mean age, body mass index (BMI), and number of patients who underwent oophorectomy. Data were examined with the Mantel-Haenszel method and 95% CIs. Heterogeneity was assessed with I2 statistics. R 4.3.2 was used for statistical analysis. Seven RCTs with 4,087 patients were included in the analysis. Fezolinetant and elinzanetant were associated with diminished vasomotor symptom frequency: fezolinetant 30 mg (mean difference 2.16, 95% CI, 1.54-2.79, I2=0%), fezolinetant 45 mg (mean difference 2.54, 95% CI, 1.86-3.21, I2=0%), and elinzanetant 120 mg (mean difference 2.99, 95% CI, 1.74-4.23, I2=0%). Both drugs also showed a decrease in vasomotor symptom severity: fezolinetant 30 mg (mean difference 0.20, 95% CI, 0.09-0.33, I2=0%), fezolinetant 45 mg (mean difference 0.24, 95% CI, 0.13-0.34, I2=0%), and elinzanetant 120 mg (mean difference 0.36, 95% CI, 0.26-0.46, I2=0%). Elinzanetant 120 mg showed a significant improvement in sleep quality (mean difference 4.65, 95% CI, 3.73-5.56, I2=0%). Elinzanetant 120 mg was associated with the occurrence of drug-related adverse events (11.70% vs 20.75%, risk ratio [RR] 0.57, 95% CI, 0.39-0.82, I2=19%) and headache (2.54% vs 8.0%, RR 0.32, 95% CI, 0.16-0.64, I2=0%). **CONCLUSION**: In this meta-analysis, consistent results suggest that fezolinetant and elinzanetant are associated with beneficial outcomes in menopausal women with vasomotor symptoms. Elinzanetant provided a larger effect size in vasomotor symptom frequency and severity reduction and greatly improved sleep quality compared with fezolinetant. **SYSTEMATIC REVIEW REGISTRATION**: PROSPERO, CRD42023469952.

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21. **Exploring the Relationships between Sex Hormones and Abdominal Muscle Area and Radiodensity in Postmenopausal Women: Insights from the Multi-Ethnic Study of Atherosclerosis.**

Authors: Osmancevic, Amar;Allison, Matthew;Miljkovic, Iva;Vella, Chantal A.;Ouyang, Pamela;Trimpou, Penelope and Daka, Bledar

Abstract: The relationships between sex hormone levels and muscle composition in postmenopausal women remain underexplored. To address this gap, we conducted a cross-sectional observational study utilizing data from the Multi-Ethnic Study of Atherosclerosis. Our analysis included 682 postmenopausal women aged 45-84 years with complete data, with a mean age of 63.3 years. Using abdominal computed tomography, we assessed abdominal muscle area (cm^2) and muscle radiodensity (Hounsfield units) in relation to serum levels of testosterone (total and free), estradiol, and sex hormone binding globulin (SHBG), measured in nmol/L. Multivariable linear regression models, adjusting for potential confounders, were employed to investigate these associations. In our fully adjusted models, higher levels of estradiol and free testosterone were found to be positively associated with total area of abdominal muscle (beta = 1.41, 95 % CI 0.4, 2.4, p = 0.007 and beta = 18.5, 95 % CI 4.0, 33.1, p = 0.004, respectively), but not with muscle radiodensity (p > 0.05). Conversely, elevated levels of SHBG were associated with a smaller total of area abdominal muscle and radiodensity (beta = -2.1, 95 % CI -3.2, -0.9, p = 0.001 and beta = -0.32, 95 % CI -0.6, -0.0, p = 0.07, respectively). Our study highlights significant associations between sex hormone levels and skeletal muscle area in postmenopausal women. Furthermore, the novel findings regarding SHBG and muscle composition suggest a potential previously unrecognized role of SHBG in the accumulation of skeletal muscle adipose tissue. However, further validation in other cohorts is necessary to elucidate the potential role of SHBG in body composition. Clinical Trial: NCT00005487. Copyright © 2025 The Authors. Published by Elsevier B.V. All rights reserved.

