

THURSDAY CONCURRENT SESSION #1

S-1.

Menopause Hormone Therapy and Weight Loss Response to GLP-1–Based Therapies in Midlife Women: A Retrospective Cohort Study

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Objective: Weight gain during midlife is a common concern among women. While largely driven by aging, menopause-related factors may further contribute to fat accumulation and redistribution. Glucagon-like peptide-1 receptor agonist (GLP-1 RA)–based obesity medications (OM) are effective for weight loss, although treatment response may vary by sex and reproductive stage. Female sex and younger age have been associated with greater weight loss responses to these medications. Likewise, small retrospective observational cohort studies in postmenopausal women suggest that use of menopause hormone therapy (HT) is associated with a greater weight loss response to semaglutide (SEM; GLP-1 RA) and tirzepatide (TZP; a dual GLP-1/glucose-dependent insulinotropic polypeptide [GIP] agonist). Together, these findings support a potential role for ovarian hormones in modulating response to GLP-1 RA–based medications. This study aimed to determine whether weight loss with SEM or TZP differs between midlife women using HT (+HT) and those not using HT (noHT) in a large cohort of women across the menopausal transition and beyond. **Design:** This retrospective observational cohort study included women ≥ 45 years with a BMI ≥ 27 kg/m² using SEM or TZP, with or without concomitant HT. Exclusion criteria included <12 months of GLP-1–based therapy, prior bariatric surgery, active malignancy, or concurrent use of other OMs. HT included oral or transdermal estrogen, with or without progesterone. Data from February 2017 to December 2025 were obtained from electronic health records using the *nSights* federated platform. To mitigate confounding, 1:2 nearest-neighbor propensity score matching without replacement was performed within each cohort, matching each HT user to two nonusers using age, baseline BMI, prior OM use, and type 2 diabetes status, with exact matching on diabetes status and caliper restrictions for age and BMI. The primary outcome was percent total body weight loss (TBWL%) with SEM or TZP at 3, 6, 9, 12, and 15 months, and at last follow-up. Secondary outcomes included the proportion achieving $\geq 5\%$, $\geq 10\%$, $\geq 15\%$, $\geq 20\%$, $\geq 25\%$, and $\geq 30\%$ TBWL. Continuous variables are presented as mean (SD) and were compared using Welch's two-sample t-test, while categorical outcomes were compared using chi-square tests. **Results:** The SEM cohort included 2,379 women (n=793 +HT; n=1,586 noHT), with a mean age of 57 years (SD 8) and mean BMI of 36 kg/m² (SD 5). Baseline demographic characteristics and adiposity-related comorbidities were well-balanced among HT users and nonusers. Median follow-up was 26 months (IQR 18–36) in the SEM +HT group and 26 months (IQR 17–37) in the SEM noHT group. Compared with nonuse, HT use was associated with significantly greater TBWL beginning at 9 months (–9.8% vs –8.2%, p<0.001), with differences persisting at 12 months (–11.0% vs –9.5%, p=0.001), 15 months (–11.6% vs –9.7%, p<0.001), and at last follow-up (–11.9% vs –10.9%, p=0.020). Women in the +HT group were also more likely to achieve $\geq 10\%$ (55% vs 51%, p=0.045), $\geq 20\%$ (22% vs 18%, p=0.037), $\geq 25\%$ (13% vs 10%, p=0.008), and $\geq 30\%$ (6% vs 4%, p=0.015) TBWL. The TZP cohort included 1,476 women (n=492 +HT; n=984 noHT), with a mean age of 57 years (SD 7) and mean BMI of 36 kg/m² (SD 5). Baseline demographic characteristics and adiposity-related comorbidities were well-balanced among HT users and nonusers. Median follow-up was 17 months (IQR 12–26) for the TZP +HT group and 16 months (IQR 11–24) for the TZP noHT group. HT use was associated with modestly greater weight loss at 3 months (–6.6% vs –5.9%, p=0.031) and a higher proportion achieving $\geq 5\%$ TBWL at last follow-up (88% vs 84%, p=0.041); however, no significant differences were observed at later timepoints or for higher weight loss thresholds (all p>0.05). **Conclusion:** In this large real-world cohort of midlife women treated for overweight or obesity, concomitant HT was associated with significantly greater and sustained weight loss with SEM. A similar directional effect with TZP was observed at early timepoints but did not reach statistical significance. Larger prospective studies are warranted to confirm these observations and to inform individualized treatment strategies in midlife women.

Sources of Funding: None

S-2.

Hypoestrogenic Side Effect Profile During Drospirenone 4mg Use: Results from Three Phase III Clinical Trials

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Objective: Hypoestrogenic adverse effects can influence the quality of life and health of the perimenopausal women. The mean estradiol (+ standard deviation) for drospirenone 4mg has been reported to be 50.2pg/mL (± 925.2) in the first exposure cycle and 50.4 (± 23.3) in cycle 2. We present possible hypoestrogenic adverse events during a pooled analysis of three Phase III clinical trials in the United States and Europe lasting 9–13 exposure cycles in female adults (18–52 years old) for drospirenone 4mg. A European based, multi-center, open label, single-arm, phase III clinical trial lasting 13 cycles was conducted to evaluate contraceptive efficacy, tolerability, and safety of drospirenone 4mg in adult females (N=713) (CF111/301). In CF111/301, participants were 18–46 years and the mean age of participants was 28.7 years (SD: 7.1). A second European

based, multi-center, randomized, phase III clinical trial lasting 9 cycles was conducted to evaluate contraceptive efficacy, tolerability, and safety of drospirenone 4mg (n=858) compared with desogestrel 75mcg (n=332) in adult females (N=1190) (CF111/302). The mean age of participants was 28.9 (SD: 7.1) years in both treatment groups. The United States based, multi-center, open-label, phase III clinical trial lasting 13 cycles was conducted with drospirenone 4mg in adult females (N=1006) (CF111/303). In clinical trial CF111/303, participants were 18–51 years at enrollment, the mean age was 27.5 (SD: 5.9) years. **Design:** During the program for drospirenone 4mg, adverse event monitoring was conducted via self-report. Three phase III trials enrolled 2,577 adults. The primary endpoint for all included studies was contraceptive efficacy reported as Pearl Index (pregnancies per 100-woman years) for non-lactating participants 35 years of age or younger. Adverse events potentially considered to be associated with a hypoestrogenic state included vaginal dryness, night sweats, hot flushes, dyspareunia, and changes in mental health status determined by the primary investigator to be at least possibly related to treatment. **Results:** As part of safety monitoring in the three Phase III clinical trials, treatment-emergent adverse events (TEAEs) of vaginal dryness, night sweats, hot flushes, dyspareunia, joint swelling, and psychiatric changes were reported. For adults in the phase III clinical trial development for drospirenone 4mg, there were five instances of vaginal dryness, one instance of night sweats, five instances of hot flushes, and one instance of joint swelling were considered possibly related to drospirenone 4mg. Of the five instances of vaginal dryness determined to be related to drsp4mg, 1 instance led to trial discontinuation. Of the one instance of night sweats determined to be related to drsp4mg, there is no additional information found if this AE led to clinical trial discontinuation. Of the five instances of hot flushes determined to be related to DRSP 4mg, looking through CF111/303, I was unable to find information regarding discontinuation rates from hot flushes. As for the one instance of joint swelling that was considered possibly related to drospirenone 4mg, there is no information as to whether this AE led to clinical trial discontinuation. Regarding mental health related side effects, there were 11 instances of decreased libido, seven instances of depression, one instance of altered mood, 10 instances of mood swings, and one instance of anxiety were considered possibly related to drospirenone 4mg. The Pearl Index in the US pivotal trial was 4.0. The pooled Pearl Index in the European adult phase III trials was 0.93. **Conclusion:** Throughout the clinical development program for drospirenone 4mg, encompassing more than 20,000 cycles, no thromboembolic or cardiovascular events were reported. A limited number of participants reported psychiatric or sexual-related TEAEs in both European and US trials. During the clinical trial program for drospirenone 4mg, adverse event monitoring was conducted during all trials and hypoestrogenic side effects appear rare. Future trials may include prospective design to assess the influence of drospirenone on hypoestrogenic adverse events.

Sources of Funding: Exeltis Pharmaceuticals

S-3.

Headache, fatigue, and somnolence as adverse events across elinzanetant's clinical trials: a pooled safety analysis

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Objective: Elinzanetant is a dual neurokinin (NK) targeted therapy (NK1 and NK3 receptor antagonist) approved for treatment of VMS associated with menopause and (in Europe) adjuvant endocrine therapy. Here, we evaluate elinzanetant's three most common adverse events – headache, fatigue, and somnolence – across the Phase II and III clinical trials. **Design:** The 12-week Phase IIb SWITCH-1, 26-week Phase III OASIS-1 and OASIS-2, and the 52-week OASIS-3 studies were multinational, double-blind, placebo-controlled trials that enrolled postmenopausal women aged 40 to 65 years with moderate-to-severe VMS due to natural or surgical menopause. Data from these studies were pooled and analyzed over the Week 1–12 period (n=765 elinzanetant 120 mg; n=754 placebo); this period was placebo-controlled in all studies. Post hoc exploratory analysis of headache, fatigue, and somnolence as the most frequently occurring treatment-emergent adverse events (TEAEs) assessed cumulative and non-cumulative incidence of time to first occurrence and non-cumulative incidence of time to resolution to characterize onset and duration. Cumulative incidence was not estimated for <5 events. **Results:** The cumulative incidence of first-time headache, fatigue, and somnolence events for elinzanetant vs placebo during Week 1–12 was 57 (7.6%) vs 32 (4.4%), 41 (5.4%) vs 9 (1.3%), and 26 (3.4%) vs 4, respectively. Although TEAEs were more frequent with elinzanetant than with placebo, overall frequency remained low in both groups. All TEAEs were mild or moderate in intensity, except for one severe headache case in the elinzanetant group, which occurred in the first two weeks of treatment. Most first-time headache, fatigue, and somnolence events in the elinzanetant group were reported in the first two weeks of treatment (Table 1); 30 (3.9%), 34 (4.4%), and 23 (3.0%) events, respectively, occurred within this time period. The number of first-time headache events remained higher with elinzanetant than placebo between Weeks 2 to 4, at 16 (2.2%) vs 4 (0.5%) events, respectively. After Week 4, the number of first-time headache events was comparable between the treatment groups (11 [1.6%] vs 14 [2.0%]), respectively. After two weeks of treatment, the occurrence of fatigue and somnolence first-time events was similar between elinzanetant and placebo; for elinzanetant vs placebo, 7 [1.0%] vs 6 [0.8%] first-time fatigue events and 3 [0.4%] vs 1 [0.1%] first-time somnolence events were reported between Weeks 2 to 12. More than half of the first-time headache events in

the elinzanetant group (n=32 [56.1%]) resolved within 4 weeks of onset. Similarly, over half of first-time somnolence events (n=14 [53.8%]) resolved within 6 weeks of onset. By 12 weeks from onset of the first TEAE of headache, fatigue and somnolence, 42 (73.7%), 18 (43.9%), and 19 (73.1%) events, respectively, had resolved in the elinzanetant group. **Conclusion:** Overall frequency of headache, fatigue, and somnolence was low with both elinzanetant and placebo. First-time headache, fatigue, and somnolence events in the elinzanetant group were predominantly mild or moderate in intensity and occurred primarily within the two weeks after treatment initiation. Most first-time headache and somnolence events resolved within 12 weeks of TEAE onset, while nearly half of the first-time fatigue events resolved in this period. These findings offer favorable information about elinzanetant for prescribers counselling menopausal women.

Sources of Funding: Bayer CC AG

Table 1. Non-cumulative incidence of first TEAE

Time interval after treatment initiation	Elinzanetant 120 mg (Week 1–12) (N=765)			Placebo (Week 1–12) (N=754)		
	Headache, n (%)	Fatigue, n (%)	Somnolence, n (%)	Headache, n (%)	Fatigue, n (%)	Somnolence, n (%)
1 day to 2 weeks	30 (3.9%)	34 (4.4%)	23 (3.0%)	14 (1.9%)	3 (0.4%)	3 (0.4%)
>2 to 4 weeks	16 (2.2%)	1 (0.1%)	1 (0.1%)	4 (0.6%)	2 (0.3%)	0
>4 to 8 weeks	5 (0.7%)	5 (0.7%)	2 (0.3%)	6 (0.9%)	1 (0.1%)	0
>8 to 12 weeks	6 (0.9%)	1 (0.2%)	0	8 (1.2%)	3 (0.4%)	1 (0.1%)

Incidence is calculated out of the number of women available at start of each time interval

S-4.

Reduction in daytime and nighttime VMS frequency and severity with elinzanetant: a pooled analysis of OASIS-1 and OASIS-2 in the US subpopulation

Hadine Joffe, MD, MSc¹, Jill Liss², Kristie Baisden³, Bindi Patel, Doctor of Pharmacy³, Ioanna Gkioni⁴, Pauline Maki¹. ¹Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA; ²University of Colorado Anschutz, Aurora, CO; ³Bayer US., Whippany, NJ; ⁴Bayer AG, Berlin, Germany; ⁵The University of Chicago, Chicago, IL. **Objective:** Vasomotor symptoms (VMS; also known as hot flashes and night sweats) are frequently experienced by participants transitioning through menopause; however, daytime and nighttime VMS frequency and severity can vary significantly among women. Elinzanetant (EZN) is a dual neurokinin-targeted therapy, (neurokinin 1 and neurokinin 3 receptor antagonist) approved in the United States (US) for the treatment of moderate-to-severe VMS due to menopause. Pooled data from the OASIS-1 and OASIS-2 global Phase III trials (NCT05042362, NCT05099159) showed that EZN improved moderate-to-severe VMS frequency compared with placebo (PBO) among postmenopausal participants, irrespective of time of day. This exploratory pooled analysis from OASIS-1 and OASIS-2 aimed to further characterize the efficacy of EZN vs PBO on VMS frequency and severity during the daytime and nighttime in the US population of postmenopausal participants. **Design:** Postmenopausal participants aged 40–65 years from the US who experienced ≥50 moderate-to-severe VMS per week (wk) were randomly assigned (1:1 ratio) to receive EZN 120 mg or PBO for 12 wks, followed by EZN for 14 wks (both groups [gps]). Participants recorded the frequency and severity of daytime and nighttime moderate-to-severe VMS using Hot Flash Daily Diaries. Mixed models for repeated measures (MMRM) were used to analyze changes from baseline in VMS frequency and severity at daytime and nighttime. Type I error was not controlled; nominal p-values (1-sided) are exploratory, not confirmatory. **Results:** Across OASIS-1 and OASIS-2, 410 participants from the US were randomized to receive either EZN (n=205) or PBO (n=205), with a mean age of 54.9 years. Of these participants, 258 were White, 133 were Black or African American, and 65 were Hispanic or Latino. Baseline burden of daytime and nighttime VMS frequency and severity were similar between the EZN and PBO groups (**Table**). Least squares (LS) mean differences in daytime and nighttime VMS frequency were greater for EZN vs PBO as early as wk 1: -1.10 (95% confidence interval [CI], -1.74, -0.46; nominal p=0.0004) for daytime VMS frequency, and -1.18 (95% CI, -1.82, -0.55; nominal p=0.0001) for nighttime VMS frequency. Greater LS mean differences were also observed at wk 4, -1.86 (95% CI, -2.75, -0.98) and -1.60 (95% CI, -2.39, -0.82) respectively, and wk 12, -1.94 (95% CI, -2.92, -0.95), and -1.94 (95% CI, -2.95, -0.93) respectively, with nominal p<0.0001 at both time points; **Table**). Similarly, LS mean differences in daytime and nighttime VMS severity were greater for EZN vs PBO at wk 4, -0.25 (95% CI, -0.36, -0.13) and -0.36 (95% CI, -0.49, -0.22) respectively, and at wk 12, -0.35 (95% CI, -0.50, -0.20) and -0.48 (95% CI, -0.65, -0.31) respectively (nominal p<0.0001; **Table**). **Conclusion:** This pooled analysis of US participants demonstrated that EZN reduced VMS frequency as early as wk 1 and at wks 4 and 12 and reduced both daytime and nighttime VMS severity at wks 4 and 12. Consistent with the overall study population, these data support EZN as an effective treatment for US women who experience menopause-related VMS.

Sources of Funding; Sponsorship: Bayer US, Whippany, NJ, USA

Table. MMRM analysis of change from baseline in mean daily frequency and severity of M/S VMS: EZN vs PBO

	Baseline		Week 1		Week 4		Week 12	
	EZN 120 mg, mean (SD)	PBO 120 mg, mean (SD)	LS mean change difference EZN vs PBO (95% CI)	Nominal 1-sided p value*	LS mean change difference EZN vs PBO (95% CI)	Nominal 1-sided p value*	LS mean change difference EZN vs PBO (95% CI)	Nominal 1-sided p value*
Daytime VMS frequency	8.25 (5.78)	9.25 (8.98)	-1.10 (-1.74, -0.46)	0.0004	-1.86 (-2.75, -0.98)	<0.0001	-1.94 (-2.92, -0.95)	<0.0001
Nighttime VMS frequency	6.55 (5.77)	7.26 (7.77)	-1.18 (-1.82, -0.55)	0.0001	-1.60 (-2.39, -0.82)	<0.0001	-1.94 (-2.95, -0.93)	<0.0001
Daytime VMS severity	2.48 (0.28)	2.45 (0.29)	–	–	-0.25 (-0.36, -0.13)	<0.0001	-0.35 (-0.50, -0.20)	<0.0001
Nighttime VMS severity	2.62 (0.29)	2.59 (0.30)	–	–	-0.36 (-0.49, -0.22)	<0.0001	-0.48 (-0.65, -0.31)	<0.0001

*Unadjusted p-values are exploratory, not confirmatory.

M/S, moderate-to-severe; SD, standard deviation.

S-5.

Proportion of postmenopausal participants achieving ≥50% reduction in moderate-to-severe vasomotor symptom frequency with elinzanetant: pooled US population data from OASIS-1 and OASIS-2

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Sources of Funding; Sponsorship: Bayer US, Whippany, NJ, USA

Table. Participants achieving ≥50%, ≥75%, or ≥90% reduction in M/S VMS frequency

Arm 1	Study week	% of participants achieving ≥50, ≥75, or ≥90% reduction in M/S VMS frequency			Arm 2	Study week	% of participants achieving ≥50, ≥75, or ≥90% reduction in M/S VMS frequency		
		≥50%	≥75%	≥90%			≥50%	≥75%	≥90%
EZN 120 mg for 26 weeks (n=205)	Week 4	57.9	31.6	17.4	PBO-EZN (n=205)	Week 4	27.6	14.1	5.2
	Week 12	66.9	46.5	29.1		Week 12	40.5	21.4	11.6
	Week 26	75.2	62.4	40.4		Week 26	84.1	59.3	39.8

S-6.

Estetrol significantly reduced the frequency and severity of moderate-to-severe vasomotor symptoms: a pooled analysis of two Phase 3 randomized trials in postmenopausal women

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Objective: Estetrol (E4) is a native estrogen produced exclusively by the human fetal liver during pregnancy and represents a novel pharmacological approach in hormone therapy. E4 is characterized by a unique mechanism of action, which combines agonistic activity on nuclear estrogen receptor alpha (ERα) with antagonistic effects on membrane ERα. This profile results in minimal impact on hemostasis parameters and breast tissue, with potential benefits on lipid and glucose metabolism and bone turnover markers. Clinical efficacy and safety of E4 were demonstrated in two Phase 3 trials conducted across Europe, Russia, Latin America, the United States, and Canada for the treatment of vasomotor symptoms (VMS) in postmenopausal (PM) women, with a total of 2,576 participants enrolled across the E4COMFORT I and II studies. Therefore, in this study, we evaluated the efficacy of E4 15 mg and E4 20 mg once daily for the treatment of moderate-to-severe VMS in PM women in a pooled analysis of the E4COMFORT I and II studies. **Design:** This post-hoc pooled analysis combined data from two double-blind, placebo-controlled, randomized Phase 3 trials, E4COMFORT I (NCT04209543) and E4COMFORT II (NCT04090957). In these studies, PM women aged 40–65 years with ≥7 moderate-to-severe VMS per day or ≥50 VMS per week received oral E4 15 mg (N=399), or E4 20 mg (N=405) or placebo (N=404) once daily for 12 weeks. The pooled analysis assessed the effect of E4 on the weekly frequency and mean severity of VMS at Weeks 4 and 12 in the intent-to-treat (ITT) population. Changes from baseline (least square means, LS means) in VMS frequency and severity were analyzed using a mixed model for repeated measures (MMRM). **Results:** In the pooled population analysis, both E4 15 mg and E4 20 mg demonstrated significant reductions in the frequency and severity of VMS at Weeks 4 and 12. For VMS frequency, significant reductions versus placebo were observed at Week 4 for E4 15 mg (LS means -9.09, 95% IC -15.27, -2.91; $p=0.0023$) and for E4 20 mg (LS means -12.67, 95% IC -18.77, -6.58; $p<0.0001$) with further reductions at Week 12 for both doses (E4 15 mg: LS means -14.43, 95% IC -20.84, -8.03; $p<0.001$ and E4 20 mg: LS means -19.14, 95% IC -25.49, -12.80; $p<0.0001$) (Fig 1A). Similarly, VMS severity was significantly reduced versus placebo with both doses at Week 4 (E4 15 mg: LS means -0.17, 95% IC -0.31, -0.02; $p=0.0238$; E4 20 mg: LS means -0.28, 95% IC -0.42, -0.14; $p<0.0001$) and Week 12 (E4 15 mg: LS means -0.29, 95% IC -0.44, -0.13; $p<0.0001$ and E4 20 mg: LS means -0.56, 95% IC -0.71, -0.41; $p<0.0001$) (Fig 1B). The beneficial effects were sustained throughout the treatment period up to Week 12 for both doses. **Conclusion:** This post hoc pooled analysis provides high-level evidence that E4 at doses of 15 mg and 20 mg is effective in reducing the frequency and severity of moderate-to-severe VMS. In addition to its demonstrated efficacy, E4 may offer a differentiated profile compared with other estrogen therapies and nonhormonal treatments, making it an innovative option for managing VMS in postmenopausal women.

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THURSDAY CONCURRENT SESSION #2

S-7.

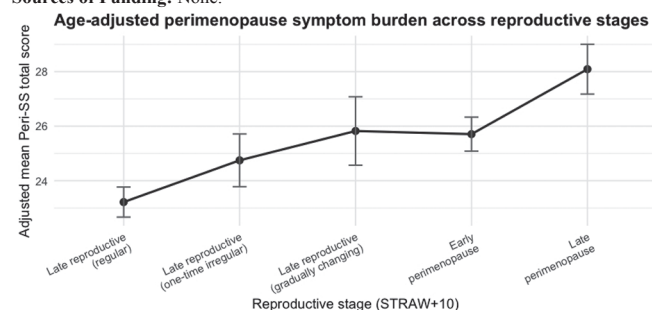
The “Regular Cycle Paradox”: longitudinal digital cycle tracking reveals perimenopause symptom burden before STRAW+10 perimenopause criteria are met

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Objective: Clinical recognition of perimenopause emphasises shifts in cycle length, as defined by STRAW+10 criteria. Yet, 15–25% of women experience limited changes in cycle regularity prior to menopause. This creates a “regular cycle paradox”: symptomatic women with seemingly regular cycles are under-supported because they do not yet meet formal staging thresholds. It is unclear whether these women enter perimenopause with truly “regular” cycles, or if subtle changes are systematically under-reported by current self-reporting approaches. This study aims to address this paradox by assessing if symptom burden is elevated before formally recognized perimenopause. **Design:** We conducted an observational study using longitudinal real-world data collected via the Flo App. We applied inclusion and exclusion criteria to minimize non-perimenopausal causes of cycle variability. The final analytic sample comprises 8,724 women aged ≥ 35 years (43.5±4.0) contributing 26,072 symptom assessments. Reproductive stage was derived from participants’ longitudinal cycle logging records by STRAW+10 criteria, including three substages within the late reproductive stage (LRS). Symptom burden was measured by the Perimenopause Symptom Scale (Peri-SS), a validated multi-domain instrument capturing vasomotor, psychological, sexual, and physical symptoms. Linear mixed-effects models with random intercepts were used to examine how symptom burden varied across reproductive stages, adjusted for age. **Results:** Participants had a median of 18 logged cycles (IQR: 8 - 52), their median cycle length was 27 days (IQR: 26 - 29). Symptom burden varied significantly across reproductive stages ($F = 23.78$, $p < .001$), increasing progressively from the LRS with regular cycles to late perimenopause. However, symptom trajectories did not align cleanly with discrete reproductive stage

boundaries. Compared with women in the LRS with regular cycles, those with subtle cycle changes already showed significantly higher symptom burden, including both LRS with one-time irregular cycle ($\beta = 1.53$, $p = .004$) and LRS with gradually changing cycles ($\beta = 2.61$, $p < .001$) subgroups. While women in early perimenopause also had elevated symptom scores ($\beta = 2.49$, $p < .001$), their symptom levels were comparable to the LRS with gradually changing cycles subgroup ($p = .87$). Chronological age showed a weaker and less clear-cut association with symptom burden. There was no significant association among women aged 40–44 ($p = .38$), but modestly negative association started to emerge after age 45 – older women had slightly lower symptom burden (age 45–49: $\beta = -1.37$, $p = .009$; age ≥50: $\beta = -1.60$, $p = .037$). **Conclusion:** Symptoms of perimenopause emerge during subtle cycle changes in the LRS, prior to perimenopause as defined by STRAW+10. This “Regular Cycle Paradox” suggests that the transition begins earlier and progresses more continuously than current staging thresholds imply. Relying on retrospective self-reporting of cycle patterns may delay perimenopause recognition. Digital longitudinal cycle tracking offers a reliable approach to detecting early cycle changes, potentially reducing uncertainty and improving care for women navigating perimenopause.

Sources of Funding: None.



S-8.

Patterns of Systemic Hormone Therapy Initiation Following Natural Menopause

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Objective: The objective of this study was to provide real-world evidence regarding the patterns of systemic hormone therapy (HT) initiation among women with natural menopause in a large healthcare database. **Design:** We utilized the MarketScan Research Databases (2009–2022) to identify women 45–60 years of age who underwent natural menopause and had at least 12 months of continuous insurance coverage after first diagnosis of menopause based on ICD-9 and ICD-10 diagnosis codes. Patients with surgical menopause, pre-existing breast or gynecologic cancers, and medical contraindications to HT were excluded. Systemic HT use was identified based on prescription data. Factors associated with HT initiation and HT type were analyzed using multivariable logistic regression, while duration of HT use was assessed via time-to-event analysis with results reported as adjusted hazard ratios (aHR). **Results:** A total of 318,621 eligible women were identified including 69,203 (21.7%) women who initiated systemic HT within 12 months after natural menopause, while 249,418 (78.3%) did not. The median follow-up for the entire cohort was 38.9 months. Predictors of HT use included younger age (45–49 vs. 55–60 years: aOR 2.17; 95% CI, 2.12–2.23), prior hysterectomy (aOR 1.98; 95% CI, 1.77–2.21), and topical estrogen use within 90 days prior to diagnosis of natural menopause (aOR 3.25; 95% CI, 3.05–3.47). Initiation was significantly lower among women with obesity (aOR 0.78; 95% CI, 0.75–0.81), diabetes (aOR 0.69; 95% CI 0.66–0.72), and Black women (aOR 0.78; 95% CI 0.68–0.89). The most common formulations for the first episode of HT use were estrogen plus progestogen (E+P) (52.5%), followed by estrogen-alone (E-alone) (32.4%), and progestogen-alone (P-alone) (15.1%). E-alone use was more common among women with a history of hysterectomy (86.8%) compared to those without (32.0%). The median duration of the first HT episode was 202 days (IQR, 62–689). By 36 months, 16.9% continued use. Early discontinuation was associated with Black race (aHR 1.53; 95% CI, 1.35–1.74) and Hispanic ethnicity (aHR 1.45; 95% CI, 1.15–1.81). Conversely, history of hysterectomy (aHR 0.80; 95% CI, 0.72–0.88) and concurrent local estrogen use (aHR 0.85; 95% CI 0.81–0.90) were associated with higher adherence. **Conclusion:** While over one-fifth of women initiate systemic HT following natural menopause, primarily using combined E+P formulations, persistence with treatment remains notably low. Significant racial and ethnic disparities in both HT initiation and therapy duration highlight clinical and non-clinical barriers to long-term menopause management. These findings, which reflect prescribing patterns prior to the FDA’s removal of the HT black box warnings, underscore the need for targeted clinical and policy interventions to improve equity and continuity in menopause care.

Sources of Funding: None

S-9.

Understanding Perceptions of Perimenopausal Heavy Menstrual Bleeding: Insights from a Social Listening Study

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Objective: A global social listening study was conducted to analyze conversations about perimenopausal heavy menstrual bleeding involving women and/or healthcare professionals (HCPs) to understand current perceptions and potential unmet educational needs related to recognition and care planning. **Design:** Search terms were curated and run through PULSE™ software to detect mentions of perimenopause and bleeding symptoms, including heavy menstrual bleeding (HMB) and abnormal uterine bleeding, across multiple languages to capture broad perspectives (English, French, German, Spanish, Italian, Portuguese, Swedish, Turkish). A total of 8,357 mentions between Jan 2025 and Jan 2026 were extracted, thematically coded, and sentiment-analyzed to identify and quantify unmet needs around perimenopausal HMB symptom recognition, information seeking behaviors, and access to care. **Results:** Nearly half of conversations (45%) relating to HMB in perimenopause were negative in sentiment, characterized by women's experience of symptoms (including feelings of confusion and uncertainty), women seeking validation for their symptoms, and a perception of inadequate support from HCPs. This negative sentiment was mostly consistent across various languages. Symptom burden was associated with HMB in perimenopause in multiple instances. Of these symptoms, the most frequent were psychological or mental health related symptoms, including anxiety, mood changes, and brain fog. Uncertainty related to whether symptoms were "normal" was also widespread, with the term "normal" appearing in multiple mental health related conversations, underscoring confusion and the need for validation. Misattribution of perimenopausal HMB by HCPs was discussed in many conversations, with physical symptoms being frequently associated with other gynecological conditions with overlapping bleeding and/or pain characteristics, such as pelvic pain. Dismissal of HMB symptoms (HCPs failing to acknowledge or address reported concerns) was also captured in conversations, compounding the emotional distress experienced by women and uncertainty regarding to seek support. Unclear care pathways were a recurring theme in conversations, with discussions of women seeking care options beyond their primary care physician, such as through private clinics or other peer-recommended providers. Women's reliance on peer-led social channels for advice on HMB (i.e., via Reddit, Instagram, or online blogs) was notable, as was documented variability in the responses and advice given. **Conclusion:** In this study, women reported gaps in self- and HCP recognition of symptoms associated with perimenopausal HMB, particularly psychological symptoms. Misattribution and dismissal of symptoms were reported, and unclear care pathways were associated with a reliance on peer-to-peer communities. This may lead to misinformation and delayed care in the absence of evidence-based guidance. Strengthening perimenopausal HMB education for both women and HCPs, and providing clearer guidance on symptom recognition, are essential steps for advancing timely and appropriate care.

Sources of Funding: The Women's Health Academy is a multidisciplinary, international group of experts who have come together to improve reproductive and menopause outcomes for women. It is funded and facilitated by Bayer but operated by an independent Executive Committee. Medical writing support, under the direction of the authors, was provided by Apothecom and funded by Bayer Consumer Care AG, Basel, Switzerland, in accordance with Good Publication Practice (*Ann Intern Med.* 2022;175:1298–1304).

S-10.

Scaling Access to Menopause Care: Real-World Symptom Improvement in an Employer-Sponsored Program

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Objective: Menopause symptoms are highly prevalent and often undertreated due to limited access to menopause-informed care. Scalable care delivery models integrating education, coaching, and specialist support may help address this gap. This study evaluated access, engagement, and symptom outcomes in a Menopause and Midlife program offered as an employer-sponsored health benefit. **Design:** We conducted a retrospective longitudinal analysis of women enrolled in a Menopause and Midlife program in 2025. Enrollment and activity data were used to assess demographics, enrollment pathways, and engagement. Symptom outcomes were evaluated among members completing ≥2 Menopause Rating Scale (MRS) assessments. Primary outcome was change in MRS total and subscale scores (psychological, somatic, urogenital) between baseline and follow-up assessments. **Results:** Among women with program access in 2025, mean age at enrollment was 50.4 years; 67% enrolled between ages 45–55, and 94% between 40–60. Women enrolling through a digital pathway were younger than those enrolling via care advocate-led pathway (digital enrollees: M=49.1, SD=6.18, phone enrollees: M=50.7, SD=5.44, p<.001), although most participants (85%) enrolled with advocate support. Engagement included 63% completing visits with providers trained in menopause best-practice-aligned care and 84% receiving

individualized coaching. Access to menopause-experienced care was timely, with time to first provider visit shorter than reported national benchmarks for OB/GYN care. Among members completing ≥2 MRS assessments (n=179), symptom burden decreased across all domains between baseline and follow-up. Mean MRS scores decreased from 16.65 (SD=6.45) to 8.89 (SD=5.31)(p<.001). The most severe baseline symptoms included physical and mental exhaustion, sleep problems, vasomotor symptoms, joint and muscular discomfort, irritability, and sexual problems. Mean severity across these domains decreased by approximately 39-59%, with the largest reductions observed in vasomotor symptoms (59%) and sleep problems (47%); all changes were statistically significant (p<.001). **Conclusion:** In this real-world longitudinal analysis, participation in a structured menopause care program was associated with improvements in symptom burden and high engagement with coaching and specialist care. These findings highlight the potential for employer-sponsored care delivery models to expand access to menopause-informed, best-practice care and improve outcomes at scale and address critical gaps in menopause care access. While findings are based on a single-arm design with self-reported outcomes, they provide practical evidence supporting scalable approaches to improving access to menopause care and reducing symptom burden.

Sources of Funding: None

Percent Reduction in Menopause Symptom Severity from Baseline to Follow-Up

Symptom	Baseline	Follow-up
Physical & mental exhaustion	2.3	1.3
Sleep problems	2.1	1.1
Vasomotor symptoms	1.7	0.7
Irritability	1.6	0.9
Joint & muscular discomfort	1.6	1.0
Sexual problems	1.6	0.9
Anxiety	1.5	0.9
Depressive mood	1.4	0.7
Bladder problems	1.1	0.6
Vaginal dryness	1.0	0.5
Heart discomfort	0.7	0.3

average scores; all symptom changes p<.001

S-11.

Cost-Effectiveness Analysis of Menopausal Hormone Therapy, A Modern Take

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Objective: To evaluate the cost effectiveness of menopausal hormone therapy (MHT) based on the risk-benefit profiles of current MHT formulations. **Design:** We used a Markov model to examine the cost effectiveness of MHT for hypothetical 50-year old women with vasomotor symptoms in comparison with evaluation of transdermal estradiol (E2) alone for patients without a uterus and transdermal estradiol in combination with micronized progesterone (EP) for patients with a uterus, assuming five years of use. The effectiveness was expressed in quality-adjusted life years (QALYs), and the willingness to pay threshold was set to \$100,000 per QALY gained. We derived probabilities, cost data, and utilities from the literature, and estimated the incremental cost-effectiveness ratios between the MHT and no MHT strategies as our primary outcome. Secondary outcomes included the number of cases of cardiovascular disease, breast cancer, colon cancer, hip fracture, and death. **Results:** MHT use demonstrated absolute dominance over not using MHT for both E2 and EP arms. Per 10,000 patients over a lifetime, no MHT compared to E2 was \$451,653,415 more expensive and resulted in a loss of 27,103 QALYs, was associated with 1,751 more cases of ASCVD, 94 more colon cancer cases, 134 fewer breast cancer cases, 140 more hip fractures, and 1,617 more deaths. No MHT compared to EP was \$442,051,974 more expensive and resulted in a loss of 26,819 QALYs, was associated with 1,772 more cases of ASCVD, 142 more hip fractures, and 1,579 more deaths. Sensitivity analysis showed that variables related to ASCVD had the most effect on the model. Probabilistic sensitivity analysis revealed absolute dominance for both MHT strategies at all willingness to pay thresholds up to \$200,000. **Conclusion:** Our model suggests that MHT is cost-effective for typical patients experiencing menopausal symptoms. MHT's reduction in ASCVD risk is the largest driver of cost-effectiveness in the model.

Sources of Funding: None

Cost-utility analysis of menopausal hormone therapy*

Strategy	Cost \$ (million)	Effectiveness, QALY	ICER, \$/QALY gained	No. ASCVD cases	No. colon cancer cases	No. breast cancer cases	No. hip fractures	No. deaths
No MHT	1,481	152,793	-	6,948	276	898	566	5,958
E2 alone	1,030	179,896	-16,664	5,197	182	1,032	466	4,341
Difference	451	-27,103		1,751	94	-134	140	1,617
No MHT	1,481	152,790	-	6,948	†	†	566	5,958
EP	1,039	179,610	-16,483	5,176	†	†	424	4,380
Difference	442	-26,819		1,772	-	-	142	1,579

ICER: incremental cost-effectiveness ratio; QALY: Quality adjusted life year; ASCVD: atherosclerotic cardiovascular disease; MHT: menopausal hormone therapy; E2: estradiol; EP: estradiol and micronized progesterone

*Assuming cohort of 10,000 women

†We assumed no change in colon cancer or breast cancer risk with EP

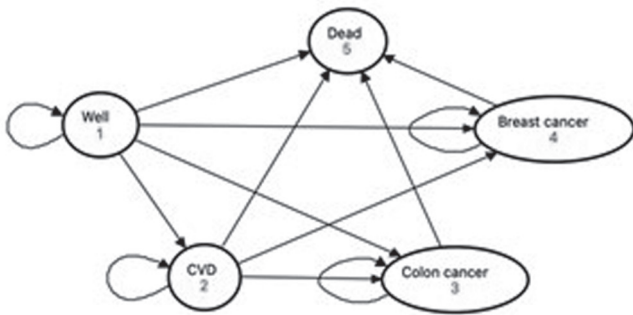


Figure 1. State Transition Diagram of Markov Health States in Model

S-12.

Insurance-Based Differences in Access to Menopause Society Certified Practitioners: Interim Results From a National Secret Shopper Study

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Objective: A menopause care gap has been described, but it remains unclear whether Menopause Society Certified Practitioners (MSCPs) meaningfully meet this need in practice, and for which patient populations. As insurance is a critical factor in access to care in the US, and appears to mediate racial and ethnic disparities in menopause care in prior research, we aimed to evaluate access to MSCPs overall. Specifically, we evaluate differences in access for Medicaid versus privately insured patients, and whether state Medicaid policy environments are associated with Medicaid acceptance. **Design:** This is an interim analysis of a national secret shopper study of MSCPs. We a priori planned to contact 200 MSCP offices (400 total calls) and report here on the first 153 MSCPs (306 pairs of calls). We used the Menopause Society MSCP database (accessed December 2025), publicly available Medicaid fee schedules from each state, as well as prior work characterizing Medicaid administrative burden. Using the fee schedule and administrative burden classification, we classified states into 4 categories: high reimbursement/low burden, high reimbursement/high burden, low reimbursement/low burden, or low reimbursement/high burden. We randomly selected practices from the MSCP database while balancing state Medicaid policy quadrant, clinician type (physician vs advanced practice provider [APP]), and specialty. Three trained research assistants called each practice posing as one of two standardized personas seeking menopause-specific care, one with private insurance and one with Medicaid. Up to six attempts were made before a site was deemed unreachable, and were removed from the provider list. Outcomes were insurance acceptance, whether an appointment was offered, and time to first available appointment; no appointments were actually scheduled. Descriptive statistics summarized the sample; McNemar's test assessed paired binary outcomes, paired t tests compared wait times, and logistic regression evaluated correlates of reported Medicaid acceptance. Analyses were performed in Stata 17. **Results:** Of 153 MSCP practices contacted to date, 87% were physicians, of which 56% were obstetrician-gynecologists; among APPs, 80% were nurse practitioners. Practice settings were standalone/private clinics (50%), nonacademic health systems (29%), and academic health systems (21%). Fifteen percent operated on a concierge/subscription basis and accepted no insurance, 26% reported accepting private insurance only, and 59% reported accepting both private insurance and Medicaid. Appointment access was substantially more limited: 37% offered no appointment to either caller, 25% offered an appointment only to the privately insured caller, 3% only to the Medicaid caller, and 35% to both. Thus, an appointment was offered to 60% of private callers but only 38% of Medicaid callers. Among practices offering appointments, wait times were long and left-skewed (mean 74 days; median 41 (IQR 18-91); range 1-491). Medicaid callers had an appointment scheduled a mean of 4 days longer than privately insured callers when an appointment was offered to both, but this difference was not statistically significant. Clinician type, practice setting, and state Medicaid reimbursement/administrative burden quadrant were not significantly associated with reported Medicaid acceptance. **Conclusion:** A meaningful share of MSCP care operates outside insurance, and reported insurance participation overstates realized access. Although 59% of practices said they accepted both private insurance and Medicaid, Medicaid callers obtained appointments far less often than privately insured callers. Among practices offering appointments, wait times were long for both groups. These findings suggest that MSCP care is not currently a universal solution to menopause access and may reproduce broader insurance-based inequities.

Sources of Funding: None

S-13.

Effects of Neurokinin Receptor Antagonists on Sleep Disturbance in Menopausal Women: A Systematic Review and Meta-analysis of Randomized Controlled Trials

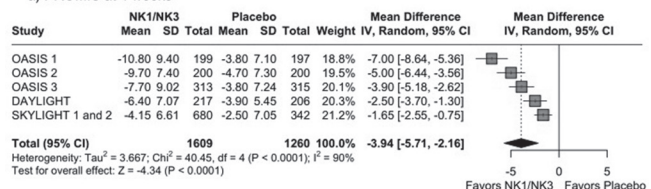
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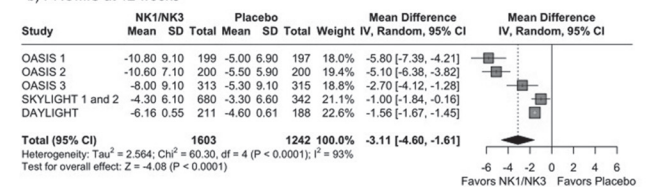
Objective: To evaluate the effects of neurokinin 1 and 3 receptors antagonists (NK1/NK3 dual and NK3-selective) on sleep disturbance in menopausal women, measured by the Patient-Reported Outcomes Measurement Information System Sleep Disturbance Short Form 8b (PROMIS SD SF-8b) at 4, 12, and 24 weeks. **Design:** A comprehensive search of PubMed, Embase, and the Cochrane Library identified phase 2 and 3 trials evaluating neurokinin receptor antagonists in peri- and postmenopausal women with moderate-to-severe vasomotor symptoms (VMS) reporting PROMIS SD SF-8b outcomes at 4, 12, and 24-26 weeks. Random-effects models were used to calculate pooled mean differences (MD) with 95% confidence intervals (CI). Subgroup analyses were conducted according to drug class (dual NK1/NK3 vs NK3-selective). **Results:** At 4 weeks, NK receptor antagonists significantly improved sleep disturbance compared with placebo (MD -3.94; 95% CI -5.77 to -2.11; $p < 0.001$). The effect was greater with dual NK1/NK3 antagonism (MD -5.24; 95% CI -6.99 to -3.49) than with NK3-selective agents (MD -1.98; 95% CI -2.79 to -1.17), subgroup difference ($p < 0.01$). At 12 weeks, the pooled effect remained significant (MD -3.15; 95% CI -5.01 to -1.29; $p < 0.001$), again favoring dual NK1/NK3 antagonism (MD -4.52; 95% CI -6.34 to -2.70) over NK3-selective therapy (MD -1.44; 95% CI -1.89 to -0.99), subgroup difference ($p < 0.01$). At 24 weeks, a statistically significant overall benefit persisted (MD -2.04; 95% CI -3.93 to -0.15; $p = 0.034$). **Conclusion:** Neurokinin receptor antagonists significantly improve PROMIS-defined sleep disturbance in menopausal women at 4 and 12 weeks, with sustained benefit at 24 weeks. Dual NK1/NK3 antagonism demonstrates greater short- and mid-term effects compared with NK3-selective therapy. These findings support a clinically meaningful role for NK pathway modulation in addressing menopause-related sleep disturbance.