22. Menopausal hormone therapy and the risk of systemic lupus erythematosus and systemic sclerosis: a population-based nested case-control study.

Authors: Patasova, Karina;Dehara, Marina;Mantel, Angla;Bixo, Marie;Arkema, Elizabeth and Holmqvist, Marie

Abstract: OBJECTIVES: Systemic lupus erythematosus (SLE) and systemic sclerosis (SSc) are more common in women, partly due to differences in female sex hormones. Menopausal hormone therapy (MHT) is widely used to alleviate climacteric symptoms. Here, the relationship between MHT and SLE/SSc was investigated in a nested case-control study. **METHODS**: Women with SLE or SSc and controls, matched 1 up to 10 on sex, birth year, and region, from the general population of Sweden. Data on exposures and potential confounders were obtained from National Patient and Prescribed Drug Register as well as Longitudinal Integration Database for Health Insurance and Labour Market Studies. Exposure was defined as dispensation of any MHT medication prior to the diagnosis/matching. The

association between MHT and SLE/SSc, and whether the strength of the association, expressed as odds ratios (OR) and 95% confidence intervals (CI), varied by type, route of administration, and duration of use, was assessed using conditional logistic regression, adjusted for education, income, and sick leave. **RESULTS**: In total, 943 women with SLE and 733 women with SSc were identified between 2009 and 2019. We detected a significant association between MHT use and risk of SLE (OR = 1.3; 95% CI: 1.1-1.6), and SSc (OR = 1.4; 95% CI 1.2-1.7). Women who had both systemic and local MHT medications dispensed exhibited highest risk of SLE (OR = 1.9; 95% CI: 1.4-2.7) and SSc (OR = 1.8; 95% CI: 1.2-2.5). **CONCLUSION**: These findings indicate an association between MHT and SLE/SSc, independent of socioeconomic factors, warranting further investigation into the role of exogenous female sex hormones in SLE/SSc pathogenesis. Copyright © The Author(s) 2025. Published by Oxford University Press on behalf of the British Society for Rheumatology.

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23. Effect of menopause on circulating amino acid concentrations in women with fibromyalgia and healthy women

Authors: Rus, Alma;Coca-Guzmán, Bárbara;Molina, Francisco;Correa-Rodríguez, María;Martínez-Martos, José Manuel;Ramírez-Expósito, María Jesús and Aguilar-Ferrándiz, María Encarnación

Abstract: Objectives: Fibromyalgia is a complex syndrome that appears more frequently during menopause. No previous studies have investigated the effect of menopause on amino acids in women with fibromyalgia. Therefore, we have examined serum amino acid concentrations in premenopausal and postmenopausal women with fibromyalgia and healthy women. Study design: A case-control study was carried out in 28 premenopausal and 46 postmenopausal healthy women and in 16 premenopausal and 52 postmenopausal women with fibromyalgia. This study adheres to STROBE guidelines. Main outcome measures: Amino acid content was assayed using high-performance liquid chromatography. Results: Significant differences were found in concentrations of several amino acids (aspartic acid, glutamic acid, histidine, glycine, alanine, leucine, and taurine) between healthy premenopausal women and premenopausal women with fibromyalgia and between healthy postmenopausal women and postmenopausal women with fibromyalgia. Concentrations of other amino acids (aminoadipic acid, asparagine, threonine, arginine, 5-methyl-histidine, valine, methionine, isoleucine, phenylalanine, ornithine, branched-chain amino acids, large neutral amino acids, essential amino acids, non-essential amino acids, basic amino acids, and arginine/ornithine ratio) were found to differ between healthy postmenopausal women and postmenopausal women with fibromyalgia, but not between healthy premenopausal women and premenopausal women with fibromyalgia. No significant differences were found in serum amino acid concentrations between premenopausal and postmenopausal healthy women or between premenopausal and postmenopausal women with fibromyalgia. Conclusions: Our results show, for the first time, that the association between menopause and fibromyalgia may increase the risk of metabolic disorders by disrupting amino acid homeostasis to a greater extent than menopause or fibromyalgia alone.