Sources of Funding: None

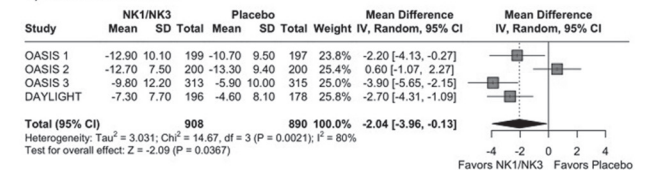
a) PROMIS at 4 weeks



b) PROMIS at 12 weeks



c) PROMIS at 24 weeks



S-14.

Effects of elinzanetant on daytime sleepiness: pooled analysis of OASIS-1 and OASIS-2 trials

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Objective: Elinzanetant is a dual neurokinin (NK)-targeted therapy (NK1 and NK3 receptor antagonist) approved for the treatment of menopause-associated moderate-to-severe vasomotor symptoms (VMS) in countries/regions that include USA and Europe, as well as for endocrine therapy-associated VMS (in Europe). Elinzanetant is intended to

be taken at bedtime. This post hoc analysis assessed effects of elinzanetant on daytime sleepiness to evaluate whether the bedtime dose of elinzanetant would have any residual effects (i.e., sleepiness) the following day. This is important to determine, as morning residual somnolence is often observed with many medications that improve sleep, thereby negatively impacting daytime functioning. **Design:** OASIS-1 and -2 were 26-week (first 12 weeks placebo-controlled) double-blind pivotal Phase III trials that enrolled naturally or surgically postmenopausal women aged 40 to 65 years who were experiencing ≥ 50 moderate-to-severe VMS per week. Data were pooled from both studies. Each evening at bedtime, participants completed a Sleepiness Scale comprising three items that assessed the degree of sleepiness experienced in the morning, afternoon, and evening of the same day, based on a 5-point rating scale (“0=not at all”; “1=a little”; “2=somewhat”; “3=much”; “4=very much”). From these scores, 7-day averages were derived. Mean change in average daily total, morning, afternoon, and evening Sleepiness Scale scores from baseline to Week 12 was descriptively assessed, with a decrease indicating a reduction of sleepiness. **Results:** Mean baseline Sleepiness Scale scores were similar between the placebo and elinzanetant groups (Table 1). From baseline to Week 12, mean total, morning, afternoon, and evening Sleepiness Scale scores reduced in both treatment groups (Table 1). By Week 12, the mean (95% confidence interval [CI]) change from baseline for elinzanetant vs placebo were: -0.61 (-0.70, -0.51) vs -0.46 (-0.55, -0.38) for total, -0.66 (-0.77, -0.55) vs -0.39 (-0.49, -0.30) for morning, -0.60 (-0.71, -0.50) vs -0.45 (-0.55, -0.36) for afternoon, and -0.56 (-0.66, -0.45) vs -0.54 (-0.63, -0.44) for evening scores, respectively. Thus, greatest improvement in sleepiness in the elinzanetant group was observed for mean morning scores; the mean [95% CI] difference for elinzanetant vs placebo in morning scores at Week 12 was -0.27 (-0.42, -0.13). **Conclusion:** Morning sleepiness improved more with elinzanetant than placebo from baseline to Week 12, which may be a consequence of elinzanetant-mediated improvements in sleep disturbance (as reported in OASIS-1 and -2, elinzanetant significantly improves patient-reported sleep disturbances compared to placebo). Similar trends in sleepiness were also observed in the 52-week OASIS-3 trial; these data will be presented subsequently. The reduction in morning sleepiness with elinzanetant suggests that the bedtime dose of elinzanetant does not have residual somnolent effects in the morning, despite its effect on reducing sleep disturbances in menopausal women.

Sources of Funding: Bayer CC AG

Table 1. Mean (95% confidence interval) baseline and change from baseline in average daily Sleepiness Scores

Average daily Sleepiness Score, mean (95% confidence interval)	Elinzanetant 120 mg (n=399)	Placebo (n=397)
Total		
Baseline	2.04 (1.95, 2.14)	1.94 (1.85, 2.04)
Change from baseline to Week 12	-0.61 (-0.70, -0.51)	-0.46 (-0.55, -0.38)
Morning		
Baseline	1.97 (1.87, 2.08)	1.86 (1.75, 2.00)
Change from baseline to Week 12	-0.66 (-0.77, -0.55)	-0.39 (-0.49, -0.30)
Afternoon		
Baseline	1.89 (1.79, 2.00)	1.83 (1.72, 1.94)
Change from baseline to Week 12	-0.60 (-0.71, -0.50)	-0.45 (-0.55, -0.36)
Evening		
Baseline	2.26 (2.15, 2.37)	2.14 (2.03, 2.25)
Change from baseline to Week 12	-0.56 (-0.66, -0.45)	-0.54 (-0.63, -0.44)

S-15.
Abstract Withdrawn by Author

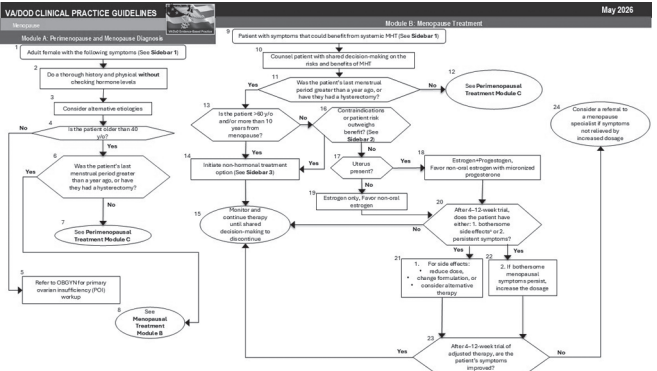
S-16.
Closing the Gap in Menopause Care for Veterans and Service Members Through Evidence Based Guidance

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Objective: To address persistent gaps in evidence based menopause care for the growing population of perimenopausal and menopausal active duty servicemembers and veterans. These gaps contribute to unmanaged symptoms, reduced daily functioning, and diminished operational readiness. The Veterans Affairs (VA)/Department of Defense (DoD) Evidence Based Practice Working Group developed a comprehensive Menopause Clinical Practice Guideline (CPG). **Design:** The Working Group conducted a structured evidence synthesis using a multidisciplinary team of specialists, including obstetrician gynecologists, family medicine physicians, internists, psychiatrists, nutritionists, pharmacists, and other subject matter experts across the spectrum of women’s health and primary care. Patient priorities were identified through a focus group, and 20 key clinical questions were developed to guide the review. Systematic searches across multiple databases identified systematic reviews, metaanalyses, and primary studies published from January 2015 through June 2025. Evidence appraisal and recommendation development followed the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) methodology. **Results:** Of 8,623 citations screened, 6,385 were excluded at the abstract level and 1,912 at full text review. The final evidence base included 151 publications (72 systematic reviews and 79 primary studies). Synthesis of these data informed 44 recommendations addressing menopausal diagnosis, symptom management, and disease prevention. The CPG includes treatment algorithms and a pharmacotherapy guide tailored for primary care clinicians, the most frequent point of contact for military and veteran women, aimed at improving access to high quality,

evidence based menopause care. **Conclusion:** The VA/DoD Menopause CPG provides adaptable, patient centered tools to support consistent, evidence based clinical decision making across diverse care settings. Implementation will occur through internal VA/DoD dissemination pathways, medical literature, educational initiatives, and integration into electronic medical record decision support systems. As a late breaking submission, the CPG is expected to be publicly accessible on the DoD website by the time of the annual meeting, allowing attendees to review the full guideline and companion algorithms. By strengthening provider knowledge and improving access to guideline concordant care, this CPG aims to enhance the health, readiness, and longterm retention of servicewomen and veterans throughout the menopausal transition and beyond.

Sources of Funding: Veterans Affairs and Department of Defense



Menopause Care Algorithm Pocket Card

FRIDAY CONCURRENT SESSION #1

S-17.

Population Risk-based Breast Cancer Screening Safety and Acceptability
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Objective: The Women Informed to Screen Depending on Measures of risk (WISDOM) study recently demonstrated that risk-based breast cancer screening that includes population-based genetic testing safely stratified risk and screening intensity compared to annual screening. Because psychological factors are important in population screening and this intervention aims to enhance women’s understanding of their breast cancer risk, we evaluated the effect of risk-based screening on women’s anxiety, breast cancer worry and breast cancer risk perception. **Design:** WISDOM 1.0 is a pragmatic preference-tolerant randomized clinical trial comparing annual breast cancer screening beginning at 40 years with risk-based screening. Women aged 40 to 74 years with no prior diagnosis of breast cancer or DCIS, and no prophylactic bilateral mastectomy were eligible. Women were asked to be randomized to risk-based vs. annual screening starting at age 40. Women who declined randomization were offered the option to join an observational cohort and select their arm. Risk was assessed using the Breast Cancer Surveillance Consortium v2 model, a polygenic risk assessment, and pathogenic variants to provide women with 1 of 4 risk-based breast cancer screening recommendations: alternating MRI and mammograms every 6 months (highest risk), annual mammograms beginning at age 40 years (elevated risk), biennial screening beginning at age 50 (average risk), no screening until risk reaches that of the average 50 year old woman (lowest risk). We surveyed women at baseline, after disclosure of risk assessment and assignment, and at one year using the PROMIS anxiety scale, Breast cancer worry scale, and assessed women’s breast cancer risk perception using categorical, numerical, and comparative measures. We compared survey responses between randomized arms. **Results:** The majority of women elected to be randomized (28,372 of 46,403). The majority (89%) in the observational arm chose risk-based screening. Of 28,372 women randomized to risk-based vs. annual screening, mean (SD) age 54 (9.6) years, 77% non-Hispanic White, the rate of $\geq$ stage 2B cancers was noninferior in the risk-based arm compared with the annual mammogram arm (risk-based: 30.0 [95%CI, 16.3-43.8] vs annual: 48.0 [95%CI, 30.1-65.5] per 100 000 person-years). Women were assigned to the highest risk (2%), elevated risk (8%), average (62%), and low risk groups (26%), and received a recommendation to screen every 6 months alternating mammograms and MRIs, annual mammography, biennial mammography, or no screening until the age of 50 or until reaching a 5 year risk of 1.3%. There were 2% unassigned. Women in the highest risk group assigned to Q6 screening did not have any $\geq$ stage 2B cancers. Among all women in the risk-based arm (including in the observational group), of 232 identified to have a high-penetrance pathogenic mutation; 39% reported no first degree relative with breast cancer and only 1 (0.4%) would have been recommended high risk screening based on BCS v2 model alone. Of women assigned to risk-based screening, 75% completed their genetic testing and received their results. At baseline, women in the risk-based and annual arms were not different in terms of anxiety or breast cancer worry. Women in the risk-based arm increased anxiety from baseline after receiving their screening recommendation (0.77 v 0.18, p=0.001) without a change in breast cancer worry. By one year follow-up, there was no significant difference from baseline in anxiety (p=0.45) or breast cancer worry (p=0.49) between the risk-based and annual groups.

Conclusion: Population-based risk-based breast cancer screening is oncologically and psychologically safe. Comprehensive risk-assessment that includes testing for pathogenic variants provides a non overlapping approach to identify women at highest risk where more frequent screening reduces the risk of $\geq$ stage 2B cancers. Completion rates for genetic testing were high and participants adjusted well to the information received.

Sources of Funding: PCORI, National Cancer Institute, Breast Cancer Research Foundation

S-18.

Abstract Withdrawn by Author

S-19.

The Role of Reproductive Hormones in Arterial Stiffness in Postmenopausal Women

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Objective: Arterial stiffness is an independent predictor of cardiovascular events and mortality. Reproductive hormones such as endogenous estradiol (E2) are known to have widespread impacts on the vasculature, but their role in arterial stiffness is not well understood. However, increases in arterial stiffness are observed as women transition through the menopause beyond the effects of age alone, underscoring a plausible role of endogenous reproductive hormones in arterial stiffening. Further, mechanisms of arterial stiffening can be decomposed into structural (remodeling of the arterial wall) and load-dependent (blood pressure loading on the arterial wall) components. As evidence suggests that the role of endogenous reproductive hormones in vascular health may vary, the relationship of endogenous reproductive hormones to arterial stiffness, including structural and load-dependent mechanisms, remains unknown. We examined reproductive hormones, including estradiol (E2), estrone (E1), and follicle stimulating hormone (FSH) in relationship to arterial stiffness, including structural and load-dependent components of arterial stiffness. **Design:** 216 postmenopausal women (N=216; Age: 58.8 $\pm$ 4.4 years) who had undergone natural menopause, were not using hormone therapy, and did not have a history of cardiovascular disease, were enrolled in the MsBrain study. Women underwent measurements of carotid-femoral pulse wave velocity (cfPWV), physical measurements (height, weight, blood pressure), and phlebotomy (reproductive hormones, glucose, insulin, lipids). Serum hormones E1 and E2 were measured using LC/MS-MS. FSH was measured using a commercially available enzyme-linked immunosorbent assay. Associations between sex hormones and cfPWV, structural-cfPWV (S-PWV), and load dependent-cfPWV (LD-PWV) were assessed using multiple linear regression adjusting for age, race, education, body mass index (BMI), low density lipoprotein cholesterol, insulin resistance (homeostatic model assessment), smoking, and anti-hypertensive medication use. **Results:** Higher E2 was associated with higher cfPWV (β [standard error (SE)] = 0.028 [0.014], $p=0.043$). When cfPWV components were considered, higher E2 was associated with higher structural (S-PWV, β [SE] = 0.812 [0.323], $p=0.013$), but not load dependent (LD-PWV, β [SE] = -0.007 [0.106], $p=0.946$) PWV. No significant associations were observed between E1 or FSH with cfPWV, S-PWV, or LD-PWV. **Conclusion:** Higher endogenous estradiol levels were associated with greater arterial stiffness, specifically structural components, in postmenopausal women. These findings suggest that circulating estradiol in the postmenopausal years may reflect underlying metabolic or vascular processes linked to adverse arterial remodeling rather than protective hormonal effects.

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S-20.

Reproductive Aging Mediates Genetic Pathways to Cardiovascular Risk Beyond Metabolic Syndrome

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Objective: Cardiovascular disease (CVD) risk in women is shaped by both cardiometabolic burden and reproductive aging. Earlier age at natural menopause (ANM), a marker of accelerated ovarian aging, is associated with increased CVD risk, however, the extent to which genetic susceptibility to CVD is mediated through reproductive aging, independent of metabolic syndrome (MetS) remains unclear. The main objective of this study is to quantify SNP-level mediation of genetic CVD risk through ANM versus MetS and to determine whether reproductive aging captures distinct biological pathways beyond traditional cardiometabolic mechanisms and potential therapeutic relevance. **Design:** We performed genome-wide association analyses of CVD in women from the UK Biobank under three models: baseline (age and Principal Components 1-10), adjusted for MetS (≥ 3 to any of obesity, type 2 diabetes, hypertension or dyslipidemia), and adjusted for early menopause status (≤ 45 years) Independent lead SNPs from large external GWAS of cardiometabolic and reproductive traits were LD-clumped and harmonized. SNP-level mediation was quantified using proportional mediation of genetic effects comparing adjusted versus baseline models. Loci were further classified based on mediation through ANM or MetS, and pathway enrichment analyses were performed. **Results:** In total, we tested 10,610 single nucleotide polymorphisms (snps) and filtered on mediated $p<0.05$ to obtain 760 and 599 unique snps for MetS and ANM respectively. Genetic susceptibility to CVD was partially mediated through both MetS and ANM,

with distinct patterns across loci. Adjustment for MetS resulted in moderate mediation of SNP-CVD associations (median $\sim 50\%$), consistent with shared cardiometabolic pathways. In contrast, ANM adjustment produced broader and greater mediation (median $\sim 60-70\%$) with increased heterogeneity across loci. MetS-mediated variants were enriched for canonical cardiometabolic pathways, including lipid metabolism, glucose regulation, and vascular function (e.g., *TCF7L2*, *ATP2B1*). In contrast, ANM-mediated variants mapped to estrogen receptor signaling, reproductive aging, and cellular senescence pathways (e.g., *CCDC62*), indicating mechanisms not fully captured by metabolic risk. These findings suggest partially distinct genetic mechanisms underlying CVD risk. **Conclusion:** Reproductive aging mediates a substantial and biologically distinct component of genetic CVD risk beyond MetS, implicating estrogen signaling and ovarian aging pathways. These findings highlight estrogen-related and ovarian aging pathways as potential targets for early intervention and risk stratification in women's cardiovascular health.

Sources of Funding: None

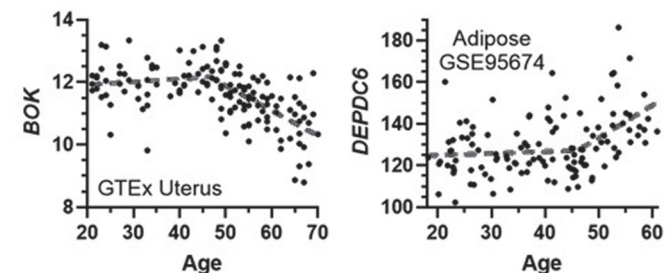
S-21.

Identification of Menopause-Regulated Genes with Accelerated Expression Changes in Midlife

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Objective: The hormonal changes of menopause have downstream effects on tissues throughout the body, often having negative effects on women's health. Gene expression changes can provide biological insight into the molecular mechanisms underlying menopause-induced physiological changes, especially since hormone receptors can directly regulate gene expression. Since it can be difficult to disentangle changes due to chronological aging from those due to endocrinological aging in midlife women, we sought to classify genes based on their age-related expression patterns. We reasoned that genes that exhibit accelerated changes in expression during the menopausal transition are more strongly influenced by endocrinological than chronological aging. **Design:** We identified publicly available human tissue gene expression datasets with sex and age information that had sufficient sample sizes of women before and after age 50. These included postmortem collections, such as the GTEx (Genotype-Tissue Expression) Project, as well as biopsies from living donors, such as GSE95676 (Sharma et al., 2016). Among genes that were sufficiently expressed in a given tissue, we used Spearman's correlation to identify genes that were significantly correlated with age in female tissues after FDR (false discovery rate) correction for multiple testing. Using the R package segmented, we tested female age-correlated genes for changes in slope (breakpoints) using the Davies test, identified the optimal number of segments (minimizing the Bayesian Information Criterion) using the segmented function, and estimated the location (age) of identified breakpoints. We then investigated the biological functions of genes that had accelerated changes in gene expression around the time of menopause. **Results:** Of the GTEx tissues we examined, the uterus showed the strongest transcriptomic signature of menopause, with over 10,000 genes significantly correlated with age and over 1,000 of these displaying evidence of a "breakpoint" with $p<0.05$ in the Davies test (see left panel of Figure for example). The ages at which breakpoints were estimated averaged 46.2 $\pm$ 5.8 years, which is strong evidence that many of these changes in gene expression occur due to the menopausal transition. Similar trends were observed in ovary and vagina tissues. We also extended our analysis to non-reproductive tissues. In general, these tissues had fewer genes correlated with age in females, a smaller proportion of age-correlated genes with statistical evidence for breakpoints, and a more uniform distribution of breakpoint ages. However, there were still genes identified with breakpoints around the time of menopause with roles related to phenotypes that are documented to change due to menopause. For instance, *DEPDC6* (aka *DEPTOR*) is known to promote adipogenesis and adipose tissue expansion and demonstrates an accelerated rise in expression beginning around age 46 (see Figure, right panel). We are in the process of expanding these analyses to additional datasets. **Conclusion:** Segmented regression analysis can help to disentangle menopause-related gene expression changes from the confounder of chronological age, providing insight into the molecular basis of the numerous physiological changes that occur during the menopausal transition and allowing for better informed management of midlife women's health.

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FRIDAY CONCURRENT SESSION #2

S-22.

Perimenopausal depression severity is inversely correlated with allopregnanolone levels

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Objective: Allopregnanolone (ALLO), an endogenous neuroactive steroid, progesterone metabolite, and allosteric modulator of the GABA-A receptor, is increasingly implicated in the pathophysiology of reproductive mood disorders. While reduced ALLO activity is a mechanism that underlies postpartum depression (PPD), its role in perimenopausal depression remains poorly characterized. We hypothesized that serum ALLO levels would inversely correlate with depressive symptom severity in perimenopausal women.

Design: This is a substudy of an eight-week observational study in 50 perimenopausal women with untreated mild depression. Women had weekly assessments for depressive symptom severity (Montgomery-Åsberg Depression Rating Scale, MADRS, range 0-60), serum levels of estradiol and progesterone, and vasomotor symptoms (VMS) frequency (self-report diaries). In a subset of n=40 women in whom serum was available, ALLO levels were measured using LC/MS at each participant's highest and lowest MADRS score. Generalized linear mixed-effect models were used to estimate associations between ALLO levels and highest versus lowest MADRS scores. Models were adjusted for estradiol and progesterone levels, and VMS frequency. Spearman's correlation analysis was conducted between serum ALLO levels and MADRS score. **Results:** In this substudy, we included 40 women (mean (±SD) age: 48.5±3.7 years; BMI: 28.2±7.6 kg/m²; median [interquartile range, IQR] days since last menstrual period 24 [10, 64]; baseline MADRS score 17 [14, 20], consistent with mild to moderate depressive symptoms). During peaks of depressive symptom severity (median [IQR] MADRS score 18 [14, 21], consistent with mild to moderate depressive symptoms), serum ALLO levels were lower as compared to nadirs of depressive symptom severity (MADRS score 3 [2, 7], consistent with normal to mild depressive symptoms): 72.0 pg/mL [42.8, 144.3] vs 187.5 pg/mL [160.0, 241.0]. Mixed-effect modeling demonstrated a significant inverse association between ALLO levels and MADRS scores ($\beta = -125.3$; 95% confidence interval: -165.7, -84.9; $p < 0.001$). This association remained statistically significant after adjusting for estradiol and progesterone levels, and VMS frequency. There was a negative correlation between serum ALLO levels and MADRS scores ($R_{\text{Pearson}} = -0.39$, $p < 0.001$). **Conclusion:** Depressive symptom severity is inversely associated with serum ALLO levels in perimenopausal women. These findings parallel the neuroendocrine dysregulation observed in PPD, implicating this neuroendocrine pathway in reproductive mood disorders across the lifespan. Given the efficacy of GABA-A receptor-modulating neuroactive steroids in PPD, our data support investigating ALLO and its synthetic analogues as treatment for perimenopausal depression.

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S-23.

The Effects of Transdermal Estradiol on Affective Symptoms and Reward-related Brain Activation in Perimenopausal-onset Anhedonia

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Objective: Risk of depression increases sharply in perimenopause, and prior work has shown that hormone therapy, particularly transdermal estradiol, may alleviate depressive symptoms. However, the mechanisms underlying this effect are not well understood. Preclinical models have implicated the effect of estradiol on dopaminergic pathways, suggesting that estradiol may exert its antidepressant effects through reward-related neural regulation. The current study aims to directly test this hypothesis in a sample of perimenopausal women with anhedonia. **Design:** This study included participants from an ongoing randomized, double-blind mechanistic clinical trial. Participants were perimenopausal women ages 44-55 in with varying levels of anhedonia. Following a diagnostic clinical interview, participants were randomized to receive three weeks of transdermal estradiol (100 µg/day; n=18) or placebo (n=21). All participants completed a functional magnetic resonance imaging (fMRI) scan before and after the three-week intervention. During this scan, participants completed a monetary incentive delay (MID) task, which taps into reward-related brain activity. Activation in the reward receipt>neutral contrast was measured in six regions-of-interest (ROIs) of bilateral striatal regions (caudate, putamen, nucleus accumbens). Participants also completed the Greene Climacteric Scale (GCS) at each time point. The GCS Psychological subscale was used to measure changes in affective symptoms. Difference scores were created for striatal ROIs and GCS-Psych scores to capture change from pre- to post-intervention. Mixed-effects models were used to examine the Group (Estradiol, Placebo) × Time (Pre-, Post-intervention) interaction on GCS-Psych scores. To examine whether change in striatal activation was associated with change in GCS-Psych scores (ΔGCS-Psych), ROI × Group interactions were tested. **Results:** Treatment groups did not differ in age,

baseline GCS-Psych scores or activation in the six striatal ROIs ($p > .05$). GCS-Psych scores showed a significant main effect of time ($F(1, 36) = 12.27$, $p = .001$), but the group × time interaction was not significant ($F(1, 36) = 0.14$, $p = .714$), indicating that groups did not differ in their change in GCS-Psych scores over the intervention. When examining links between ΔGCS-Psych scores and change in striatal activation, several associations emerged. The ROI × group interaction was significant for left caudate ($t(34) = -2.37$, $p = .023$), right putamen ($t(34) = -2.29$, $p = .029$), and right nucleus accumbens ($t(34) = -2.16$, $p = .038$), though these effects did not survive FDR correction (all $p_{\text{FDR}} > .05$). Simple slope analyses in the estradiol group confirmed that increases in striatal activation were associated with greater improvement in GCS-Psych scores, as evidenced by significant correlations for right nucleus accumbens ($r = -.53$, $p = .025$) and right putamen ($r = -.47$, $p = .049$), and a trend for left caudate ($r = -.42$, $p = .081$). No significant associations were observed in the placebo group, and there were no significant effects during reward anticipation. **Conclusion:** The current results suggest the mechanisms of estradiol's effect on affective symptoms may act through modulation of reward-related neural activation. This is in line with prior preclinical and clinical research outlining the impact of estradiol on reward-related behaviors and symptoms, respectively. We did not see a group level interaction for affective symptoms, which suggests that biological effects of estradiol may precede clinical symptom change. Findings from this study will increase our understanding of the mechanistic pathway of estradiol and suggest that striatal activation during reward processing may serve as a neural biomarker for perimenopausal treatment response to estradiol.

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S-24.

Prefrontal-Hippocampal Functional Connections Associate with Verbal Memory Performance and Differ by Menopause Stage

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Objective: Longitudinal studies show subtle, yet significant, declines in verbal memory performance as women transition from the pre- to perimenopause. The specific brain circuits underlying these cognitive changes are yet unknown. Neuroimaging studies in middle-aged adults have shown that the hippocampus and prefrontal cortex (PFC) functionally connect (i.e., show temporally synchronized activity) to support verbal learning and memory, but the precise areas within the PFC which may be important during menopause remain uncharacterized. To determine which prefrontal-hippocampal connections support midlife women's memory abilities and which might change with menopause, we drew on functional magnetic resonance imaging data collected during a memory task in a large sample of midlife women enrolled in the Aging Adult Brain Connectome (AABC). We first identified the specific prefrontal-hippocampal functional connections associated with verbal memory performance, then determined if those connections differed by menopause stage. **Design:** The sample included cognitively normal female AABC participants aged 40-60 years whose menopause stage could be determined via STRAW+10 criteria (e.g., without hormone therapy use, endometrial ablation, surgical menopause, etc.). A total of 262 women (baseline mean age=50.1±6.1 years; 55% White, 13% Black; 76% with a college degree) with at least one study visit met these criteria. Of these, 149 returned for a second visit, and 64 for a third (475 total visits). At baseline, participants were categorized as pre- (n=92), peri- (n=70), or postmenopause (n=100). Verbal learning and memory performance were assessed via the Rey Auditory Verbal Learning Test (RAVLT). We measured BOLD activation while participants completed a Face-Name memory task, processed via the HCP Minimal Processing pipeline. Functional connectivity was determined by covariance of the BOLD activity during the task, focusing on hippocampal connectivity to 76 *a priori* prefrontal regions from the Glasser atlas. We conducted mixed-effects LASSO models to identify which prefrontal-hippocampal functional connections most strongly associated with RAVLT measures. We then used mixed-effects models to examine whether the strongest identified connections determined above also differed by menopause stage, adjusting for age, race, ethnicity, and education. **Results:** LASSO models showed 15 connections with the left hippocampus and 9 with the right hippocampus were associated with RAVLT learning, while 26 connections with the left hippocampus and 7 with the right hippocampus were associated with RAVLT recall. Of the three strongest connections for each of the four sets of analyses, 4 of 12 connections differed by menopause stage ($p < .05$) including: left hippocampus to right dorsolateral prefrontal cortex (dlPFC; posterior area 9-46v), right anterior cingulate cortex (ACC; anterior area 24), and right anterior inferior frontal sulcus (dlPFC); and right hippocampus with the right ACC (anterior area 24'). Left hippocampal connectivity to the right ACC decreased linearly with advancing menopause stage, while left hippocampal connectivity to the right dlPFC increased linearly with advancing menopause stage. Right hippocampal connectivity to right ACC peaked at perimenopause (i.e., negative quadratic association).

Conclusion: We identified specific prefrontal-hippocampal functional connections that both strongly associate with verbal memory performance and differ by menopause stage. These findings indicate changes in brain connectivity that may contribute to memory symptoms during the peri- and postmenopause. Drawing on the strengths of the AABC cohort, this work serves as foundational knowledge for advancing scientific efforts to identify the causes for menopausal cognitive symptoms and develop potential treatments.

Sources of Funding: Abstract submitted on behalf of the Aging Adult Brain Connectome, funded by the National Institutes of Aging of the National Institutes of Health (U19AG073585, U01AG052564-01).

S-25.

Resting State Functional Connectivity Changes Across Menopause Stage: Aging Adult Brain Connectome (AABC) Consortium Study

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Objective: Menopause is associated with diverse symptoms including cognitive changes. Preliminary neuroimaging evidence of functional network restructuring during menopause exists, particularly in the default mode network (DMN); however, well-powered studies of functional connectivity across menopause stages and its relationship to cognition are needed. Thus, our objective was to identify differences in functional connectivity networks across the menopause stages and their effects on cognition.

Design: Women aged 40–60 were selected from a multi-site healthy adults' sample in the HCA/AABC studies. Participants with factors that prevented accurate menopause staging under STRAW+10 (e.g., hysterectomy, endometrial ablation, hormonal medication) were excluded. Resting-state functional connectivity correlations were z-transformed and averaged for DMN and task-positive (cingulo-opercular and dorsal attention) networks (TPNs). NIH Toolbox cognitive measures were used: processing speed (Pattern Completion Processing Speed Test) and baseline cognition (Oral Reading Recognition Test). Mixed-effects models with menopause stage as a predictor were controlled for age, race, education, site, and baseline cognition, with Tukey HSD post-hoc tests. **Results:** 257 participants (mean age 50 years; 23% black; 20% Hispanic) had 380 observations across a maximum of three study visits, which were distributed across 6 menopause stages: 27% peak-reproductive, 12% late-reproductive, 6% early-menopause transition, 14% late-menopause transition, 23% early-postmenopause, and 18% late-postmenopause. DMN and TPNs showed significant quadratic relationships across menopause stages ($\beta = -2.93 \times 10^{-3}$, $P < 0.001$; $\beta = -2.58 \times 10^{-3}$, $P < 0.01$, respectively); with significant decreases in functional connectivity from late-transition to early-postmenopause, and late-transition to late-postmenopause ($p < 0.05$, corrected). Processing speed showed similar changes across menopause stages with a cubic relationship ($\beta = -0.49$, $P < 0.05$); functional connectivity was not a significant predictor of processing speed. **Conclusion:** Resting state functional connectivity in DMN and TPNs may decline from the late menopause transition period to the postmenopause, independent of age. There is a similar pattern of decline in processing speed, however, this change was not explained by functional connectivity.

Sources of Funding: National Institute on Aging

S-26.

Association of vasomotor symptoms of menopause with MRI and PET biomarkers of cognitive health later in life

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Objective: Recent studies suggest that vasomotor symptoms (VMS) may serve as a signal of susceptibility to late-life cognitive decline. We examined whether VMS in recently menopausal women were associated with amyloid- β (A β) burden on PET and structural MRI biomarkers of cognitive health more than a decade later, and whether short-term menopausal hormone therapy (mHT) modified these associations. **Design:** In the Kronos Early Estrogen Prevention Study (KEEPS), recently menopausal women (6–36 months from last menstrual period) were randomized to oral conjugated equine estrogens (oCEE), transdermal 17 β -estradiol (tE2) (both with micronized progesterone), or placebo for 4 years. Prior to randomization, VMS (hot flashes, night sweats) and insomnia were dichotomized as none or mild versus moderate or severe based on solicited self-report. Hippocampal volume, white matter hyperintensity (WMH) volume on 3T MRI, and A β burden on PET were assessed 14 years after randomization in KEEPS-Continuation. VMS-by-mHT interaction terms were tested first, then nonsignificant interactions were dropped and linear regression models refit. Interaction between night sweats and insomnia was additionally examined. **Results:** Participants ($n=257$) had a mean (SD) age of 53 (2) years at randomization and 67 (2) years at KEEPS-Continuation. No significant VMS-by-mHT interaction was observed for any neuroimaging outcomes. Moderate or severe night sweats, but not hot flashes, were associated with 2% lower hippocampal volume ($P=0.01$) compared to those with none or mild night sweats approximately 14 years after randomization (Figure). VMS were not associated with WMH volume ($n=257$) or A β burden ($n=234$). Night sweats-by-insomnia interaction was observed for hippocampal volume ($\beta=-0.05$, $P=0.01$). **Conclusion:** Moderate or severe

night sweats in recently menopausal women were associated with lower hippocampal volume more than a decade later. This association was modified by insomnia status but not by prior exposure to 4 years of randomized mHT versus placebo. These findings suggest that moderate or severe insomnia may amplify the association between night sweats and lower hippocampal volume. Collectively, these findings indicate that night sweats may serve as a midlife marker of later-life hippocampal volume loss.

Sources of Funding: NIH RF1AG57547, NIA R01AG093767; research support from Avid Radiopharmaceuticals and Eli Lilly.

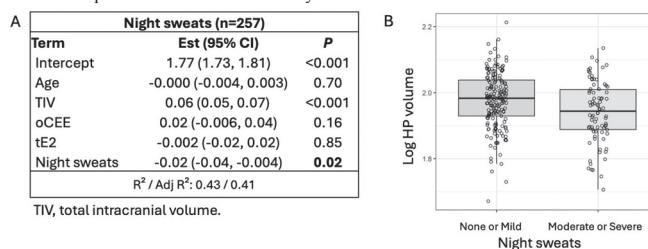


Figure. Association of night sweats with hippocampal (HP) volume (A); boxplots of log-transformed HP volume by night sweats (B).

POSTER PRESENTATIONS

P-1.

Leveraging Short-Form Digital Content to Identify Gaps in Menopause Health Literacy: A Real-World Engagement Analysis

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Objective: To evaluate engagement patterns and identify menopause-related knowledge gaps using large-scale digital health content analytics. **Design:** A retrospective analysis of short-form video content from a physician-led digital endocrine education platform was conducted over a 90-day period (December 25, 2025 to March 25, 2026). Metrics included total views, reach, engagement (likes, comments, shares), and audience demographics across multiple platforms. User-generated comments were qualitatively reviewed to identify recurring menopause-related themes. **Results:** During the study period, content generated over 2.5 million views and reached more than 600,000 unique users, with over 100,000 total engagements. The audience was predominantly female (83–89%), with the largest age groups between 35–54 years. Short-form video content accounted for the majority of engagement. Although the content was not primarily menopause-specific, a significant proportion of user interactions centered on menopause and perimenopause-related concerns. Common themes included uncertainty regarding symptom recognition, hormone therapy safety, weight changes, sleep disturbances, and mood symptoms. Notably, recurring themes included confusion regarding the role of laboratory testing in diagnosing menopause, with many users expecting laboratory confirmation despite clinical symptoms, as well as uncertainty regarding the role and potential benefits of hormone therapy following hysterectomy in patients with intact ovarian function. **Conclusion:** Short-form digital health content reveals a substantial unmet need for menopause education, as evidenced by spontaneous user engagement even outside menopause-specific topics. These findings highlight the growing role of digital platforms in identifying patient knowledge gaps and underscore the need for accessible, evidence-based menopause education strategies.

Sources of Funding: None

P-2.

Hourly Wake After Sleep Onset Patterns During the Menopausal Transition: Associations with Symptom Severity and Hormone Therapy Use in a US Digital Cohort

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Objective: Prior studies have documented total-night sleep disruption during perimenopause. Less is known about the temporal distribution of awakenings and how distinct symptoms shape these patterns. Within-night temporal sleep disruptions could inform how the sleep architecture is affected by menopause. Using passively collected wearable sleep data, we examined hourly wake after sleep onset (WASO) associations during the menopausal transition and their associations with vasomotor, bladder, and anxiety symptom severity and hormone replacement therapy (HRT) use. **Design:** We analyzed data from Apple Women's Health Study (AWHS) participants enrolled 07/2022–11/2025 who self-reportage at final menstrual period (FMP), contributed sleep data collected by the Apple Watch (WatchOS ≥ 9 ; ≥ 90 nights) spanning ± 1 year around FMP. Raw 30-second sleep stage epochs were aggregated into hourly WASO bins (awake/asleep) indexed by hour since sleep onset. Participant-level mean hourly WASO was computed across all contributed nights. Self-reported symptom severity (hot flashes, bladder, anxiety) and HT use were derived from baseline surveys. We fit linear mixed effects models for hourly WASO as a function of hour since sleep onset (modeled with a cubic B-spline), separately within HRT users and non-users, to examine whether the association between symptom severity (dichotomized as mild-moderate vs. severe-very severe) and the within-night WASO profile differed by HRT status, adjusting for age at FMP. **Results:** In a larger general cohort ($N=36,228$; 2.7 million nights), hourly

WASO showed pronounced elevation in the 45–49 and ≥50-year age groups. Among 270 symptom stratified participants contributing 91,000 nights, 80% reported any level of hot flash symptoms (severe-very severe: n=87); 39% reported bladder symptoms (severe-very severe: n=17); 62% reported anxiety symptoms (severe-very severe: n=43); and 43% reported current HRT use. Mean sleep duration (hrs) and night-to-night variability (hrs) were comparable across symptom severity groups (median difference <0.2 hours for hot flash and anxiety groups; 0.45 hours for bladder symptoms groups), supporting the suggestion that hourly-WASO shape differences reflect temporal waking patterns rather than differences in sleep opportunity. In the symptom-stratified models, very severe hot flashes were associated with elevated WASO in mid-sleep (hours 3–6 since sleep onset), consistent with vasomotor arousal. Very severe bladder symptoms were associated with elevated WASO across all hours, greatest in early-night (hours 2–4), possibly suggesting nocturia. This persisted after sensitivity adjustment for differences in sleep duration. Severe anxiety was associated with mid-to-late-night WASO elevation (hours 4–7). HRT use was associated with reduced hourly WASO and flattening of the within-night WASO curve toward a premenopausal profile, most prominently among those with severe-very severe hot flashes and was robust to age at FMP adjustment covariate adjustment. HRT use showed limited benefit for bladder-driven late-night WASO, consistent with some evidence that systemic HRT may exacerbate urinary symptoms. **Conclusion:** Hot flash, bladder, and anxiety symptom severity were each associated with distinct temporal signatures of nocturnal wakefulness, unexplained by differences across groups in sleep duration or variability. HRT use was associated with attenuation of the within-night WASO architecture. These findings provide preliminary evidence that hourly WASO profiling via consumer wearables could offer a scalable approach to characterizing symptom-specific sleep disruption and monitoring HRT response in menopause care. **Sources of Funding:** Apple Inc.

P-3.

Menopause Symptom Burden and Digital Health Engagement Among Midlife Women: Tracking and Data-Sharing Preferences for Clinical Integration

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Objective: The objective of this study was to examine symptom tracking behaviors, technology engagement and use, and data-sharing preferences among midlife women to inform future co-designed digital tools and clinically meaningful approaches to menopause symptom monitoring and digital health integration. **Design:** We conducted a cross-sectional online survey of midlife women (ages 40–60) experiencing perimenopause or menopause symptoms. The survey assessed symptom burden, self-management strategies, digital health use, desired tracking features, usability concerns, and data-sharing preferences. Descriptive statistics and subgroup analyses examined differences by menopausal stage, symptom severity, and prior health app use. **Results:** A total of 107 participants completed the survey. Most were aged 45–49 years and in the perimenopause phase. Nearly all reported at least one symptom (96.3%), most commonly cognitive and functional concerns (brain fog, sleep disruption, fatigue), reflecting the whole-person impact of menopause. Over 80% used a health-tracking device or app and 64.8% reported using at least one complementary and integrative therapy in the past six months for symptom management. Participants reported wanting more support for nutrition (60.7%), medication/supplement use (57.9%), and sexual health, physical activity, and sleep (41.2%), respectively. Women prioritized tools that contextualize symptoms within daily life factors (e.g., stress, sleep), integrate wearable or biometric data, support longitudinal pattern recognition, and generate clinician-ready summaries. Valued features included personalized, evidence-based guidance and the ability to link symptoms with behaviors over time. However, barriers included usability complexity, cost, frustration, and privacy concerns. Most participants (88.0%) were willing to share de-identified data for research and clinical care if transparency, trust, and user control were ensured. **Conclusion:** Midlife women are actively tracking and managing menopause symptoms but lack tools that translate data into clinically meaningful insights or integrate into care. Findings highlight the need for standardized, multidimensional symptom tracking and co-designed, whole-person digital tools that are person-centred, trustworthy, and usable. Integrating patient-generated data into clinical workflows can improve decision-making, patient-provider communication, and care coordination. These results inform the development of transparent, equitable, and clinically grounded AI-enabled menopause care systems that preserve autonomy, privacy, and meaningful connection to clinicians.

Sources of Funding: University of Minnesota Clinical and Translational Science Institute (CTSI), Office of Discovery and Translation (ODAT)

P-4.