24. Association of Informal Caregiving and Menopause Symptoms in Midlife Women: A Cross-Sectional Study.

Authors: Saadedine, Mariam;Safwan, Nancy;Kapoor, Ekta;Shufelt, Chrisandra L.;Kling, Juliana M.;Hedges, Mary S.;Chaudhry, Rajeev;Cole, Kristin;Winham, Stacey J.;Griffin, Joan M. and Faubion, Stephanie S.

Publication Date: Jan ,2025

Journal: Mayo Clinic Proceedings 100(1), pp. 42–51

Abstract: OBJECTIVE: To assess the association between caregiving and menopause symptom burden in midlife women. **PATIENTS AND METHODS**: A cross-sectional analysis was conducted among women aged 45 to 60 years receiving primary care at 1 of 4 Mayo Clinic geographic locations between March 1 and June 30, 2021, who completed a survey study. Caregiving status was self-reported, and menopause symptoms were assessed using the Menopause Rating Scale. The primary outcome was moderate or worse menopause symptoms. **RESULTS**: A total of 4295 women (mean age, 54.6 years) were included, 845 (19.7%) of whom self-identified as caregivers. Among all 4295 women, 1614 (37.6%) reported moderate to very severe menopause symptoms. The proportion of women with moderate or worse menopause symptoms in at least one symptom domain increased as the number of caregiving hours increased: 92 of 270 (34.1%) in the less than 5 hours per week group, 123 of 289 (42.6%) in the 5 to 14 hours per week group, and 144 of 286 (50.4%) in the 15 or more hours per week group (P<.001). In univariate analysis, caregiving for 15 or more hours per week significantly increased the odds of having moderate or worse menopause symptoms in at least one symptom domain compared to no caregiving (odds ratio, 1.77; 95% CI, 1.39 to 2.26; P<.001). The association remained significant in multivariable analysis after adjusting for potential confounders (odds ratio, 1.37; 95% CI, 1.05 to 1.78; P=.02). **CONCLUSION**: This study identified a positive association between caregiving hours and menopause symptom burden. Given the aging US population and likely resultant increases in caregiving burden, there is a critical need to address menopause symptoms and to provide support for midlife women in caregiving roles. Copyright © 2024 Mayo Foundation for Medical Education and Research. Published by Elsevier Inc. All rights reserved.

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25. Effect of fezolinetant on patient-reported quality-of-life outcomes: Data from a phase 3b study (DAYLIGHT) of the treatment of moderate to severe vasomotor symptoms associated with menopause in women considered unsuitable for hormone therapy.

Authors: Shapiro C.M. M.;Wu X.;Wang X.;Miyazaki K.;Morga A.;Nappi R.E.;Stute P.;Martins K. and Schaudig, K.

Publication Date: 2025

Journal: Maturitas 193(pagination), pp. Article Number: 108159. Date of Publication: February 2025

Abstract: Objective: To report patient-reported quality-of-life (QOL) outcomes in the DAYLIGHT study. Study design: DAYLIGHT was a phase 3b, randomized, double-blind, 24-

week, placebo-controlled study. Participants were women aged >=40 to <=65 years with moderate to severe vasomotor symptoms (VMS) considered unsuitable for hormone therapy (HT) (contraindications, caution, stoppers, or averse) randomized 1:1 to placebo or fezolinetant 45 mg once daily. Study design: DAYLIGHT was a phase 3b, randomized, double-blind, 24-week, placebo-controlled study. Participants were women aged ≥40 to ≤65 years with moderate to severe vasomotor symptoms (VMS) considered unsuitable for hormone therapy (HT) (contraindications, caution, stoppers, or averse) randomized 1:1 to placebo or fezolinetant 45 mg once daily. Main outcome measures: Primary endpoint: mean change in daily VMS frequency of moderate to severe episodes from baseline to week 24. Secondary: patient-reported sleep disturbance (PROMIS SD SF 8b). Exploratory: patient-reported sleep disturbance (Patient Global Impression of Severity/Change in Sleep Disturbance [PGI-S/PGI-C SD]), menopause and VMS-related QOL (Female Sexual Function Index [FSFI], Menopause-Specific Quality of Life [MENQOL], Patient Global Impression of Change in Vasomotor Symptoms [PGI-C VMS], Work Productivity and Activity Impairment questionnaire specific to VMS [WPAI-VMS]), and general QOL (European Quality of Life 5 Dimensions 5 Level Version [EQ-5D-5L], Patient Health Questionnaire for Anxiety and Depression [PHQ-4]). Results: Overall, 452 women received at least one dose of study drug (placebo n = 226; fezolinetant n = 226): HT contraindicated (50; 11 %), caution (165; 37 %), stoppers (69; 15 %), and averse (168; 37 %). DAYLIGHT results showed statistically significant reductions in VMS frequency/severity in the fezolinetant group versus placebo at week 24. Week 24 improvements were seen in the fezolinetant group versus placebo in: PROMIS SD SF 8b total score (least squares [LS] mean difference: −2.5; 95 % CI: −3.9, −1.1; p < 0.001), MENQOL total score (LS mean difference: −0.44; 95 % CI: −0.69, −0.18; p < 0.001), and WPAI-VMS (activity impairment [p < 0.001], overall work productivity loss [p = 0.036], and presenteeism [p = 0.002] domains). A higher proportion of participants in the fezolinetant group reported positive changes in sleep disturbance (PGI-C SD, p < 0.001), sleep disturbance severity (PGI-S SD, p = 0.042), and VMS (PGI-C VMS, p < 0.001) versus placebo. Conclusions: Patient-reported outcomes demonstrate that reductions in VMS frequency with fezolinetant treatment were associated with improvements in QOL.

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26. **State of the art in menopause: current best practice approaches from the IMS World Congress 2024, Melbourne.**

Authors: Simon, James A.;Davis, Susan R.;Linden Hirschberg, Angelica;Kiesel, Ludwig;Pompei, Luciano de Melo;Reginster, Jean-Yves;Simoncini, Tommaso and Hillard, Timothy

Abstract: The 19th World Congress on Menopause, hosted by the International Menopause Society in 2024, convened global experts to discuss the latest advances in menopause management. This review highlights key focus areas presented at the congress, offering insights into best practices for clinical application. Cardiovascular health remains a priority, with emphasis on recognizing sex-specific risk factors and exploring emerging therapies. Osteoporosis management underscores the role of menopausal hormone therapy (MHT) as foundational, complemented by anti-resorptive and bone-forming agents in high-risk

populations and those not candidates for MHT. Addressing genitourinary symptoms and sexual health, vaginal estrogen therapy is confirmed as a safe and effective option with vaginal dehydroepiandrosterone (DHEA) and oral ospemifene as suitable alternatives, while testosterone therapy offers benefits for hypoactive sexual desire disorder in postmenopausal women. Sleep disturbances, depression and workplace challenges linked to menopause were explored, with tailored interventions such as MHT and cognitive behavioral therapy specifically for sleep recommended. Cancer risk management stressed the need for a multidisciplinary approach to risk reduction beginning with lifestyle modification, and with non-hormonal therapies prioritized for symptomatic treatment of menopausal symptoms in those with hormone-sensitive cancers. Lastly, perimenopause management highlighted comprehensive approaches integrating symptom relief and contraceptive needs.

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27. **An examination of sexual function & distress among sexual minority & heterosexual women seeking care at menopause and sexual health specialty clinics.**

Authors: Sobel, Talia;Faubion, Stephanie S.;Vencill, Jennifer A.;Cole, Kristin;Winham, Stacey;Williams, Courtney and Kling, Juliana M.