Menopause Education in Undergraduate Medical Curricula: A Narrative Review of Teaching Models, Content Gaps, and Learner Preparedness

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Objective: Menopause accounts for approximately one-third of a woman's lifetime and requires competent counseling and longitudinal management by physicians across specialties. Despite its clinical importance, studies suggest clinicians feel inadequately prepared to manage menopausal symptoms and counsel patients regarding treatment options. While menopause education has received increasing attention in graduated medical education, the extent and quality of menopause teaching in undergraduate medical education remain unclear. This narrative review aimed to characterize the current state of menopause education in undergraduate medical curricula and identify deficiencies

in curricular structure, content and pedagogy. Secondary aims included describing learner outcomes and identifying opportunities for development of standardized menopause education. **Design:** A narrative literature review was conducted to evaluate menopause education for medical students in the United States and internationally. Searches were performed in PubMed/MEDLINE, Scopus, and MedEd Portal, with additional grey literature sources including ACOG and The Menopause Society. Studies published between 2000 and January 2025 were screened by two independent reviewers using predefined inclusion criteria. Eligible studies described educational interventions or curricula for medical students or medical trainees with extractable data on medical students, with or without a defined evaluation of the intervention. Study characteristics and outcomes were extracted and synthesized narratively. **Results:** The literature search identified 1,305 records, of which 12 studies met inclusion criteria. Studies included narrative reviews, cross-sectional surveys, curriculum modules, and educational interventions. Overall, menopause education was inconsistently incorporated into undergraduate medical curricula and often embedded within broader OB/GYN or primary care teaching rather than delivered as structured content. Only approximately 60% of medical students reported exposure to menopause education during clinical training, and knowledge retention appeared limited. Education interventions included curriculum modules, case-based teaching, and standardized patient encounters. While students generally demonstrated accurate recognition of menopausal symptoms, many showed gaps in management knowledge and counseling skills. In one study, all students correctly identified menopause, but 50% were unable to propose appropriate management strategies. Active learning approaches such as simulation and case-based learning demonstrated positive learner engagement and perceived educational value. **Conclusion:** Menopause education in undergraduate medical curricula is inconsistently delivered, and lacks standardization. Current approaches are insufficient to prepare medical students for menopause management and counseling. Development of a structured, competency-based menopause curricula for undergraduate medical education may improve learner preparedness in order to better care for menopause patients. **Sources of Funding:** None

P-5.

Care Seeking for Perimenopause Symptoms: Insights From the Flo App

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Objective: Perimenopause is a reproductive transition leading up to the final menstrual period and the 12 months afterwards. Perimenopause often begins when women are in their 40's, but can start as early as the 30's. This reproductive transition is characterized by hormonal variability and a broad range of physical and psychological symptoms. Despite its clinical importance, perimenopause is frequently underrecognized, and many healthcare professionals (HCP) receive limited training on its presentation and management. Recent studies suggest that symptoms during perimenopause may differ from those typical of menopause, resulting in under recognition of clinically relevant symptoms that prompt health seeking behavior. This study aimed to identify symptoms for which women in perimenopause sought care, and to evaluate whether HCPs attributed those symptoms to perimenopause. We further compared symptoms for which women sought care globally versus in the U.S. **Design:** Global English-speaking users of the Flo app, aged ≥35 years who self-reported being in perimenopause were surveyed about their current perimenopause symptoms. Participants also indicated whether they had consulted a HCP about their symptoms in the past 12 months. Respondents were asked whether they were told by their HCP that their symptoms were related to perimenopause. Care seeking was defined as the percentage of respondents who reported a symptom and subsequently visited a HCP for it. HCP attribution reflects patient-reported recall of their provider's assessment, not direct provider data. **Results:** **Global Care Seeking in Perimenopause** Among 2,109 global respondents in perimenopause (mean age 44 years, SD 5.8 years, 69% White), 1,114 (53%) reported visiting a HCP for perimenopause symptoms within the last year. The most common symptoms for care seeking globally were anxiety (53%), physical and mental exhaustion (53%), fatigue (52%), depressive mood (52%), sleep problems (50%), and weight gain (48%). Among those who sought care, symptoms respondents reported were most frequently attributed to perimenopause by the HCP were vaginal dryness (80%), night sweats (80%), hot flashes (76%), sexual problems (71%), breast tenderness (68%), and pain during or after sex (68%). **U.S. Care Seeking in Perimenopause** Among U.S. respondents in perimenopause (N=802), 415 (52%) reported visiting a HCP within the last year. The most common symptoms for care seeking in the U.S. were weight gain (56%), anxiety (53%), physical and mental exhaustion (50%), depressive mood (49%), and sleep problems, irritability and fatigue (48% each). Among those who sought care, symptoms most frequently attributed to perimenopause by the HCP included vaginal dryness (85%), night sweats (82%), hot flashes (79%), sexual problems (73%), pain during or after sex (72%), and breast tenderness (67%). **Conclusion:** These findings demonstrate a mismatch between symptoms experienced during perimenopause and those recognized by HCPs as related to perimenopause. HCPs attributed known symptoms of menopause including vasomotor and genitourinary symptoms to perimenopause, while more common but less specific symptoms such as mood changes, sleep disturbance, fatigue, and exhaustion were often not recognized. Additionally, care-seeking for weight related concerns was higher in the U.S. than globally. These findings underscore the need for increased HCP education to improve recognition of perimenopause symptoms.

Sources of Funding: None

P-6.

Development of an Implantable Human Induced Pluripotent Stem Cell-Derived Ovarian Support Cell Platform for Hormone Restoration in Menopause

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Objective: Despite the substantial impact of menopause on women's health, there are few available treatment options, most of which rely on the systemic delivery of exogenous hormones. These currently available treatments are limited by fixed dosing, tolerability concerns, and long-term adherence. To address these limitations, we report the early-stage development of a cell-based implant composed of steroidogenic ovarian support cells (OSCs) derived from human induced pluripotent stem cells (hiPSCs), with the goal of restoring physiologic endocrine signaling in women with menopause. **Design:** Engineered hiPSC-derived OSC spheroids were encapsulated in alginate microbeads and encased in a porous housing device to establish an implantable format. Implants were then cultured in vitro for 75 days to assess cell viability and steroidogenic capacity in the integrated format. Finally, to evaluate implant feasibility and tolerability in vivo, implants were administered via either subcutaneous or intraperitoneal implantation into healthy mice or rats for progressive durations. **Results:** Throughout 75 days of in vitro culture, alginate encapsulated OSC spheroids demonstrated continuous E2 production, with periodic live/dead staining indicating maintained cell viability. In the feasibility and tolerability in vivo studies in healthy rodents, the health and body weights of animals remained consistent with sham controls throughout the studies, with no unscheduled animal deaths following implantation. Assessment of OSC spheroids post-implant removal confirmed cell viability at the latest timepoints, which were 30 days for mice and 90 days for rats. Further, immune assessment showed no major evidence of a xenogenic immune response in mice or rats, with no evidence of uncontrolled cell outgrowth or cell escape. **Conclusion:** Overall, the results of pilot in vivo studies support the feasibility and tolerability of this OSC-based implant in vivo. Efficacy studies in ovariectomized model rats to assess long-term hormone production, as well as impacts on the secondary effects of menopause, including genitourinary health, bone health, and metabolism, are in preparation. The work presented here represents the first step in the development of dynamic and integrated menopause treatments designed to integrate into native hormone signaling pathways. This implant has the potential to improve long-term health outcomes in post-menopausal women without the drawbacks of currently available therapies.

Sources of Funding: This study is funded by ARPA-H (ARPA-H-ICHUB-24-101-1089) and Gameto Inc.

P-7.

Addressing Menopause-Related Cognitive Concerns in Midlife Women: The PERI-MIND Brain Health Intervention

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Objective: Cognitive concerns are common during the menopause transition. Many women are uncertain how to interpret these changes in relation to dementia risk and what actions they can take to support long-term brain health. Multidomain dementia risk reduction strategies target modifiable behaviors, but these have not yet been tailored to midlife women during the menopause transition. We aimed to evaluate the feasibility and acceptability (primary outcomes) of a menopause-tailored brain health intervention for women with cognitive concerns. **Design:** We conducted a single-arm feasibility and acceptability study of a menopause-tailored, web-based intervention. Midlife women (ages 40-58 years; perimenopausal or early postmenopausal, STRAW -2 to +1) with a first-degree relative with dementia were recruited via community and clinical outreach; women with diagnosed cognitive impairment were excluded. Eligible participants completed baseline assessments of menopausal symptoms, subjective cognitive concerns, and dementia-related beliefs using validated instruments (e.g., Menopause Rating Scale [MRS]; Cognitive Change Index [CCI]). Participants engaged in a 3-week multidomain intervention integrating brain health education, modifiable dementia risk factors, and behavior change strategies (approximately 20 minutes/week). Weekly surveys assessed engagement, barriers, perceived relevance, understanding, self-efficacy, knowledge, and behavioral intentions. Feasibility outcomes included recruitment, retention, and adherence; acceptability was assessed via participant-reported satisfaction and usefulness.

Results: At the time of analysis, 120 individuals completed screening; 39 (33%) were eligible, and 31 (80%) completed baseline. Participants were predominantly White (71%) and highly educated (84% college/graduate degree), with mean age 52.2 years (SD 3.8; range 44-58). Common exclusions included no first-degree relative with dementia (n=52), sensory impairment (n=13), conditions affecting cognition (n=13), and surgical menopause (n=8). Baseline scores indicated moderate-to-severe menopausal symptoms (MRS mean 17.2, SD 6.9) and mild-to-moderate cognitive concerns (CCI mean 37.3, SD 16.3). Weekly survey completion rates were 71% (22/31), 83% (15/18), and 77% (10/13) across Weeks 1-3. Differences in denominators reflect ongoing rolling recruitment and varying participant progression through the intervention at the time of analysis, rather than attrition. The proportion of participants accessing the intervention each week ranged from 91% to 100%, and 85% to 100% initiated module content across weeks. Acceptability metrics were generally favorable. Content was rated as understandable, relevant, and beneficial (means 1.53-2.07 on 5-point rating scales, where lower scores indicate more favorable ratings). Platform usability, clarity, comfort, and relevance were also rated favorably (means 1.53-1.60). Participants reported perceived increases in knowledge and

understanding (means 1.94-2.65) and improvements in understanding (means 2.00-2.08). Behavioral intention to apply intervention content was high across weeks (means 1.38-1.70). In Week 3, readiness to engage in behavior change was moderate (means 2.11-2.33). Overall platform acceptability and perceived effectiveness were favorable (means 1.66 and 1.92, respectively). Engagement with content related to modifiable risk factors was highest for hearing, cholesterol, and weight/movement modules. **Conclusion:** This menopause-tailored, web-based brain health intervention demonstrated feasibility and was acceptable among midlife women with cognitive concerns. Findings support the relevance of menopause-specific brain health education and inform evaluation in a larger randomized controlled trial.

Sources of Funding: This study is funded by a Menopause Society Seed Funding Grant and the University of Chicago Department of Obstetrics and Gynecology.

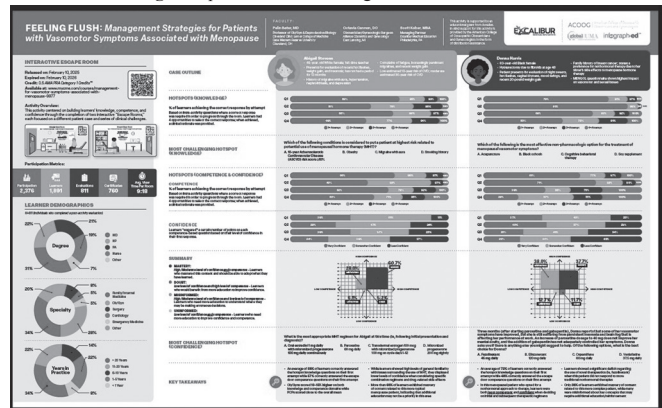
P-8.

Feeling Flush: Management Strategies for Patients with Vasomotor Symptoms Associated with Menopause

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Objective: This CME-certified escape room activity focused on improving learners' ability to: Recognize the clinical presentation, risk factors, and overall impact of vasomotor symptoms (VMS) associated with menopause Describe the current efficacy and safety data related to hormonal therapies available for the treatment of VMS associated with menopause Identify the mechanism of action, benefits, and limitations of available and emerging nonhormonal pharmacologic therapies for VMS associated with menopause **Design:** This educational activity centered around the development of an two interactive "Escape Rooms," each focused on a different patient case and series of clinical challenges. Each escape room was divided into two sections: 1. A patient exam room. Learners were required to answer a series of four knowledge-based questions. The correct answer to each question triggered the release of one "clue" related to the patient in the exam room. These clues included information related to the patient's chart, her primary complaint/reason for today's visit, lab report, and risk form (either a CVD score or a patient QoL score). 2. An escape door. Here, learners were required to synthesize the information from the patient's clues to develop a treatment plan. Within each case, complexities were built in that required participants to consider individual risks when suggesting both short- and long-term treatment plans. In addition to selecting the correct answer to treatment-related questions, learners also chose their level of confidence in their response. **Results:** Our assessment of learner outcome data showed the following: Learners were significantly more knowledgeable, competent, and confident about traditional menopause hormone therapy (MHT) and MHT regimens compared to nonhormonal therapeutic options While Ob/Gyns consistently scored better than other learners across the range of questions in this activity, primary care providers scored at or below the median across most topics Learners were least confident and competent regarding the use of specific novel therapeutics (ie, fezolinetant) in a patient who did not respond to initial, more traditional nonhormonal therapeutics **Conclusion:** Our activity firstly demonstrated the ability of this novel educational format to engage learners: more than 80% of learners who began this activity progressed to its completion. Outcomes from the activity suggested that, while learners have a good handle on the management of a more traditional patient who requires MHT to manage their symptoms, patients who prefer a nonhormonal approach to the management of their menopausal symptoms present a more challenging circumstance.

Sources of Funding: Independent educational grant from Astellas Pharma Inc.



P-9.

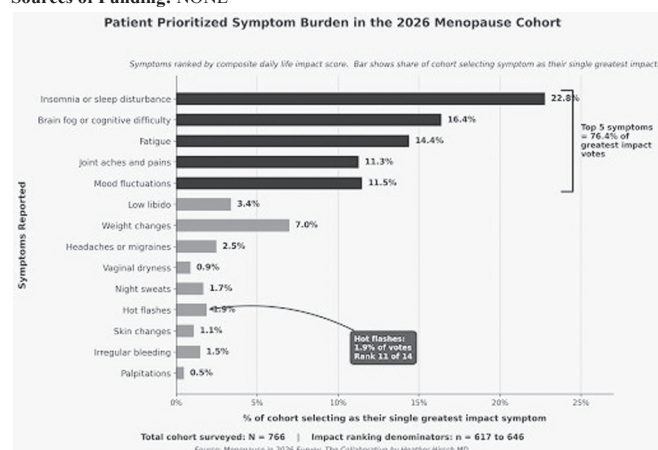
Mind the Gap: The Disconnect Between Patient-Prioritized Symptom Burden and Vasomotor-Anchored Clinical Screening in Menopause Care, 2026

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Objective: Standard menopause symptom inventories and generalist clinical scripts remain anchored on vasomotor symptoms (VMS), reflecting trial endpoints and FDA approval pathways established decades ago. We examined whether patient-prioritized symptom burden in a contemporary midlife cohort matches that clinical emphasis.

Design: Cross-sectional anonymous online survey “Menopause in 2026: Your Voice Can Advance Science,” distributed via The Collaborative by Heather Hirsch MD from April 29 to May 16, 2026. Of 766 consenting respondents (79.9% currently on hormone therapy, 4.1% past use, 16.0% never used; central tendency late 40s to mid 50s), four primary inventory items informed this analysis. Question 9 (Q9, n=663) was a multi-select inventory asking which of 14 listed menopause symptoms respondents had experienced in the past month, plus an open-text “Other” field (Q10, n=86 free-text responses). Three sequential single-select questions then captured patient-prioritized impact: Q11 asked for the symptom with the single greatest impact on daily life, Q12 for the second greatest, and Q13 for the third greatest (n=617 to 646 across the three questions). A composite weighted impact score calculated as $(Q11 \times 3) + (Q12 \times 2) + (Q13 \times 1)$ to integrate both depth (top ranking) and breadth (any top-three appearance) of disruption. **Results:** The most commonly reported symptoms were brain fog (71.8%), insomnia (69.2%), fatigue (68.9%), low libido (66.2%), joint aches and pains (62.8%), and mood fluctuations (55.2%). Hot flashes affected 24.9% and night sweats 37.1%. The single greatest impact (rated number one): insomnia (22.8%), brain fog (16.4%), fatigue (14.4%), mood fluctuations (11.5%), and joint aches (11.3%) led the rankings; hot flashes and night sweats combined accounted for only 3.6% of selections. The top five symptoms by daily-life impact were insomnia, brain fog, fatigue, joint aches, and mood, accounting for 76.4% of all “greatest impact” votes. Hot flashes ranked 11 of 14 symptoms by composite score. Free-text review identified anxiety as the most common write-in symptom, suggesting it is currently obscured under “mood fluctuations” in the structured inventory. **Conclusion:** In this contemporary midlife cohort, vasomotor symptoms represent a small fraction of patient-prioritized burden, while sleep, cognitive, fatigue, mood, and musculoskeletal symptoms dominate. Clinical intake protocols that lead with hot flashes systematically miss the symptoms women rank as most disabling. Treating brain fog and insomnia as core menopause symptoms with their own intake items, rather than embedding them under “mood” or “other,” would better match the 2026 patient presentation.

Sources of Funding: NONE



P-10.

Addressing Sexual Dysfunction in Female Cancer Survivors: A Review of 2026 NCCN, 2024 ESMO, 2024 SOGC, and 2023 ASCO Guidelines

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Objective: Sexual dysfunction is a common and often underrecognized issue among female cancer survivors, with reported prevalence rates ranging from 30% to over 80%. Contributing factors include anti-cancer therapies, difficulty adjusting to post-surgical body changes, premature menopause, psychological distress, and pre-existing comorbidities. This review aims to compare current guideline recommendations for the assessment and management of sexual dysfunction in female cancer survivors.

Design: Guidelines were included if they addressed sexual health concerns in female cancer survivors, were issued by recognized oncology or medical organizations, and were available in English. The most recent guidelines from the National Comprehensive Cancer Network (NCCN), European Society for Medical Oncology (ESMO), Society of Obstetricians and Gynaecologists of Canada (SOGC), and American Society of Clinical Oncology (ASCO) were reviewed and compared. Recommendations were categorized according to symptom domains including vaginal dryness, dyspareunia, low libido, and psychological concerns. Interventions were further classified into pharmacological, psychological, and physical therapy approaches, along with the strength of supporting evidence where available. **Results:** All guidelines emphasized the importance of routinely addressing sexual health concerns in oncology care and recommended the use of validated screening tools or questionnaires. NCCN includes a brief sexual symptom checklist, while SOGC additionally recommends comprehensive clinical assessment including detailed history-taking and physical examination. All guidelines strongly recommend non-hormonal therapies, including lubricants and moisturizers, as first-line treatment for vaginal dryness and dyspareunia. If non-hormonal measures are ineffective, low-dose vaginal estrogen therapies, including creams, tablets, capsules, or rings, may be considered as second-line options. NCCN specifically notes that when estrogen-based treatment is warranted in survivors of hormonally sensitive cancers,

vaginal rings and suppositories are preferred over creams because of minimal systemic absorption. Vaginal laser therapy is discussed only in SOGC and ESMO guidelines, however, both emphasize limited evidence regarding long-term safety and efficacy. ASCO, NCCN, and SOGC support vaginal dilators, pelvic floor physical therapy, and Kegel exercises for pain management, while ASCO and NCCN additionally recommend topical lidocaine or ospemifene for persistent symptoms. All four guidelines advocate for multidisciplinary care involving primary care providers, gynecologists, psychologists, sexual health specialists, and sex therapists, including couples counseling and cognitive behavioural therapy when appropriate. To improve arousal and sexual response, ASCO supports sexual stimulation approaches including masturbation, while NCCN and SOGC recommend sexual aids such as vibrators or clitoral stimulatory devices with referral to appropriate specialists when needed. For low libido, ASCO, NCCN, and SOGC discuss pharmacologic options including androgens, bupropion, flibanserin, bremelanotide, and buspirone; however, all guidelines emphasize the limited evidence supporting these therapies in cancer survivors and highlight the need for larger prospective clinical trials.

Conclusion: While there is general agreement across guidelines on key aspects of sexual health management, some variation remains. Further research is needed to strengthen the evidence base for pharmacological treatments and counseling approaches.

Sources of Funding: None.

P-11.

Evaluating Evidence-Based Options for Menopause Care in Breast Cancer Survivors: An Clinical Guide for Healthcare Professionals

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Objective: Menopausal symptoms, particularly vasomotor symptoms (VMS) such as hot flashes and night sweats, are among the most common and distressing adverse effects experienced by breast cancer survivors (BCS), largely due to estrogen suppression disrupting hypothalamic thermoregulation. VMS are reported in ~80% of women receiving tamoxifen and up to 93% on tamoxifen therapy with ovarian suppression. This review aims to evaluate current and emerging evidence for the management of VMS in breast cancer survivors, including non-pharmacologic, non-hormonal pharmacologic, and hormonal treatment approaches. **Design:** A narrative literature review was conducted using MEDLINE/PubMed, Embase, CINAHL, APA PsycINFO, and Cochrane CENTRAL from inception to March 2026. Peer-reviewed studies and clinical guidelines evaluating VMS management in breast cancer survivors were included. Secondary sources included guidelines from major oncology and menopause organizations. Evidence on non-pharmacologic, non-hormonal pharmacologic, and menopausal hormonal therapies was reviewed with consideration of cancer stage and treatment type. **Results:** Evidence supports several non-pharmacologic interventions for VMS management in BCS, including acupuncture, physical activity, weight loss, yoga, and cognitive behavioural therapy. Among non-hormonal pharmacologic therapies, venlafaxine is commonly preferred for managing hot flashes in BCS, particularly in those receiving tamoxifen, and should be initiated at the lowest effective dose. Other serotonergic antidepressants, including paroxetine and fluoxetine, as well as clonidine, have demonstrated variable effectiveness. Gabapentin is the preferred anticonvulsant, with randomized controlled trials demonstrating a 46% reduction in hot flash severity at 900 mg/day. Pregabalin has also shown benefit and is recommended in some clinical guidelines. Oxybutynin significantly reduced hot flash frequency and severity in patients receiving tamoxifen or aromatase inhibitors at doses of 2.5–5 mg twice daily, although larger studies are needed to confirm efficacy. Emerging therapies targeting neurokinin pathways include fezolinetant, a selective neurokinin-3 receptor antagonist, and elinzanetant, a dual neurokinin-1 and neurokinin-3 receptor antagonist. While fezolinetant has demonstrated efficacy in the general menopausal population, studies in cancer survivors are ongoing. In the OASIS-4 trial, elinzanetant significantly reduced the frequency and severity of hot flashes in patients with hormone receptor-positive breast cancer as early as week 1, with greater improvements observed by weeks 4 and 12 compared with placebo. Menopausal hormone therapy remains the most effective treatment for VMS in the general population; however, its use in BCS, particularly those with estrogen receptor-positive disease, remains controversial. Evidence from the HABITS, Stockholm, LIBERATE, and MDACC trials, as well as meta-analyses, has not demonstrated an increased risk of breast cancer mortality, although findings regarding recurrence remain inconclusive due to differences in study design and treatment regimens. Current recommendations suggest non-hormonal approaches should be attempted first, with MHT reserved for selected patients under specialist supervision and used cautiously in those with cardiovascular risk factors. Other hormonal options, including tissue-selective estrogen complexes (TSECs) and tibolone, require further investigation in breast cancer populations. **Conclusion:** VMS are highly prevalent among BCS, and current evidence supports a multimodal, evidence-based approach to management that considers the full spectrum of therapeutic options, while emphasizing careful risk-benefit assessment and shared decision-making.

Sources of Funding: None.

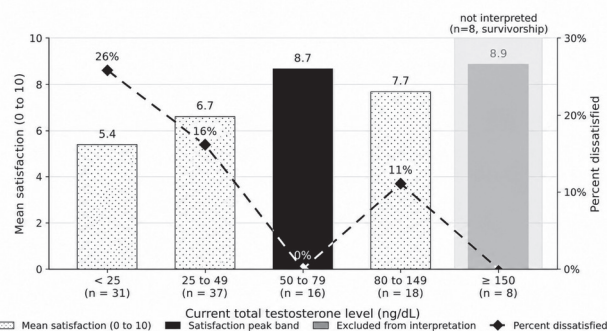
P-12.

Knowing the Number: Patient-Reported Serum Testosterone Levels, the Satisfaction Window, and the Awareness Gap in Midlife Women on Hormone Therapy

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Objective: Current guidelines, including the Global Consensus Position Statement and ISSWSH Clinical Practice Guideline, recommend testosterone dosing only within the premenopausal physiologic range and do not define a serum target for efficacy. This reflects two limitations: endogenous testosterone does not reliably correlate with sexual symptoms, and testosterone assays lack standardization in the low female range. Consequently, levels are monitored primarily for safety rather than treatment optimization. We evaluated patient-reported testosterone levels, improvement thresholds, and treatment satisfaction in a contemporary midlife hormone therapy cohort. **Design:** Anonymous cross-sectional online survey (April–May 2026) distributed through The Collaborative by Heather Hirsch, MD. Of 766 respondents, 251 reported testosterone use. Analyses included lab awareness and satisfaction (0–10), current total testosterone levels (n=110), improvement thresholds (n=41), satisfaction by testosterone band (n=110), and paired comparison of current levels versus personal improvement thresholds (n=40). **Results:** Only 52.6% of users knew their most recent testosterone level; 47.4% lacked access to the value. Median current testosterone was 40 ng/dL (IQR 23–79). Median improvement threshold was 64 ng/dL (IQR 25–104). Satisfaction increased with testosterone level, peaking at 50–79 ng/dL: mean satisfaction was 5.4 below 25 ng/dL (25.8% dissatisfied), 6.7 at 25–49 ng/dL, 8.7 at 50–79 ng/dL (median 9.5, 0% dissatisfied), and 7.7 at 80–149 ng/dL. The ≥150 ng/dL group (n=8, mean 8.9) was excluded from interpretation because of small sample size and likely survivorship bias. In paired analysis, 35% of women were below the level at which they had previously experienced improvement, by a mean of approximately 62 ng/dL. **Conclusion:** Although guidelines do not define an efficacy target, patient-reported outcomes suggest a satisfaction window of 50–80 ng/dL total testosterone, the range associated with the highest satisfaction and no reported dissatisfaction. This aligns with the upper limit of the physiologic premenopausal range recommended as the safety ceiling. However, the median achieved level was only 40 ng/dL, one-third of women remained below their individual benefit threshold, and nearly half lacked access to the testosterone results needed to guide therapy. To address assay variability, testosterone should be measured using LC-MS/MS, the reference method for the female range. Routine measurement and transparent reporting of total testosterone, free testosterone, and SHBG, with titration toward 50–80 ng/dL, may help close both the dosing and awareness gaps.

Sources of Funding: None



Note: the ≥150 ng/dL band is shown for completeness but excluded from interpretation. With n=8, likely survivorship bias (women who do not tolerate high levels discontinue before measurement) and possible peak-timing measurement in pellet users, it cannot be read as evidence of added benefit.

P-13.

Progesterone Intolerance in Women on Menopausal Hormone Therapy: Toward a Clinical Definition of an Underrecognized Phenomenon

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Objective: Despite being a common reason women discontinue menopausal hormone therapy (MHT), progesterone intolerance (PI) has no established clinical definition, diagnostic criteria, or standard management framework. This study characterizes PI through patient-reported experience as a necessary first step toward clinical recognition. **Design:** Cross-sectional anonymous online survey distributed April–May 2026 via The Collaborative Medical Practice. A total of 766 consenting respondents (mean age 53 years; 45% postmenopausal, 34% perimenopausal) with current or prior MHT exposure reported progesterone formulation used, side effect severity, symptom profile, and whether PI had been identified by a clinician. Symptom rates were compared across formulations, predictors of severe intolerance were examined, and open-ended responses analyzed for qualitative themes. **Results:** Among 452 progesterone-exposed respondents, 44.9% reported adverse effects and 11% experienced severe PI significantly interfering with daily life. Symptoms spanned physical and mood domains, with bloating (42%), fatigue (34%), irritability or anxiety (31%), and depressed mood (27%) most commonly reported. Symptom patterns differed by formulation: oral progesterone was most associated with GI and cognitive symptoms, while the hormonal IUD was specifically

linked to depressed mood and mood swings. Women with mast cell activation syndrome or histamine sensitivity were more likely to experience severe PI (OR 1.52, 95% CI 1.15–2.06). Qualitative responses revealed that several women independently identified peanut oil as the likely driver of their symptoms, with resolution after switching to compounded peanut-free formulations. PI was identified by a clinician in only 3.8% of affected women, and those without clinical recognition were significantly less likely to have tried an alternative formulation (p=0.003). **Conclusion:** PI is common, symptomatically significant, and almost universally unrecognized in clinical practice. The association with mast cell and histamine sensitivity, combined with patient-reported reactions to peanut oil formulations, suggests that some cases of PI may represent a reaction to the carrier rather than the hormone itself, a distinction that has an immediate clinical solution. Routine screening for PI and awareness of alternative progestins or SERM alternatives may keep more women on MHT who need it.

Sources of Funding: None

P-14.

Efficacy, Moderators, and Trauma-Related Outcomes of a Digital CBT and Mindfulness Intervention for women with distressing low sexual desire

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Objective: Sexual interest/arousal disorder (SIAD) is a prevalent and distressing condition among midlife women, yet access to evidence-based psychological treatments remains limited. eSense is a scalable digital intervention integrating Cognitive-Behavioral Therapy (CBT) and Mindfulness-Based Therapy (MBT). This study evaluated the efficacy of eSense relative to waitlist control, examined moderators and mediators of treatment response, and explored the impact of sexual assault (SA) history on engagement, outcomes, and posttraumatic stress disorder (PTSD) symptoms. **Design:** In a randomized controlled trial, 129 women with SIAD were assigned to eSense-CBT (n = 43), eSense-MBT (n = 43), or waitlist (n = 43). Interventions comprised 8 modules completed over 8–12 weeks with support from trained non-expert navigators. Participants completed validated self-report measures of sexual desire/arousal, sexual distress, sexual satisfaction, dissatisfaction, overall sexual function, PTSD symptoms, depressive symptoms, and sexual avoidance at baseline, mid-treatment, posttreatment, and 6-month follow-up. Secondary analyses examined SA history as a predictor of engagement and outcomes, and tested mediators (depression, PTSD, avoidance) and moderators (treatment expectations, partner involvement, adherence). **Results:** Relative to waitlist, both CBT and MBT yielded significant improvements in sexual desire/arousal (d > .90) and reductions in sexual distress (d > −0.62) at posttreatment, maintained at 6 months. Improvements in sexual satisfaction were moderate-to-large (d = 0.70–0.81), with slightly greater gains in MBT. No effects were observed for sexual dissatisfaction. Overall sexual function improved substantially (d = 1.20–1.23) with no between-arm differences. SA history did not predict treatment engagement or SIAD outcomes. PTSD symptoms decreased significantly in MBT relative to waitlist; exploratory analyses suggested greater PTSD improvement in CBT among SA survivors and in MBT among those without SA history. Reductions in depressive symptoms and PTSD were associated with improvements in desire and distress in MBT, while decreases in sexual avoidance predicted improvements across both arms. Higher treatment expectations predicted greater gains in CBT only; partner involvement and adherence were associated with better outcomes in both conditions. eSense was acceptable to women identifying with diverse sex/gender profiles. **Conclusion:** eSense is a feasible, usable, accessible, inclusive, and efficacious and accessible digital intervention for SIAD, producing durable improvements in sexual function and distress. Benefits extend to women with SA histories, who engage and respond comparably to treatment. Findings highlight key mechanisms (reductions in avoidance, mood, and PTSD symptoms) and modifiable factors (expectations, adherence, partner involvement) that may optimize outcomes. Digital interventions like eSense hold substantial promise for improving access to care for sexual dysfunction in midlife women.

Sources of Funding: Canadian Institutes of Health Research Michael Smith Health Research BC

P-15.

A Sleep and Light intervention for Mood Disturbances during the Menopausal Transition: Preliminary Findings

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Objective: Hormonal changes during the menopause transition may disrupt 24-hour biological or circadian rhythms (CR) manifesting as mood disruptions such as depression, anxiety and irritability, for which women actively seek treatment. As many women in this population also experience increasing medical comorbidity and polypharmacy, non-pharmacological interventions are particularly attractive. Chronotherapeutic interventions that aim to influence human's central circadian clock by employing light/dark therapies, sleep timing adjustment or restriction, supplement timing, or their combinations are becoming more prevalent. Based on previous work, depressed, compared with healthy, menopausal women had plasma and urine melatonin CR (the best measure of human circadian rhythmicity) that were phase-delayed (shifted later) with respect to sleep. In a prior pilot study, we aimed to correct mood disturbances in peri- and postmenopausal women by administering a Sleep and Light Intervention (SALI) combining one night of critically timed sleep adjustment with eight weeks of daily bright light exposure. Seventeen participants, nine controls and eight depressed

patients, completed either a phase-advance intervention (PAI; one night of advanced/restricted sleep from 9 pm to 1 am, followed by eight weeks of morning bright white light for 60 min/day within 30 minutes of awakening) that phase-advance CR, or a control phase-delay intervention (PDI; one night of delayed/restricted sleep from 3 to 7 am, followed by eight weeks of evening bright white light for 60 min/day within 90 minutes of bedtime), that phase-delays CR. The PAI condition significantly advanced 6-sulphatoxymelatonin offset in depressed participants, an effect associated with improved mood and sleep after only two weeks of daily light exposure. **Design:** To further assess mechanisms and clinical efficacy, we are conducting the Sleep and Light Intervention (SALI) for Menopausal Mood Dysfunction trial (NCT06678880). This study aims to test the efficacy of SALI for improving perimenopausal and postmenopausal depression while also evaluating mechanistic pathways and durability of response. Based on the pilot findings, two shorter protocols were developed: PAI, consisting of one night of advanced/restricted sleep followed by two weeks of morning bright white light for 30 min/day within 30 min of awakening, and PDI, consisting of one night of delayed/restricted sleep followed by two weeks of evening bright white light for 30 min/day, 60 min before bedtime. Peri- or post-menopausal status was determined by amenorrhea status, FSH testing, and SWAN criteria. **Results:** To date, 18 participants have enrolled and 15 have completed the intervention (7 PAI, 8 PDI). Participants are randomized to PAI or PDI and complete blind clinician-administered and self-report assessments, along with wearable-based monitoring of sleep, activity, and light-treatment adherence. Linear mixed-effects modeling showed a significant ($p \leq 0.02$) overall weekly reduction in mood scores across several measures (Patient Health Questionnaire-9, General Anxiety Disorder-7, Hamilton Depression Rating Scale, Hypomania Rating Scale). Wearable light sensors indicated high compliance with the prescribed 30-minute daily treatment window. Participants reported SALI was easy to complete, which suggests SALI is a feasible treatment for clinical implementation. This ongoing study aims to enroll at least 100 participants. Final analyses will integrate mood outcomes with circadian markers, including 6-sulphatoxymelatonin response profiles, participant-reported outcomes, and sleep/activity rhythms, to provide a comprehensive evaluation of this non-pharmacological intervention for menopausal mood dysfunction. **Conclusion:** The preliminary results of this study show that enrolled participants display a high level of compliance to the bright light treatment and both SALI treatment conditions result in improved mood measured by participant and clinician led assessments. To date, we do not find a significant difference between the two treatment conditions.

Sources of Funding: NIH NIMH R01 (5R01MH134120-03)

P-16.

Six Eyes, One Patient: An Interdisciplinary Care Model to Reduce Wait Times and Improve Outcomes in Chronic Pelvic Health Disorders

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Objective: This panel presents an interdisciplinary, same-day care model for the evaluation and management of chronic pelvic health disorders. A physician (MD), pelvic floor physical therapist (PT), and registered dietitian nutritionist (RDN) describe a collaborative approach implemented at a Pelvic Health Clinic established in 2014. The clinic provides coordinated medical, physical therapy, and nutrition and lifestyle evaluation within a single patient encounter. Conditions addressed include chronic pelvic pain of unclear etiology, postpartum pelvic floor dysfunction, pelvic organ prolapse, abdominal wall dysfunction, and gastrointestinal disorders such as chronic constipation. The model integrates point-of-care diagnostics (including ultrasound), manual pelvic floor assessment, and nutrition evaluation to develop a unified diagnosis and treatment plan. Emphasis is placed on reducing care fragmentation, minimizing delays in diagnosis, and improving patient understanding and adherence. **Design:** Retrospective review of 30 de-identified pelvic floor clinic encounters (2014–2017). Patients ranged from 14–69 years; 80% were female and 20% male. Male patients (22–39 years) commonly presented with pelvic floor hypertonicity, coccygeal or hip dysfunction, nerve irritation, and bowel dysfunction related to dietary patterns. Female patients (30–60 years) frequently presented with postpartum history, prior abdominal surgery, or chronic pelvic pain with bowel or bladder symptoms. Representative cases and ultrasound imaging are included. **Results:** Recurring diagnostic patterns were identified. Abdominal wall dysfunction—including diastasis recti, impaired core activation, fascial instability, and ventral hernia—was common and contributed to impaired pressure management. Scar adhesions from cesarean section and other abdominal surgeries frequently affected fascial mobility, contributing to pelvic pain, bladder symptoms, and core inhibition. Pelvic and hip biomechanical dysfunction, including gluteal weakness, piriformis tension, sacroiliac instability, and pelvic asymmetry, were prevalent and assessed in conjunction with abdominal and lumbar mechanics. Gastrointestinal dysfunction—including constipation, irritable bowel syndrome, and abdominal distension—was frequently observed and associated with pelvic floor overactivity or poor coordination. Metabolic and inflammatory contributors, including elevated glucose and nutrient deficiencies (e.g., magnesium, vitamin D, ferritin), were also identified, suggesting a role for systemic factors in persistent pelvic pain. These findings highlight the multifactorial and interconnected nature of pelvic health disorders. **Conclusion:** The historical records demonstrate that the pelvic clinic operated as an early systems-based pelvic pain program, recognizing that pelvic pain often arises from the interaction abdominal wall mechanics, visceral function, pelvic pain connective tissue health, and whole-body biomechanics interacting with daily nutritional status including low-fiber and high glycemic diets contributing to constipation, bowel dysfunction and chronic inflammation that further exacerbated pelvic pain disorders. Interdisciplinary collaboration among MD, PT, and RDN enabled care plans that addressed root contributors rather than isolated symptoms, supporting more comprehensive and individualized treatment. This model offers a

practical framework for reducing care fragmentation, improving diagnostic efficiency, and advancing integrative management of pelvic health disorders, with relevance for perimenopausal and menopausal populations.

Sources of Funding: None

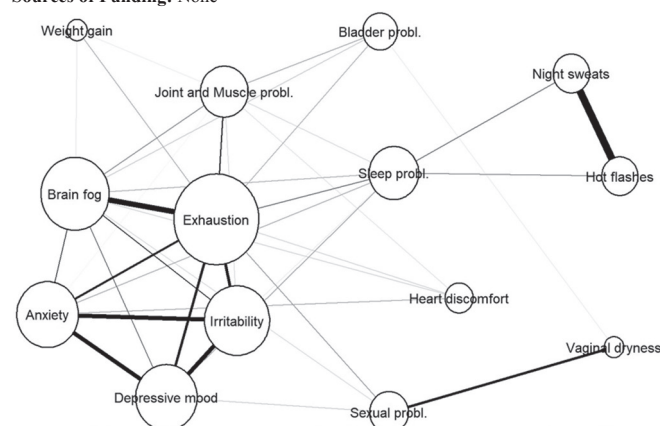
P-17.

Identifying the Perimenopause Symptom Network: A Global Survey Study

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Objective: Women in perimenopause experience a range of physical and psychological symptoms, yet how these symptoms co-occur and which are most central remains poorly understood. This study aims to identify key perimenopause symptoms and examine their interrelationships in a diverse, international sample. **Design:** A multilingual survey of women who self-identified in perimenopause was conducted via the Flo menstrual tracking app, including only participants who were not using hormonal contraception or hormone therapy. Symptom severity was assessed using the Menopause Rating Scale (MRS). Items assessing brain fog and weight gain were added to capture cognitive and metabolic domains not covered by the MRS. Network analysis was used to model relationships between symptoms. Centrality was quantified by strength (sum of absolute correlations to all other symptoms) and closeness (proximity to all other symptoms). Symptom clusters were identified using walktrap community detection, and the network was visualized with a force-directed layout, in which stronger correlated symptoms are positioned closer together. **Results:** A total of 1,281 respondents (mean age $\pm$ SD: 44 ± 6 years) from 106 countries across six continents were included. Physical and mental exhaustion was the most central symptom (strength = 5.80; closeness = 0.032) (Figure). Brain fog ranked second (strength = 5.26; closeness = 0.029) and clustered with exhaustion, irritability, anxiety, and depressive mood. Vasomotor symptoms (hot flashes and night sweats) formed a distinct cluster linking to the broader network via sleep problems ($r = 0.42$ – 0.43). Weight gain showed low centrality (strength = 3.70; closeness = 0.021) with weak correlations across the network ($r = 0.18$ – 0.39). **Conclusion:** Physical and mental exhaustion emerged as the central symptom in the perimenopause symptom network and was most strongly associated with brain fog, highlighting an important cognitive dimension. Vasomotor symptoms constituted a more peripheral cluster, linking to the broader network primarily through sleep problems. These findings suggest that exhaustion, along with its cognitive correlates, should be prioritized in clinical assessment and early therapeutic intervention during the menopausal transition.

Sources of Funding: None



Perimenopause symptom network. Node size reflects strength centrality; edge thickness reflects correlation magnitude.

P-18.

Reconstructing MHT Guidelines: A New Era of Menopause Care

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Objective: The FDA's November 10, 2025 reversal of over two decades of restrictive menopausal hormone therapy (MHT) guidance—removing black-box warnings for breast cancer, cardiovascular disease (CVD), and dementia—creates a kairotic leadership moment. With 15–20+ years of global registry and observational evidence demonstrating multi-domain prevention benefits, international guideline evolution (ESE 2025), advancing legal standards, and ICD-11 reclassification, TMS is ideally positioned to guide MHT practice evolution. Women increasingly seek boutique and tele-menopause platforms for health promotion and disease prevention, revealing an unmet need that TMS can address through visionary leadership. **Design:** Integrative evidence synthesis across six aligned domains: 1. Pharmacologic advancement—CEE/MPA vs. transdermal E2/P4; 2. Registry evidence—E3N/EPIC (n=98,995; RR 0.9 breast cancer with micronized P4), Danish registry 2022 (15+ y f/u, no late recurrence HR 1.05), Baik 2024 (10M women); 3. Mechanistic RCTs—ELITE (43% CIMT reduction $p=0.008$ <6y post-menopause), DOPS (HR 0.48 CVD/mortality early, sustained HR 0.61 at 16y), KEEPS (safety/efficacy); 4. Global leadership—IMS 2016, BMS 2016/2020, French CNGOF 2022 integrate

DOPS benefits, support individualized duration/dosing; 5. Legal clarity—Restatement (3rd) of Torts establishes evidence over consensus; Canterbury v. Spence supports comprehensive benefit-risk disclosure; 6. ICD-11 endocrine reclassification opportunity. **Results:** Modern transdermal E2/P4 delivers comprehensive prevention: CVD mortality HR 0.48-0.61 (DOPS); BMD preservation vs. postmenopausal loss (DOPS 5-16y); T2D risk reduction HR 0.8-0.86 (WHI/transdermal cohorts); cognitive protection (midlife OR ~0.6 dementia); breast neutrality (E3N RR 0.9 micronized P4; Danish HR 1.05 late); even late (>65y) 19% mortality reduction (Baik). Formulation critical: micronized P4 neutral vs. synthetics (RR 1.4); early window (<6-10y) optimizes outcomes. Research advancing toward precision: developing precision MHT guidelines that standardize optimal formulations, dual physiologic: tE2 0.05-0.1 mg + MP 200-300 mg—optimal synergy for systemic restoration; active trials vs. statins/bisphosphonates; biomarkers (CIMT/APOE/BMD/HOMA-IR); individualized risk-benefit counseling for BC survivors (Batur 2006: HR ~0.6 recurrence). **Conclusion:** TMS is ideally positioned to lead in this historic moment by advocating for ICD-11 reclassification of menopause as an endocrine insufficiency rather than a genitourinary condition; formally endorsing MHT's multi-domain prevention indications for bone, cardiovascular, cognitive, and metabolic health; developing comprehensive precision MHT guidelines that standardize optimal formulations, physiologic dosing, timing windows, and biomarker protocols. This evolution positions TMS as a global authority in the precision medicine and femtech era (\$267B by 2035), championing physiologic restoration and multi-domain disease prevention for millions of women.