Abstract: BACKGROUND: Sexual minority women (SMW) have worse mental and physical health outcomes compared to heterosexual women, but literature on sexual function in SMW compared to heterosexual women is lacking. **AIM**: To evaluate sexual function and sexual distress in women across sexual orientations. **METHOD**: Questionnaire data were analyzed for women aged 18 and older who presented to women's health clinics at Mayo Clinic in Minnesota, Arizona, and Florida from 2016 to 2023. Female Sexual Function Index (FSFI) and Female Sexual Distress Scale-Revised (FSDS-R) scores assessed sexual dysfunction (FSFI = 11). Multivariable logistic models adjusted for confounding factors. **OUTCOMES**: Our main outcome was female sexual dysfunction as defined by a composite of FSFI = 11 to include both sexual function and sexual distress. **RESULTS**: Of 6241 sexually active women, 3% were SMW and 97% were heterosexual women. The majority were White (93%), with average age 51.6 years old. There was no significant difference in sexual dysfunction rates between heterosexual and SMW by combined endpoint on univariate or multivariable analysis. SMW had higher total FSDS scores (17 vs 15, P = 0.037), indicating more sexual distress. **CLINICAL IMPLICATIONS**: Sexual health concerns may differ between SMW and heterosexual women emphasizing the need for inclusive, culturally competent care. **STRENGTHS & LIMITATIONS**: This study assessed the association of sexual orientation and sexual dysfunction by incorporating sexual functioning problems and sexual distress. Limitations include a small number of SMW and a predominantly White, married, employed, and educated study sample, limiting the generalizability of the findings. **CONCLUSION**: Rates of sexual dysfunction were similar between mostly White SMW and heterosexual women presenting to tertiary care centers. SMW reported more sexual distress than heterosexual women. Evaluating these variables in larger, more diverse cohorts is a critical next step. Copyright © The Author(s) 2024. Published by Oxford University Press on behalf of The International Society for Sexual Medicine. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.

28. Efficacy and safety of elinzanetant in vasomotor symptoms associated with menopause: A meta-analysis of randomized controlled trials

Authors: Sobral, Milene Vitoria Sampaio;Rocha, Paula;Rodrigues, Livia Kneipp;Barbosa, Abner Macola Pacheco;da Rocha, Naila Camila;Peres, Clara de Andrade Pontual;Furtado, Claudio Lucca Lima;da Silva, Danieli Pereira;de Moraes, Marina Ayabe Gomes and Alvarez-Galiana, Veronica

Publication Date: Jan 30 ,2025

Journal: European Journal of Obstetrics, Gynecology, & Reproductive Biology 307, pp. 142–147

Abstract: OBJECTIVE: To evaluate the efficacy and safety of elinzanetant compared to placebo in patients experiencing vasomotor symptoms (VMS) associated with menopause. **METHODS**: A systematic search of PubMed, Embase, and Cochrane databases identified randomized clinical trials (RCTs) comparing elinzanetant and placebo in patients with menopause-related VMS. Statistical analyses pooled mean difference (MD) and risk ratio (RR) with 95% confidence intervals (CI) using R Studio 4.3.2. Pre-specified outcomes included frequency and intensity of VMS, quality of life, and sleep disturbance. **RESULTS**: This meta-analysis included three randomized clinical trials reporting data on 995 patients, with 551 receiving elinzanetant. The mean age ranged from 54.4 to 55.6 years. Elinzanetant significantly reduced VMS frequency (MD -3.09; 95 % CI -4.18 to -2.01; I^2 = 0 %) and intensity (MD -0.32; 95 % CI -0.43 to -0.21; I^2 = 39 %). Improvements in quality of life were demonstrated by reduced scores on the Menopause-Specific Quality of Life Questionnaire (MD -0.46; 95 % CI -0.63 to -0.30; I^2 = 35 %) and better sleep quality measured by the Patient-Reported Outcomes Measurement Information System Sleep Disturbance - Short Form 8b (MD -4.65; 95 % CI -5.56 to -3.73; I^2 = 0 %). The incidence of adverse events was similar between groups (RR 1.11; 95 % CI 0.99 to 1.25; I^2 = 35 %). **CONCLUSION**: Elinzanetant reduces the frequency and intensity of VMS and enhances quality of life and sleep quality in patients with menopause-related symptoms. Its safety profile is comparable to placebo.