Sources of Funding: None

Hormone Insufficiency Classifications			
Condition	Primary Pathology	ICD-10 Classification	ICD-11 Classification
Hypothyroidism	Thyroid gland failure	E03 (Endocrine)	5A00 (Endocrine)
Adrenal Insufficiency	Adrenal gland failure	E27 (Endocrine)	5A74 (Endocrine)
Male Hypogonadism	Testicular failure	E29 (Endocrine)	5A81.1 (Endocrine)
Premature Ovarian Failure	Ovarian failure (age <40)	E28.3 (Endocrine)	GA30.6 (Genitourinary)
Menopause	Ovarian failure (age ≥40)	N95 (Genitourinary)	GA30 (Genitourinary)

Same ovarian endocrine failure pathophysiology, yet both classified as genitourinary in ICD-11
Verified sources: ICD-11 MMS v2025-01, WHO ICD-11 Reference Guide

P-19.
Patterns of Menopause Diagnosis and Prescribing in a Large Academic Health System

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Objective: To characterize menopause coding and medication prescribing in outpatient family medicine, internal medicine, and general obstetrics/gynecology care in a large Mid-Atlantic academic health system, including factors associated with coding and potentially guideline-discordant prescribing. **Design:** Retrospective descriptive EHR study of outpatient annual and problem visits from January 2022-April 2026. Eligible patients were female and aged 45-60 years at cohort entry; subsequent encounters were retained regardless of age. Specialist encounters were excluded. Menopause-related visits were defined using selected ICD-10 codes present in the current encounter: N95.1, N95.2, N95.3, N95.8, N95.9, Z78.0, and Z79.89. Hormone therapy (HT) contraindications were identified from visit diagnoses, billing codes, problem lists, and historical diagnoses. Descriptive statistics were used for bivariate comparisons and multiple logistic regression for adjusted analyses. The study was approved by the institutional IRB; analyses used Stata 17.0. **Results:** The analytic cohort included 666,606 encounters among 109,937 patients. Mean age was 52.6 years; 58.2% were non-Hispanic White, 20.8% non-Hispanic Black, 7.6% non-Hispanic Asian, 5.1% Hispanic, and 5.4% other/unknown/declined race or ethnicity. Most had private insurance (86.8%); 8.0% had Medicaid. Encounter volume was stable from 2022-2025 (21.1%-24.2% annually), with 2026 incomplete (10.0%). Overall, 51,932 encounters (7.8%) included a menopause diagnosis. At the patient level, 30,787 patients (28.0%) ever had an encounter with a menopause ICD-10 code. In adjusted logistic regression, older age was associated with higher odds of a menopause visit (OR 1.03/year, 95% CI 1.02-1.03). Compared with non-Hispanic White patients, non-Hispanic Black (OR 0.62, 95% CI 0.60-0.65), non-Hispanic Asian (OR 0.83, 95% CI 0.78-0.87), Hispanic (OR 0.89, 95% CI 0.83-0.95), and unknown/declined race/ethnicity patients (OR 0.76, 95% CI 0.70-0.81) had lower odds. Medicaid (OR 0.72, 95% CI 0.68-0.77), Medicare (OR 0.74, 95% CI 0.69-0.80), and no insurance (OR 0.63, 95% CI 0.52-0.76) were associated with lower odds versus private insurance. Obstetrics/gynecology encounters were more likely than family medicine encounters to have menopause coding (OR 3.88, 95% CI 3.73-4.04); clinician role was not associated after adjustment (APP vs physician OR 1.00, p=0.86). At the index menopause encounter, 5,195 patients (17.7%) had a menopause medication prescribed; 3,637 (12.4%) received HT or combined contraception (CC), 1,603 (5.5%) received non-hormonal therapy, and 45 (0.2%) received both. Overall, 3,989 patients (13.6%) had an HT contraindication documented by the index visit. Among patients with a contraindication, 153 (3.8%)

received HT/CC and 312 (7.8%) received non-hormonal therapy; among those without a contraindication, 1,246 (4.9%) received non-hormonal therapy. In mutually exclusive categories, 82.3% had no medication, 11.9% received HT/CC without contraindication, 0.5% received HT/CC with contraindication, 4.2% received non-hormonal therapy without contraindication, and 1.1% received non-hormonal therapy with contraindication. Adjusting for annual encounter volume, HT/CC prescribing with contraindications rose from 3.2 per 10,000 encounters in 2022 to 14.8 in 2025 and 23.1 through April 2026 (Poisson IRR/year 1.64, 95% CI 1.54-1.75, p<0.001). **Conclusion:** Menopause was infrequently coded in outpatient primary care and general obstetrics/gynecology visits among midlife women. Coding was less common among racially minoritized and publicly insured patients and much more common in obstetrics/gynecology than family medicine. Medication prescribing was uncommon, and potentially discordant prescribing occurred, including non-hormonal therapy in patients without HT contraindications and HT/CC use despite contraindications. The rising rate of HT/CC prescribing among patients with contraindications highlights the need for health-system interventions to support equitable, evidence-based menopause care.

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P-20.
Menopause Knowledge and Attitudes among Young Adult Women: Associations with Daughter–Mother Relationship Quality

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Objective: Despite the substantial impact of menopause on women's health, menopause education typically begins too late, often only when symptoms emerge, leaving women inadequately prepared for the transition. Intergenerational communication between mothers and daughters has proven effective in addressing health knowledge gaps, particularly in the areas of breast cancer and chronic disease prevention; yet, discussions about menopause remain limited, inaccurate, or avoided altogether. Understanding menopause knowledge and attitudes among young adult women, as well as the influence of daughter-mother relationship quality, may identify opportunities for early menopause education. The objective of this study was to characterize menopause knowledge and attitudes among young women aged 18-29 years, and to examine whether the perceived daughter-mother relationship quality is associated with menopause knowledge and attitudes. **Design:** We conducted a cross-sectional study with 282 women aged 18 to 29 years recruited via social media, e-mail listservs, and snowball sampling. Between December 2025 and February 2026, participants completed an online survey assessing socio-demographics, menopause knowledge, attitudes towards menopause, and perceived daughter-mother relationship quality. **Knowledge** about the definition, age, and symptoms of menopause was assessed using a questionnaire developed by the study team. **Attitude** toward menopause was evaluated using the Attitudes Towards Menopause Scale, with higher scores indicating more positive attitudes. Perceived daughter-mother relationship quality was assessed with the Adult Daughter-Mother Relationship Scale. Descriptive statistics were performed for all study variables (SAS version 9.4). Bivariate analyses examining menopause knowledge and attitudes by socio-demographics and daughter-mother relationship quality were conducted using Chi-square tests for categorical variables and Mann-Whitney U or Student's t-test for continuous variables. We used multivariable linear and logistic regression models to evaluate associations between daughter-mother relationship quality and menopause attitudes and knowledge, after adjusting for socio-demographics. All tests were two-sided with $\alpha = 0.05$. **Results:** Participants had a mean age of 22.5±3.6 years, 75% identified as non-Latina White, 43% had a Bachelor's degree or higher, and 37% reported it was somewhat/very difficult to pay for basics. Most participants (72%) reported that learning about menopause was "very important." Preferred sources of menopause education included school-based instruction (77%), conversations with family (56%), online and social media (48%), and podcasts (25%). While 44% of participants correctly identified the average age of menopause, only 22% correctly identified menopause symptoms. While 65% of women reported that their mother had experienced menopause, 41% reported that their mother did not discuss the menopause experience. Higher perceived daughter-mother relationship quality was associated with more positive attitudes towards menopause (β [SE]: 0.08[0.02], p=0.001), but was not associated with overall menopause knowledge (OR[95% CI]: 1.3 [0.9, 1.9]). Older age and higher education were positively associated with menopause knowledge. **Conclusion:** Findings suggest that young women value menopause education, though daughter-mother communication about menopause remains limited. Positive daughter-mother relationship quality was associated with more favorable attitudes towards menopause but not knowledge, suggesting that attitudes and information may be shaped through distinct pathways. These findings indicate early adulthood may be a window of opportunity for menopause education, particularly in formal educational settings, to support menopause preparedness.

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P-21.

Are We Missing Midlife-Onset Mood Symptoms? Emotional Arousal Symptoms in Women with Mild GAD-7 Scores

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Objective: An estimated 40-60% of midlife women report mood symptoms. Most research has focused on depressive symptoms and data about women's experiences with other mood symptoms that arise in midlife is limited. In this study, we assessed eleven emotional arousal symptoms we had previously identified in midlife women and incorporated the GAD-7 as a comparator. **Design:** Data were collected via SurveyMonkey, an online survey platform. Participants aged 35 to 55 were invited to participate via The Women Living Better newsletter, social media outreach, and through other midlife women's health organizations. Participants responded to the GAD-7 scale and how often over the past 3 months they had experienced eleven additional symptoms: mood swings, irritability, sudden anger, feeling easily overwhelmed and less able to cope, "can't calm down on the inside," a constant internal revving feeling, experiencing panic attacks, palpitations, being more fearful, anxiety/nervous tension, worrying more (not at all, a few days, several days, more than half of the days and nearly every day). Participants also were asked if each symptom had been present during other life stages: puberty, in their 20s, during pregnancy, postpartum, and since age 35. **Results:** Of 2713 participants who began the survey, 2056 completed it. Most respondents (90%) were 35 to 55, 9% were older than 55, and less than 1% were between 30 and 34. While this was a global sample with 41 countries represented, most participants (86%) were from North America (US 75%, Canada, 11%) and 5% from the UK. Eighty-three percent (83%) identified as White, and 4% self-reported as Black and 4% Asian. Eight percent (8%) reported they were Hispanic/Latina. Participants endorsed high socioeconomic status. Seventy-eight percent (78%) reported that paying for basics was not hard and educational attainment was high with 51% having a graduate degree and 33% a bachelor's degree. Over the past three months, many symptoms were reported on several days or more frequently: feelings of anxiety (47%), worrying more (46%), irritability (44%), easily overwhelmed/less able to cope (42%), can't calm down inside (35%), mood swings (32%), 27% more fearful, and sudden anger (25%). All symptoms were most frequently reported after age 35 (34-70%). Notably, among those reporting each symptom, a substantial proportion indicated that symptoms were experienced only since age 35: heart palpitations (65%), internal "revving" feeling (51%), can't calm down inside (50%), more fearful (49%), worrying more (46%), panic attacks (45%), sudden anger (44%), feelings of anxiety (43%), being easily overwhelmed/less able to cope (37%), irritability (35%), and mood swings (27%). Of note, while women reported various mood symptoms, the frequency of anxiety symptoms over the past two weeks was mild, with a mean GAD-7 score of 5.6 (SD 4.6). **Conclusion:** In our sample, midlife women report experiencing emotional arousal symptoms at least several days in the past three months. A substantial proportion of women reported that these symptoms first emerged after age 35. Despite this, the overall GAD-7 score suggested relatively mild levels of generalized anxiety. These findings raise questions about how anxiety and mood symptoms are currently captured in midlife women and underscore the need for further investigation into the nature, timing, and clinical recognition of midlife-onset mood and anxiety symptoms.

Sources of Funding: None

P-22.

New fears, phobias, and situations that lead to panic in Midlife Women: Evidence for Onset After Age 35

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Objective: Informal reports from submissions to the Women Living Better website and discussions in online perimenopause forums suggest the emergence of new fears or phobias in midlife. However, these observations have not been systematically examined. To investigate the prevalence of new fears, phobias, or situations that lead to panic we included eight items and asked about when these emerged in Mood Experiences on the Path to Menopause, a 2025 Women Living Better survey. **Design:** Women age 35-55 were recruited via The Women Living Better newsletter, social media outreach, and through other midlife women's health organizations. Data were collected using an online survey hosted on SurveyMonkey. Of 2713 women who started the survey, 2056 completed it. Women were asked to report: (1) "which, if any, of the following fears or phobias have you experienced in the past three months"; and (2) when did these begin for you (before age 20, 21-35, since age 35+ years). Descriptive statistics were performed to summarize the prevalence and timing of reported fears and phobias. **Results:** Most women who completed the survey were from the US (75%), followed by Canada (11%), the UK (5%), Australia (2%), South Africa (1%) and 36 additional countries. A majority reported their race as White (83%). Participants had high levels of education, with 33% having a bachelor's degree, and 51% a graduate degree. Paying for basic goods was not hard (78%), somewhat hard (19%), or very hard (3%). Overall, women reported the following fears, phobia or situations leading to panic in the past three months: social interactions (50.4%), being in crowds (49.9%), wearing tight-fitting clothes (29.3%), driving (30.9%), and being small spaces (21.6%). A substantial proportion of participants reported experiencing these fears or phobias on several days in the past three months; among these, wearing tight-fitting clothes was reported most frequently (52%). Between 48% and 76% of participants reporting specific fears or phobias indicated onset at age 35 or older, with the lowest proportion observed for fear of small spaces (48%)

and the highest for fear of driving (76%). **Conclusion:** Fears and phobias related to social interactions and crowds were the most prevalent, with more than half of affected participants indicating onset at age 35 or older. Although less common, phobia related to wearing of tight-fitting clothes also frequently emerged after age 35 years. Notably, driving-related fears showed consistently high proportions of midlife onset. These findings should be interpreted with caution, given the reliance on self-reported data. Future studies using more rigorous designs are warranted to confirm these patterns and clarify underlying mechanisms.

Sources of Funding: None

P-23.

Menopause Impact Scale: Development and Validation of a Digital Survey Tool

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Objective: Menopausal symptoms are common yet heterogeneous, and they can have a wide range of impacts on day to day quality of life. Existing questionnaires vary in content and psychometric quality, and many emphasize symptom severity or frequency as ways to quantify these symptoms. However, limited attention has been paid to perceived impact on the individual or digital usability of the survey tool. Our objective was to develop and validate the Menopause Impact Scale (MIS), a brief, person centered measure of menopause related symptom impact that is psychometrically robust across reproductive stages and suitable for digital implementation. **Design:** We conducted three online studies with women (age range: 21 to 85 years) in the United States (total N = 2,915). Study 1 (n = 486) evaluated a 57 item pool using exploratory factor analysis (EFA) and reliability indices. Study 2 (n = 1,429) used confirmatory factor analysis (CFA) and item reduction to derive a brief scale. Study 3 (n = 1,000) cross validated the final structure, examined convergent and divergent validity with existing, clinically validated survey tools, the Greene Climacteric Scale and Copenhagen Burnout Inventory, and tested sensitivity to age group and menopause etiology. **Results:** In Study 1, EFA supported a seven factor solution with excellent fit (KMO = 0.968; TLI = 0.902, RMSEA = 0.048) and high reliability (alpha = 0.974). In Study 2, the shorter, 22 item, seven factor model showed excellent fit (CFI = 0.970; TLI = 0.963; RMSEA = 0.047) and strong reliability (alpha = 0.964). In Study 3, CFA confirmed the structure (CFI = 0.977; TLI = 0.972; RMSEA = 0.041; alpha = 0.941). Included domains spanned cognitive, self perception/body image, sexual/vaginal, musculoskeletal, vasomotor, sleep, and urinary symptom clusters. Convergent validity with the Greene total score was strong (r = 0.76) and divergent validity with burnout was moderate (r = 0.57). Age sensitivity analyses showed that MIS scores peaked in midlife (45-55 years), exceeding those in younger (<45) and older (55+) groups. Menopause etiology analyses indicated that, after age adjustment, symptom burden was highest in primary ovarian insufficiency, intermediate in surgical menopause, and lowest in natural menopause, with the largest differences in vasomotor and genitourinary domains. **Conclusion:** The MIS is a brief, impact focused measure of menopausal symptoms across seven domains, with strong structural, convergent, and discriminant validity. Its age and etiology sensitive scores and digital ready format support use in research, clinical, and real world monitoring contexts. The focus on quality of life impact may lend itself to integration in clinical work flows as measures of treatment or behavioral change

Sources of Funding: Oura is the source of funding.

P-24.

Effect of Combined Estrogen and Testosterone Therapy on Bone Mineral Density in Postmenopausal Women

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Objective: The synergistic effects of testosterone and estrogen on bone mineral density (BMD) in menopausal women have been proposed to occur through regulation of osteoblast and osteoclast activity. However, the impact of testosterone (T) therapy in addition to estrogen (E) therapy on BMD remains unclear. This study evaluates the effect of combined E+T therapy on BMD in postmenopausal women, comparing outcomes with E therapy alone and baseline measurements. **Design:** This retrospective cohort study included postmenopausal women prescribed menopausal hormone therapy at a single private hospital. Dual-energy X-ray absorptiometry (DEXA) scans were used to measure BMD at baseline, after at least 1 year of E therapy alone, and after at least 1 year of E+T therapy. Patients receiving concurrent osteoporosis therapies (bisphosphonates, RANKL inhibitors, or selective estrogen receptor modulators) were excluded. Descriptive statistics were used to summarize T-scores at the lumbar spine, total hip, and femoral neck. Paired t-tests were used to compare changes in BMD across treatment periods (E vs baseline; E+T vs baseline; E+T vs E). **Results:** A total of 51 women were included in the analysis. Mean (SD) age was 59 (9.2) years, and mean body mass index was 23.9 (3.9) kg/m². Most participants were White (82.3%) and had natural menopause (59%). Osteoporosis was diagnosed in 17 (33.3%) women and osteopenia in 28 (54.9%). Calcium and vitamin D supplementation were prescribed in 12 (23.5%) and 17 (33.3%) women, respectively. The mean follow-up period was 8.2 (4.1) years. Participants received E therapy for a mean duration of 5.7 (3.5) years and E+T therapy for 3.8 (3.1) years. Baseline T-score at the lumbar spine, femoral neck and total hip were -1.10 (1.73), -1.48 (1.15) and -0.99 (1.27), respectively. While E therapy alone did not show significant increase in T-score in any locations, E+T therapy significantly increased lumbar spine T-scores. Compared with E alone, E+T significantly increases lumbar spine T-scores by 0.52 (95% CI: 0.26, 0.77); p=0.0002. Compared with baseline, E+T significantly increases T-score at lumbar spine by 0.45 (95% CI: 0.21, 0.70); p=0.0007. T-scores at the femoral neck and total hip remain stable across both E and E+T therapy periods. **Conclusion:** Combined

E+T therapy significantly increased lumbar spine BMD compared to both baseline and E-only therapy, while femoral neck and total hip BMD remained stable. These findings suggest that testosterone may exert a synergistic effect with estrogen on trabecular bone, particularly at the spine, and may offer enhanced skeletal benefit beyond estrogen alone.

Sources of Funding: None

Bone mass density following estrogen and estrogen plus testosterone therapy in menopausal women

T-Score	Baseline	E	E+T	E vs Baseline		E+T vs E		E+T vs Baseline	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean Difference (95%CI)	p	Mean Difference (95%CI)	p	Mean Difference (95%CI)	p
Lumbar Spine	-1.10 (1.73)	-1.16 (1.67)	-0.76 (1.71)	-0.06 (-0.34, 0.22)	0.66	0.52 (0.26, 0.77)	0.0002	0.45 (0.21, 0.70)	0.0007
Femoral Neck	-1.48 (1.15)	-1.59 (1.00)	-1.60 (1.04)	0.01 (-0.52, 0.53)	0.98	-0.08 (-0.24, 0.09)	0.37	-0.08 (-0.32, 0.15)	0.47
Total Hip	-0.99 (1.27)	-1.27 (1.03)	-0.98 (1.13)	-0.03 (-0.46, 0.39)	0.87	0.10 (-0.11, 0.31)	0.35	0.05 (-0.19, 0.29)	0.67

E=estrogen; T=testosterone; E+T=combined estrogen plus testosterone therapy; SD=standard deviation; CI=confidence interval; paired t-test was used to compare mean differences across treatment within the same patient

P-25.

A Real-World Study to Understand Characteristics and Treatment Patterns of Early Fezolinetant Users: Results from a US Claims Database Analysis

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Objective: Vasomotor symptoms (VMS) have traditionally been treated with hormone therapy (HT) and non-hormonal SSRIs. Global approval of fezolinetant, a first-in-class, non-hormonal neurokinin 3 receptor antagonist for the treatment of moderate to severe VMS due to menopause, has led to changes in the clinical management of menopausal women. This analysis characterized early real-world use of fezolinetant in the US by evaluating patient characteristics and treatment patterns, including use of concomitant/prior VMS-related treatment, to further inform clinical practice. **Design:** This was a retrospective observational cohort study using data from the PharMetrics Plus database, a de-identified longitudinal database of administrative claims from an insured US population. The date of the first claim for fezolinetant was defined as the index date. Individuals were included if they initiated fezolinetant between May 12, 2023 (date of US fezolinetant approval) and March 31, 2024; and had continuous health insurance for ≥12 months pre-index (baseline period) and ≥6 months post-index (follow-up period). Descriptive statistics were used to analyze the data. **Results:** Overall, 4,597 patients who initiated fezolinetant were included: 2,899 (63%) in commercial healthcare plans, 322 (7%) in Medicare Advantage (MA) plans, and 1,376 (30%) in Medicaid. Mean age was 54.5 (SD: 7.8) years; 99.6% (n=4,577) were female and 0.4% (n=20) were male. Among female patients, 549 (12.0%) had a history of breast cancer on adjuvant endocrine therapy (AET). Mean (SD) Charlson comorbidity score was 2.3 (1.9) overall and higher in those with a history of breast cancer/AET (4.3 [2.1]) and enrolled in MA plans (3.8 [2.2]). Fezolinetant was most commonly prescribed by OB/GYNs (1,279 [27.8%]), followed by nurse practitioners (909 [19.8%]) and general/family practice (596 [13.0%]). Common comorbidities included hyperlipidemia (2,277 [49.5%]), hypertension (2,032 [44.2%]), insomnia/sleep disorders (1,753 [38.1%]), anxiety (1,878 [40.9%]), obesity (1,592 [34.6%]), cardiovascular disease (1,556 [33.8%]), and depression (1,383 [30.1%]). VMS-related medications were prescribed to 3,339 (73.0%) female patients during the baseline period; 3,027 (66.1%) received ≥1 non-HT prescription (31.6% SSRI, 27.0% SNRI, 25.5% gabapentin) and 923 (20.2%) received HT prescriptions. Approximately half (2,355 [51.2%]) of the fezolinetant users were adherent over the 6-month follow-up period (defined by proportion of days covered [PDC] ≥80%), with a mean (SD) PDC of 67.6% (31.6%). Fezolinetant discontinuation (defined by ≥60-day refill gap) in the follow-up period occurred in 1,791 (39.0%), of which 233 (13.0%) restarted therapy and 822 (45.9%) switched to alternative medications for VMS and/or other conditions. Compared with the overall cohort, adherence was notably higher (348 [63.4%]) and discontinuation lower (159 [29.0%]) among female patients with breast cancer/AET history, while Medicaid enrollees had slightly lower adherence (612 [44.5%]) and higher discontinuation (615 [44.7%]). Over half of patients (2,631 [57.2%]) had concomitant medication use for VMS and/or other conditions, mostly continuing from pre-index (86.4%) vs initiating post-index (13.6%), with 378 (8.2%) receiving HT for VMS (primarily estrogens). Use of both non-HT and HT declined substantially after fezolinetant initiation (pre- to post-index: 66% to 49% for non-HT; 20% to 8% for HT). **Conclusion:** This US study provides early evidence of fezolinetant's integration into real-world management of VMS across diverse patient populations, including those with breast cancer history on AET, for whom non-HT options are particularly important. The majority of patients began fezolinetant after prior therapy, which, along with declining concomitant HT/non-HT use after initiation, suggests fezolinetant may effectively address unmet needs with previous treatment options. These early data on patient characteristics and treatment patterns support fezolinetant's role as an effective non-HT option in the evolving VMS treatment landscape.

Sources of Funding: Astellas Pharma Inc.

P-26.

The GSM Collaborative Access and Referral to Estrogen (GSM CARE) Protocol: An Interprofessional Strategy to Improve Access to Vaginal Estrogen

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Objective: Genitourinary syndrome of menopause (GSM) is a set of symptoms including vaginal dryness, irritation, dyspareunia, urinary incontinence, and frequent UTIs. GSM is highly prevalent yet frequently underdiagnosed and undertreated, affecting up to 87% of menopausal women. Best-practice guidelines recommend symptom-based diagnosis and individualized care plans, including both nonhormonal and hormonal therapies. Vaginal estrogen remains a primary hormonal treatment option for GSM, yet barriers to its use include reluctance to discuss symptoms, low health literacy, and misconceptions regarding the safety and efficacy of localized estrogen therapy. Healthcare providers can help overcome barriers to effective treatment of GSM by facilitating discussions with women about vaginal health. Pelvic health therapists (PHTs) are an integral part of the care team for effective GSM care, as they routinely encounter affected patients and perform relevant assessments. However, gaps in GSM education and training in pharmacologic treatment options among PHTs and physicians may compound barriers to diagnosis and comprehensive treatment. As a result, optimal treatment and referral, particularly for localized vaginal estrogen therapy, may be delayed or inconsistent. Despite PHTs' routine engagement with patients experiencing GSM symptoms, structured pathways for identifying candidates for vaginal estrogen therapy and facilitating referrals to prescribing providers are currently lacking. Therefore, we developed a novel strategy designed to enhance GSM screening and improve patient access to vaginal estrogen through structured PHT assessment and streamlined physician referral. This strategy aims to establish a shared clinical decision-making pathway between PHTs and physicians to enhance diagnosis, treatment, and referral processes for GSM care. While physical examination is not required for the detection of GSM, PHTs routinely evaluate pelvic and vaginal health, and are ideally positioned to identify, screen, and refer to physicians for GSM care. Using structured questions designed to determine whether a patient is a candidate for vaginal estrogen will enable PHTs to act as an essential bridge between patients and physicians, potentially increasing patient access to treatment for GSM. **Design:** We conducted a brief literature review using PubMed and Google Scholar focusing on GSM consensus guidelines from national professional organizations including AUA, TMS, and AUGS to identify clinical educational opportunities and optimize pathways for collaborative GSM care. We then utilized Lucidchart to create a logic model of our GSM CARE Protocol. **Results:** Using the information gained from the literature, the GSM CARE Protocol was created to demonstrate the clinical decision making process for optimizing access to vaginal estrogen and promoting GSM continuity of care. The protocol consists of standardized screening questions and a streamlined physician referral process to enhance PHTs' ability to identify GSM and expedite access to vaginal estrogen prescription. **Conclusion:** The GSM Collaborative Access and Referral to Estrogen (GSM CARE) Protocol is a novel interprofessional strategy to connect symptomatic peri- and postmenopausal patients with evidence-based GSM treatment. We anticipate this protocol will enable PHTs to systematically identify patients with GSM symptoms, assess candidacy for vaginal estrogen therapy using screening questions based on AUA/TMS guidelines, and facilitate referral to physicians. This pathway leverages the unique position of PHTs in routine pelvic health care to address known barriers to vaginal estrogen therapy. The GSM CARE protocol offers a recommended model of interprofessional collaboration for menopause care which could be implemented across a broad range of healthcare settings to improve patient access to evidence-based GSM treatment. Future studies are needed to evaluate the impact of the GSM CARE protocol on patient outcomes by tracking number of referrals, rates of vaginal estrogen initiation, and patient satisfaction and symptom resolution.

Sources of Funding: None

P-27.

Phantom Smell Experiences During Perimenopause and Menopause

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Objective: Morpheus, a company dedicated to supporting women through perimenopause and menopause, is conducting ongoing research to better understand the experiences of women in this life stage. This survey aimed to characterize self-reported phantom smell experiences during perimenopause and menopause and identify the odors most commonly reported. **Design:** The Phantom Smell Experiences During Perimenopause and Menopause survey includes five questions and is ongoing. Participants are recruited online through the research page on the Morpheus website, social media, and the Morpheus newsletter. Data collection continues, with analyses conducted at regular intervals. **Results:** Between January 11, 2023, and May 24, 2026, 1,300 women, primarily aged 40 to 59 years, participated in an online survey examining self-reported phantom smell experiences during perimenopause and menopause. Phantom smells were defined as perceived odors without an identifiable external source. Among survey respondents, 81.8% reported experiencing phantom smells. When stratified by menopausal status, phantom smell reports were more common among perimenopausal than menopausal respondents (82.9% vs 76.2%). Burning-related odors were the most frequently reported category. Overall, 72.6% selected at least one odor associated with smoke, fire, heat, or burning. These included smoke related to fire, wood burning, campfire, burning, cigarettes, or cigars (36.8%); electricity or overheated electronics (23.0%); smoke (18.4%); burnt wires (13.8%); heat and electricity (11.1%); burned plastic (10.7%);

burning rubber (9.2%); burnt toast (9.0%); and burnt coffee (6.3%). Other commonly reported odors included mildew (23.7%), body odor (23.0%), weed or cannabis (17.4%), cat pee (15.8%), sulfur (13.3%), sewage (11.6%), and rotten eggs (10.1%). Pleasant odors were also reported, although less frequently, including sweet smells (6.7%) and floral scents (4.5%). **Conclusion:** In this online survey, phantom smell experiences were frequently reported by respondents in perimenopause and menopause. These findings suggest that unusual smell perceptions may represent an underrecognized symptom of perimenopause and menopause and may warrant greater clinical awareness when discussing perimenopause and menopause experiences. Participant responses may be affected by selection bias, recall bias, and the inability to verify external odor sources. Further research is needed to determine how common these experiences are in broader populations and to better understand their frequency, duration, timing (including relationship to the menstrual cycle during perimenopause), clinical relevance, and potential contributing factors.

Sources of Funding: Morphus Inc.

P-28.

Understanding Women's Experiences with Healthcare Providers During Perimenopause and Menopause

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Objective: Morphus, a company dedicated to supporting women through perimenopause and menopause, is conducting ongoing research to gain deeper insights into the experiences of women who are in perimenopause and menopause. This survey aimed to gain a deeper understanding of women's experiences with healthcare providers, including communication, perceived support, treatment recommendations, and symptom burden during perimenopause and menopause. **Design:** The Understanding Women's Experiences with Healthcare Providers During Perimenopause and Menopause survey includes twelve questions and is an ongoing. Participants are recruited online through the research page on the Morphus website, email outreach, social media, and co-authors' platforms and newsletters. Data collection continues, with cuts made at regular intervals for analysis. The current analysis is based on responses collected between February 5, 2024, and May 20, 2026 (n=619). **Results:** Between February 5, 2024, and May 20, 2026, a total of 619 women, most of whom were between the ages of 40 and 59, participated in a survey examining healthcare experiences, provider engagement, and treatment patterns during perimenopause and menopause. Among respondents, 55.9% were in perimenopause, 34.4% were in menopause or postmenopause, and 9.7% were unsure of their stage. Findings revealed that 95.6% of participants reported experiencing symptoms associated with perimenopause or menopause, or reported not feeling like their usual self. A total of 88.5% reported discussing their symptoms with a doctor or healthcare provider, and 75.8% reported currently receiving treatment. The most commonly consulted providers included obstetrician-gynecologists (59.5%), general practitioners (57.4%), and naturopathic doctors (27.0%). Perimenopausal respondents were more likely to consult obstetrician-gynecologists, while menopausal respondents were more likely to consult general practitioners and naturopathic doctors. Obstetrician-gynecologists (32.7%) and naturopathic doctors (22.9%) were most frequently identified as receptive to menopause-related concerns. Obstetrician-gynecologists (26.7%) and naturopathic doctors (21.6%) were also most frequently identified as helpful in offering symptom management solutions. The most commonly recommended treatments included supplements (47.1%) and oral progesterone (39.7%). Perimenopausal respondents were more likely to receive recommendations for supplements, whereas menopausal respondents were more likely to receive recommendations for oral progesterone, testosterone, and estrogen patches. Across both groups, respondents most frequently identified supplements (34.6%) and exercise or physical activity (34.2%) as effective strategies for managing symptoms. The symptoms reported to have the greatest impact on quality of life were sleep disturbances (63.4%), weight gain or body changes (55.7%), brain fog or memory issues (53.9%), and fatigue or exhaustion (49.0%). **Conclusion:** These findings highlight a high symptom burden among respondents navigating perimenopause and menopause, with most actively seeking care and consulting healthcare providers. Differences in provider responsiveness, treatment recommendations, and perceived effectiveness of care were observed across menopausal stages. The results underscore the need for improved recognition of menopause-related symptoms, more consistent and individualized treatment strategies, and expanded education for healthcare providers to better support women during this life stage.

Sources of Funding: Morphus Inc.

P-29.

Women's Reported Priorities for Perimenopause and Menopause Policy and Workplace Support

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Objective: Morphus, a company dedicated to supporting women through perimenopause and menopause, is conducting ongoing research to better understand the experiences, needs, and priorities of women in this life stage. Perimenopause and menopause can affect physical health, mental well-being, and workplace experiences, yet the impact of this transition remains underrecognized by healthcare systems, policy makers, and employers. This survey aimed to examine reported priorities for policy change, workplace supports, and future educational content. **Design:** The survey includes four questions asking respondents to select their priorities for potential government policies, social service

programs, and workplace initiatives for perimenopause and menopause. Data collection is ongoing and participants are recruited online through the research page on the Morphus website, social media, and the Morphus newsletter. The current analysis is based on the first data cut from this ongoing survey, with additional cuts planned at regular intervals for analysis. **Results:** Between February 14, 2024, and May 23, 2026, 305 women completed a survey examining priorities for policy development, social service programs, and workplace initiatives to support health and well-being during perimenopause and menopause. At the government and policy level, the most frequently selected priorities were education, awareness and training for healthcare workers (73.3%), public awareness campaigns including educational resources, TV, and social media (61.4%), non-crisis information lines offering referrals and resources (56.1%), short- or long-term paid leave (49.5%), workplace health and safety regulations (43.2%), and group therapy support (42.6%). At the employer level, the most frequently selected priorities were work from home options (60.7%), flexible work hours or early dismissal (53.1%), private insurance coverage for extended health benefits (49.5%), educational resources for employers and employees (43.9%), access to confidential mental health support (43.6%), additional sick days (36.6%), and paid leave (35.6%). Open-text responses emphasized improved clinician education, better access to evidence-based menopause care including hormone therapy, stronger workplace supports, and broader resources to reduce stigma and dismissal. **Conclusion:** Findings suggest that respondents view perimenopause and menopause support as both a healthcare and workplace priority. Reported priorities point to the need for greater recognition of perimenopause and menopause across healthcare systems, workplaces, and public policy, along with improved clinician education, public awareness, flexible work arrangements, and expanded benefits coverage. Further research is needed to identify effective approaches for supporting women across diverse social, economic, and workplace contexts.

Sources of Funding: Morphus Inc.

P-30.

Preliminary Stage 1 Evaluation of Nonhormonal Thermoregulatory Therapies in a Translational Model of Menopausal Vasomotor Symptoms

Katherine E. Vazquez, PhD¹, Erin E. Arthurs, AAS¹, Vern Van Asdale¹, Anne L. Dunlop, MD, MPH¹, Sergey Sikora, PhD², Stacy McAllister, PhD¹. ¹Gynecology-Obstetrics, Emory University School of Medicine, Atlanta, GA; ²Tioga Pharmaceuticals, San Diego, CA

Objective: Vasomotor symptoms are among the most common and disruptive symptoms of menopause and are a major contributor to sleep disturbance, reduced quality of life, and healthcare utilization. Although neurokinin-pathway antagonism has validated clinical efficacy, additional nonhormonal strategies are needed to improve symptom control and broaden treatment options. Kappa-opioid receptor activation may offer a complementary thermoregulatory approach. This preliminary Stage 1 study evaluated neurokinin antagonists and the kappa-opioid receptor agonist asimadoline in an ovariectomized warm-provocation model designed to support menopausal vasomotor symptom drug development. **Design:** Ten ovariectomized mice completed a within-subject Stage 1 pharmacologic screen comparing vehicle, fezolinetant, elinzanetant, and asimadoline. Infrared thermography was used to measure tail surface temperature during baseline and warm-room provocation as a physiologic readout of peripheral heat dissipation. The current preliminary analysis focused on early warm-provoked tail-temperature change and baseline-adjusted tail-temperature area under the curve during Minutes 1–5. Additional protocol-specified thermographic and secondary readouts will be incorporated into the final presentation to further characterize treatment response.

Results: Warm-room provocation produced a robust thermoregulatory response across treatment conditions, supporting the sensitivity of this model for detecting estrogen-loss-associated heat-dissipation responses. Mean tail-temperature change during Minutes 1–5 was $8.80 \pm 0.15^{\circ}\text{C}$ with vehicle, $8.74 \pm 0.24^{\circ}\text{C}$ with fezolinetant, $8.65 \pm 0.25^{\circ}\text{C}$ with elinzanetant, and $8.24 \pm 0.31^{\circ}\text{C}$ with asimadoline. Baseline-adjusted trapezoidal tail-temperature AUC was $39.15 \pm 0.73^{\circ}\text{C}\cdot\text{min}$ with vehicle, $39.12 \pm 1.02^{\circ}\text{C}\cdot\text{min}$ with fezolinetant, $38.63 \pm 1.09^{\circ}\text{C}\cdot\text{min}$ with elinzanetant, and $36.04 \pm 1.28^{\circ}\text{C}\cdot\text{min}$ with asimadoline. Compared with vehicle, all active treatments showed numerically lower warm-provoked tail-temperature responses, with the greatest attenuation observed with asimadoline. **Conclusion:** These preliminary Stage 1 findings support the translational utility of the ovariectomized warm-provocation model for evaluating nonhormonal therapies relevant to menopausal vasomotor symptoms. In this initial n=10 cohort, active treatment was associated with directionally favorable attenuation of warm-provoked tail-temperature change and tail-temperature AUC, with the most consistent pharmacodynamic signal observed with asimadoline. These results support continued evaluation of kappa-opioid receptor activation and neurokinin-pathway modulation, including planned Stage 2 combination testing, as potential nonhormonal therapeutic strategies for menopausal vasomotor symptoms.

Sources of Funding: Tioga Pharmaceuticals

P-31.

Abstract Withdrawn by Author

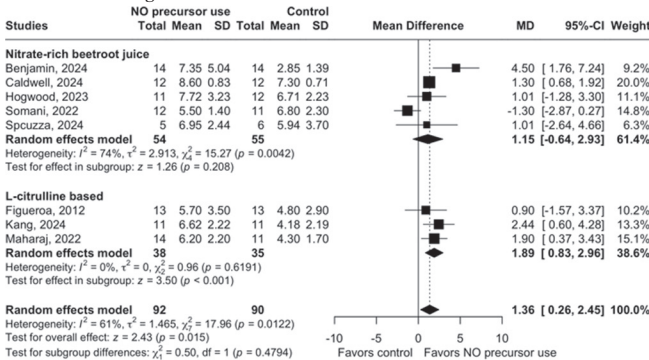
P-32.

Effects of Nitric Oxide Precursors on Endothelial Function and Blood Pressure in Peri- and Postmenopausal Women: A Systematic Review and Meta-Analysis

Maria Lemos, Medical Degree², Laura Fonseca Queiroz³, Ayesha Bakhshid⁴, Yami Bhaskarv⁵, Antonio Hernandez Ruano⁶, Flavia Fairbanks Ruano, Associate Professor¹, Rodrigo Ruano¹. ¹University of Miami Miller School of Medicine, Miami, FL; ²Redentor University Center, Itaperuna, Brazil; ³Santa Casa de Misericórdia de Belo Horizonte, Belo Horizonte, Brazil; ⁴Shifa College of Medicine, Islamabad, Pakistan; ⁵Vydehi institute of medical sciences and research centre, Bangalore, India; ⁶University of Texas, Austin, TX

Objective: Endothelial dysfunction and elevated blood pressure (BP) are common in peri- and postmenopausal women. The objective of this review is to evaluate the effects of nitric oxide (NO) precursors compared to placebo on endothelial function and BP in peri- and postmenopausal women, with subgroup analyses according to intervention type (nitrate-rich beetroot juice and L-citrulline-based supplementation). **Design:** Searches were conducted in Cochrane Library, Embase, and PubMed from inception to March 2026. A systematic review and meta-analysis, including randomized controlled trials comparing NO precursors with placebo in peri- and postmenopausal women, was performed. Outcomes were flow-mediated dilation (FMD) and BP. Analyses were performed using R software, and forest plots were generated for overall and subgroup effects. **Results:** Eight studies were included (92 participants in the NO precursor group and 90 in the placebo group). For endothelial function, NO precursors significantly improved FMD overall (MD 1.36; 95% CI 0.26 to 2.45; I² = 61%, Figure A). In subgroup analyses, L-citrulline-based interventions showed a significant improvement (MD 1.89; 95% CI 0.83 to 2.96; I² = 0%, Figure A), whereas nitrate-rich beetroot juice did not demonstrate a statistically significant effect (MD 1.15; 95% CI -0.64 to 2.93; I² = 74%, Figure A). For BP, no significant differences were observed between NO precursors and placebo (MD -2.16; 95% CI -5.91 to 1.60). Subgroup analyses were consistent, with no significant reductions for nitrate-based (MD -2.29; 95% CI -7.19 to 2.62; I² = 0%) or L-citrulline-based interventions (MD -2.13; 95% CI -8.74 to 4.47; I² = 12%). **Conclusion:** NO precursors may improve endothelial function in peri- and postmenopausal women, particularly with L-citrulline-based supplementation. However, no significant effects were observed on BP. Evidence remains limited by small sample size and heterogeneity, highlighting the need for larger, well-powered trials to clarify clinical efficacy and benefits of NO precursors in peri- and postmenopausal women.

Sources of Funding: none



P-33.