29. Experiences With Genitourinary Syndrome of Menopause and Barriers to Vaginal Estrogen Usage Reported by a National Sample of 1500 Women.

Authors: Stair, Sabrina L.;Chyu, Jennifer;Rangwala, Shazia;Palmer, Cristina J.;Lucioni, Alvaro and Lee, Una J.

Publication Date: Feb ,2025

Journal: Urology 196, pp. 115–123

Abstract: OBJECTIVE: To investigate women's experiences with genitourinary syndrome of menopause (GSM) and vaginal estrogen therapy (VET), including barriers, awareness, and knowledge, and to report current trends and findings on GSM and VET to address barriers to care. **METHODS**: A survey on GSM and VET was posted on the ResearchMatch website. Eligible participants were women >= 40 years of age. Demographic information, menopausal

status, current knowledge, prior experiences, and barriers associated with VET and GSM were queried. Satisfaction with their care on a 5-point Likert scale (three coded to the neutral value with five being high) was assessed. **RESULTS**: Respondents (n = 1505) had a mean age of 57.6 years (SD 10.8). The majority (87%) were white, 13.7% were peri-menopausal, and 872 (57.9%) were post-menopausal. 999 (69%) of women reported at least one genitourinary symptom associated with menopause. Of the 323 women who received a prescription, 13% did not use it due to cost and 38.4% for fear of side effects. Among current VET users, moderate to severe concern for risks listed on the package insert were reported for breast cancer (31.4%), endometrial cancer (27.2%), and cardiovascular issues (32.1%). **CONCLUSION**: The vast majority of survey respondents reported at least one symptom of GSM. VET usage was lower than reported GSM symptoms. Patient barriers to using VET include cost and fear of side effects. A quarter of women reported their symptoms were not adequately addressed by their provider. The majority of women using VET reported symptomatic improvement and that treatment was well-tolerated. Copyright © 2024. Published by Elsevier Inc.

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30. **Development, content validation and feasibility of a decision aid tool for the treatment of women with menopausal symptoms.**

Authors: Stute P.;Binkowska M.;Briggs P.;Palacios S.;AbetzWebb L.;Law V.;ZablotnaPociupany R. and Boolell, M.

Publication Date: 2025

Journal: Maturitas 194(pagination), pp. Article Number: 108195. Date of Publication: March 2025

Abstract: Introduction: Despite research supporting menopause hormonal therapy for menopausal women, its use continues to decline in most European countries and the United States. Experts highlighted the need for global assessment tools to assist clinicians in evaluating treatment for symptomatic menopausal women, which led to the development of the Menopause Treatment Tool, with separate versions for women and healthcare professionals. Both versions of the tool focus on menopausal symptoms, risk levels and suggested actions; the women's tool is administered prior to the consultation, while the clinician tool is administered by the clinician during the clinical consultation. Objective: To assess content validity and feasibility of the Menopause Treatment Tool (for women and for clinicians) in clinical practice. Methods: This non-interventional study collected post-consultation feedback through questionnaires and interviews with clinicians and questionnaires with menopausal women in the United Kingdom, Germany, Italy, Poland, Spain, Switzerland, and the US. Qualitative and descriptive analyses were conducted. Results: Eight primary care physicians (UK, US only) and 41 gynaecologists (all countries, except the UK), with an average of 13 years of practice, participated. Menopausal women (n = 172) were aged between 45 and 61 years (mean 52 years). Based on feedback questionnaires from 160 clinicians and 156 menopausal women, most (>85 %) clinicians and women reported both tools to be convenient and valuable for discussing symptoms and treatment options. Most clinicians (>55 %) and women (>70 %) reported improved interactions and confidence in treatment decisions. Several clinicians preferred making these tools electronically available for better integration with patient records. Conclusions: This study confirmed the Menopause Treatment Tool's content validity

and feasibility for use in clinical practice. The Menopause Treatment Tool enhanced discussions between clinicians and women about menopause symptoms and treatment benefits/risks, boosting confidence in treatment decisions.