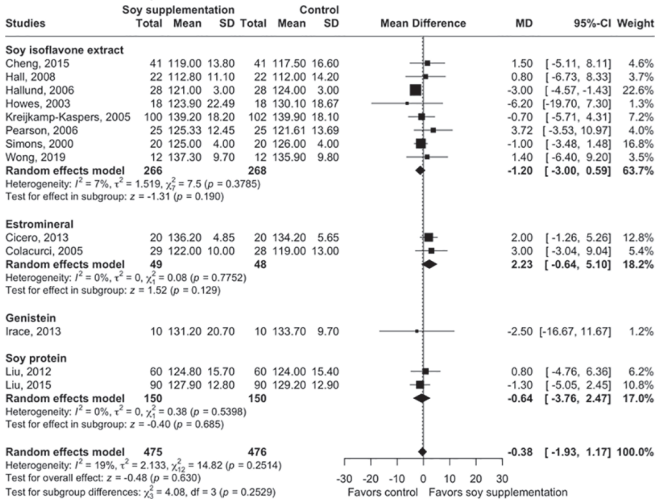
Effects of Soy Supplementation on Endothelial Function and Blood Pressure in Peri- and Postmenopausal Women: A Systematic Review and Meta-Analysis

Maria Lemos, Medical Degree², Laura Fonseca Queiroz³, Iaci Luisa Lopes de Mattos, MD⁴, Camila Diaz Hermosilla⁵, Bruna B. Armstrong⁷, Antonio Hernandez Ruano⁶, Flavia Fairbanks Ruano, Associate Professor¹, Rodrigo Ruano¹. ¹OBGYN, University of Miami Miller School of Medicine, Doral, FL; ²Redentor University Center, Itaperuna, Brazil; ³Santa Casa de Misericórdia de Belo Horizonte, Belo Horizonte, Brazil; ⁴Universidade Federal do Estado do Rio de Janeiro, Rio de Janeiro, Brazil; ⁵Universidad de La Frontera, Temuco, Chile; ⁶University of Texas, Austin, TX; ⁷Irmandade da Santa Casa de Misericórdia, São Paulo, Brazil

Objective: Endothelial dysfunction and elevated blood pressure (BP) are common in peri- and postmenopausal women. The objective of this review is to evaluate the effects of soy supplementation compared to placebo on endothelial function and BP in peri- and postmenopausal women, with subgroup analyses according to type of soy supplementation (soy isoflavone extract, EstroMineral, genistein, and soy protein). **Design:** A data search was conducted in the Cochrane Library, Embase, and PubMed from inception to March 2026. Systematic review and meta-analysis including randomized controlled trials comparing soy supplementation versus placebo in peri- and postmenopausal women was performed. Outcomes were flow-mediated dilation (FMD) and BP. Analyses were performed using R software, and forest plots were generated for overall and subgroup effects according to soy intervention type. **Results:** Thirteen studies were included (475 participants in the soy group and 476 in the placebo group). For BP, no significant differences were observed overall (MD -0.38; 95% CI -1.93 to 1.17, Figure A). Subgroup analyses were consistent, with no significant reductions for soy isoflavone extract (MD -1.20; 95% CI -3.00 to 0.59; I² = 7%, Figure A), EstroMineral

(MD 2.23; 95% CI -0.64 to 5.10; I² = 0%, Figure A), genistein (MD -2.50; 95% CI -16.67 to 11.67; single study, Figure A), or soy protein (MD -0.64; 95% CI -3.76 to 2.47; I² = 0%, Figure A). For endothelial function, soy supplementation showed no significant improvement in FMD overall (MD 0.70; 95% CI 0.00 to 1.40; I² = 73%). In subgroup analyses, soy isoflavone extract showed a significant improvement (MD 0.84; 95% CI 0.46 to 1.23; I² = 0%) and genistein also showed benefit (MD 3.20; 95% CI 0.39 to 6.01; single study), whereas EstroMineral did not demonstrate a significant effect (MD -0.20; 95% CI -0.45 to 0.05; single study). **Conclusion:** Soy supplementation may modestly improve endothelial function in peri- and postmenopausal women, particularly with soy isoflavone extract and genistein, while no consistent effect on BP was observed. Evidence is limited by heterogeneity and small sample sizes for certain subgroups, highlighting the need for larger, well-powered trials to clarify the clinical benefits of different soy formulations.

Sources of Funding: none



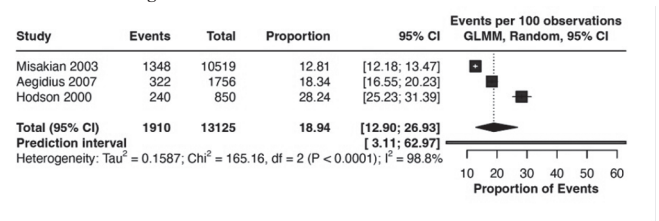
P-34.

Impact of Hormone Replacement Therapy on Migraine Outcomes in Postmenopausal Women: A Systematic Review and Meta-Analysis

Flavia Fairbanks Ruano, Associate Professor¹, Laura Fonseca Queiroz³, Maria Lemos, Medical Degree⁴, Ayesha Bakhshid⁵, Pawel Lajczak⁶, Yami Bhaskarv⁷, Antonio Hernandez Ruano², Rodrigo Ruano¹. ¹OBGYN, University of Miami Miller School of Medicine, Doral, FL; ²University of Texas, Austin, TX; ³Santa Casa de Misericórdia de Belo Horizonte, Belo Horizonte, Brazil; ⁴Redentor University Center, Itaperuna, Brazil; ⁵Shifa College of Medicine, Islamabad, Pakistan; ⁶Medical University of Silesia, Katowice, Poland; ⁷Vydehi institute of medical sciences and research centre, Bangalore, India

Objective: Hormone replacement therapy (HRT) is widely used to manage menopausal symptoms, but fluctuations in estrogenic levels may influence migraine. This study evaluated the impact of HRT on migraine outcomes, including incidence, severity, frequency, duration, and analgesic use in postmenopausal women, independently of the route of administration. **Design:** A systematic search of PubMed, Embase, Cochrane Library, and Scopus was conducted up to March 2026. Studies reporting migraine outcomes in postmenopausal women using HRT were included. Data extraction followed PRISMA guidelines, and pooled estimates were calculated using random-effects models with I² to assess heterogeneity. **Results:** Five studies with 23,702 women were included. The pooled analysis showed a mean migraine incidence of 18.94% (95% CI: 12.90 to 26.93, Figure A). HRT was associated with increased frequency of migraine attacks (MD 1.16 attacks/month; 95% CI: 0.19 to 2.14) and longer duration of migraine episodes (MD 0.95 days/month; 95% CI: 0.23 to 1.67). No significant differences were observed in the number of analgesics used per month (MD 0.70; 95% CI: -1.60 to 3.00) or in migraine severity scores (MD 0.11; 95% CI: -0.08 to 0.31). **Conclusion:** This study indicates that postmenopausal women using HRT may have higher mean incidence, frequency, and duration of migraine, but no increase in severity or augmentation in analgesic use. These findings suggest that HRT may raise migraine burden without affecting symptom intensity or treatment needs. Further clinical trials are still necessary to better understand the physiopathology and to guide clinical more efficient treatments.

Sources of Funding: none



P-35.

Transdermal Nitroglycerin for Hot Flashes in Postmenopausal Women: A Systematic Review

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Objective: Hot flashes are a major contributor to reduced quality of life in postmenopausal women. Transdermal nitroglycerin has been proposed as a non-hormonal alternative for women with contraindications to hormone therapy. This systematic review evaluated the impact of continuous transdermal nitroglycerin on hot flash frequency and related quality-of-life outcomes. **Design:** A systematic review was conducted following PRISMA guidelines. Searches were performed in PubMed, Embase, and the Cochrane Library from inception to March 2026 using terms related to transdermal nitroglycerin and postmenopause. **Results:** Four studies were included. Overall, 89 participants received nitroglycerin and 71 received placebo. Three publications reported different outcomes from the same randomized controlled trial including 141 participants (70 nitroglycerin, 71 placebo), and one single-arm dose-escalation study included 19 participants receiving nitroglycerin only. In the randomized trial, overall hot flashes at 12 weeks were -0.5 episodes/day (95% CI, -1.6 to 0.6) and moderate-to-severe hot flashes were -0.8 episodes/day (95% CI, -1.9 to 0.2) for the nitroglycerin group compared with placebo. Improvements in sleep and psychological function were inconsistent, although higher hot flash frequency was associated with worse sleep and anxiety, and hot flash patterns were associated with psychosocial quality of life. In the single-arm study, daily hot flash frequency decreased by up to 69% at the maximum nitroglycerin dose, with recurrence after discontinuation. Headache was the most frequent adverse event, affecting up to two-thirds of participants early in treatment. **Conclusion:** Continuous transdermal nitroglycerin may provide modest reductions in hot flash frequency and represents a potential non-hormonal option for postmenopausal women with contraindications to hormone therapy. Evidence is limited, imprecise and inconsistent, and further well-powered trials are needed to clarify efficacy, safety, and clinical utility of the transdermal nitroglycerin in this population.

Sources of Funding: none

P-36.

Clinician Characteristics and Prescribing Patterns of Menopausal Hormone Therapy: An Analysis Across Mayo Clinic Academic Health System

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Objective: Menopausal hormone therapy (MHT) remains the gold standard for treating moderate to severe vasomotor symptoms in women. Despite its efficacy, MHT prescriptions declined sharply after the 2002 Women’s Health Initiative due to safety concerns and persistent misconceptions about risk. MHT comprises various formulations differing in administration, dosing, safety profiles, and duration. Transdermal estradiol, often combined with micronized progesterone for women with a uterus, is considered among the safest regimens due to its favorable metabolic profile and reduced risk of venous thromboembolism. Recent evidence indicates clinician characteristics—such as specialty, gender, practice location, and engagement in menopause-focused societies— influence prescribing patterns. This study evaluates current MHT prescribing trends and investigates the impact of clinician characteristics on these practices. **Design:** A retrospective analysis was conducted of MHT prescriptions issued between January 1, 2020, and January 1, 2025, across all Mayo Clinic sites. Data from electronic medical records were used to assess prescribing patterns and provider characteristics, including specialty, clinical degree, gender, and practice location. The type of initial MHT regimen was also analyzed. Comparisons used independent-samples t-tests and one-way ANOVA, as appropriate to examine trends and associations **Results:** A total of 2,522 clinicians were included. Female providers placed more MHT orders than male providers (mean difference = 19.35, 95% CI [13.14, 25.57], p < 0.001) and wrote more oral prescriptions (mean difference = 2.26, 95% CI [1.08, 3.45], p < 0.001) and more transdermal prescriptions (mean difference = 17.09, 95% CI [11.50, 22.68], p < 0.001). Across all providers, transdermal prescriptions were more frequent than oral prescriptions (mean difference = 9.56, 95% CI [-13.10, -6.03], p < 0.001). Prescribing volume did not differ by provider credential (p = 0.67). Practice location was associated with total orders and prescription type (all p < 0.001), with higher prescribing in Arizona compared with Minnesota and MCHS. Provider specialty was also associated with prescribing volume and type (all p < 0.001), with higher ordering by Internal Medicine and Obstetrics/ Gynecology compared with Family Medicine, and Hospitalists. **Conclusion:** Clinician gender, specialty, and practice location were associated with meaningful variation in MHT prescribing, while credential type was not. Interpretation is limited because whether prescribing rates changed over the 5-year period was not evaluated. Defining a meaningful “rate” will require an agreed-upon denominator (e.g., eligible perimenopausal/ menopausal patients with an appropriate visit diagnosis). Observed gender differences may reflect patient selection (more menopausal patients seeing female clinicians) rather than a true independent provider effect. Specialty effects may also be confounded if Internal Medicine includes a higher concentration of women’s health or menopause-focused clinicians. As a destination medical center with ready access to subspecialty referral, findings may be subject to referral bias and may not generalize to settings with limited referral resources. Finally, lower volume in Family Medicine and other groups is

expected given mixed-gender patient panels; rates among eligible patients can be more informative outcome. Few studies have systematically examined clinician influence on MHT prescribing. Understanding these factors is vital for guiding educational initiatives, correcting misconceptions, and promoting evidence-based therapy. The findings support targeted interventions to optimize prescribing, improve patient outcomes, and advance public health for peri- and postmenopausal women.

Sources of Funding: None

P-37.

A Phase 1, Dose Escalation, Placebo-Controlled Study to Evaluate the Safety and Pharmacokinetics of Topical Sildenafil Cream in Healthy Postmenopausal Women

Katherine Cornell, BS¹, Andrea R. Thurman, MD², Isabella Johnson, MS², David Friend, PhD². ¹Strategic Science & Technologies, Cambridge, MA; ²Dare Bioscience, San Diego, CA **Objective:** To test the systemic and local genital safety and pharmacokinetics (PK) of topical Sildenafil Cream, 3.6% in healthy postmenopausal women. **Design:** Phase 1, open-label, placebo-controlled, dose-escalation study. Participants were exposed to a single dose of placebo cream and three doses of Sildenafil Cream containing 50 mg, 100 mg, and 200 mg of sildenafil citrate, with a 14–16-day washout period between each dose. Blood was obtained for plasma sildenafil and its active metabolite, N-desmethyl sildenafil, prior to dosing and up to 32 h after each dose. Safety was assessed by the frequency and incidence of treatment emergent adverse events (TEAEs), vulvar-vaginal irritation scores, and vital signs. **Results:** Twenty-one women were enrolled and 19 completed all 4 doses. All women were Non-Hispanic White with an average age of 57.2 years. All doses of Sildenafil Cream were well tolerated. Table 1 summarizes the TEAEs. The most common TEAE was a mild burning sensation with product application. One participant discontinued the study due to mild anxiety, deemed unrelated to study product or procedures. There were no cardiac events and no episodes of symptomatic orthostatic hypotension. Table 2 summarizes the PK parameters. At the 200 mg dose, geometric mean (coefficient of variation % (CV%)) maximum plasma concentration (C_{max}) of sildenafil was 5,262 (36) pg/mL. The C_{max} after the 100 mg dose (used in a subsequent Phase 2b study in premenopausal women) was 3,810 (40) pg/mL. Both concentrations are approximately 2 orders of magnitude lower than that seen in men after a single 100 mg oral dose (450,000 pg/mL). **Conclusion:** These data support further clinical development of topical Sildenafil Cream for the treatment of female sexual arousal disorder (FSAD) in postmenopausal women.

Sources of Funding: Strategic Sciences & Technologies, Cambridge, MA

Table 1. Summary of Treatment Emergent Adverse Events

Variable	Placebo (N=21)		50 mg Sildenafil Citrate (N=20)		100 mg Sildenafil Citrate (N=20)		200 mg Sildenafil Citrate (N=19)	
	Subjects N(%)	Events (N)	Subjects N(%)	Events (N)	Subjects N(%)	Events (N)	Subjects N(%)	Events (N)
Any TEAE	3 (14.3)	3	3 (15.0)	3	2 (10.0)	2	12 (63.2)	12
Mild TEAEs	3 (14.3)	3	3 (15.0)	3	2 (10.0)	2	12 (63.2)	12
TEAE Leading to Discontinuation	0	0	0	0	1 (5.0)	1	0	0
TEAE by Highest Relationship								
Not Related/Unlikely	1 (4.8)	1	0	0	0	0	0	0
Related (Possible/Probably/Definite)	2 (9.5)	2	3 (15.0)	3	2 (10.0)	2	12 (63.2)	12

Table 2. Single Dose Pharmacokinetic Parameters of Sildenafil and N-Desmethyl Sildenafil in Plasmal

Analyte	Parameter	Statistic	Sildenafil Citrate 50 mg Cream (N=20)	Sildenafil Citrate 100 mg Cream (N=20)	Sildenafil Citrate 200 mg Cream (N=19)
Sildenafil	Tmax (hours)	Median (Range)	3.00 (1.25 - 4.00)	2.50 (0.75 - 5.00)	2.00 (1.00 - 4.00)
	Cmax (pg/mL)	Geometric Mean (CV%)	3,356.55 (39.25)	3,809.76 (40.12)	5,262.35 (35.75)
	AUC 0-t (hr*pg/mL)	Geometric Mean (CV%)	25,597.92 (37.34)	30,853.50 (38.86)	42,513.05 (36.95)
	AUC 0-∞ (hr*pg/mL)	Geometric Mean (CV%)	28,343.20 (35.13)	34,682.75 (39.27)	45,166.29 (34.17)
	T 1/2 (hours)	Mean (SD)	9.40 (4.19)	10.92 (5.17)	8.44 (3.01)
	K el (1/hours)	Mean (SD)	0.09 (0.03)	0.07 (0.03)	0.09 (0.03)
	Tmax (hours)	Median (Range)	5.00 (3.00 - 6.00)	5.00 (2.00 - 6.00)	5.00 (4.00 - 9.00)
	Cmax (pg/mL)	Geometric Mean (CV%)	107.28 (55.46)	125.48 (49.22)	190.04 (50.53)
N-Desmethyl Sildenafil	AUC 0-t (hr*pg/mL)	Geometric Mean (CV%)	1,050.23 (62.82)	1,379.96 (53.30)	2,076.39 (47.32)
	AUC 0-∞ (hr*pg/mL)	Geometric Mean (CV%)	1,957.30 (46.27)	2,575.69 (27.82)	3,081.55 (30.08)
	T 1/2 (hours)	Mean (SD)	10.58 (5.28)	12.40 (6.35)	10.70 (4.93)
	K el (1/hours)	Mean (SD)	0.08 (0.04)	0.07 (0.03)	0.08 (0.03)

CV% = Coefficient of Variation Percent; SD = Standard Deviation.

P-38.

Somatic Menopausal Symptoms and Verbal Learning in Postmenopausal Women: A Cross-Sectional Study

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Objective: To examine the association between specific domains of climacteric symptom burden and verbal learning performance in postmenopausal women. **Design:** Retrospective cross-sectional study of 146 postmenopausal women aged 45–65 from

northeastern Mexico, evaluated at a university menopause clinic. Climacteric symptoms were assessed with the Greene Climacteric Scale and verbal learning with the Rey Auditory Verbal Learning Test (RAVLT). Years of education, obtained from clinical records, was incompletely documented; missing data were addressed using multiple imputation by chained equations (20 imputations, predictive mean matching). Linear regression models examined associations between symptom domains and verbal learning, adjusting for age, BMI, hormone therapy use, and education, with a complete-case sensitivity analysis (n=84). **Results:** Greater somatic symptom burden was independently associated with a poorer verbal learning trajectory across trials ($\beta=-0.380$, $P=0.014$). Overall symptom severity was not significantly associated with acquisition ($\beta=-0.130$, $P=0.075$) or trajectory ($\beta=-0.100$, $P=0.066$), nor were depressive symptoms with acquisition ($\beta=-0.445$, $P=0.070$). Higher BMI showed a nonsignificant association ($\beta=-0.076$, $P=0.086$). Education was a strong positive predictor across models. Findings were consistent in the complete-case analysis (n=84). **Conclusion:** Somatic menopausal symptoms, rather than overall symptom severity, were independently associated with poorer verbal learning in postmenopausal women. These findings highlight the potential relevance of specific symptom domains to cognitive performance during the postmenopausal period and support targeted assessment of somatic burden in this population.

Sources of Funding: None

P-39.

Evaluation of 10mg Hyaluronic Acid Suppositories in Breast Cancer Patients Experiencing Treatment Induced Genitourinary Symptoms of Menopause

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Objective: Genitourinary symptoms of menopause (GSM) are prevalent and more severe in breast cancer (BC) survivors than the general population. Survivors often decline hormonal treatments for GSM due to fear of increasing BC recurrence. This study investigates a high-dose hyaluronic acid (HA) vaginal moisturizer to treat GSM in BC patients. **Design:** This single-arm study evaluates a high-dose hyaluronic vaginal moisturizer in women with early stage BC on endocrine therapy with either an aromatase inhibitor (AI) or Selective Estrogen Receptor Modulators (SERM) experiencing moderate to severe vaginal symptoms as measured by the Vaginal Assessment Scale. Patients use 10mg HA vaginal inserts every 2 to 3 days for 12 weeks. Patients reported outcomes (PROs) including Vaginal Assessment Scale (VAS), Vulvar Assessment Scale (VuAS), and Female Sexual Function Index (FSFI) are completed at baseline, weeks 8 and 12. In addition, patients complete a daily diary recording HA usage and side effects. The primary study objective is change in vaginal health from baseline to week 8 according to the (VAS). Secondary objectives include assessment of sexual function, side effects and vulvar health. Results of baseline and week 8 VAS, VuAS, and FSFI PROs are summarized with median scores, median absolute, and median relative score changes. **Results:** 38 patients were enrolled and 16 have completed treatment. On average, patients used the HA insert 2.75, 2.75, 2.5 times per week during month 1, month 2 and month 3, respectively. There was improvement in vaginal symptoms from baseline to week 8 on the VAS/VuAS. Patients experienced moderate to severe symptoms at baseline with a median total VAS score of 6 and a median total VuAS of 4. At week 8, the median VAS score was 2 and median VuAS score was 2. The most notable changes were observed in vaginal soreness, vaginal irritation, and vulvar soreness, which had a -100% change from baseline to week 8. There was also a marked decrease in vulvar irritation (-75%) and vulvar pain (-67%). Vaginal dryness, dyspareunia, and vulvar dryness all had a 50% decrease. An improvement in sexual health symptoms was also seen on the FSFI. On average, patients had a baseline total FSFI score of 18, suggesting mild to moderate sexual dysfunction. At Week 8, patients reported a median score of 21(+32%). The most marked improvements were in the lubrication (43% improved), satisfaction (22% improved), and arousal (16% improved) domains. There was no notable change in desire or orgasm. There was an increase in pain scores. We hypothesize this may be due to the increase in frequency of sexual activity and plan to analyze daily sexual activity data. **Conclusion:** Patients experienced notable improvement in vaginal health, as assessed by the VAS, and vulvar health as assessed by the VuAS from baseline to week 8. Patients also experienced improvement in sexual function as assessed by FSFI. Despite limited sample size, the improvements in vulvovaginal and sexual health seen with this high-dose hyaluronic acid vaginal moisturizer are promising for BC survivors with more severe symptoms and limited treatment options. High dose HA can be discussed as an option for BC patients on endocrine therapy experiencing GSM.

Sources of Funding: This study is funded by Bonafide Health.
VAS/VuAS Mean Total Scores

Domain	Baseline (N = 28)	Week 8 (N=16)
Vaginal Dryness	2.00 (2.00, 2.00)	1.00 (0.00, 1.00)
Vaginal Soreness	1.00 (0.00, 1.50)	0.00 (0.00, 0.50)
Vaginal Irritation	1.00 (0.00, 1.00)	0.00 (0.00, 0.50)
Dyspareunia	2.00 (1.00, 3.00)	1.00 (0.00, 1.50)
Vulvar Dryness	1.00 (1.00, 2.00)	1.00 (0.00, 1.00)
Vulvar Soreness	1.00 (0.00, 1.00)	0.00 (0.00, 0.00)
Vulvar Irritation	1.00 (0.00, 1.50)	0.00 (0.00, 1.00)
Painful to Touch of the External Tissues with Sexual Activity	1.00 (0.00, 2.00)	0.00 (0.00, 1.00)

FSFI Mean Scores

Domain	Baseline (N = 28)	Week 8 (N = 16)
Desire	2.40 (1.20, 3.00)	2.40 (1.80, 3.00)
Arousal	3.30 (0.75, 3.75)	3.60 (2.10, 4.65)
Lubrication	1.20 (0.30, 3.30)	4.05 (1.80, 5.40)
Orgasm	3.40 (0.60, 4.80)	4.40 (2.80, 6.00)
Satisfaction	2.80 (2.00, 4.40)	4.40 (2.80, 4.80)
Pain	1.60 (0.00, 2.40)	3.40 (1.80, 5.40)
Total	18 (5, 20)	21 (18, 24)

P-40.

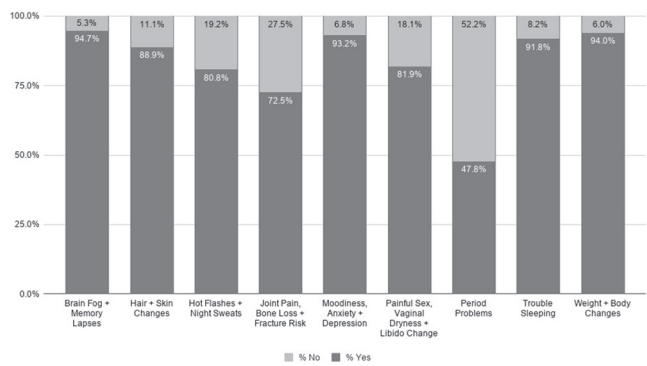
A large-scale observational study of perimenopausal symptoms from specialized women’s virtual care

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Objective: To identify the perimenopausal symptoms reported by a large sample of women in the United States, and explore symptom improvement from specialized perimenopausal virtual care. **Design:** Midi Health provides insurance covered virtual health care for midlife women. Providers are expertly trained in women’s health and manage concerns related to midlife hormone shifts. In the intake process, patients are asked to rate the severity of 9 symptoms on a 0 to 4 scale (none to very severe) using a modified version of the Menopause Rating Scale. At each follow-up visit, patients are asked to re-assess their symptoms to track changes over time. Data were extracted from patients with an initial visit between January 1, 2023 and May 22, 2026. For follow-up analyses, patient data were included if (1) the patient had at least 3 visits with a provider, (2) their initial rating of a symptom was at least a 3 (“moderate”) at baseline, and (3) the follow-up symptom report was at least 60 days after the initial assessment. Symptom improvement was defined as at least one category shift from baseline to follow-up (e.g., from a score of 3 to 2). **Results:** During the study time period, 322,817 women had an initial visit and completed a baseline assessment. Patients were from all 50 states; 84.2% were within the ages of 40 to 59 years. The most frequently reported menopause symptoms were Brain Fog and Memory Lapses (94.7%), Weight and Body Changes (94%), Moodiness, Anxiety and Depression (93.2%) and Trouble Sleeping (91.8%). A total of 106,660 women had follow-up data that met criteria for analysis. The largest percent of patients (81.4%) reported improvement in hot flashes and night sweats, followed by period problems (74%) and sleep problems (71.2%). The majority of patients reported improvement across every symptom; 95.3% showed improvement in at least one bothersome symptom. **Conclusion:** Most therapeutic approaches for perimenopausal symptoms primarily target vasomotor symptoms (hot flashes and night sweats) as the focus of care. However, in this large telehealth population, these symptoms were reported less frequently than cognitive, mood or weight changes. Vasomotor symptoms demonstrated the greatest rates of improvement with treatment, though the majority of patients reported improvement across all symptom domains. Vasomotor symptom improvement may also contribute to secondary benefits in sleep, mood, cognition and quality of life. Together, these findings highlight the variability and complexity of symptoms experienced during the menopause transition, as well as the ability to effectively manage diverse symptom presentations at scale through expert virtual care delivered by specially trained providers.

Sources of Funding: Midi Health, Inc.

Percent of Patients Reporting Bothersome Menopause Symptoms



P-41.

Posttraumatic Stress Disorder is Associated with Obstructive Sleep Apnea Risk Independent of Menopause Status

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Objective: Obstructive sleep apnea (OSA) is a sleep disorder associated with negative health outcomes including cardiometabolic disease, mental health comorbidity, and premature mortality. The prevalence of OSA increases among women in and after the menopause transition. However, up to 98% of women with OSA are thought to remain

undiagnosed, often due to sex-specific symptom presentations. Men with OSA tend to present with loud snoring, gasping/choking during sleep, and daytime sleepiness, whereas women with OSA tend to present with insomnia, depression, and headaches. Typically, women are not diagnosed with OSA until they develop the symptoms seen in men with OSA, which often does not occur until postmenopause. This health disparity contributes to harmful downstream effects: by the time women are diagnosed, their disease is more severe, and they demonstrate greater morbidity than men with OSA. This diagnostic complexity is further compounded in populations with high trauma exposure, such as Veterans. Posttraumatic stress disorder (PTSD) is a known risk factor for OSA and is associated with 2.5 times higher odds of OSA diagnosis in Veterans and 4 times higher odds of OSA diagnosis in civilians. However, this relationship has been evaluated in mixed-gender samples and has not been fully characterized in women. Given that both PTSD and the menopausal transition have been shown to be associated with OSA diagnosis, we sought to examine whether menopause status impacts the risk for OSA conferred by a PTSD diagnosis among a large cohort women Veterans. **Design:** Cross-sectional analysis of Veterans Health Administration (VHA) electronic health record data, including demographic data (age, race, ethnicity), ICD-10 diagnostic codes (obesity, PTSD, OSA), and a hybrid algorithm using structured and unstructured data elements to categorize menopause status (pre-/perimenopause vs. postmenopause), examined for all women Veterans aged 18-64 with at least one VHA primary care encounter between March 2023-March 2025. Multivariable regression models were conducted to examine associations between PTSD, menopause status, and a PTSD-by-menopause status interaction term with OSA, adjusted for age, race, ethnicity, and obesity. **Results:** In a sample of 581,386 women Veterans (mean age 44.33, SD 11.94) receiving VHA healthcare over a 2-year period, PTSD was associated with 1.88 (95% CI 1.85-1.92) higher odds of diagnosed OSA, and post-menopausal status was associated with 1.29 (95% CI 1.26-1.31) higher odds of diagnosed OSA. However, the interaction between PTSD and menopause status was not statistically significant. **Conclusion:** PTSD diagnosis is a robust and independent predictor of OSA risk in women Veterans, regardless of menopause status. The lack of a significant interaction between PTSD diagnosis and menopause status suggests that the physiological or behavioral impacts of PTSD on breathing during sleep are not dependent on the hormonal shifts of the menopause transition. Limitations include inability to distinguish between pre- and peri-menopause within these data, and use of cross-sectional data which inhibits determination of temporal relationships or causality. Clinically, these findings underscore the urgent need for routine OSA screening in women with PTSD, particularly during midlife when sleep complaints are often reflexively attributed to menopause alone. Earlier identification in this high-risk population may mitigate the downstream health disparities and morbidity associated with delayed OSA diagnosis in women. **Sources of Funding:** This project was supported by NIH R01 HL181024, NIH UL1 TR001872, VA I50 HX003266, and VA I50 HX002756.

P-42.

Characteristics of Female Daily/Near Daily Cannabis Users

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Objective: Cannabis use continues to increase in older adults and women, with many women using cannabis to help manage menopausal symptoms such as sleep disturbance and mood/anxiety (Dahlgren et al, 2022). Daily/near daily use of cannabis now exceeds that of alcohol (Caulkins et al, 2022) and is associated with increasing rates of Cannabis Use Disorder (CUD) and Cannabis Withdrawal Syndrome (CWS) (SAMHSA, 2025). Serious health and societal problems associated with cannabis use and withdrawal, including addiction, psychosis, schizophrenia, suicide, cardiovascular and pulmonary disorders, cannabis hyperemesis syndrome, and violence, among others, have been increasingly reported. Increasing potency and frequency of use, as well as ease of access and acceptability, are contributing to the massive increase in CUD and associated health related consequences. The objective is to describe the cannabis use patterns and experience in females who are daily/near daily users with an intent to take a break, reduce, or stop cannabis use. **Design:** A cross-sectional study was conducted in March 2026 in 388 participants between 16-75 years who were using cannabis at least 5-6 times per week, and with intent to take a break, cut back, or stop using cannabis in the next 12 months. Participants completed a 20-minute online survey. **Results:** Of the 388 participants, 146 (38%) were biological females with a mean age of 41 ($\pm$ 13) years. Most female respondents (n=86; 59%) were $\geq$ 36 years. First use of cannabis was reported by 59% during middle or high school, 29% in college, and 12% post college/adulthood. 73% (n=106) reported daily cannabis use, with 53% using three or more times/day. Smoking (flower/bud), edibles, and vaping were the most frequently used formulations, with average THC % potency ranging from 35-43% (maximum of 100% for all forms). 53 females reported having received a prescription for cannabis. Most females agreed that cannabis helped them cope with stress and manage physical conditions (e.g., pain) and mental health conditions (e.g., anxiety or depression). Only 55% agreed that they could stop using cannabis anytime they wanted to and 36% agreed that they were addicted to cannabis. 50% reported seeking help from a healthcare professional for their cannabis use; most from a primary care/family physician (47%) or nurse practitioner/registered nurse (27%). Those who sought medical help felt a loss of control related to their cannabis use, with 61% diagnosed with CUD, CWS, or both CUD and CWS. Of those diagnosed with CUD, over half were diagnosed while being treated for a mental health condition (e.g., anxiety, depression). The majority (73%) had previously tried to discontinue cannabis but relapsed with most respondents (83%) having multiple quit attempts, and almost half re-starting within 7 days. CUD/CWS symptoms were very common (90%) among those who had tried to quit, reduce use, or take a break and occurred rapidly (within 3 hours for 12% and within 24 hours for

62% of female participants). The most commonly reported CWS symptoms, identified as severe and bothersome, were: irritability/anger/depression (34%), depressed/low mood (34%), sleep issues (34%), and anxiety/nervousness (31%). **Conclusion:** There has been a dramatic increase in high potency, daily/near daily cannabis use in women. Cannabis withdrawal symptoms are commonly reported by women, with a vast majority occurring rapidly and within 24 hours of cessation attempts, leading to relapse. Additionally, many cannabis withdrawal symptoms are symptoms also experienced by peri- and postmenopausal women. Women need to be aware of the addicting potential of cannabis and withdrawal symptoms they may experience when trying to decrease or quit cannabis.

Sources of Funding: This study was sponsored by PleoPharma, Inc.

P-43.

Abstract Withdrawn by Author

P-44.

Abstract Withdrawn by Author

P-45.

Menopause Experiences Among Filipino Women: A Pilot Study

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Objective: Filipinos are the third largest population of Asian Americans, with higher rates of obesity, diabetes, and cardiovascular disease compared to the general population of U.S. adults and other Asian subpopulations. These conditions often emerge or worsen around the menopause transition and are associated with menopause symptom burden, making midlife an optimal intervention point to promote healthy aging. However, Filipino identity has not been specified in multi-ethnic studies of women's health (e.g., Study of Women's Health Across the Nation). The lack of data around Filipino women's midlife health may contribute to the perception of Asian women generally having an "easier," less symptomatic menopause transition and may obscure health disparities specific to Filipino women. This study aims to address knowledge gaps related to Filipino women's menopause experiences. **Design:** We piloted a one-time online survey to investigate midlife (ages 45-65) Filipino women's experience of menopause, including symptom patterns, early menopause (< age 45), and chronic health conditions, symptom management strategies, and sources of menopause-related information, using self-report items and validated questionnaires. Participants were recruited from the national UCSF Collaborative Approach for Asian Americans, Native Hawaiians, and Pacific Islanders (AANHPI) Research and Education (CARE) Registry, which aims to increase AANHPI participation in research. Descriptive statistics were used to characterize the sample. **Results:** Fifty-three midlife Filipino women (mean age 54.96 $\pm$ 5.51, 60% postmenopausal) from the CARE Registry participated in this pilot survey (response rate 19%). Common cardiometabolic comorbidities included hypertension (36%), hyperlipidemia (30%), and diabetes (26%). Additionally, 19% of participants reported moderate insomnia (Insomnia Severity Index $\geq$ 15), 49% reported mild to moderate anxiety (Generalized Anxiety Disorder-7 $\geq$ 5). The average age at menopause (M=47.26, SD=4.97) was lower than the national average (M=51-52), and 13% experienced early menopause. The most commonly reported symptoms (Menopause-Specific Quality of Life Scale, MENQOL) were tiredness (88%), body aches (83%), head/neck aches (73%), feeling impatient (71%), and weight gain (71%). Genitourinary symptoms were also prevalent: frequent urination (63%), involuntary urination (63%), change in sexual desire (54%), vaginal dryness (54%), and avoiding intimacy (52%). Vasomotor symptoms were less frequently endorsed: hot flashes (31%) and night sweats (38%). On the MENQOL (1: not at all bothered to 8: extremely bothered), participants reported low to moderate levels of bother across several domains: vasomotor (M=2.29, SD=1.73, range=1-7.33), psychosocial (M=3.35, SD=1.82, range=1-7.29), physical (M=3.27, SD=1.20, range=1.06-5.75), sexual (M=2.89, SD=2.02, range=1-7.67). Participants most often reported using mindfulness techniques (40%), yoga (26%) and over the counter vaginal lotions/lubricants (30%) to manage menopause symptoms. The most frequently used sources of menopause information were friends/family (79%), internet (75%), medical websites (62%), medical providers (51%), and social media (49%). Only 21% of participants reported discussing menopause-related concerns with their provider. **Conclusion:** Midlife Filipino women reported a broad range of symptoms and prevalent comorbidities associated with menopause symptom burden and known to complicate menopause management. Mind-body approaches and over the counter products were most frequently reported strategies for symptom management. Of note, early menopause was more common in this sample (13%) than estimates in the general U.S. population (5-10%). While many women reported receiving menopause information from a credible medical source, women also received information from social media, and few endorsed consulting with a mental health provider. These preliminary data suggest opportunities to improve menopause literacy and to better integrate behavioral health providers into conversations about menopause and menopause management. Though descriptive in nature and limited by a small sample size, this project provides novel data about midlife health within this oft-overlooked population.

Sources of Funding: UCSF CARE Registry is supported by NIA R24AG063718 and R01AG083926.

An Exploratory Analysis of Sensory Modulation Patterns Across the Female Reproductive Cycle

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Objective: Sensory processing issues have been suggested to emerge during the menopause transition, potentially impacting women's daily functioning and well-being. Sensory modulation, a key aspect of sensory processing, refers to the nervous system's ability to regulate and organize responses to sensory stimuli in a graded and adaptive manner. While existing research on sensory modulation has primarily focused on neurodivergent autistic women, there is a notable lack of studies investigating how sensory modulation patterns affect and are affected by the menopause transition in the general population. The purpose of this study was to explore and characterize sensory modulation patterns and menopause symptoms across the female reproductive cycle by examining differences and changes during the pre-, peri-, and post-menopausal phases.

Design: A cross-sectional survey design investigated sensory modulation patterns and menopause symptoms across female reproductive phases. Data were collected using a structured questionnaire including the Adolescent/Adult Sensory Profile (AASP) and Menopause Rating Scale (MRS). The AASP evaluates behavioral responses to sensory experiences and classifies sensory modulation patterns into four quadrants: *Low Registration* (need intense sensory input to react), *Sensation Seeking* (high thresholds actively pursue intense input), *Sensory Sensitivity* (perceive input more quickly and intensely), and *Sensory Avoiding* (low thresholds withdraw from input). The MRS measures menopause symptom severity and health-related quality of life. Participants were categorized into pre-menopausal with regular and irregular cycles, peri-menopausal, and post-menopausal groups to examine phase-specific differences. **Results:** Three hundred participants completed the survey (mean age = 46.88 years, SD = 9.45) and were categorized into four menopause stage groups: pre-menopausal with regular cycles (N = 24, 24.7%), pre-menopausal with irregular cycles (N = 46, 15.3%), peri-menopausal with irregular cycles (N = 85, 28.3%), and menopausal with absent cycles over one year (N = 95, 31.7%). The Menopause Rating Scale (MRS) and Adult/Adolescent Sensory Profile (AASP) subscales of Low Registration, Sensory Sensitivity, and Sensation Avoidance demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.77-0.86$), while Sensation Seeking showed borderline reliability ($\alpha = 0.69$). Bivariate correlations revealed moderate positive associations between MRS and Low Registration, Sensory Sensitivity, and Sensation Avoidance across most menopause groups, except Sensation Seeking, which was not significantly correlated with MRS. ANOVA results indicated a statistically significant but small effect of menopause stage on MRS ($p = .038$, $\eta^2 = .03$), with differences between pre-menopause irregular cycle and peri-menopause irregular cycle groups compared to pre-menopause regular cycle. Sensation Avoidance showed a large, significant effect of menopause stage ($p < .001$, $\eta^2 = .08$), driven by differences between menopausal absent cycle and pre-menopause regular cycle groups. Sensory Sensitivity was also significantly affected by menopause stage with medium effect size ($p = .001$, $\eta^2 = .05$), while Low Registration and Sensation Seeking did not differ significantly across menopause stages. These findings suggest sensory modulation patterns vary with menopause stage, particularly Sensation Avoidance and Sensory Sensitivity, and relate to menopausal symptom severity. **Conclusion:** The findings show that sensory modulation patterns, particularly Sensation Avoidance and Sensory Sensitivity, vary significantly across menopause stages and are associated with menopausal symptom severity. While Low Registration and Sensation Seeking did not show significant differences among menopause groups, the notable effects observed in Sensation Avoidance and Sensory Sensitivity highlight their potential role in understanding the sensory experiences related to menopausal transition. These findings underscore the importance of considering sensory modulation in the assessment and management of menopausal symptoms. Further research may explore the underlying mechanisms and clinical implications of these sensory changes during menopause.

Sources of Funding: None

Nocturnal Urinary Symptoms as Underrecognized Contributors to Sleep Disruption and Depression Burden in Midlife and Beyond

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Objective: Nocturnal urinary symptoms such as nocturia (waking at night to urinate) and nocturnal urinary incontinence (urine leakage disrupting sleep) are widely viewed as manifestations of older age, but these symptoms may begin in midlife and adversely affect women's sleep and mood during this transitional period. We evaluated the prevalence and severity of nocturnal urinary symptoms and their potential impact on sleep and depressive symptoms in a multiethnic cohort of midlife and older women.

Design: Nocturnal urinary symptoms were assessed in midlife and older women in the community-based Health and Aging Brain Study-Health Disparities cohort of U.S. adults aged ≥ 50 years from three ethnic groups (African American, Mexican American, Non-Hispanic White). Participants recorded nocturnal urination and incontinence episodes over 7 days in sleep/voiding diaries. Total sleep time, sleep efficiency, and awakening frequency were assessed using paired 7-day actigraphy. Perceived sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI), and daytime sleepiness using the Epworth Sleepiness Scale (ESS). Participants reported depression symptoms using the validated Geriatric Depression Scale (GDS). Nocturnal urinary symptom distributions

were stratified by age group (50-59, 60-69, ≥ 70 years). Linear mixed models adjusted for age and ethnicity examined associations between nocturnal urinary symptoms, sleep outcomes, and depressive symptoms, as well as interactions with age. **Results:** Among the 658 women (177 aged 50-59, 271 aged 60-69, and 210 aged ≥ 70), 24% (N=158) reported waking to urinate an average of at least twice per night. Although the prevalence of nocturia increased modestly with age ($p=0.03$), over 21% of those aged 50-59 reported waking to urinate at least twice nightly. Nocturnal urinary incontinence (occurring at least nightly) was reported by 23% overall. While its prevalence increased with age ($P<0.001$), 17% of those aged 50-59 reported nightly incontinence. Although perceived sleep quality (PSQI) did not differ significantly by age, average nightly total sleep time was lowest among midlife women (7.2 hours for ages 50-59, 7.3 hours for ages 60-69, and 7.6 hours for ages ≥ 70 ; $p<0.01$), as was sleep efficiency (88% for ages 50-59, 88% for ages 60-69, and 89% for age ≥ 70 ; $p=0.01$). Midlife women also experienced greater daytime sleepiness (mean ESS score of 6.6 for ages 50-59 vs. 5.9 for age ≥ 70 ; $p<0.01$). Depressive symptom burden was highest among midlife women; those aged 50-59 had a mean GDS score of 7.6 vs. 5.2 in ages 60-69 and 5.4 in ages ≥ 70 , $p<0.01$. In age- and ethnicity-adjusted analyses, greater nocturia frequency was significantly associated with worse sleep efficiency, longer waking time, and poorer perceived sleep quality (table). Nocturnal incontinence was linked to increased daytime somnolence ($p<0.01$) and higher depressive symptom burden ($p<0.01$). However, age was not a significant modifier of associations between nocturnal urinary symptoms and sleep or mood outcomes (all P for interaction >0.05). **Conclusion:** In this multiethnic cohort of midlife and older women, nocturnal urinary symptoms were prevalent across all age groups and significantly associated with sleep disruption and mood symptoms. While these symptoms became more frequent with age, they affected at least one in five midlife women, underscoring their impact during this transitional period. These findings highlight the need for targeted interventions to address nocturnal urinary symptoms and their associated sleep and psychological burdens, particularly in midlife.

Sources of Funding: National Institute on Aging of the National Institutes of Health (U19AG078109, R35AG071916, and K24AG068601)

Age- and Ethnicity-Adjusted Sleep Outcomes by Nocturia Frequency

Sleep Outcome	≤ 1 Episode/Night	≥ 1 but < 2 Episodes/Night	≥ 2 Episodes/Night	P-value
Sleep Efficiency (%)	90 $\pm$ 0.3	88.1 $\pm$ 0.3	86.2 $\pm$ 0.4	$<.001$
Wake Time After Sleep Onset (min)	46.8 $\pm$ 1.6	57.3 $\pm$ 1.8	66.4 $\pm$ 2.0	$<.001$
Subjective Sleep Quality Score	6.8 $\pm$ 0.2	7.5 $\pm$ 0.3	8.5 $\pm$ 0.3	$<.001$

Values are adjusted means $\pm$ SE from linear mixed models adjusted for age and ethnicity.

Premature Menopause and Cardiovascular Disease Risk in the ARIC Study: Mediation by Insulin Resistance

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Objective: Premature menopause is associated with greater cardiovascular disease (CVD) risk, but the underlying cardiometabolic mechanisms are unclear. We examined the association of age at menopause with CVD risk and cardiometabolic mediators related to insulin resistance. **Design:** Eligible participants were 4,710 postmenopausal women aged ≥ 45 to ≤ 64 years in the Atherosclerosis Risk in Communities (ARIC) study without baseline CVD. Age at menopause was self-reported. Composite CVD included incident coronary heart disease (CHD), total stroke, and heart failure (HF). Cox proportional hazard models estimated hazard ratios (HRs) for CVD outcomes according to age at menopause, categorized as premature (<40 years), early (40-44 years), and ≥ 45 years, adjusting for demographic, lifestyle, and reproductive factors. Counterfactual mediation analyses evaluated fasting glucose (FG), insulin, and homeostasis model assessment of insulin resistance (HOMA-IR) as mediators of the association between age at menopause and CVD. **Results:** During a mean follow-up of 21.4 ± 9.5 years, 1,570 CVD events occurred. Compared with menopause at age ≥ 45 , premature menopause was associated with greater risks of CVD (HR 1.19, 95%CI 1.04-1.35) and CHD (HR 1.30, 95%CI 1.08-1.58), but not stroke or HF. Early menopause was not associated with risks of CVD, CHD, stroke, or HF. Premature menopause was associated with higher insulin levels (9.3% increase, $p = 0.001$), HOMA-IR (9.9% increase, $p = 0.002$), but not FG (0.8% increase, $p=0.38$). Insulin and HOMA-IR partially mediated the premature menopause-CVD association, accounting for 19% and 19.3% of the total effects. **Conclusion:** Premature menopause, but not early menopause, was associated with higher CVD risks. Insulin resistance partly mediated this association, supporting cardiometabolic pathways linking premature menopause to CVD.

Sources of Funding: Menopause Society

Figure 1A. Adjusted associations of age at menopause with CVD

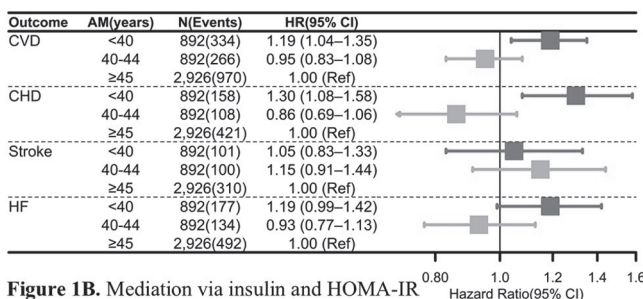
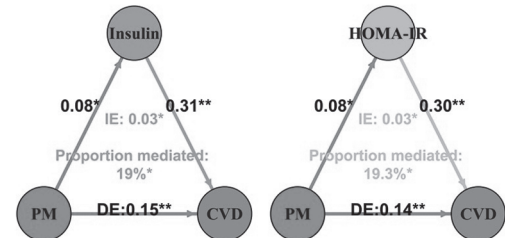


Figure 1B. Mediation via insulin and HOMA-IR



P-49.

Unrecognized Cardiometabolic Abnormalities Are Highly Prevalent Among Midlife Women Presenting with Menopause-Related Symptoms in the United States

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Objective: Cardiometabolic risk accelerates during the menopause transition, yet midlife women presenting for menopause-related care often do not undergo comprehensive metabolic evaluation. Existing longitudinal cohorts have characterized changes during the transition, but the real-world burden of previously unrecognized cardiometabolic disease and responsiveness to integrated intervention has not been well described. Using contemporary 2025 data from a national women's-health telehealth platform, we quantified the prevalence of unrecognized cardiometabolic abnormalities at intake and short-term responses to integrated care. **Design:** Women aged ≥ 40 who completed an Allara Health intake questionnaire between February and October 2025 were included. Patients who reported at least one prior cardiometabolic diagnosis at intake (diabetes/pre-diabetes, dyslipidemia, hypertension, coronary heart disease, stroke, or thromboembolism) were identified as those with prior identified risk. For those with no prior cardiometabolic risks, we defined three biologically distinct, overlapping presenting-symptom phenotypes: estrogen-deficiency (hot flashes, night sweats, or vaginal dryness; $n=1,224$); perimenopausal (irregular or absent menses; $n=822$); and dermatologic/androgenic (acne, hair loss, or excessive hair growth; $n=1,254$). Laboratory data extended through November 11, 2025. Standard thresholds were applied (HbA1c $\geq 5.7\%$, fasting glucose ≥ 100 mg/dL, HOMA-IR ≥ 2.5 , LDL ≥ 130 mg/dL, HDL < 50 mg/dL, triglycerides ≥ 150 mg/dL, SBP ≥ 130 or DBP ≥ 80 , BMI ≥ 30). Paired baseline-to-last-follow-up changes were tested with Wilcoxon signed-rank; proportions with Wilson 95% CIs; phenotype differences with chi-square. A pre-specified sensitivity analysis excluded women with PCOS. **Results:** Among 3,171 women aged ≥ 40 completing intake (median age 43, range 40–63; 62.5% White, 14.0% Hispanic, 7.4% Black, 4.9% Asian), 1,302 (41.1%) reported a recognized cardiometabolic risk factor at intake — most commonly dyslipidemia (24.9%), hypertension (17.9%), and diabetes/pre-diabetes (12.9%). For the 1,869 women without a cardiometabolic diagnosis (58.9%), there were 1,662 with at least one menopause-related symptom and at least one testable measurement. There were 1,224 women with estrogen-deficiency complaints (hot flashes, night sweats, or vaginal dryness); 822 with perimenopausal complaints (irregular or absent menses); and 1,254 with dermatologic/androgenic complaints (acne, hair loss, or excessive hair growth). Within this no-prior-Dx symptomatic cohort, a previously unrecognized cardiometabolic abnormality was newly identified in 1,018 of 1,662 women (61.3%; 95% CI 58.9–63.6). Specifically, insulin resistance (HOMA-IR ≥ 2.5) affected 35.9%, pre-diabetic HbA1c ($\geq 5.7\%$) 15.3%, obesity (BMI ≥ 30) 41.0%, Stage 1 hypertension (SBP ≥ 130 or DBP ≥ 80) 35.3%, and elevated LDL (≥ 130) 25.6%. Prevalence of unrecognized abnormalities did not differ across symptom phenotypes (all $p > 0.27$), with one exception: obesity was modestly higher in the dermatologic phenotype (44.5%) than in the estrogen-deficiency phenotype (38.5%, $p = 0.013$). Among patients abnormal at baseline with paired follow-up (median 104 days, IQR 82–146), HbA1c was reduced in 88.4% and normalized in 51.2% (median $\Delta -3.5\%$); fasting

glucose reduced in 85.7% and normalized in 61.9% (median $\Delta -9.7\%$); HOMA-IR reduced in 68.7% and normalized in 32.3% (median $\Delta -19.2\%$); LDL reduced in 68.9% and normalized in 40.0% (median $\Delta -7.7\%$); BMI decreased in 59.4%. Treatment response did not differ across phenotypes (all $p > 0.39$). Findings were robust to PCOS exclusion. **Conclusion:** In contemporary 2025 real-world data, approximately 6 in 10 midlife women presenting for menopause-related care with no known cardiometabolic disease were found to have a previously unrecognized abnormality — with similar prevalence and treatment response across patients presenting with estrogen-deficient, perimenopausal, and dermatologic phenotypes. Integrated telehealth demonstrated clinically meaningful improvement across glycemic, lipid, and anthropometric markers within ~ 3.5 months. These findings argue for routine cardiometabolic screening at menopause-related visits, regardless of presenting symptom or apparent metabolic

Sources of Funding: Allara Health

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Effect of CagriSema on body weight reduction and cardiometabolic risk factors in women by menopause status and hormone therapy use: A post hoc analysis of the REDEFINE 1 trial

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Objective: Menopause is a major hormonal transition associated with accelerated weight gain, body fat redistribution, and increased cardiovascular risk. CagriSema is a combination of the amylin receptor agonist cagrilintide and the glucagon-like peptide-1 receptor agonist semaglutide. This analysis of the REDEFINE 1 trial investigated the impact of CagriSema 2.4 mg/2.4 mg vs placebo on body weight and cardiometabolic risk factors in women with overweight or obesity stratified by menopause status and hormone therapy (HT) use. **Design:** In the phase 3a REDEFINE 1 trial (NCT05567796), adults with body mass index ≥ 30 kg/m², or ≥ 27 kg/m² with ≥ 1 obesity-related complication, without diabetes, were randomized 21:3:3:7 to CagriSema 2.4 mg/2.4 mg, semaglutide 2.4 mg, cagrilintide 2.4 mg, or placebo, alongside lifestyle intervention, for 68 weeks. For this *post hoc* analysis, women who received CagriSema or placebo were assigned to 1 of 4 groups: pre-menopause (aged < 45 years with no indication of menopause, no menopause symptoms, and regular menstrual cycles); peri-menopause (aged 45–54 years with no evidence of menopause or 40–54 years with diagnosis of menopause symptoms or evidence of clinical suspicion of menopause); post-menopause (aged ≥ 40 years with documented medical history of menopause, or bilateral oophorectomy aged ≥ 55 years); or HT use (regardless of age). Assessments included change in body weight with CagriSema vs placebo from baseline to week 68, achievement of $\geq 10\%$ and $\geq 20\%$ body weight reductions at week 68, and changes in cardiometabolic risk factors from baseline to week 68 (waist circumference [WC], fasting plasma glucose, Homeostatic Model Assessment for Insulin Resistance, blood pressure, and lipids). Data are for the trial product estimand. **Results:** 1902 women were included (for CagriSema and placebo: pre-menopause, $n=408$ and $n=122$; peri-menopause, $n=256$ and $n=81$; post-menopause, $n=530$ and $n=168$; HT use, $n=247$ and $n=90$). At baseline, differences in age, body weight, and race were evident across the four groups who received CagriSema or placebo (Table). For the pre-, peri-, and post-menopause and HT use groups, change in body weight with CagriSema vs placebo was -26.7% vs -2.1% , -24.8% vs -1.7% , -23.1% vs -2.6% , and -25.6% vs -2.3% , respectively. Proportions of women with $\geq 10\%$ body weight reduction at week 68 were 95.1% vs 16.3%, 93.8% vs 7.2%, 94.0% vs 12.8%, and 91.0% vs 14.9%. Corresponding proportions with $\geq 20\%$ body weight reduction at week 68 were 78.3% vs 3.0%, 70.4% vs 1.2%, 63.2% vs 2.2%, and 69.4% vs 1.8%. Change in WC was -21.7 cm vs -5.0 cm, -20.1 cm vs -3.1 cm, -19.2 cm vs -4.1 cm, and -21.4 cm vs -4.8 cm. **Conclusion:** Treatment with CagriSema provided clinically meaningful body weight reductions and improvements in cardiometabolic risk factors in women with overweight or obesity across the menopause transition, including in those using HT. In pre- vs peri- and post-menopausal women, weight reduction was numerically greater, and a greater proportion of pre-menopausal women had $\geq 20\%$ body weight reduction vs the other two menopause groups.

Sources of Funding: Novo Nordisk A/S

Demographics and baseline characteristics of women who received CagriSema 2.4 mg/2.4 mg or placebo in REDEFINE 1, stratified by menopause status and HT use

	CagriSema 2.4 mg/2.4 mg (n=1441)				Placebo (n=461)			
	Pre-menopause (n=408)	Peri-menopause (n=256)	Post-menopause (n=530)	HT use (n=247)	Pre-menopause (n=122)	Peri-menopause (n=81)	Post-menopause (n=168)	HT use (n=90)
Age, years, mean (SD)	36 (6)	48 (4)	58 (7)	44 (11)	36 (7)	47 (6)	58 (7)	43 (13)
Body weight, kg, mean (SD)	104.3 (21.2)	102.7 (20.8)	99.1 (18.5)	101.1 (17.4)	107.1 (22.0)	99.6 (21.3)	99.3 (20.9)	103.2 (17.2)
Body mass index, kg/m ² , mean (SD)	38.4 (6.9)	38.2 (6.6)	37.7 (6.4)	37.8 (5.6)	39.5 (7.1)	37.6 (7.0)	37.6 (7.4)	38.1 (5.7)
Race, n (%)	White							
	Asian							
	Black or African American							
	Other [†]							
	Native Hawaiian or Other Pacific Islander							
	American Indian or Alaska Native							

Full analysis set. Percentages may not total 100% due to rounding. [†]Includes data for not reported, multiple, and missing groups. HT, hormone therapy; SD, standard deviation.

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Effect of CagriSema on body weight reduction and cardiometabolic risk factors in women: A post hoc analysis of the REDEFINE 1 trial

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Objective: Women experience profound changes in body composition driven by physiological hormonal changes. CagriSema is a combination of the amylin receptor agonist cagrilintide and the glucagon-like peptide-1 receptor agonist semaglutide. This analysis of the REDEFINE 1 trial investigated the impact of CagriSema 2.4 mg/2.4 mg vs placebo on body weight and cardiometabolic risk factors in women with overweight or obesity. **Design:** In the phase 3a REDEFINE 1 trial (NCT05567796), adults with body mass index (BMI) ≥ 30 kg/m², or ≥ 27 kg/m² with ≥ 1 obesity-related complication, without diabetes, were randomized 21:3:3:7 to CagriSema 2.4 mg/2.4 mg, semaglutide 2.4 mg, cagrilintide 2.4 mg, or placebo, alongside lifestyle intervention, for 68 weeks. This *post hoc* analysis assessed change in body weight with CagriSema 2.4 mg/2.4 mg vs placebo from baseline to week 68; achievement of $\geq 10\%$, $\geq 20\%$, and $\geq 30\%$ body weight reductions at week 68; changes in cardiometabolic risk factors from baseline to week 68 (waist circumference [WC], fasting plasma glucose [FPG], Homeostatic Model Assessment for Insulin Resistance [HOMA-IR], blood pressure, and lipids); and proportion achieving BMI < 27 kg/m² and waist to height ratio (WHtR) < 0.53 at week 68, all among women. Data are for the trial product estimand. **Results:** 1902 women were included (CagriSema 2.4 mg/2.4 mg, n=1441; placebo, n=461). Demographics and baseline characteristics were well balanced between the two groups (Table). Change in body weight with CagriSema vs placebo was -25.0% vs -3.0% (estimated treatment difference [ETD] -22.1% [95% confidence interval $-22.6, -21.5$]; $p<0.0001$). Proportions of women with $\geq 10\%$, $\geq 20\%$, and $\geq 30\%$ body weight reductions were 93.3% vs 12.7% (ETD 80.6% [77.0, 84.2]; $p<0.0001$), 68.7% vs 1.8% (ETD 66.9% [63.9, 69.9]; $p<0.0001$), and 29.5% vs 0.3% (ETD 29.2% [26.6, 31.8]; $p<0.0001$), respectively. Change in WC was -20.5 cm vs -4.7 cm (ETD -15.8 cm [$-16.6, -15.1$]; $p<0.0001$). Change in FPG was -11.8 mg/dL vs -2.0 mg/dL (ETD -9.8 mg/dL [$-10.9, -8.7$]; $p<0.0001$). Change in HOMA-IR was -1.9 vs -0.5 (ETD -1.4 [$-1.8, -1.0$]; $p<0.0001$). Changes in systolic and diastolic blood pressure were -11.1 mmHg vs -2.0 mmHg (ETD -9.0 mmHg [$-10.3, -7.7$]; $p<0.0001$) and -5.6 mmHg vs -1.3 mmHg (ETD -4.3 mmHg [$-5.2, -3.4$]; $p<0.0001$), respectively. Improvements in all lipid parameters were greater with CagriSema 2.4 mg/2.4 mg vs placebo. Proportions of women with BMI < 27 kg/m² and WHtR < 0.53 at week 68 were 33.7% vs 1.9% (ETD 31.8% [29.2, 34.3]; $p<0.0001$). **Conclusion:** CagriSema 2.4 mg/2.4 mg provided substantial and clinically meaningful body weight reductions in women with overweight or obesity. These occurred alongside meaningful improvements in central adiposity, as measured by WC, and other cardiometabolic risk factors vs placebo.

Sources of Funding: Novo Nordisk A/S

Demographics and baseline characteristics of women who received CagriSema 2.4 mg/2.4 mg or placebo in REDEFINE 1

		CagriSema 2.4 mg/2.4 mg (n=1441)	Placebo (n=461)
Age, years, mean (SD)		47.5 (11.7)	47.3 (12.1)
Body weight, kg, mean (SD)		101.5 (19.6)	102.2 (20.8)
Body mass index, kg/m ² , mean (SD)		38.0 (6.5)	38.2 (7.0)
Race, n (%)	White	1060 (73.6)	337 (73.1)
	Asian	203 (14.1)	70 (15.2)
	Black or African American	100 (6.9)	35 (7.6)
	Other [†]	71 (4.9)	16 (3.5)
	Native Hawaiian or Other Pacific Islander	4 (0.3)	1 (0.2)
American Indian or Alaska Native		3 (0.2)	2 (0.4)

Full analysis set. [†]Includes data for not reported, multiple, and missing groups. SD, standard deviation.

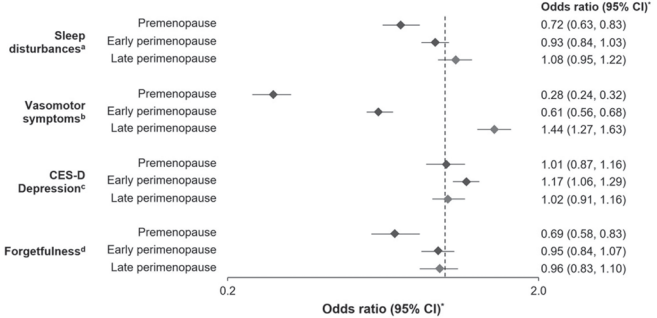
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Associations between Menopausal Stage and Symptom Burden

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Objective: To assess associations between menopausal stage and prevalence of vasomotor symptoms (VMS), sleep disturbances, health-related quality of life (HRQoL), mood/wellbeing and cognition. **Design:** We used data from the baseline and first 10 annual follow-up visits (1999–2008) of the Study of Women’s Health Across the Nation (SWAN). Women were classified at each visit as in premenopause (pre-men), early perimenopause (early-peri), late perimenopause (late-peri) or natural postmenopause (post-men). Women could contribute to various menopausal stages (categories not mutually exclusive). We evaluated self-reported VMS (≥ 1 –5 times/week in last 2 weeks) and sleep disturbances (≥ 3 –4 times/week in last 2 weeks), HRQoL (SF-36 subscales: role limitations due to physical health [role-physical], emotional problems [role-emotional], energy/fatigue, and bodily pain), mood/wellbeing (anxiety [self-report]), Center for Epidemiologic Studies Depression Scale [CES-D], the Positive and Negative Affect Schedule [PANAS], and perceived stress scale questionnaire [PSS4]), cognitive function (Symbol Digit Modalities, Digit Span Backward, East Boston Memory Tests, and forgetfulness [self-report]). We used linear mixed-effects models for repeated measures (linear models for continuous outcomes, generalized models for binary outcomes) to assess associations between menopausal stage and symptoms adjusted for confounders; reference group in all models was post-men. **Results:** Compared to natural post-men, pre-men was associated with higher mean scores on the SF-36 energy/fatigue subscale (+2.24 [0.996, 3.49]); pre-men was also associated with lower odds of VMS (OR 0.28 [95% CI: 0.24, 0.32]), forgetfulness (OR 0.69 [0.58, 0.83]), and sleep disturbances (OR 0.72 [0.63, 0.83]) (**Figure**). Compared to natural post-men, early-peri was associated with higher odds of depression (CES-D score ≥ 16 ; OR 1.17 [1.06, 1.29]) and lower odds of VMS (OR 0.61 [0.56, 0.68]), whereas late-peri was associated with higher odds of VMS (OR 1.44 [1.27, 1.63]) (**Figure**). Anxiety, cognition, perceived stress, wellbeing, and other SF-36 measures of HRQoL did not differ across stages. **Conclusion:** Symptom burden varies as women transition menopausal stages. Awareness and consistent monitoring of symptoms is key for good communication between women and healthcare practitioners and effective symptom management.

Sources of Funding: Bayer AG



Note: Menopausal stages are not mutually exclusive categories. Women could transition from stage to stage over study visits and therefore contribute to more than one menopausal stage. Reference group was natural postmenopause. ^a Adjusted for age, race, BMI category, marital/partner status, college degree, hormone therapy, current smoking, annual family income, employment status, testosterone level, alcohol consumption, and number of comorbidities. ^b Self-reported 'waking up several times a night' / 'trouble falling asleep' / 'waking up earlier than planned' ≥ 3 –4 times/week in the past 2 weeks. ^c Self-reported VMS on ≥ 1 day in the last 2 weeks. ^d ≥ 16 on the Center for Epidemiologic Studies Depression (CES-D) Scale. ^e Self-reported forgetfulness on ≥ 1 day in the last 2 weeks.

Associations between menopausal stage and symptom burden

P-53.

Characterizing the Symptom Burden Across Menopausal Stages

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Objective: To evaluate vasomotor symptoms (VMS), sleep disturbances, health-related quality of life (HRQoL), cognition and mood/wellbeing across menopausal stages. **Design:** We used data from the baseline and first 10 annual follow-up visits (1999–2008) of the Study of Women’s Health Across the Nation (N=2006). Women were classed

at each visit as premenopausal, early perimenopausal, late perimenopausal or natural postmenopausal. We evaluated VMS, sleep disturbances, HRQoL (SF-36 subscales: role limitations due to physical health [role-physical], emotional problems [role-emotional], energy/fatigue, and bodily pain), mood/wellbeing (anxiety [self-report], Center for Epidemiologic Studies Depression Scale [CESD], the Positive and Negative Affect Schedule, and perceived stress scale questionnaire), cognitive function (Symbol Digit Modalities, Digit Span Backward, East Boston Memory Tests, and forgetfulness [self-report]). As women could transition to different stages over time, we calculated mean symptom prevalence/scores over menopause stage-specific visits for each participant, and the whole group thereafter. **Results:** Findings are in the **Table**. Prevalence of VMS and sleep disturbances peaked in late perimenopause: 68% and 63%. Mean HRQoL scores were lowest in early and late perimenopause for energy/fatigue (56.1 in each), early perimenopause for role-emotional (80.5), and late perimenopause for bodily pain (75.3) and role-physical (78.0). Mean positive affect score was lowest in early perimenopause (32.4); mean negative affect score was highest in early and late perimenopause (14.0 each). High anxiety peaked in late perimenopause (20%). Mean CESD scale scores were highest in early perimenopause (17.2). Cognition/memory scores were highest in premenopause but similar across later stages. **Conclusion:** Symptom patterns change across menopausal stages, with the highest burden of VMS, sleep disturbances and anxiety in late perimenopause. The lower HRQoL and high psychological burden during perimenopause signifies this as a crucial stage for proactive symptom management.

Sources of Funding: Bayer AG

Characteristic	Premenopause N=1058	Early perimenopause N=1905	Late perimenopause N=1119	Natural postmenopause N=1994
Age, mean (SD)	46.6 (2.5)	48.7 (2.5)	51.3 (2.4)	54.5 (2.4)
Race/ethnicity				
White, n (%)	490 (46.3)	899 (47.2)	499 (44.6)	945 (47.4)
Black/African-American, n (%)	272 (25.7)	521 (27.3)	342 (30.6)	548 (27.5)
Japanese, n (%)	117 (11.1)	199 (9.9)	118 (10.5)	190 (9.5)
Chinese, n (%)	106 (10.0)	173 (9.1)	111 (9.9)	177 (8.9)
Hispanic, n (%)	73 (6.9)	123 (6.5)	49 (4.4)	133 (6.7)
Socioeconomic factors				
Currently married/living with partner, n (%)	297 (28.1)	1118 (58.7)	738 (66.0)	1277 (64.0)
College graduate, n (%)	232 (21.9)	376 (19.7)	232 (20.7)	393 (19.7)
Currently employed, n (%)	354 (33.5)	1287 (67.6)	670 (59.9)	235 (11.8)
Annual household income ≥ \$50,000, n (%)	565 (53.4)	1062 (55.7)	597 (53.4)	994 (49.8)
Lifestyle factors				
Current smoker, n (%)	310 (29.3)	378 (19.8)	185 (16.5)	294 (14.7)
Alcohol consumption ≥ 7 units/week, n (%)	29 (2.7)	89 (4.7)	59 (5.3)	137 (6.9)
Current use of hormone therapy, n (%)	0 (0)	0 (0)	0 (0)	136 (6.8)
Vasomotor symptoms, n (%)	341 (32.2)	968 (50.8)	764 (68.3)	1216 (61.0)
Sleep disturbances, n (%)	529 (50.0)	1106 (58.1)	703 (62.8)	1207 (60.5)
Health-related quality of life ^a				
SF-36 role-physical, mean (SD)	78.7 (32.2)	78.3 (29.4)	78.0 (34.6)	79.8 (30.1)
SF-36 role-emotional, mean (SD)	81.3 (30.2)	80.5 (28.6)	83.0 (31.2)	85.0 (26.8)
SF-36 energy/fatigue, mean (SD)	57.6 (19.5)	56.1 (17.9)	56.1 (19.7)	58.3 (18.4)
SF-36 bodily pain, mean (SD)	78.2 (18.3)	76.3 (17.4)	75.3 (19.6)	76.3 (18.1)
Mood/wellbeing				
Positive affect score ^b , mean (SD)	35.3 (9.2)	32.4 (8.0)	33.2 (7.5)	32.7 (7.6)
Negative affect score ^b , mean (SD)	12.7 (5.7)	14.0 (4.7)	14.0 (5.2)	13.7 (4.6)
Perceived stress score ^c , mean (SD)	11.9 (1.2)	11.9 (1.2)	11.9 (1.4)	11.8 (1.1)
Depression (CESD) score ^d , mean (SD)	16.8 (5.6)	17.2 (5.2)	16.8 (5.4)	16.4 (4.9)
High anxiety score ^e , n (%)	162 (15.3)	340 (17.8)	222 (19.8)	281 (14.8)
Cognition/memory ^f				
Processing speed (symbol digit modalities test), mean (SD)	56.3 (10.1)	55.5 (11.6)	55.8 (11.6)	55.7 (11.8)
Working memory, mean (SD)	10.1 (1.3)	9.5 (1.4)	9.5 (1.3)	9.4 (1.3)
Verbal episodic memory – immediate recall, mean (SD)	42.7 (23.4)	41.6 (19.9)	42.2 (20.3)	41.4 (19.8)
Verbal episodic memory – delayed recall, mean (SD)	10.1 (1.6)	9.9 (1.7)	10.0 (1.8)	10.0 (1.6)
Forgetfulness ^g , n (%)	140 (13.2)	348 (18.3)	228 (20.4)	385 (19.3)

Note: menopausal stages are not mutually exclusive categories. Women could transition from stage to stage over study visits and therefore contribute to more than one menopausal stage.

^a Scores on the SF-36 subscales range from 0–100, where higher scores equate to better HRQoL. ^b Positive and negative affect scores were based on the summed score over 10 items on the Positive and Negative Affect Schedule questionnaire with total score ranging from 10 (never) to 50 (very often). ^c Based on summed scores on a symptom checklist consisting of 15 items; women with the top 20% of scores were classified as having high anxiety. ^d Based on 4-item Perceived Stress Scale questionnaire. Higher PSS4 scores indicate increased time experiencing stressful situations in the previous 2 weeks. ^e Based on the Center for Epidemiologic Studies Depression Scale score, ranging from 0–60, with higher scores indicating more severe depressive symptoms and scores of ≥16 indicating a risk for clinical depression. ^f Processing speed was based on scores on the symbol digit modalities test (score indicate the mean number of test items that were correct ranging from 0 to 110); working memory was based on scores the digit span backwards test (ranging from 0 to 12 with higher scores indicating better capacity), and verbal episodic memory was based on scores on East Boston memory test (immediate/delayed recall; scores ranged from 0 to 12, with the mean total score reflecting the number of story elements the participant was successfully able to recall). ^g Self-reported forgetfulness on at least 1 day in the previous 2 weeks.

Abbreviations: CESD, Center for Epidemiologic Studies Depression Scale score; SF, short-form

Characteristics and symptom burden across menopausal stages.

P-54.
Estimating the Economic Burden of Cardiovascular Events Attributable to Menopausal Symptoms in US Women

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Objective: Frequent vasomotor symptoms (fVMS) and frequent insomnia symptoms (fIS) during the menopausal transition have been independently associated with elevated cardiovascular (CV) risk. However, the cumulative direct and indirect economic burden attributable to persistent fVMS (pfVMS) and persistent fIS (pfIS) through their cardiovascular and metabolic effects has not been formally quantified. We aimed to estimate the lifetime incremental CV-related healthcare costs and productivity losses attributable to pfVMS and pfIS in US women during the menopausal transition. **Design:** A longitudinal simulation model was developed to follow women from age 46 through 79 years, parameterised using data from the Study of Women's Health Across the Nation (SWAN) and national US data sources. Four mutually exclusive symptom groups were defined: (1) neither pfVMS nor pfIS (reference), (2) pfIS only, (3) pfVMS only, and (4) both pfVMS and pfIS. Persistent fVMS was defined as experiencing fVMS (≥6 days within a 2-week period) for ≥6 years; pfIS was defined as ≥1 sleep problem occurring ≥3

times per week across 16 SWAN visits (median follow-up: 19 years) as described in prior studies. Two distinct pathways were modelled: direct associations between symptoms and CV events (pfVMS HR=1.75; pfIS HR=1.52), and indirect effects mediated through increased incidence of hypertension and diabetes mellitus. CV event types included fatal coronary heart disease (CHD), myocardial infarction (MI), stroke, and heart failure (HF), encompassing incident, recurrent, fatal, and non-fatal events. Direct healthcare costs (acute and post-acute) associated with CV events were sourced from published US literature. Indirect costs, representing productivity losses due to CV events, were estimated by age group using US Census Bureau earnings data and Bureau of Labor Statistics employment rates. All costs were age-standardised to the 2025 US female population age distribution and reported at the population level. **Results:** Women with pfVMS and/or pfIS incurred substantially higher CV event-related costs than women without these symptoms. Among cohorts of 1,000,000 women aged 46–79, the average annual number of CV events was 9,689 in women without pfVMS or pfIS, increasing to 11,809 (+22%) with pfIS only, 13,073 (+35%) with pfVMS only, and 16,594 (+71%) with both. Annual direct costs of CV events increased accordingly from \$378M to \$463M (+22%), \$512M (+35%), and \$652M (+72%), while productivity losses due to CV events rose from \$801M to \$1,154M (+44%), \$1,252M (+56%), and \$1,828M (+128%), respectively. At the US population level for all women aged 46–79 years, total annual direct costs of CV events were \$24.2 billion, comprising \$13.0 billion in acute costs and \$11.2 billion in post-acute costs, while annual productivity losses associated with CV events totaled \$62.6 billion. Of this total burden of cost associated with CVD, \$2.6 billion in direct costs (11%) and \$9.5 billion in productivity losses (15%) were attributable to the effects of pfVMS on CV risk, and an additional \$1.0 billion in direct costs and \$4.8 billion in productivity losses were attributable to pfIS. The combined annual CV event-related economic burden attributable to both pfVMS and pfIS was estimated at \$18.0 billion (\$3.6 billion in direct costs and \$14.4 billion in productivity losses). **Conclusion:** Persistent menopausal symptoms are associated with a substantial incremental CV event-related economic burden in women. Both direct healthcare expenditures and productivity losses associated with CV events increase with these symptoms, particularly among women who experience both persistent vasomotor and insomnia symptoms. Our findings support the case for early identification and effective management of menopausal symptoms to mitigate long-term cardiovascular economic consequences.

Sources of Funding: Bayer AG

P-55.
Midlife Women Veterans in the Menopause Transition: A Patient-Centered Understanding of Safety

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Objective: Optimizing health in and after the menopause transition involves understanding patient perspectives of safety. Research shows that solely relying on traditional benchmarks (e.g., reducing medical errors) to drive organizational cultures of safety overlooks the plurality of meanings and patient-centered practices. Among women Veterans who seek care at the VHA, nearly half are in midlife, and this qualitative inquiry explores how they conceive of and experience safety underlying the provision of acupuncture treatment for pain related and unrelated to menopause within a women-specific clinic. **Design:** Semi-structured interviews (30–60 minutes) were conducted with midlife women Veterans with chronic pain who had completed a personalized course of treatment in a VHA women-specific acupuncture clinic. Treatment plans focused on chronic pain but were tailored to include menopause symptoms and related health changes, as relevant. The interview guide focused on eliciting feedback on treatment experiences and reflections on menopause. Narratives of safety, risk, and harm emerged naturally across both domains. Through iterative readings, relevant excerpts were identified and synthesized to determine key findings. **Results:** Fourteen midlife women Veterans ([59.7]9.5, M[SD] age) took part in interviews. Conceptualizations of safety were multifaceted: (1) The availability of complementary and integrative health approaches signaled institutional-level valuing of wellness that is more congruent with the needs of midlife women. Effective management of chronic pain and co-occurring menopause symptoms through acupuncture affirmed beliefs that relief can be achieved without the suspected harms of pharmacological therapies. (2) Physical considerations of safety were linked to the ubiquity of military sexual trauma among women veterans and actively negotiated upon arrival and until leaving VHA facilities. Feeling safe meant avoiding common spaces, which are often crowded and comprised mostly of men. Within the women-only acupuncture clinic and during acupuncture sessions, various aspects of the patient experience engendered safety (e.g., women-only lobby and care setting, privacy during treatment). (3) Inherently collectivist, safety experiences were shared among midlife women peers with the intention of spreading information about effective yet low-risk VHA treatment options available for menopause-related concerns and women-centered programs and services. (4) Education gaps in midlife women's health, spanning from the self to society, were viewed as a barrier to safety. When a provider is perceived to have a limited understanding of menopause, participants feel less confident about clinical recommendations. The specific connection to pain was primarily a symptom experienced firsthand but notably, more fully explored in partnership with the acupuncture provider whose competency fostered trust and informed treatment and interdisciplinary care coordination. **Conclusion:** Safety comprises physical and emotional dimensions for midlife women Veterans. Participant accounts on the practical

conditions eliciting a sense of safety include acupuncture and other complementary and integrative health offerings; women-specific care settings; and services with providers knowledgeable about women’s health. Such insights should contribute to the operational cultures of safety at VHA and promote women’s health competencies for their clinicians. How risk is negotiated and managed by women Veterans can further signal opportunities for providers to translate women Veteran’s interpretations of safety into the health care setting and thereby, strengthen the therapeutic alliance.

Sources of Funding: The work is supported by Pain/Opioid Consortium of Research (CORE), funded by the Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development, Health Services Research and Development, PI: Indindoli

P-56.

Healthcare resource utilization by treatment type among women with menopause and vasomotor symptoms in Canada using AI-extracted data

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Objective: Vasomotor symptoms (VMS) affect up to 90% of women during menopause, with approximately half reporting moderate/severe intensity and significantly impacting their quality of life. Research from other countries demonstrates a positive correlation between VMS presence and increased healthcare resource utilization (HCRU); however Canadian real-world data remain under reported. With limited indicated, guideline-recommended options available to treat VMS in Canada, many women experience undue burden of symptoms, amplifying their HCRU. This study aimed to generate robust real-world evidence (RWE) to address knowledge gaps regarding treatment utilization and HCRU among Canadian women experiencing menopausal symptoms. **Design:** This was a retrospective, observational cohort study using electronic health records (EHR) from primary care clinics in Ontario and British Columbia (January 2021-July 2024). Eligible participants were postmenopausal women aged 40-65. Data on treatment utilization and HCRU were extracted from the EHR using the DARWENTM validated AI platform. Women were assigned a cohort based on the presence or absence of VMS and receipt of treatment. **Results:** A total of 7,794 women were included. Median age was 55 years with median follow-up of three years. 5,668 (72.7%) women reported no VMS. 1,094 (14.0%) had reported VMS and were not receiving VMS treatment, and 1,032 (13.2%) had reported VMS and were receiving VMS treatment (median treatment duration 12-18 months). Women with VMS had higher HCRU, with annual healthcare costs exceeding 1,000 CAD per patient-year. Women reporting more bothersome VMS were more likely to receive treatment than those reporting less bothersome symptoms (60.5% vs 30.1%). Women using off-label treatments experienced the highest total annual cost (1,453.0 CAD). **Conclusion:** This study is the largest Canadian real-world study investigating HCRU among menopausal women. Findings highlight the substantial economic burden VMS have on Canadian women and the healthcare system and how increasing symptom severity can contribute to HCRU and/or cost. Moreover, utilization of off-label, non-guideline recommended therapies may negatively impact HCRU. Together, these findings underscore the importance of accessible, evidence-based treatment options that align with women’s diverse preferences and may help reduce the burden of VMS at both the patient and health-system levels.

Sources of Funding: This study was funded by Bayer Canada Inc. Healthcare costs among women experiencing menopause between 2021-2024

Category	Cohort A ^a n=5,668 14,367 PY		Cohort B ^b n=1,094 3,004 PY		Cohort C ^c n=1,032 3,390 PY	
	Total costs	Mean (SD)	Total costs	Mean (SD)	Total costs	Mean (SD)
Medical + allied health ^d	897.2	1569.0 (7232.3)	1073.4	1502.8 (4851.8)	1204.4	1184.3 (1372.7)
Total medical ^e	825.5	1484.7 (7172.1)	985.4	1419.2 (4847.5)	1107.9	1088.1 (1319.0)
GP	504.2	1024.3 (4267.5)	564.9	900.2 (3519.7)	613.3	605.6 (388.3)
Specialist	27.2	30.7 (147.8)	36.5	40.2 (165.0)	45.0	48.1 (133.9)
ER	35.8	64.6 (1450.1)	50.9	49.0 (147.5)	47.3	45.3 (112.1)
Hospital	187.4	268.2 (4871.3)	239.8	299.3 (2424.4)	285.0	273.1 (1057.1)
Laboratory test	5.0	6.8 (48.7)	5.5	6.1 (27.0)	6.0	5.7 (17.8)
Diagnostic test	65.8	90.1 (1045.0)	87.7	124.4 (1487.9)	111.2	110.4 (172.1)
Allied health ^f	71.7	84.3 (574.5)	88.1	83.6 (141.0)	96.6	96.2 (135.4)

ER: Emergency room, GP: General practitioner, PY: Person-year, SD: Standard deviation.

Notes: Values shown as total cost per PY (aggregate cohort cost divided by total follow-up time) and mean (SD) annual per-patient cost; 2025 CAD. ^aNo VMS; ^bVMS untreated; ^cVMS treated; ^dSum of medical and allied health costs; ^eSum of GP, specialist, ER, hospitalizations, laboratory tests, and diagnostic tests. Derived from Ontario schedule of benefits, British Columbia MSC payment schedule, and CIHI. ^fIncludes non-physician services. Derived from the relevant association governing the healthcare provider.

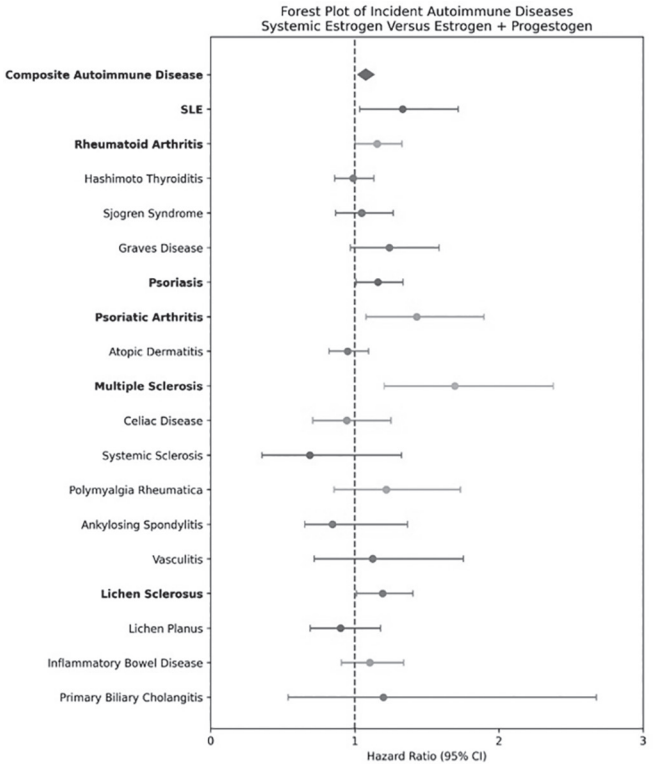
P-57.