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31. **Oral Health Care Among Women in Perimenopause or Menopause: An Integrative Review**

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

Publication Date: 2025

Journal: Journal of Midwifery & Women's Health 70(1), pp. 17–31

Abstract: INTRODUCTION: Women in menopause are at a higher risk of developing oral health problems, affecting their overall quality of life. Several studies have identified the role of health care providers in addressing women's oral health needs across various phases of their lives, yet a review in the area of perimenopause and menopause has not been undertaken. Therefore, the aim of this review was to explore current evidence regarding the oral health knowledge, attitudes, and practices of women in perimenopause or menopause and their health care providers. Additionally, guidelines and recommendations to inform strategies for oral health promotion are included. **METHODS**: A systematic search was carried out across 5 databases. Inclusion criteria included articles published in English that examined at least one study outcome: oral health knowledge, attitudes, and practices of either women in perimenopause or menopause or of health care providers or guidelines around oral health care. Qualitative, quantitative, mixed-methods, and experimental studies with survey components were included with no restrictions on publication period, quality, or setting. **RESULTS**: A total of 12 articles met the inclusion criteria, with a majority being of poor quality and mostly from low-income and middle-income countries. Overall findings indicated that there was a lack of knowledge and limited practices in maintaining oral hygiene and visiting the dentist among women in perimenopause or menopause. Health care providers exhibited poor attitudes in advising the importance of periodic dental check-ups and informing oral health changes during this period. There were also insufficient guidelines to adopt care for women and guide health care providers in their practice. **DISCUSSION**: Women in perimenopause or menopause have limited oral health knowledge and unmet oral health needs. Appropriate guidelines and supportive strategies are required to assist health care providers in providing comprehensive care and encouragement to women in perimenopause or menopause to improve their oral health. Copyright © 2024 The Author(s). Journal of Midwifery & Women's Health published by Wiley Periodicals LLC on behalf of American College of Nurse Midwives (ACNM).

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32. **A cell atlas of the human fallopian tube throughout the menstrual cycle and menopause.**

Authors: Weigert, Melanie;Li, Yan;Zhu, Lisha;Eckart, Heather;Bajwa, Preety;Krishnan, Rahul;Ackroyd, Sarah;Lastra, Ricardo;Bilecz, Agnes;Basu, Anindita;Lengyel, Ernst and Chen, Mengjie

Publication Date: Jan 03 ,2025

Abstract: The fallopian tube undergoes extensive molecular changes during the menstrual cycle and menopause. We use single-cell RNA and ATAC sequencing to construct a comprehensive cell atlas of healthy human fallopian tubes during the menstrual cycle and menopause. Our scRNA-seq comparison of 85,107 pre- and 46,111 post-menopausal fallopian tube cells reveals substantial shifts in cell type frequencies, gene expression, transcription factor activity, and cell-to-cell communications during menopause and menstrual cycle. Menstrual cycle dependent hormonal changes regulate distinct molecular states in fallopian tube secretory epithelial cells. Postmenopausal fallopian tubes show high chromatin accessibility in transcription factors associated with aging such as Jun, Fos, and BACH1/2, while hormone receptors were generally downregulated, a small proportion of secretory epithelial cells had high expression of ESR2, IGF1R, and LEPR. While a pre-menopausal secretory epithelial gene cluster is enriched in the immunoreactive molecular subtype, a subset of genes expressed in post-menopausal secretory epithelial cells show enrichment in the mesenchymal molecular type of high-grade serous ovarian cancer. Copyright © 2025. The Author(s).