Incident Autoimmune Disease Risk Among Women Receiving Systemic Estrogen-Only Versus Estrogen-Progestogen Menopausal Hormone Therapy

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Objective: Large-scale analyses have demonstrated an association between menopausal hormone therapy(MHT) and increased autoimmune disease risk. However, whether progestogen co-administration modifies this risk remains unclear. We compared incident autoimmune disease risk between women receiving systemic estrogen-only(E-only) and systemic estrogen plus progestogen(E+P) therapy. **Design:** We conducted a retrospective cohort study using the TriNetX US Collaborative Network. Women aged 45–70 years with menopausal diagnoses receiving systemic E-only therapy were compared with women receiving E+P therapy. Patients with prior autoimmune disease, malignancy, chemo- or immunotherapy, premature ovarian insufficiency, organ transplantation, HIV, or vaginal estrogen use were excluded. Outcomes included composite and 20 individual autoimmune diseases occurring ≥180 days after MHT initiation. One-to-one propensity score matching balanced demographics, smoking, obesity, hysterectomy, surgical menopause, prior glucocorticoid exposure, venous thromboembolism, cardiovascular risk factors, thyroid disease, and other comorbidities. Kaplan-Meier and Cox proportional hazards analyses estimated hazard ratios (HRs). **Results:** Before matching, 73,053 women receiving systemic E-only and 64,902 receiving E+P met inclusion criteria. After matching, 54,692 women remained in each cohort. The mean(SD) age at index was 53.1(6.0) years in the E-only cohort and 53.1(4.9) years in the E+P cohort. The mean(median) follow-up duration was 1,291(809) and 1,241(690) days, respectively. Systemic E-only was associated with a modestly increased hazard of composite autoimmune disease compared with E+P therapy (4.9% vs 4.5%; HR,1.08; 95% CI,1.02–1.14). Significantly higher hazards were observed in the E-only cohort for systemic lupus erythematosus (0.3% vs 0.2%; HR,1.33; 95% CI,1.03–1.72), rheumatoid arthritis (0.8% vs 0.7%; HR,1.15; 95% CI,1.01–1.33), psoriasis (0.8% vs 0.7%; HR,1.16; 95% CI,1.01–1.34), psoriatic arthritis (2.2% vs 1.5%; HR,1.43; 95% CI,1.08–1.90), multiple sclerosis (0.2% vs 0.1%; HR,1.69; 95% CI,1.21–2.38), and lichen sclerosis (0.6% vs 0.5%; HR,1.19; 95% CI,1.01–1.40). No significant differences were observed for other autoimmune diseases. **Conclusion:** Among menopausal women receiving systemic MHT, E-only therapy was associated with a modestly increased risk of composite autoimmune disease compared with E+P therapy. Although significant associations were observed for selected autoimmune diseases, absolute event rates and risk differences were small. Prospective studies are needed to further characterize the immunologic effects of different MHT formulations.

Sources of Funding: None



P-58.
Oral Versus Transdermal Estradiol Therapy and Risk of Incident Autoimmune Disease in Postmenopausal Women: A Federated Cohort Study

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Objective: Menopausal hormone therapy (MHT) formulations differ in hepatic first-pass metabolism, systemic inflammatory effects, and thromboembolic risk. However, whether oral and transdermal estradiol therapies differ in their association with incident autoimmune disease remains unclear. We evaluated the association between oral versus transdermal estradiol therapy and incident autoimmune disease in postmenopausal women using a large federated electronic health record network. **Design:** Using the TriNetX US Collaborative Network, we identified postmenopausal women aged 45–70 years initiating oral or transdermal estradiol therapy between 2015 and 2026. Women with prior autoimmune disease, HIV, transplant history, active malignancy, chemo- or immunotherapy exposure, premature ovarian insufficiency, and oral conjugated estrogens or contraceptive hormone formulations were excluded. Incident composite autoimmune disease and 20 individual autoimmune diseases were assessed ≥ 180 days after MHT initiation. One-to-one propensity score matching balanced demographics, obesity, current or former smoker, hysterectomy status, vaginal estrogens, progestins, personal history of venous thrombosis and embolism, prior glucocorticoid exposure, cardiovascular risk factors, thyroid disease, and other comorbidities. Time-to-event analyses were conducted using Kaplan–Meier methods with log-rank testing, and Cox proportional hazards models were used to estimate hazard ratios (HRs). **Results:** Before matching, 3,148 women receiving transdermal estradiol and 26,583 receiving oral estradiol met inclusion criteria. After propensity score matching, 3,143 women remained in each cohort, with a mean (SD) age of 53.4 (5.4) years. Mean (median) follow-up duration after matching was shorter in the transdermal cohort than in the oral cohort (765 [371] vs 1,212 [888] days). Composite autoimmune disease occurred in 3.9% of transdermal estradiol users compared with 6.6% of oral estradiol users (RR, 0.59; 95% CI, 0.47–0.75; p<0.001). However, time-to-event analysis did not demonstrate a significant difference in the hazard of autoimmune disease between groups (HR, 0.99; 95% CI, 0.77–1.26; log-rank p=0.92). No significant differences in hazard were observed for any individual autoimmune disease evaluated. **Conclusion:** In this federated cohort study, oral estradiol therapy demonstrated a higher crude incidence of composite autoimmune disease compared with transdermal estradiol therapy, although time-to-event analysis did not confirm a statistically significant difference in long-term hazard. Differences in follow-up duration and residual confounding may have influenced findings. Further prospective studies are needed to clarify whether route of estradiol administration differentially affects autoimmune risk in postmenopausal women.

Sources of Funding: None

P-59.
Testosterone Therapy and Cardiovascular Risk in Postmenopausal Women: A Retrospective Propensity-Matched Cohort Study

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Objective: The cardiovascular safety of testosterone therapy in postmenopausal women remains poorly characterized. We evaluated the association between testosterone therapy and incident cardiovascular disease (CVD) in postmenopausal women. **Design:** We conducted a retrospective cohort study using the TriNetX US Collaborative Network. Postmenopausal women aged ≥45 years who initiated testosterone therapy were compared with women without testosterone exposure. A 12-month washout period was applied, and women with any testosterone exposure during the 12 months preceding the index date were excluded. Patients with prior cardiovascular disease (CVD), malignancy, or gender identity disorder diagnoses were excluded. The primary outcome was a composite CVD outcome, defined as coronary artery disease (angina, myocardial infarction, acute or chronic ischemic heart disease), cerebrovascular disease (ischemic stroke or arterial occlusive disease), or heart failure, occurring 30 days to 5 years after the index date. One-to-one propensity score matching balanced demographics, smoking status, obesity, hysterectomy status, surgical menopause, baseline menopausal hormone therapy (MHT) use, vaginal estrogen use, vasomotor symptoms, premature ovarian insufficiency, and other comorbidities associated with CVD risk. Kaplan–Meier and Cox proportional hazards analyses were used to estimate hazard ratios (HRs). **Results:** Before matching, 10,835 women receiving testosterone therapy and 1,200,966 controls met inclusion criteria. After matching, 3,164 women remained in each cohort with mean(SD) age at index of 56.6(8.5) and 56.3(8.8) years. The mean (median) follow-up duration was 961(1,000) and 955(937) days, respectively. Testosterone therapy was associated with a significantly increased hazard of incident composite CVD compared with no testosterone exposure (3.8% vs 0.5%; HR, 8.08; 95% CI, 4.72–13.82). Findings were consistent in sensitivity analyses comparing women receiving testosterone plus MHT with women receiving MHT alone (3.2% vs 0.5%; HR, 6.73; 95% CI, 5.00–9.05), and in analyses excluding women with any MHT exposure after menopause from both cohorts (3.1% vs. 0%, p<0.001). Similar associations were observed using a 10-year follow-up window. **Conclusion:** Among postmenopausal women, testosterone therapy was associated with a higher risk of incident CVD across primary and sensitivity analyses. Although absolute event rates remained low, the observed association was consistent across multiple cohort definitions. Given the magnitude of the observed hazard ratio and the potential for residual confounding inherent to observational studies, these findings should be considered hypothesis-generating and warrant prospective validation.

Sources of Funding: No

Table 1. HR (95% CI) for incident composite CVD in Primary analysis and Sensitivity analyses

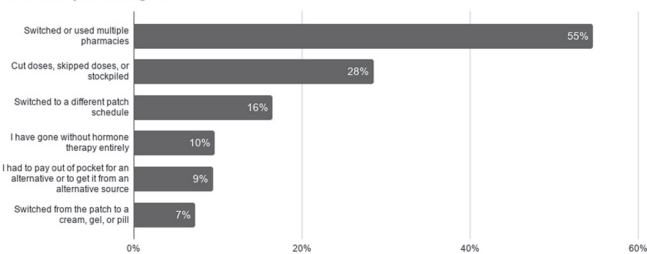
Outcome time window: 30 days to 5 years after the index date	Incidence (% Risk) of Composite CVD		HR (95% CI)
	Testosterone	Control	
T vs. No T, matched on HT	119 (3.8%)	15 (0.5%)	8.08 (4.72-13.82)
T+HT vs. HT-alone	305 (3.2%)	15 (0.5%)	6.73 (5.00-9.05)
T vs. No T, excluding postmenopausal HT exposure from both cohorts	15 (3.1%)	0 (0%)	N/A

P-60.
Rapid Survey of Women’s Experiences Getting Estrogen Patches in 2026
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Objective: Access to estradiol patches has become an intermittent challenge amid rising demand since the recent removal of the black box warning for formulations of menopausal hormone therapy. This study investigates challenges women faced with estrogen patch prescriptions during reported supply and demand imbalances in early 2026. **Design:** Midi Health provides insurance-covered virtual health care for midlife women, serving over 35,000 patients weekly across the US. On April 27 2026, an anonymous survey was sent to women subscribed to a free email newsletter about midlife women’s health inviting them to share their experience obtaining estrogen patches. The specific invitation was worded “We’re working to better understand how women are accessing and experiencing the estrogen patch. If you’re currently prescribed the patch, please take a moment to anonymously share your experience.” Respondents were asked about their experience in getting estrogen patch prescriptions filled, methods they employed to manage any challenges, the perceived impact of the challenges, and their confidence in getting future prescriptions filled. The survey was open to responses for 5 days. **Results:** The survey was sent to 71,385 newsletter subscribers; 7,281 responded within 4 days (10% response rate). Responses came from all 50 states, Washington, D.C., and Puerto Rico. Of respondents, 214 did not use estrogen patches; 44% of 7,067 respondents using patches reported difficulty getting prescriptions filled in 2026; among them, 34% reported their pharmacy was out of stock. To manage the challenge, 55% changed pharmacies, 28% rationed medications and 10% reported that they stopped therapy entirely (Figure 1). When asked about negative effects, 39% of respondents reported their peri/menopausal symptoms returned or got worse; 25% reported losing sleep over the challenges, and 12% reported being less productive at work. When asked about impact on their physical, mental and emotional well-being, 32% reported significant-to-severe impact; only 5% reported their recent experience had no impact on them. The majority of women (69%) reported they lacked confidence in their ability to get their patches in the next three months. **Conclusion:** The results of this rapid survey confirm that women experienced challenges in obtaining estrogen patch supplies in early 2026, with a subsequent variety of negative impacts. Disruptions in access to estrogen patches were associated with resurgence of perimenopausal symptoms and sleep disturbances, which can have subsequent deleterious health effects. Difficulty filling the prescription also led women to stop or not start prescribed therapy, affirming that the patch shortage is a barrier to care. The finding that a majority of women (69%) lack confidence in their ability to get future prescriptions filled highlights the need for greater transparency and stability in the pharmaceutical supply chain to support midlife women’s health. Although women self-selected to complete the survey, participation was not limited to those experiencing difficulties, and responses reflected a broad range of experiences across a large sample of women.

Sources of Funding: Midi Health, Inc.

How have you managed?



P-61.

Differences in menopause symptoms, sleep, treatment, and work productivity across racial groups in the ESTeeM study

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Objective: Menopause-associated sleep disturbance affects ~60% of women, but real-world differences in symptom burden, treatment use, and work impairment are poorly characterized. This study evaluated racial differences in sleep disturbance, quality of life, treatment use, and work productivity among US postmenopausal women. **Design:** ESTeeM was a 28-day real-world, observational study of 737 postmenopausal women aged 40–65 years (mean [SD], 54.6 [5.4] years) with self-reported sleep disturbance. Sociodemographic data were obtained from electronic health records. Assessments included the Daily Morning Diary for the prior night's sleep, Hot Flash (HF) Daily Diary (low <7/day, medium 7–14/day, high >14/day), Menopause-Specific Quality of Life questionnaire (MENQOL; 1–8, higher=worse), Insomnia Severity Index (ISI; 0–7 none, 8–14 subthreshold, 15–21 moderate, 22–28 severe), PROMIS Sleep Disturbance Short Form 8b (total T-score), treatment use, and menopause-specific Work Productivity and Activity Impairment (WPAI-Menopause) for absenteeism, presenteeism, and general activity impairment outside work. Descriptive subgroup analyses by race (White, Black/African American, Asian) reported medians (IQR); analyses used available data. **Results:** The cohort was racially diverse (68.8% White, 14.7% Black, 10.3% Asian, 6.2% Other) and skewed toward higher socioeconomic status: 66% associate degree or higher, 65.4% employed full-time, 14.5% part-time, and income was more often “more than needed” or “just enough” than “less than needed”. ISI and PROMIS total T-scores were comparable across groups: ISI—White (12.0 [8.7–15.5]; n=401), Black (12.8 [10.0–17.6]; n=76), Asian (11.0 [8.0–15.3]; n=57); PROMIS—White (56.2 [52.9–60.0]; n=443), Black (56.9 [54.6–61.3]; n=91), Asian (54.7 [50.0–58.9]; n=63). MENQOL total scores were comparable: White (3.7 [2.6–4.8]; n=443), Black (3.6 [2.6–4.7]; n=91), Asian (3.1 [2.0–4.1]; n=65). Among women reporting nighttime HF, frequency was similar: White (1.8 [1.3–2.6]; n=391), Black (2.1 [1.6–3.2]; n=85), Asian (2.1 [1.5–3.2]; n=47). Number of awakenings and wake after sleep onset (WASO, min) were comparable across groups: awakenings—White (2.0 [1.3–2.8]; n=448), Black (1.7 [1.2–2.3]; n=92), Asian (1.5 [1.0–2.1]; n=68); WASO—White (30.7 [17.1–48.2]; n=448), Black (31.7 [15.7–49.3]; n=92), Asian (28.1 [16.8–46.7]; n=68). Prescription sleep medication use within 6 months prior to enrolment was highest in White women (20.9%), followed by Black (11.1%), and Asian (6.6%); non-prescription use was similar: White 33.9%, Black 32.4%, Asian 34.2%, with most women (63.1%, 64.8%, and 55.3%, respectively) reporting no treatment. Among employed women, absenteeism was low and similar; Asian women had lower presenteeism and general activity impairment outside work than White and Black women (Table 1). **Conclusion:** In this US convenience sample of postmenopausal women with sleep disturbance, symptom burden was broadly similar across racial groups, contrasting some prior reports. Black and Asian women reported lower prescription sleep medication use than White women, while non-prescription use was similar. Asian women had lower presenteeism and general activity impairment. These findings may reflect differences in treatment preferences, prescribing patterns, symptom reporting, and psychosocial context rather than race alone. Limitations include convenience sampling, small subgroup sizes, and lack of analyses by ethnicity, which may limit generalizability. These findings support inclusive, person-centered menopause care that considers individual psychosocial context.

Sources of Funding: Bayer

Work productivity and activity impairment across race

Race/ethnicity	Employed n (%)	Absenteeism % (SD)	Presenteeism % (SD)	General activity impairment, n*	General activity impairment, % (SD)
White (n=507)	354 (69.8)	3.0 (7.5)	26.7 (20.6)	440	30.6 (22.8)
Black (n=108)	72 (66.7)	2.5 (4.7)	28.2 (21.8)	88	29.4 (23.0)
Asian (n=76)	45 (59.2)	2.6 (6.9)	17.1 (17.4)	62	24.4 (23.8)

Absenteeism and presenteeism were assessed among employed women; general activity impairment was assessed among all women.

*Sample sizes differed across measures because of incomplete questionnaire completion.

P-62.

Effects of Estetrol on Mammographic Breast Density in Postmenopausal Women: Results from the Phase 3 E4COMFORT II Clinical Study

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Objective: Estetrol (E4) is an innovative natural estrogen developed for menopausal hormone therapy (MHT), with a selective tissue activity through differential activation of estrogen receptor α (ER α) pathways, with agonistic effects on nuclear ER α and antagonistic effects on membrane ER α signaling. Preclinical and clinical data suggest that E4 has limited effects on breast tissue, supporting a potentially favorable breast safety profile. Mammographic breast density is one of the strongest independent risk

factors for breast cancer and may reduce the sensitivity of mammographic screening. Historically, combined MHT has been associated with increased breast density, as demonstrated by studies showing that use of conjugated equine estrogens resulted in a mean increase in mammographic percent density of 1.6–1.7% at year 1, compared with a mean decrease of 1.0% point in the placebo group (P<0.001) (McTiernan et al, 2009). Clinical efficacy and safety of E4 in postmenopausal (PM) women with vasomotor symptoms were demonstrated in the phase 3 E4COMFORT I and II studies, which enrolled 2,576 participants at 161 centers worldwide. Here, we evaluated the impact of E4 on mammographic breast density in PM women as part of the E4COMFORT II clinical development program (NCT04090957). **Design:** This post hoc analysis compared all available paired mammograms from the E4COMFORT II study, including women from the efficacy and safety study part populations. A subset of 167 postmenopausal women treated with oral E4 15 mg, E4 20 mg, or placebo once daily for up to 52 weeks was included in the analysis. Participants were aged 40–65 years with a body mass index between 18.0–38.0 kg/m² and had a mammogram showing no significant breast disease during screening for the study or within 9 months prior to study entry. All mammograms were converted from DICOM to bitmap and breast density was then assessed using the Cumulus 4 program, a semi-quantitative computer-assisted method with high reproducibility and strong correlation with visual classification scales. Images were analyzed pairwise in a blinded manner, with the observer unaware of treatment allocation and image chronology. Each mammogram was assessed three times, and mean values were used for statistical analyses. Differences within groups were analyzed using the Wilcoxon signed-rank test and between groups using the Mann-Whitney U and Kruskal-Wallis tests. Data are presented as arithmetic mean, interquartile range (IQR), minimum, and maximum values. A p-value <0.05 was considered statistically significant. **Results:** Of the 167 women, 145 were assessable for the final analysis (i.e. E4 15 mg n=26; E4 20 mg n=81; and placebo n=38). The intra-assay variation for the measurements was 8%. Both E4 doses (15 mg and 20 mg) showed minimal effects on mammographic density. Mean differences between baseline and end-of-treatment were less than 1% unit in all groups (E4 15mg: 0.2%, IQR -5.8, 6.7; E4 20mg: 0.8%, IQR -17.1, 15.2; placebo: -0.4%, IQR -6.3, 10.1) with no statistically significant changes observed within groups (Wilcoxon signed-rank test). Between-group differences were (Mann-Whitney U test): E4 15 mg vs E4 20mg: p=0.68; E4 15 mg vs placebo: p=0.63; E4 20 mg vs placebo: p=0.16, and between all three study groups, p=0.40 (Kruskal-Wallis test). Most participants experienced individual density changes within a narrow range of $\pm$ 2.5% units. Although a small number of women experienced increases in breast density, the frequency and magnitude of these changes appeared lower than previously reported with other MHT, suggesting a limited effect of E4 on breast density. **Conclusion:** Treatment with E4 15 mg or 20 mg for up to one year was not associated with statistically significant changes in mammographic breast density versus baseline or placebo. These findings, consistent with the unique pharmacological profile of E4, further support a differentiated breast safety profile.

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P-63.

Cognitive changes after Bilateral Salpingo-Oophorectomy

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Objective: Alzheimer's disease disproportionately affects women. Yet earlier reproductive and hormonal events that may affect risk for later-life cognitive impairment are not well understood. Bilateral salpingo-oophorectomy (BSO) prior to the age of 50 provides a clinically relevant model of abrupt 17 β -estradiol deprivation before spontaneous menopause. Women who undergo premenopausal BSO are at increased risk for later cognitive impairment and dementia, making this group important for understanding how early estradiol loss may influence cognitive aging. Therefore, the aim of this study was to examine the early effects of BSO on cognition and to determine whether estradiol therapy (ET) ameliorated any changes. **Design:** In this longitudinal study, data were collected from two sites: Toronto, Canada, and Linköping, Sweden. The analysis included 41 younger midlife participants with the breast cancer mutations (BRCA1/2) who completed cognitive assessments before and approximately one year after BSO. Participants were grouped by post-surgical ET status: 27 had ET after BSO (BSO+ET), and 14 did not (BSO). Cognitive outcomes were selected to assess verbal recall, attention/working memory, visuospatial span, and spatial associative memory, including logical memory immediate and delayed recall, digit span forward and backward, Corsi block-tapping, and object placement immediate and delayed performance. Baseline (defined as the pre-BSO assessment) performance was compared between BSO+ET and BSO. Age-adjusted linear mixed-effects models were fitted separately within ET and no ET groups to estimate associations between time since BSO and normalized cognitive scores, with participant-specific random intercepts. **Results:** At baseline, participants in the BSO+ET group were significantly younger than those in the BSO group (39.3 $\pm$ 5.2 vs. 44.3 $\pm$ 4.3 years), and cognitive scores did not differ significantly between groups. Mean time since BSO was 1.4 $\pm$ 0.8 years for BSO+ET and 2.2 $\pm$ 1.6 years for BSO. Post-BSO, using age-adjusted mixed-effects models, time since BSO was not associated with logical memory, digit span, or Corsi performance in either BSO+ET or BSO groups.

For the BSO group, however, immediate object placement performance worsened, showing a significant increase in displacement post-BSO ($\beta = 0.08$, $p = 0.053$). For both BSO and BSO+ET, delayed object placement performance worsened, with displacement increasing significantly in the post-BSO period (BSO+ET: $\beta = 0.06$, $p = 0.038$; BSO: $\beta = 0.08$, $p = 0.025$). Notably, individual cognitive performance varied widely within each group post-BSO. Because lower object placement scores indicate better memory of the spatial array, this pattern suggests a possible decline in spatial associative memory. **Conclusion:** Within the first two years after BSO, cognitive performance for groups was generally unchanged across most domains. Moreover, there was no trend indicating more favourable cognitive trajectories among participants taking ET. However, delayed object placement displacement scores increased for both BSO+ET and BSO, indicating a potential decline in spatial associative memory regardless of ET. However, individual cognitive trajectories showed significant inter-person variability, suggesting that responses to BSO and ET may be highly individualized as well as targeted to specific cognitive domains. These findings support further research into the clinical, hormonal, and cognitive factors that may influence post-BSO risk and resilience for late-life Alzheimer's disease, and may ultimately help inform more individualized approaches to cognitive assessment and care.

Sources of Funding: CIHR

P-64.

Effects of Time-Restricted Eating on Cardiometabolic Outcomes in Menopausal Women: A Systematic Review and Meta-analysis.

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Objective: The objective of this review was to evaluate the effect of time-restricted eating (TRE) on cardiometabolic health outcomes in menopausal women. **Design:** Following PRISMA guidelines, a comprehensive search of PubMed, CINAHL, Scopus, and the Cochrane Library was conducted from inception to May 2025. Two reviewers independently screened studies, extracted data, and assessed quality using the National Institutes of Health (NIH) quality assessment tools. The primary outcome of interest was cardiometabolic health indicators. Effects of TRE were estimated using random-effects meta-analyses and reported as weighted mean differences (WMDs) with 95% CIs. Heterogeneity was assessed using the I² statistic, and certainty of evidence was evaluated using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach. **Results:** Of the 1,061 screened studies, nine (involving 444 participants) met the inclusion criteria (methodological quality: 78% fair, 11% good, 11% poor). Pooled analysis showed a significant reduction in insulin concentration with TRE (WMD: -3.83; 95% CI: -6.43, -1.23 μ U/ml; I² = 86.7%; $p = 0.006$; $n = 2$ studies), but no improvements in body mass index (-0.68 (-1.97, 0.61) kg/m²), glucose (-2.4 (-5.93, 1.24) mg/dl), fat mass (-0.92 (-3.90, 2.07) kg), high density lipoprotein (0.31 (-3.84, 4.46) mg/dl), low density lipoprotein (-6.02 (-23.31, 11.28) mg/dl), total cholesterol (-4.12 (-22.50, 14.26) mg/dl), or triglycerides (-1.61 (-17.84, 14.61) mg/dl). The certainty of the evidence for all outcomes, as per the GRADE rating, was very low. Two cohort studies comparing the effect of TRE in pre- and postmenopausal women found no significant effects in sex hormones after TRE in either group. Adherence to TRE ranged from good (62%) to excellent (95.7%), with no reported side effects. **Conclusion:** The evidence indicates that TRE is unlikely to improve metabolic health in menopausal women. High-quality studies are needed to confirm these findings and assess the intervention's sustainability.

Sources of Funding: Supported by Texas Woman's University Small Grant Program.

Table 1: Characteristics of Selected Studies

Reference Country	Study Design	Sample size & Number of participants allocated	Population Characteristics	Duration of TRE	Frequency of TRE	TRE schedule	Study outcomes
de Moraes Araujo 2025 [25] Brazil	Non-blinded clinical trial with a pre-post design	57 HC: n=30 HTRE: n= 27	Female individuals with a BMI above 25 kg/m ² and less than 40 kg/m ² , aged between 40 and 59 years.	10 weeks	6 days/week	12:12 (eating window 7 am-7 pm)	Primary outcomes: weight and body fat loss after 10 weeks; Secondary outcomes: adherence to study protocol and its relationship with metabolic risk factors.
Ranjbar 2025 [26] Iran	RCT	44 IF (n = 22) Usual diet (n = 22)	Menopausal women suffering from RA, BMI between 25 and 35 kg/m ² , aged between 50 and 70 years.	8 weeks	7 days/week	8:16 (eating window 8 am-4 pm)	Primary outcome: Health Assessment Questionnaire- Disability Index (HAQ- DI) questionnaire score Secondary outcomes: Change in body mass index, morning joint stiffness (MS), and biochemical indicators (ESR, hs-CRP, total oxidant and antioxidant capacity, and oxidative stress index, and interleukin 6.
Tavakoli 2025 [27] Iran	RCT	44 TRE (n=22) Control (n=22)	Postmenopausal women with rheumatoid arthritis, BMI 25-35 kg/m ² , between 50-70 years.	8 weeks	7 days/week	8:16	Inflammatory indices, oxidative stress markers, and liver enzymes
Valenzano 2025 [28] Italy	RCT	30 LCD+HIIT (n=15), IF+HIIT (n=15)	Postmenopausal women with a mean age of 57.5 years, a mean weight of 69.32 kg, and a mean height of 160 cm.	8 weeks	7 days/week	8:16 (eating window 7 am-3 pm)	Body- Composition, Salivary OXA concentrations, Physical performance (6MWT, hand- grip strength, test, and the sit- and-reach test, HR, METs, maximal oxygen uptake)
Lin 2024 [32] USA	Secondary analysis of a randomized parallel-arm trial	63 Premenopausal, n=44 Postmenopausal, n=19	Premenopausal: mean age: 39 years, BMI 38 kg/m ² , and postmenopausal: mean age: 56 years, BMI 37 kg/m ²	12 months	7 days/week	8:16 6-month weight loss phase (eating window 12- 8 pm) followed by a 6-month weight maintenance phase (eating window widened to 10 h (10 am-8 pm)).	Primary: Weight loss Secondary: Sex hormone levels
Jozwiak 2024 [29] Poland	Quasi-experimental	62 Exercise alone: n=34 Exercise with TRE, n=28	Perimenopausal and postmenopausal females aged 41-61, mean BMI 27.26 kg/m ² .	12 weeks	7 days/week	8:16 (The starting time of the eating window was self- selected)	Primary outcome measures: change in fat mass, muscle mass, body mass index, HOMA-IR, LDL, SBP, and DBP Secondary outcomes: change in FIM, total body water, the extracellular water to total body water ratio, glucose level, insulin level, total cholesterol level, high- density lipoprotein, non-high- density lipoprotein, triglyceride level, systemic immune- inflammation index, waist circumference, hip circumference, waist-to-height ratio.
AlZaraidy 2023 [31] Saudi Arabia	Cross-Sectional	62 RIF Premenopausal, n=31 Postmenopausal, n=31	Premenopausal (aged 21-42 years) and postmenopausal Muslim women (aged 43-68 years) observing Ramadan.	3 weeks	7 days/week	10:14 (fasting from 4 am-6 pm).	Physical activity, anthropometric, dietary, and biochemical parameters
Kalam 2023 [33] USA	Secondary analysis of an RCT	23 Premenopausal, n = 12, or Postmenopausal, n = 11	Females with obesity, aged 18-65 years, with a BMI between 30-49.9 kg/m ²	8 weeks	7 days/week	4:20 (eating window 3-7 pm) 6:18 (eating window 1-7 pm)	Sex hormone concentrations, Body weight, body composition, diet adherence, and physical activity
Cienfuegos 2021 [30] USA	Secondary analysis of an RCT	32 TRE premenopausal, n = 13 Postmenopausal, n = 19	Premenopausal and postmenopausal women, aged 18-65 years, with a BMI ranging from 30-49 kg/m ² .	8 weeks	7 days/week	4H 4:20 6H 6:18	Body weight and metabolic risk factors

P-65.

The Establishment of a Minimal Clinically Important Difference (MCID) for Primary Endpoint Questionnaire (PEQ) Used to Evaluate Vaginal Penetration with 3-mo POMPOM data

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Objective: The POMPOM study evaluated the Milli Expanding Vaginal Dilator for the treatment of vaginal muscle tightness (vaginismus) and related painful sex (dyspareunia). Successful vaginal intercourse was assessed by the Primary Endpoint Questionnaire (PEQ) item 1, with the total PEQ score used as an exploratory endpoint (van Lankveld, 2006). A minimal clinically important difference (MCID) for PEQ has not been established. Defining an MCID is essential for interpreting clinically meaningful treatment benefit. This analysis estimated an anchor-based MCID for PEQ using 3-month POMPOM data and concordance with the Pain Numeric Rating Scale (NRS). **Design:** Data was analyzed from 68 participants, primarily menopausal (mean age 50.8±15.4; median 56.5), who completed baseline and 3-month assessments. Pain during intercourse was assessed using an 11-point NRS (0–10), and vaginal penetration effectiveness was measured using PEQ. Pain MCID was prespecified as a ≥2-point improvement on the NRS. PEQ MCID was derived using NRS responder status as the anchor; a ≥3-point increase from baseline was supported by distribution-based methods. Concordance was assessed by cross-tabulation. The between-group differences were evaluated using Student's t-test; associations were assessed using Pearson correlation. **Results:** At 3 months, 55% met the Pain NRS MCID and 33% met the PEQ MCID. Among PEQ responders, 82% were also Pain responders, while only 6% of Pain nonresponders met the PEQ threshold, indicating high specificity. Mean PEQ improvement was greater in Pain responders vs nonresponders (2.7±4.5 vs -0.3±3.4; p=0.0033). Pain improvement also differed (3.9±3.0 vs 1.2±2.9; p=0.0009). PEQ and Pain NRS changes showed moderate correlation (r=0.51). **Conclusion:** A ≥3-point improvement on the PEQ represents a clinically meaningful threshold that aligns with established pain MCID criteria. Concordance with Pain NRS supports PEQ construct validity as an endpoint reflecting meaningful improvement in sexual pain and function. Limited discordance highlights the multidimensional nature of sexual function. Establishing a PEQ MCID improves the interpretability of treatment response and supports use as a responder definition in clinical trials. Limitations of this interim analysis include sample size and reliance on a single anchor; however, results are supported by complementary distribution-based methods. These findings will be extended in a 6-month analysis incorporating additional anchors, including concordance with the Female Sexual Function Index (FSFI) pain domain, to evaluate stability over time and further validate PEQ as a clinically meaningful outcome.

Sources of Funding: Materna Medical

TABLE 1: Improvement in 3-Month Questionnaire Scores vs. Responder Status

N Average ± SD [Median][Range]	Comparative Responder		Testing	
	Yes	No	P-value*	Correlation**
PEQ Improvement	37 2.7±4.5 [2.0](-5, 12)	31 -0.3±3.4 [0](-11, 6)	.0033	.5078
Pain NRS Improvement	22 3.9±3.0 [3.5](-1, 10)	46 1.2±2.9 [1](-10, 10)	.0009	

*Student's t-test **Pearson correlation coefficient

TABLE 2: 3-Month Responder Concordance Pain NRS vs. Total PEQ

	PEQ Responder	PEQ Non-Responder	Total	Kappa
Pain NRS Responder	18	19	37	.3440
Pain NRS Non-Responder	4	27	31	McNemar
Total	22	46	68	.0018

P-66.

Digital Symptom Assessment and Patient Education to Support Menopause Care: Effects on Treatment Initiation and Patient Engagement in a Multisite Study

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Objective: Menopause-related symptoms affect most midlife women but remain under-recognized and undertreated in routine care. Digital tools that support symptom assessment and patient education may improve patient engagement and facilitate more effective clinical conversations. The objective of this study was to evaluate whether providing women with access to a digital menopause symptom assessment and education tool prior to a clinical encounter increased treatment initiation and improved patient engagement compared to those given a menopause pamphlet. **Design:** A multi-site comparative study among women aged 45–55 scheduled for primary care visits across multiple U.S. sites (Arizona, Florida, Minnesota, and Wisconsin) were included. Participants in the intervention group completed a digital menopause assessment tool prior to their appointment which collected symptom information and provided personalized educational content to support discussion with clinicians. The comparison group received a digital educational pamphlet on menopause and treatment options. Electronic health record data were used to assess menopause treatment initiation within 30 days of the visit, defined as new hormone or non-hormone prescription therapy without a prior order in the preceding year. Baseline and post-visit surveys were collected assessing patient experience, engagement, and perceived usefulness. Outcomes were compared using chi-square tests and t-tests as appropriate. Additional analyses compared

treatment initiation among study participants with a broader population of women aged 45–55 who had primary care visits during the same period. **Results:** A total of 653 women were included in the study, with 383 (59%) completing both the baseline and post-visit survey, 171 (45%) in the intervention and 212 (55%) in the comparison group. Mean age was 49.9 (SD 3.18), 93% were White and 70% had a bachelor's degree or higher. There was no difference in hormone therapy treatment initiation between the intervention group (9.1%) and comparison groups (9.6%) (p=0.83). For non-hormonal therapy, initiation rates were 3.8% and 4.5%, respectively (p=0.64). Treatment initiation among study participants was significantly different than in the broader population of women aged 45–55 receiving primary care during the same period (9.3% vs. 4.4% initiating hormone therapy within 30 days, p<0.001). After the intervention, 75% of users reported improved understanding of menopause symptoms, 68% reported that completing the tool before their appointment was useful, and more than half reported increased confidence in asking questions about and discussing symptoms related to menopause with their clinicians. **Conclusion:** Our results demonstrated that women who were screened for menopause symptoms and were provided with educational materials (digital or printed) were more likely to initiate therapy than the broader population of midlife women receiving primary care, highlighting persistent gaps in recognition and management of menopause symptoms in routine practice. Digital symptom assessment tools and educational materials support patient activation and improve patient-clinician conversations about menopause. Health systems seeking to address gaps in midlife women's health may benefit from combining engagement tools with targeted care models that support menopause symptom recognition and treatment.

Sources of Funding: None

P-67.

Implementation of a Standardized Menopause Screening Workflow to Improve Symptom Identification and Follow-Up in an Academic Midwifery Practice

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Objective: Menopause symptoms are frequently underrecognized despite their impact on quality of life and overall health. Routine symptom assessment remains inconsistent within outpatient women's health settings. This quality improvement initiative evaluated implementation of a standardized menopause screening workflow within an academic midwifery practice to improve symptom identification and increase menopause-focused follow-up care. **Design:** Prospective quality improvement initiative implementing a standardized menopause screening workflow within an academic outpatient midwifery practice. Plan-Do-Study-Act (PDSA) cycles were used to evaluate workflow integration, symptom identification, follow-up processes, documentation completion, and implementation feasibility among women aged 40–65 years. **Results:** A total of 158 menopause screenings were completed during the implementation period. Overall, 154 participants (97%) screened positive for at least one menopause-related symptom domain. Participants reported a mean of 3.87 affected symptom domains (median = 4), demonstrating symptom burden across multiple domains. Menopause-focused follow-up visits were offered in 123 cases (80%). During Wave 1, follow-up visits were offered for 75% of positive screens, with follow-up offer documentation absent in 15% of cases and missed referral opportunities in 13%. Following a PDSA cycle involving workflow reinforcement and staff retraining, follow-up offer rates increased to 88%, incomplete documentation decreased to 11%, and missed referral opportunities decreased to 2%. **Conclusion:** Implementation of a standardized menopause screening workflow within an academic midwifery practice was feasible and improved identification of menopause-related symptoms and follow-up workflow adherence. Iterative refinement through PDSA cycles improved documentation consistency and reduced missed referral opportunities. Findings suggest that structured menopause screening may support earlier recognition of symptom burden, improve continuity of care, and provide a practical strategy for integrating menopause assessment into routine outpatient women's health practice.

Sources of Funding: None

Change in Screening and Follow-Up Outcomes Following PDSA Cycle

Outcome	Wave 1	Wave 2
Positive screen rate	96%	100%
Menopause visit offered among positive screens	75%	88%
Follow-up offer not documented	15%	11%
Follow-up offer not made	13%	2%

P-68.

Cycle-Length Variability and Symptom Patterns Before STRAW+10-Defined Early Perimenopause

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Objective: We examined whether cycle-length variability within premenopause, defined according to the Stages of Reproductive Aging Workshop +10 (STRAW+10) criteria, was associated with increased symptom prevalence in a self-selected cohort of Natural Cycles[®] Perimenopause mode users before early perimenopause criteria were met.

Design: Cross-sectional analysis of 1,136 self-selected NC^o users aged 37–54 years who switched from pregnancy-prevention to perimenopause-tracking mode. Participants had ≥12 eligible cycles before a structured 16-symptom assessment; cycles during pregnancy, postpartum, breastfeeding, or within three cycles after hormonal contraceptive use were considered ineligible. Users reporting PCOS, thyroid disorders, or current hormone therapy were excluded. Menopausal stage was assigned using a STRAW+10-informed cycle-length classification based on the 12 eligible cycles preceding the symptom assessment. Cycle-length variability was summarized using the standard deviation (SD) of cycle length across these 12 cycles. Participants with ≥1 cycle ≥60 days were excluded as late premenopause. The remaining sample was divided into three cohorts: lower-SD premenopause (cycle-length SD ≤2 days), higher-SD premenopause (cycle-length SD >2 days), and early perimenopause (≥2 consecutive cycle-length differences ≥7 days). Symptoms rated moderate/severe were classified as present. Prevalence ratios were estimated using robust Poisson regression with age modeled as a cubic spline. The higher-SD premenopause and early-perimenopause cohorts were each compared with the lower-SD premenopause cohort. P-values were adjusted for multiple comparisons across symptoms. Sensitivity analyses included additional adjustment for body mass index (BMI), and repeating the primary analysis within three age bands. **Results:** The analytic sample included 1,136 users: 422 in the lower-SD premenopause cohort, 232 in the higher-SD premenopause cohort, and 482 in the early-perimenopause cohort. In age-adjusted models, the early-perimenopause cohort had higher prevalence of hot flashes by 85% (PR = 1.85, p = 0.014, q = 0.07), insomnia by 30% (PR = 1.30, p = 0.009, q = 0.07), and fatigue by 20% (PR = 1.20, p = 0.008, q = 0.07), compared with the lower-SD premenopause cohort. Bladder leakage prevalence was higher but did not reach statistical significance (PR = 1.45, p = 0.113, q = 0.60). The higher-SD premenopause cohort had 33% higher insomnia prevalence than the lower-SD premenopause cohort in age-adjusted models (p = 0.014, q = 0.22). Bladder leakage prevalence was higher but did not reach statistical significance in age-adjusted models (p = 0.113, q = 0.60). Fatigue and hot flashes were not elevated in this cohort. The insomnia signal was most apparent at ages 42–46 years, where both higher-SD premenopause and early perimenopause were associated with higher insomnia prevalence compared with lower-SD premenopause (PR = 1.41, p = 0.040 for higher-SD premenopause; PR = 1.34, p = 0.039 for early perimenopause). At ages 37–41 years, neither cohort differed from lower-SD premenopause. After BMI adjustment, the higher-SD premenopause insomnia association remained directionally similar, whereas the early-perimenopause insomnia association attenuated. **Conclusion:** Hot flashes and fatigue were more clearly associated with STRAW+10-defined early perimenopause. In contrast, higher cycle-length variability within STRAW+10-defined premenopause was associated with higher insomnia prevalence, with an effect size similar to that observed in early perimenopause, although it did not survive FDR correction. These findings suggest that sleep disturbance may be an early symptom marker of reproductive aging, emerging alongside subtle cycle-pattern changes before STRAW+10 criteria for early perimenopause are met. Longitudinal follow-up will test whether the cycle-variability pattern with which users enter the menopause transition predicts their subsequent symptom trajectory.

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P-69.

Libido changes during drospirenone 4mg (DRP) usage: Results from Three Phase III clinical trials

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Objective: We present changes in libido in adults (18-52 years old) using DRP as their contraceptive method during three phase III clinical trials lasting 9 – 13 exposure cycles. Adverse event rates are stratified by individuals ≤35 years old and those >35 years old.

Design: During the trial for the DRP adverse event monitoring was conducted. Three phase III trials enrolled 2,577 adults seeking contraception. Adverse event reporting was conducted at all study visits. Adverse event rates are reported for individuals ≤35 years old and those >35 years old. The primary endpoint for all included studies was contraceptive efficacy reported as Pearl Index (PI) for non-lactating participants 35 years of age or younger at enrollment. **Results:** Reported changes in libido are presented in Table 1. At the last visit, 33 (1.2%) participants reported decreased libido, resulting in early discontinuation in 12 (0.4%) participants. The PI in the US pivotal trial was 4.0. The pooled PI in the European adult phase III trials was 0.93. Early study discontinuation because of decreased libido for participants ≤35 years old was reported for 2 participants (0.4%) in CF111-301, 5 participants in CF111-302 (0.7%), and 5 participants (0.5%) in CF111-303. No participants >35 years old discontinued because of decreased libido. No participants with increased libido or libido disorder, unspecified withdrew from the clinical trial related to the adverse event. **Conclusion:** A limited number of participants reported a change in libido in both trials. During the clinical program for the DRP adverse event monitoring was conducted during all trials. Libido related side effect rates were similar for those participants ≤35 and those >35 years old. Because of reporter bias of libido changes occurring during the program, all cases of libido change may not have been disclosed. Future trials may include prospective design and standardized validated instruments to assess the impact of DRP on libido.

Sources of Funding: Exeltis

	CF111/3 01 ≤35 y/o (n=569)	F111/301 >35 y/o (n=144)	CF111/3 02 ≤35 y/o (n=682)	CF111/3 02 >35 y/o (n=176)	CF111/3 03 ≤35 y/o (n=928)	CF111/3 03 >35 y/o (n=78)	Pooled ≤35 y/o (n=2206)	Pooled >35 y/o (n=368)
Decreased Libido	10 (1.7%)	2 (1.4%)	8 (1.2%)	2 (1.1%)	10 (1.1%)	1 (1.3%)	28 (1.3%)	5 (1.4%)
Increased libido	-	1 (0.7%)	-	-	2 (0.2%)	-	2 (0.1%)	1 (0.8%)
Libido disorder, unspecified	-	-	1 (0.1%)	-	-	-	1 (<0.1%)	-

P-70.