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33. **Exploring the clinical, psychological, and social relevance of menopause for trans and gender diverse people: a qualitative study.**

Authors: Xin, Michelle Qian Lin and Lane, Riki

Publication Date: 2025

Abstract: OBJECTIVE: The aim of this study was to explore the meanings and experiences of menopause for trans and gender diverse (TGD) people and how menopause affects clinical practice. **METHODS**: For this qualitative study in 2021-2022, a scoping literature review informed interview schedule development. Following email invitations, online semi-structured interviews were conducted in March-April 2021 in Australia with three prominent TGD community leaders (trans male, trans female, nonbinary person) and three experienced medical practitioners (general practitioner, endocrinologist, psychiatrist), which were audio-recorded and transcribed. Inductive, iterative thematic analysis of transcripts was conducted. A further literature search was completed in 2024. **RESULTS**: Themes identified included the following: (1) no consensus on the definition of menopause for TGD individuals; (2) diverse menopause experiences existing in the TGD community; (3) large variations present regarding perimenopausal hormone therapy for older TGD patients: maintain dose, taper to low dose, or cease hormones; and (4) minimal support for TGD people to discuss menopause and concerns around aging. Saturation was not reached with the sample size. **CONCLUSIONS**: There is a paucity of relevant research and no consensus on definitions, management, or impacts of menopause for TGD people. Therefore, current management approaches should be individually tailored and guided by clinical expertise. To formulate practical and realistic recommendations for clinical practice, future research could include the following: (1) a broader literature review into varied gender-affirming hormone treatment (GAHT) regimens among aging TGD people; (2) utilizing the Delphi technique to achieve expert consensus regarding GAHT in older TGD individuals; and (3) a prospective study design of TGD

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34. **Global, regional, and national burden of anxiety disorders during the perimenopause (1990-2021) and projections to 2035.**

Authors: Zhang Y.;Hu T.T.;Cheng Y.R.;Zhang Z.F. and Su, J.

Publication Date: 2025

Journal: BMC Women's Health 25(1) (pagination), pp. Article Number: 11. Date of Publication: December 2025

Abstract: Purpose: Perimenopause is associated with an increased risk of anxiety disorders, largely due to hormonal changes affecting the body's regulatory feedback mechanisms. This study aims to provide a comprehensive analysis of the global burden of anxiety disorders among perimenopausal women. Methods: Data from the 2021 Global Burden of Disease (GBD) database were utilized to assess disability-adjusted life years associated with anxiety disorders linked to perimenopause. We calculated trends using the estimated average percent change, and future projections were made using the Bayesian age–period–cohort model to estimate disability-adjusted life year trends for anxiety disorders from 2022 to 2035. Results: Between 1990 and 2021, the global age-standardized disability-adjusted life year rate for anxiety disorders among perimenopausal women increased from 625.51 (95% uncertainty interval: 429.1–891.09) to 677.15 (95% uncertainty interval: 469.45–952.72), indicating a rising trend with an estimated average percent change of 0.081 (95% confidence interval: 0.0043–0.143). Regional differences were noted, with anxiety disorder burdens varying across areas with different sociodemographic index levels. Projections suggest that by 2035, the global burden of anxiety disorders in perimenopausal women will rise to 1,180.43 per 100,000, a 40.67% increase compared with 2021 levels. Conclusion: The burden of anxiety disorders during perimenopause is a growing global concern, with a significant increase anticipated in the coming years. Targeted prevention and intervention strategies are urgently needed to mitigate this rising burden and improve mental health outcomes during perimenopause.

In the news

Self-referral service 'life saving', say patients

14 January 2025

Rachel Candlin and Georgia Stone, BBC News

"Women concerned they might have womb cancer are being seen 12 times quicker thanks to a self-referral service hailed "life-saving" by patients.

The Bleeding after Menopause Service run by Somerset NHS Foundation Trust, means patients no longer need to see a GP to access diagnostic tests."
https://www.bbc.co.uk/news/articles/czjdr081enlo

Menopause Exchange Newsletter

Issue 102 Autumn 2024

- Complementary medicines & therapies

- Hormone replacement myths

- Weight and the menopause

- Breast cancer awareness

Anyone with an interest in the menopause, midlife and post-menopausal health can receive The Menopause Exchange quarterly newsletters for FREE: www.menopause-exchange.co.uk to subscribe

Sources used:

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