Culturally Tailored Perimenopause Care for Asian American Women Through Clinician Jobs-to-Be-Done: Informing a Dual Patient-Clinician Health Report

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Objective: Asian American women remain underrepresented in perimenopause research despite evidence that they experience perimenopause differently. The Study of Women’s Health Across the Nation (SWAN) has shown they have distinct symptom profiles, different treatment preferences, and a cultural tendency to endure symptoms without seeking care. Furthermore, the frequency and severity of their symptoms differ when data are disaggregated by ethnicity, yet these differences are hidden when diverse populations from over 50 countries are grouped into a single “Asian” category. These cumulative health and data disparities create barriers to timely diagnosis and treatment. This qualitative study used a clinician Jobs-to-Be-Done (JTBD) framework to explore cultural competency attitudes and clinical challenges in perimenopause care, to inform the design of a dual patient-clinician health report that supports culturally tailored decision-making. **Design:** Semi-structured interviews were conducted with eight primary care physicians and obstetrician-gynecologists serving diverse patient populations in the US. This study used the JTBD framework to understand the perimenopause experience from the lens of these clinicians, with specific focus on their functional, emotional, and social contexts. These interviews also surfaced clinicians’ self-assessed proficiency in cultural competency and their openness to evidence-based resources on diverse patient populations to support clinical decision-making. The clinicians also evaluated a mockup of a culturally tailored health report highlighting patient profile, symptom prioritization, culturally relevant context, and care plan options. Interview data were analyzed using thematic synthesis to identify patterns across JTBD archetypes - distinct clinician profiles based on shared attitudes and behaviors on culturally tailored patient care. **Results:** Four JTBD archetypes for clinicians emerged from the analysis based on provider profile, patient population, openness to learning, and care philosophy. Across archetypes, key functional challenges included time constraints during appointments, language barriers, and insufficient residency training on menopause. Emotional and social challenges ranged from difficulty building trust with first-time patients and misinformation from social media to addressing low health literacy. Cultural competency attitudes also varied, from limited to high ethnicity-specific knowledge. Patients’ stoicism, reinforced by a cultural belief in enduring symptoms without seeking care, was noted as a barrier to surfacing certain symptoms. Culturally tailored health report feedback included its potential for time savings, language assistance, and culturally relevant symptom context that several clinicians considered as novel to them. **Conclusion:** Applying a JTBD framework to clinician experience reveals distinct archetypes that predict openness to culturally tailored perimenopause resources. These findings informed the development of a dual patient-clinician health report that emerged from the research: 1) a patient-facing version in the patient’s preferred language that validates their perimenopause experience, provides questions to discuss with clinicians, and surfaces culturally relevant symptom context; and 2) a clinician-facing version that delivers ethnicity-specific medical research with citations and patient symptom prioritization to optimize limited appointment time. This approach addresses a critical gap in culturally tailored perimenopause care for Asian American women by disaggregated ethnicity and offers a scalable model for other underserved populations.

Sources of Funding: None

P-71.

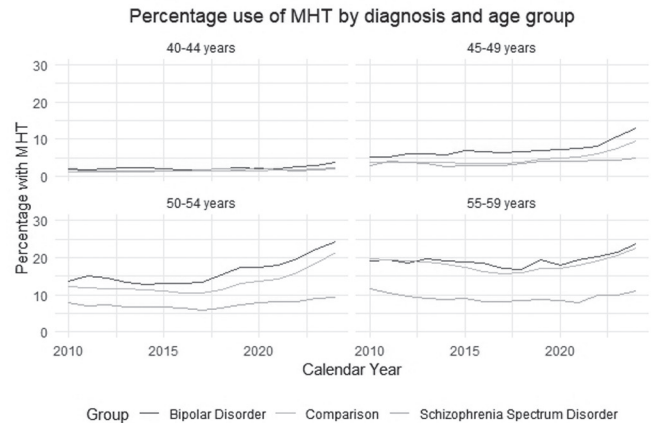
Menopausal Hormone Therapy use in Women with Schizophrenia and Bipolar Disorder - a Population-Wide Swedish Register Study

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Objective: To evaluate dispensation trends of menopausal hormone therapy (MHT) between 2010 and 2024 in women with schizophrenia spectrum disorder (SSD) and bipolar disorder (BPD) compared to women without these conditions. To our knowledge, this is the first population-wide study examining MHT use across both BPD and SSD. **Design:** We defined a cohort of all women aged 40-59 from 2010 to 2024, using Swedish population-wide registers. Individuals were classified based on lifetime occurrence of severe mental illness (SMI), defined as at least one inpatient or two outpatient encounters with a diagnosis of SSD (ICD F20-F29) or BPD (F30-F31). All women without SMI were the comparison cohort. Women were followed until age 60 or the end of 2024.

MHT dispensations were defined using anatomical therapeutic chemical codes for oestrogen and oestrogen/progesterone combinations. Women with a contraindication for MHT (e.g., breast cancer) were excluded from the year of diagnosis onwards. Annual dispensation rates were calculated for each diagnostic and age group (40-44, 45-49, 50-54, 55-59). Generalized estimating equations were used to calculate odds ratios of receiving MHT, adjusted for age and calendar year. **Results:** After excluding women with contraindications, we identified 19209 women with a lifetime diagnosis of SSD, 23091 with BPD and 2,040,809 never diagnosed with SMI. Within these groups, 16.3%, 27.2% and 24.8% had at least one dispensation of MHT during the study period. Annual MHT use increased over the study period in all groups (from 6.1% in 2010 to 7.2% in 2024 for SSD, 9.5% to 15.2% in BPD, and 8.7% to 14.0% in the comparison group) but the SSD group had consistently lower rates (see Figure). Women with SSD were less likely to receive MHT (OR = 0.44 [0.41-0.46]) than the comparison group, whereas the opposite was true for women with BPD (OR = 1.22[1.17-1.26]). Contraindications were more prevalent in SSD women, yet the presented odds ratios are calculated in eligible women. **Conclusion:** Despite universal health care, women with SSD in Sweden have lower lifetime use of MHT compared to BPD and the general population. This pattern remained stable over 15-years. Our results indicate that the disparity is not explained by contraindications. Discussion of menopausal symptoms and treatment options within psychiatric care should be emphasized for women with SSD.

Sources of Funding: Knut and Alice Wallenberg Foundation



P-72.
Differences in menopause mangement among public and private hospital settings
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Objective: Menopausal hormone therapy (MHT) is the most effective treatment among menopausal women with symptoms. Utilization of MHT varies widely among patient demographics and provider practices. A survey of MHT practice from providers and trainees at the University of Southern California (USC) in 2022 demonstrated disparities in MHT utilization amongst different racial and socioeconomic populations. Actual prescribing patterns during the time of survey between public and private healthcare settings under the same institution remains to be explored. This study compares MHT prescribing patterns among menopausal patients with symptoms and/or surgical menopause between a public county hospital setting and its affiliated private practice. **Design:** This is a retrospective cross-sectional study of patients with an indication for MHT identified by diagnosis of menopause with symptoms (ICD E28.31, E28.310, E28.319, N95.1, N95.8, N95.2) and surgical menopause in women 18-50 years from benign conditions (ICD Z90.722, E89.40) at USC from January 1, 2021 to December 31, 2022. For each cohort, the total number of menopausal patients and the subset with at least one documented prescription of MHT were identified. The primary outcome was prevalence of MHT prescription at both Los Angeles General Hospital (public) and Keck Medicine of USC (private). MHT prescriptions were classified as systemic therapy, local therapy, or both. Prevalences of MHT prescription were compared with Chi-square or Fisher's exact test. **Results:** A total of 7518 menopausal patients were identified for the study. MHT use differed significantly between public and private hospital settings across all groups. Patients in the private setting had a higher prevalence of MHT use compared to the public setting (73.7% vs 70.8%, p=0.005). This difference persisted among patients in surgical menopause (100% vs 50.4%, p<0.001), though MHT was less often prescribed for private patients in natural menopause compared to the public setting (73.3% vs 76.4%, p=0.005). Types of MHT use significantly differed across settings (p<0.001). Overall, systemic MHT was more often prescribed in the private (37.3%) compared to public (31.1%) hospital. Local therapy was most common among natural menopause patients while systemic therapy was most common among surgical menopause patients. **Conclusion:** Significant disparities in MHT prescribing patterns exist between public and private healthcare settings. While overall MHT prevalence was higher in the private setting, the most striking gap was observed among patients in surgical menopause, where half of patients in the public hospital did not receive MHT. These findings highlight a need for standardized protocols to ensure equitable access to MHT across diverse clinical settings.

Sources of Funding: None

Table 1. Prevalence of menopausal hormone therapy (MHT) use among menopausal patients with benign conditions.

Menopause Group	Public Hospital	Private Hospital	p-value
Overall	N=3115	N=4403	
MHT-	910 (29.2%)	1158 (26.3%)	.005
MHT+	2205 (70.8%)	3245 (73.7%)	
Systemic	686 (31.1%)	1209 (37.3%)	
Local	1297 (58.8%)	1736 (53.5%)	
Both	222 (10.1%)	300 (9.2%)	<0.001
Natural	N=2444	N=4335	
MHT-	577 (23.6%)	1158 (26.7%)	
MHT+	1867 (76.4%)	3177 (73.3%)	
Systemic	480 (25.7%)	1157 (36.4%)	<0.001
Local	1205 (64.5%)	1724 (54.3%)	
Both	182 (9.8%)	296 (9.3%)	
Surgical	N=671	N=68	<0.001
MHT-	333 (49.6%)	0 (0%)	
MHT+	338 (50.4%)	68 (100%)	
Systemic	206 (60.9%)	52 (76.5%)	
Local	92 (27.2%)	12 (16.6%)	0.049
Both	40 (11.8%)	4 (5.9%)	

Abbreviations: Local, vaginal estrogen; Systemic, systemic therapy. Data are presented as n (%). Chi-square or Fisher's exact test for comparison.

P-73.
Body fat distribution using dual-energy X-ray absorptiometry (DEXA) in non-obese women: A comparative study between women with and without polyendocrine metabolic ovary syndrome
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Objective: To evaluate the distribution of adipose tissue using dual-energy X-ray absorptiometry (DEXA) in non-obese women with Polyendocrine Metabolic Ovary Syndrome – PMOS (phenotype A) compared to those without the syndrome. **Design:** A case-control study was conducted in which we recruited women with PMOS, aged 14 to 39 years, with a body mass index (BMI) ≥ 18.5 to < 30 kg/m² and not using contraception, classified as Phenotype A (excess androgens + ovulatory dysfunction + polycystic ovaries). The control group consisted of women without PMOS, in the same age range and BMI, and not using contraception. Patients were seen at the Gynecological Endocrinology Outpatient Clinic of the Obstetrics and Gynecology Department of the Irmandade da Santa Casa de Misericórdia de São Paulo between 2024 and 2025. We selected 57 women, 37 in the PMOS Group (Phenotype A) and 20 in the Control Group. Body composition assessment was performed using DEXA. Our research was approved by the Institution's Ethics Committee, number 167/10. For statistical analysis, we used Student's t-test, Mann-Whitney test, and a significance level of 5%. **Results:** The mean age of the PMOS Group was 24.9 years (SD $\pm$ 6.9) and weight 60.8 kg (SD $\pm$ 8.5), and the mean weight of the Control Group was 24.2 years (SD $\pm$ 6.9) and 58 kg (SD $\pm$ 8.4). Weight, BMI, and abdominal circumference were greater in the PMOS than they were in the Control Group, with no significant differences. There were significant differences in the following metabolic parameters studied: fasting glycemia (p=0.045) and HOMA-IR (p=0.034), both of which were greater in the PMOS Group when compared to the Control Group (Table 1). The following serum concentrations showed significant differences and were greater in the PMOS Group: total testosterone (p=0.003) and LH (p=0.026). Body composition assessed by the DEXA technique demonstrated a higher value of trunk fat in the PMOS Group (phenotype A) 44.1% (SD $\pm$ 9.0) when compared to the Control Group 35.2% (SD $\pm$ 11.4) and was a significant finding (p= 0.002) (Table 1). **Conclusion:** Our study demonstrated that non-obese patients with PMOS (phenotype A) have a higher concentration of abdominal fat, a factor likely related to a higher risk of cardiovascular disease and insulin resistance.

Sources of Funding: None

Table 1. Anthropometric, biochemical and hormone characteristics of women in the PMOS Group and in the Control Group.

Variable	PMOS Group	Control Group	p-value
Age (years)	24.9 ($\pm$ 6.9)	24.2 ($\pm$ 6.9)	0.728*
Weight (kg)	60.8 ($\pm$ 8.5)	58.0 ($\pm$ 8.4)	0.242*
BMI (kg/m ²)	23.1 ($\pm$ 3.1)	22.2 ($\pm$ 3.1)	0.311*
AC (cm)	82.4 ($\pm$ 9.5)	78.6 ($\pm$ 10.2)	0.164*
Fasting glycemia (mg/dL)	88.6 ($\pm$ 7.9)	84.2 ($\pm$ 7.2)	0.045*
HOMA-IR	1.8 (0.4-6.7)	1.4 (0.7-3.2)	0.034**
T testosterone (ng/dL)	33 (20-109)	22.5 (20-55.8)	0.003**
LH (mIU/mL)	5.4 (0.7-26.4)	4 (0.3-7.2)	0.026**
Lean mass (%)	62.6 ($\pm$ 6.8)	64.7 ($\pm$ 9.2)	0.328*
Body fat (%)	38.6 (13-48.6)	34 (16.1-53.4)	0.165**
Truncal fat (%)	44.1 ($\pm$ 9.0)	35.2 ($\pm$ 11.4)	0.002*
Leg fat (%)	40.1 ($\pm$ 6.4)	37.4 ($\pm$ 9.3)	0.191*

p<0.05; * Student's t-test; ** Mann-Whitney test; mean (SD); median (range)

P-74.

Advancing Menopause Education for Clinicians with Avatar-Based Simulation

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Objective: To develop and obtain expert feedback on a multi-model AI-enabled Live Avatar simulation designed to support interactive clinical education in menopause counseling and menopause therapies, and to explore its potential to expand scalable, standardized menopause education for clinicians. **Design:** Phase 1: Following development and publication of a previously described scripted extended reality (XR) menopause module for OB/GYN residents, we developed a next-generation avatar informed by feedback for a more dynamic conversational AI-based experience. The updated avatar was designed to simulate a realistic menopause encounter using conversational AI constrained by evidence-based menopause resources and defined clinical scenarios. Learners interact with the avatar in a simulated patient visit focused on history-taking, counseling, and treatment discussion, followed by structured AI-generated feedback on clinical reasoning and communication. The experience underwent iterative refinement within the research group prior to external evaluation. <https://cu-ome-menopause01.vercel.app/> Phase 2: We then recruited menopause specialists and medical educators with substantial experience in menopause care and residency education through professional networks to provide expert feedback following module interaction. Participants completed study team-developed structured quantitative surveys and open-ended responses assessing educational relevance, clinical accuracy, learner engagement, realism, usability, and implementation potential. Quantitative responses were analyzed descriptively, including pre- and post-interaction comparisons, while open-ended responses were reviewed to identify recurrent themes and inform next-phase development priorities. **Results:** Forty-one participants completed at least part of the evaluation; respondents included OB/GYNs, internists/family medicine, NPs, and medical educators, with many post-module respondents describing themselves as experienced menopause clinicians or recognized menopause educators. Among respondents completing post-module evaluation items (n=17–20/item), 95% somewhat or strongly agreed that the module could improve learner knowledge of MHT, 95% stated the module could improve confidence in menopause care, and 89% stated it could address gaps in existing menopause education. Confidence in the ability of AI-based simulation to assess both clinical reasoning and communication skills increased from 30% pre-interaction to 60% post-interaction. Participants also endorsed the realism (94.8% agreed that the scenarios were realistic and representative of clinical practice) and educational value (89.5% agreed that the content is aligned with core competencies of Ob/Gyn resident education), including active engagement (94.5%), patient-centered counseling (94.1%), and application of evidence-based care (85.0%). Most respondents (85.0%) agreed the module represented a meaningful advancement beyond traditional lecture-based education and recommended broader implementation in residency training. Open-ended feedback emphasized the perceived value of realistic patient interaction, communication skills practice, and scalable experiential learning. Suggested development priorities included more complex and nuanced menopause counseling scenarios, broader case diversity, incorporation of shared decision-making and more realistic patient behaviors, expansion into higher-complexity clinical presentations (including breast cancer, cardiovascular risk, GSM, and transgender care), and refinement of user navigation and interaction flow. **Conclusion:** We developed the current avatar iteration and analyzed expert feedback to evaluate the value and educational promise of avatar-based simulation for clinical menopause education. Expert feedback suggests strong perceived value for scalable, standardized training in clinical reasoning and patient-centered counseling. Findings also suggest increasing acceptance of AI-based simulation as a tool to assess both clinical reasoning and communication skills. Participants identified opportunities for increasingly nuanced counseling scenarios spanning a broader range of clinical presentations. Findings from this expert feedback phase will directly inform refinement of the next iteration of the platform for future testing with learners.

Sources of Funding: The Menopause Society

P-75.

Beyond Bone Mineral Density: The Role of REMS in Fracture Risk Assessment in Postmenopausal Osteoporosis

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Objective: Characterized by reduced bone mineral density (BMD) and by progressive deterioration of bone quality, postmenopausal osteoporosis (PMO) is a highly prevalent skeletal disorder that contributes to increased susceptibility to fragility fractures. Although dual-energy X-ray absorptiometry (DXA) remains the reference technique for osteoporosis diagnosis, BMD alone does not fully explain fracture susceptibility. Moreover, the need for accessible, repeatable and radiation-free approaches has encouraged the development of alternative technologies for bone health assessment. Radiofrequency Echographic Multi-Spectrometry (REMS) is an ultrasound-based, non-ionizing technique that analyzes native radiofrequency signals to provide information on both bone quantity and bone quality. This review summarizes the available evidence on the role of REMS in PMO, with particular focus on diagnosis, fracture-risk stratification and longitudinal monitoring. **Design:** A structured literature review was conducted to identify clinical studies published between 2019 and 2026. Eligible studies were independently reviewed by two authors and discussed with a third reviewer to ensure consistency and relevance. **Results:** Large multicenter studies have demonstrated strong agreement between REMS and DXA for osteoporosis diagnosis

at clinically relevant skeletal sites in postmenopausal women (Di Paola et al., 2019, Cortet et al., 2021). Kirilova et al., (2019) further showed that REMS-derived BMD was significantly lower in postmenopausal than in premenopausal women at both lumbar spine and hip sites, supporting its ability to detect menopause-related skeletal impairment. This finding is consistent with longitudinal population data from the Study of Women's Health Across the Nation (SWAN), which documented that significant bone loss is already underway in the 1–3 years preceding the final menstrual period — underscoring the clinical value of tools capable of detecting early skeletal change at or before menopause onset (Greendale et al., 2022). Beyond densitometric assessment, REMS may provide additional information on skeletal fragility. Pisani et al., (2023) demonstrated that the REMS-derived Fragility Score, a parameter reflecting bone quality, can discriminate fractured from non-fractured postmenopausal women over 50 years of age and predict incident fragility fractures over 5 years. Emerging longitudinal evidence further suggests that REMS may be applicable for treatment monitoring in postmenopausal skeletal fragility, including both primary osteoporosis (Semeraro et al., 2026) and secondary bone loss conditions (Caffarelli et al., 2026; Al Rafeie et al., 2025), such as aromatase inhibitor-associated bone loss. Recent ESCEO position papers include REMS among the technologies currently available for osteoporosis diagnosis, management, and fracture-risk assessment (Fuggle et al., 2024). The clinical trial by Bolland et al. (2025), highlights the urgent need for a better way to predict fracture risk in women who are recently postmenopausal. **Conclusion:** Overall, REMS may add information to postmenopausal skeletal assessment through BMD estimation, bone quality-related parameters, and the possibility of repeated follow-up without ionizing radiation.

Sources of Funding: None

P-76.

Hormone Replacement Therapy in Total Joint Arthroplasty: A Systematic Review and Meta-analysis of Postoperative Complications

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Objective: Hormone replacement therapy (HRT) is widely used for menopausal symptoms and bone health, yet its impact on complications following total joint arthroplasty (TJA) remains poorly understood. This investigation evaluated the association between HRT and the risk of postoperative complications among women undergoing TJA to guide perioperative management. **Design:** A systematic review and meta-analysis were conducted following PRISMA guidelines. PubMed, EBSCOhost, and Cochrane Library were searched using terms related to arthroplasty, HRT, and postoperative outcomes. Statistical analyses were performed in R (meta package) using random-effects models to calculate pooled odds ratios (OR) with 95% confidence intervals (CI). To preserve the methodological accuracy of the primary studies, data for Total Knee and Total Hip Arthroplasty (TKA and THA, respectively) were extracted and analyzed as independent cohorts. Heterogeneity was evaluated using the I² statistic. **Results:** Five studies involving 211,242 patients (21.2% HRT users) were included. HRT was associated with a significantly lower risk of deep vein thrombosis (DVT) (OR 0.70; 95% CI 0.61–0.80; p < 0.0001), with low heterogeneity (I² = 5.4%). Subgroup analysis showed a protective effect for both estrogen-only (ERT) and combined HRT, with no significant difference between them (p = 0.09). However, HRT was associated with higher risks of mechanical failure, specifically all-cause revision (OR 1.23; 95% CI 1.12–1.35; p < 0.0001). No significant differences were observed for pulmonary embolism (OR 0.86; p = 0.23). **Conclusion:** This study indicates that HRT has a potentially beneficial effect on DVT prevention after TJA; however, it is also a significant risk factor for mechanical failure. Recognizing these associations allows for individualized risk assessment and management.

Sources of Funding: None

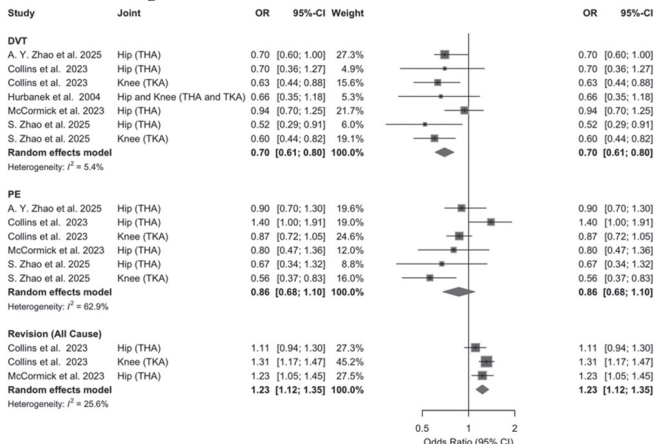


Figure 1. Forest plot of the association between HRT and postoperative DVT, PE, and all-cause revision in TJA.

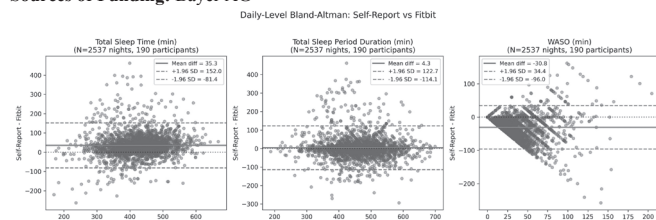
P-77.

Concordance Between Self-Reported and Wearable Device-Measured Sleep in Perimenopausal Women

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Objective: To evaluate correlations between self-reported and Fitbit-measured sleep in perimenopausal women. **Design:** We enrolled 190 perimenopausal women aged 36–60 years (mean 47.1 years, SD±4.3; range 36–57 years) who reported vasomotor symptoms/sleep disturbances via the Evidation consumer health platform. Women were classified as perimenopausal if they were not pregnant and reported in the last 12 months: (i) having ≥1 menstrual period and (ii) missing ≥1 menstrual period or experiencing new-onset menstrual irregularities (≥7 days difference). Self-reported total sleep time (TST), total sleep period duration (TSPD), wakefulness after sleep onset (WASO), and sleep quality – were collected from daily morning surveys over 14 days. Objectively measured sleep variables – TST, TSPD, WASO, sleep efficiency (TST/TSPD) – were collected from Fitbit devices for 14 consecutive nights. All 190 women had ≥11 days' paired daily survey and Fitbit sleep data. We calculated repeated measures correlation coefficients to assess correlations between paired self-reported and Fitbit-derived sleep measures and conducted day-level Bland-Altman analysis to assess agreement. **Results:** 2537 paired samples were analyzed. For Fitbit-measured sleep, median values were: TST, 6 hours 49 minutes; TSPD, 7 hours 42 minutes; WASO, 46 minutes; sleep efficiency, 90%, but variability was high between participants and nights (**Figure**). For self-reported sleep, median values were: TST, 7 hours 25 minutes; TSPD, 7 hours 45 minutes; WASO, 10 minutes. Overall, women reported 78% of nights as very/fairly good sleep quality. Strong correlations were seen between self-reported and Fitbit-measured TST ($p=0.67$; $p<0.001$) and TSPD ($p=0.68$; $p<0.001$). Self-reported WASO was moderately positively correlated with Fitbit WASO ($p=0.35$; $p<0.001$) and moderately negatively correlated with Fitbit sleep efficiency ($p=-0.36$; $p<0.001$). Mean differences (self-report minus Fitbit) indicated that women generally over-reported TST (mean difference: 35.3 minutes, 95% limits of agreement [LoA]: -81.4 to 152.0 minutes) and under-reported WASO (mean difference: -30.8 minutes, 95% LoA: -96.0 to 34.4 minutes). TSPD showed a small mean difference (4.3 minutes, 95% LoA: -114.1 to 122.7 minutes). Proportional bias (correlation between the difference and the mean), was minimal for TST (slope: 0.0968, $r^2=1.2\%$) and TSPD (slope: -0.0394, $r^2=0.2\%$), and moderate for WASO (slope: -0.1479, $r^2=1.1\%$) (all $p<0.05$). Moderate correlations were seen between self-reported sleep quality and Fitbit TST ($p=0.30$), TSPD, ($p=0.19$); sleep efficiency ($p=0.31$), and WASO ($p=-0.23$; $p<0.001$ for all). **Conclusion:** Fitbit-derived and self-reported sleep measures are minimally-to-moderately associated in perimenopausal women, with Fitbit-derived measures indicating worse sleep. WASO shows the greatest discrepancy, particularly at higher levels of WASO, suggesting complementary utility of wearables for gaining deeper insights into this hallmark sleep complaint in perimenopausal women.

Sources of Funding: Bayer AG



Daily level Bland-Altman plot: self-reported vs. Fitbit-measured TST, TSPD, and WASO.

P-78.

The effects of fezolinetant on VMS bother and depressive and anxiety symptoms in a real-world setting: a second preliminary analysis of the phase 4 OPTION-VMS study

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Objective: Sleep, mood, quality of life, and overall functioning can be significantly impacted by vasomotor symptoms (VMS). Depressive and anxiety symptoms worsen in menopause, especially in women with frequent/severe VMS. VMS, sleep disruption, and mood are interrelated, with frequent/severe VMS linked to disrupted sleep and more severe depressive and anxiety symptoms. Fezolinetant 45 mg once daily is a globally approved, effective non-hormonal NK3 receptor antagonist for moderate to severe menopausal VMS. We present findings from the second preliminary analysis

of OPTION-VMS (NCT06049797), the first real-world study of women prescribed fezolinetant by their healthcare providers for bothersome VMS. **Primary objective:** To evaluate within-group change from baseline in VMS bother (MENQOL VMS domain) in women initiating non-hormonal therapy (non-HT), including fezolinetant, for bothersome VMS. We also assessed within-group changes from baseline in depressive and anxiety symptoms (PHQ-9 and GAD-7). **Design:** OPTION-VMS is an ongoing, prospective, longitudinal, multicenter phase 4 US study of women aged 40–75 years with bothersome menopausal VMS prescribed non-HT: fezolinetant, SSRIs/SNRIs, or other non-HTs (eg, gabapentin, oxybutynin). Baseline to week 12 changes were assessed for VMS bother (primary endpoint; MENQOL VMS domain) and to weeks 4/8/12 for depressive and anxiety symptoms (exploratory; PHQ-9 and GAD-7 total scores). The PHQ-9 and GAD-7 are patient-reported questionnaires assessing severity (mild to severe) of depressive and anxiety symptoms, respectively, with reductions indicating improvement. **Results:** At second preliminary analysis (March 2026), 993 non-HT users were enrolled; 859 completed MENQOL at baseline and ≥1 post-baseline visit. In the fezolinetant group: mean (SD) age was 54.7 (6.4) years; BMI 30.6 (6.5) kg/m². Most participants were White (56%) or Black/African American (38%), postmenopausal (86%), and had moderate/severe VMS (93%); medical histories: hypertension (31%), hyperlipidemia (21%), depression (17%)/anxiety (15%). **Primary outcome:** Fezolinetant users (n=375) showed statistically significant improvements in MENQOL VMS domain score at week 12 (least-squares [LS] mean change from baseline -2.66 [95% CI -2.95, -2.37]; $P<0.001$) and as early as week 4. **Mood:** With fezolinetant, statistically significant improvements in depressive and anxiety symptoms at weeks 4, 8, and 12 were observed: week 12 LS mean change from baseline of -3.04 for PHQ-9 (95% CI -3.63, -2.45), -2.44 for GAD-7 (95% CI -3.00, -1.89), both $P<0.001$. While not a comparative study, SSRIs/SNRIs (n=358) and other non-HTs (n=126) showed statistically significant improvements in PHQ-9 and GAD-7 at weeks 4, 8, and 12 (all $P<0.001$). SSRIs/SNRIs: week 12 LS mean change -2.60 for PHQ-9 (95% CI -3.21, -1.98), -2.41 for GAD-7 (95% CI -2.99, -1.84). Other non-HTs: week 12 LS mean change -1.94 for PHQ-9 (95% CI -2.81, -1.06), -1.79 for GAD-7 (95% CI -2.59, -0.98). **Safety:** Incidence of drug-related TEAEs, including those leading to drug withdrawal/interruption, and hepatic laboratory test abnormalities (n=2), was infrequent for fezolinetant with no drug-related serious TEAEs/hepatotoxicity. **Conclusion:** Fezolinetant use was associated with statistically significant reductions in VMS bother and depressive and anxiety symptoms as early as week 4. Quality of life improvements seen in fezolinetant clinical trials affirm real-world benefits beyond VMS relief, including improvements in depressive and anxiety symptoms.

Sources of Funding: Astellas Pharma Inc.

P-79.

Real-World Menopause Symptom Improvements in a Menopause-Tailored Telehealth Program

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Objective: Women frequently experience significant and disruptive symptoms (e.g., vasomotor symptoms, sleep disturbances, mood changes) during perimenopause and postmenopause, with some experiencing symptoms for more than a decade. Despite the prevalence and substantial burden of these symptoms, barriers to menopause care remain, such as limited awareness of effective treatment options, stigma, shortage of menopause-trained clinicians, and geographic disparities. Telehealth programs tailored to menopause offer a scalable approach that addresses these care gaps. However, evidence on the effectiveness of real-world menopause-focused telehealth programs is limited. This analysis evaluated changes in menopause symptom severity after 1 and 3 months of participation in a menopause-tailored telehealth program combining behavior change support and, as appropriate, prescription therapy, including menopausal hormone therapy (MHT) and obesity treatment. **Design:** This retrospective observational analysis included women enrolled for at least 3 months in a menopause-tailored telehealth program (Weight Watchers Med+ Meno) who were classified as perimenopausal (last menstrual period <12 months) or postmenopausal (last menstrual period ≥12 months). Women were prescribed MHT, with a subset also receiving glucagon-like peptide-1 receptor agonists (GLP-1s) or other obesity treatment as clinically indicated. Patients completed a 10-item menopause symptom rating scale questionnaire at baseline and at their first and third monthly prescription refill requests. A composite menopause symptom severity score (range: 0–40) was calculated by summing Likert-scale ratings (0–4) across symptoms (anxiety, bladder issues, brain fog, hot flashes, joint pain, mood changes, sexual satisfaction, sleep problems, tiredness, vaginal discomfort). Changes in mean composite score, individual symptom severity, and the proportion reporting at least one severe symptom were assessed from baseline to refill 1 (mean 47 days) and refill 3 (mean 112 days), as well as from refills 1 to 3. **Results:** A total of 191 women (mean [SD] age 50.9±4.7 years; BMI 32.9±6.6 kg/m²; 36% perimenopause, 64% postmenopause) were included in the analysis. At baseline, 91% of women reported at least one severe symptom. The most common MHT regimens included an estradiol patch (n=161; 84%) and/or progesterone (n=117; 61%); additional MHT formulations were prescribed as indicated. Alongside MHT, 58% (n=111) of women were also prescribed obesity pharmacotherapy, including GLP-1 medication, as part of their treatment regimen. At 1 month, the composite menopause symptom severity score decreased by 48.1% from baseline (22.5 vs. 11.7; $p<0.0001$), with an additional 22.7% reduction from 1 to 3 months (11.7 vs. 9.1; $p<0.0001$). All individual symptoms significantly improved from baseline at 1 month (mean reductions: 39–57%; all $p<0.0001$). From 1 to 3 months, further significant improvements were observed in nearly all symptoms, including bladder issues, brain fog, hot flashes, joint pain, mood changes, sexual satisfaction, sleep problems, tiredness, and vaginal discomfort (mean reductions: 16–38%; all $p<0.001$).

Over the full 3 month period, all individual symptoms were reduced by more than 50%, with the largest improvements observed for mood changes and vaginal discomfort (mean reductions: 69–70%; all $p < 0.0001$). The proportion of women reporting at least one severe symptom decreased from 91% at baseline to 34% at 1 month and 24% at 3 months. **Conclusion:** In a real-world cohort of women experiencing peri- or postmenopause, enrollment in a comprehensive menopause-tailored telehealth program with prescription MHT, and obesity pharmacotherapy as indicated, resulted in clinically meaningful reductions in menopause symptom severity, with significant reductions observed as early as 1 month and continuing through 3 months. These findings support telehealth-delivered menopause care as a scalable approach to improving symptom burden during this life stage. Future research should examine the relative and combined contributions of pharmacotherapy (including MHT and GLP-1s) and lifestyle support to symptom outcomes, with the goal of developing holistic treatment models to deliver the greatest benefit for menopausal symptoms and long-term outcomes, including cardiometabolic health and quality of life.

Sources of Funding: None

P-80.

When Weight Gain Isn't "Just Menopause": Identifying Lipedema and Improving Care

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Objective: To describe Lipedema as an under-recognized adipose tissue disorder that may worsen or become more clinically apparent during the menopause transition with shifting sex hormones, and to highlight practical opportunities for menopause practitioners to provide a comprehensive care plan for women with Lipedema in the menopause transition. **Design:** This narrative review synthesizes hormonally mediated Lipedema pathophysiology and clinical management, with emphasis on menopause-associated presentation and estrogen-related disease progression. **Results:** Lipedema is a chronic, progressive adipose tissue disorder characterized by estrogen-related, disproportionate, symmetrical fat deposition of the extremities (typically hips, thighs, and legs; sometimes arms), pain, easy bruising, and resistance to traditional weight-loss interventions. It affects primarily women and is frequently misdiagnosed as simple obesity, lifestyle-related weight gain, venous disease, or lymphedema, contributing to delayed diagnosis and worsening functional impairment. Times of hormonal change, including puberty, pregnancy, and perimenopause/menopause, are commonly reported periods of symptom onset or acceleration, suggesting an important intersection with menopause care. Menopause practitioners are well positioned to identify Lipedema during evaluation of midlife weight change, musculoskeletal pain, mobility decline, worsening edema, and body composition changes as estradiol levels shift. Diagnostic recognition relies on clinical history and physical examination, including disproportionate lower-body fat distribution, tenderness, nodularity, cuffing at the ankles/wrists, sparing of the feet/hands, and a history of unsuccessful weight-loss response despite lifestyle efforts. Commonly associated comorbidities include venous insufficiency, secondary lymphedema, hypermobility, joint pain, sleep disturbance, depression/anxiety, and reduced quality of life. Management is multimodal and benefits from early intervention. Conservative approaches include compression therapy, manual lymphatic drainage or pneumatic compression when indicated, movement strategies tailored to pain and joint stability, anti-inflammatory nutrition approaches, weight-neutral counseling that reduces stigma, and appropriate referral to specialists (lymphedema therapy, vascular medicine, obesity medicine, physical and/or occupational therapy, and mental health). When clinically appropriate, anti-obesity pharmacotherapy may support overall health goals, though Lipedema tissue itself may be resistant to change. For select patients, liposuction to remove Lipedema tissue may improve pain, mobility, and function. Menopause practitioners can also counsel patients on realistic expectations of body composition changes during the menopause transition, role of menopausal hormonal therapy, and provide longitudinal monitoring of symptoms and functional status. **Conclusion:** Lipedema is an important and frequently missed contributor to pain, disproportionate adiposity, and mobility impairment in midlife women, with symptom progression often reported around the menopause transition. Menopause practitioners can play a pivotal role in earlier recognition, validating patient experiences, reducing weight stigma, screening for comorbidities, and initiating evidence-informed management and referral pathways. Incorporating Lipedema screening into menopause care has the potential to improve quality of life, functional outcomes, and patient-centered care across the lifespan.

Sources of Funding: None

P-81.

Symptom–Metabolic Phenotypes in Peri- and Postmenopausal Women: Domain-Specific Associations With Cardiometabolic Risk in a Multidisciplinary Clinic

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Objective: To identify clinically relevant symptom–metabolic phenotypes among peri- and postmenopausal women and to evaluate associations between menopausal symptom domains and cardiometabolic risk in a multidisciplinary endocrine clinic setting. **Design:** We conducted a cross-sectional study of consecutive peri- and postmenopausal women aged 40–65 years evaluated at a multidisciplinary endocrine clinic between March 2025 and January 2026. Menopausal symptom burden was assessed using the Menopause Rating Scale (MRS), with domain-level analysis including vasomotor, sleep, psychological, and urogenital domains. Cardiometabolic risk was evaluated using body mass index, waist circumference, blood pressure, glycated hemoglobin (A1C), and

lipid parameters. Metabolic syndrome was defined according to National Cholesterol Education Program Adult Treatment Panel III criteria. Participants were categorized into four predefined phenotypes based on symptom burden (low vs moderate-to-high) and presence of metabolic syndrome. Multivariable regression models were used to assess associations between symptom domains and cardiometabolic markers, adjusting for age, menopausal stage, menopausal hormone therapy use, antidepressant use, smoking status, and obesity pharmacotherapy. **Results:** A total of 78 women were included (mean age 53.1 ± 5.4 years; 60% postmenopausal). Metabolic syndrome was present in 41% of participants. Four distinct phenotypes were identified: low symptom/low metabolic risk (28%), high symptom/low metabolic risk (27%), low symptom/high metabolic risk (15%), and high symptom/high metabolic risk (30%). Women with moderate-to-high symptom burden had greater waist circumference (101.8 vs 95.4 cm, $p=0.01$), higher triglyceride levels (1.76 vs 1.41 mmol/L, $p=0.03$), and lower HDL-C (1.21 vs 1.32 mmol/L, $p=0.04$). In adjusted analyses, higher symptom burden was associated with increased odds of metabolic syndrome (adjusted OR 1.82; 95% CI 1.01–3.27). Domain-level analysis demonstrated that sleep disturbance was associated with A1C and waist circumference, while vasomotor symptoms were associated with triglyceride levels and central adiposity. Psychological symptoms were not independently associated after adjustment. Notably, a subset of women with low symptom burden demonstrated significant metabolic risk, suggesting potential under-recognition of cardiometabolic disease in asymptomatic patients. **Conclusion:** Distinct symptom–metabolic phenotypes are present among peri- and postmenopausal women in a multidisciplinary endocrine clinic. Domain-specific symptom patterns—particularly sleep and vasomotor symptoms—are associated with adverse cardiometabolic profiles. These findings support the integration of symptom assessment into cardiometabolic risk evaluation and highlight the heterogeneity of menopause-related clinical presentations. Future longitudinal studies are warranted to evaluate the temporal evolution of these phenotypes and their implications for treatment response.

Sources of Funding: None

P-82.

Bleeding on the Brink: Causes and Follow-up of Severe Anemia in Perimenopausal Patients

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Objective: This study aims to describe the presumed etiology of a cohort of patients experiencing perimenopausal bleeding and severe anemia (Hemoglobin (Hgb) ≤ 8 g/dL). Etiology is defined using the FIGO classification system, or PALM-COEIN (polyp; adenomyosis; leiomyoma; malignancy/hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified). Our secondary aim is to evaluate whether the standard of care for interval follow-up was met for each patient. **Design:** This retrospective cohort study included patients from 2018–2023 who presented to a single tertiary care center for evaluation and were found to have vaginal bleeding and severe anemia, as identified by ICD-10 codes and a lab result of Hgb ≤ 8 g/dL. Age was used as a proxy for perimenopausal status and included patients aged 40 to 60. Patients were excluded if they were pregnant, had previously undergone a hysterectomy, or aged > 60 or < 40 . Electronic health records were reviewed for all patients meeting inclusion criteria. We collected baseline characteristics and clinical information from the identified encounter and performed chart review to assign FIGO classification of abnormal uterine bleeding (AUB), as well as whether patients received follow-up after their initial encounter for AUB and severe anemia, defined as an outpatient OBGYN appointment within 1 year of initial presentation. **Results:** The cohort included 128 patients. The average age was 51 (standard deviation ± 4.8) and most patients self-identified as Black or African American (52%) and not Hispanic or Latino (73%) (Table 1). Most patients were evaluated in the Emergency Department (ED) (80%) and had private insurance (57%). The average Hgb value was 6.9 (standard deviation ± 0.9). The most common FIGO classification of AUB was leiomyoma (69%) followed by ovulatory dysfunction (25%), polyp (13%), and adenomyosis (12%) (Table 2). 6% of patients had iatrogenic AUB, commonly due to anticoagulation use. For another 6% of patients, AUB could not be classified based on chart review. 81% of patients received appropriate follow-up care for their AUB and severe anemia. Of those who did not receive follow-up, 2 patients re-presented to the ED with similar concerns. Notably, all patients with hyperplasia/malignancy received appropriate follow-up. **Conclusion:** Among perimenopausal patients who presented with AUB and severe anemia, the most common etiology was leiomyoma, followed by ovulatory dysfunction. Most patients were seen in the ED for treatment of severe anemia and received appropriate follow-up care.

Sources of Funding: We are grateful to the Department of OBGYN Banzhaf Fund for Resident Research for supporting analyst Mingyu Qin in creating an EDW report for this project.

Demographic characteristics

Age	51 (± 4.8)
Self-Identified Race	
Black or African American	67 (52%)
White	30 (23%)
Asian or Asian Indian	5 (4%)
Declined or unable to answer	6 (5%)
None of the above	20 (16%)
Self-Identified Ethnicity	
Not Hispanic or Latino/a	94 (73%)
Hispanic or Latino/a	27 (21%)
Declined to answer	7 (6%)
Insurance	
Private	73 (57%)
Public	32 (25%)
Self-Pay	23 (18%)
Care Setting	
Emergency Department	102 (80%)
Outpatient Clinic	6 (5%)
Inpatient Admission	20 (16%)
BMI	32.9 (±8.7)

FIGO classification of AUB, with some patients fitting multiple classifications

Polyp	16 (13%)
Adenomyosis	15 (12%)
Leiomyoma	88 (69%)
Malignancy/hyperplasia	3 (2%)
Coagulopathy	1 (1%)
Ovulatory dysfunction	32 (25%)
Endometrial	1 (1%)
Iatrogenic	8 (6%)
Not yet classified	0 (0%)
Unknown	8 (6%)

P-83. Trends in Menopause Related Healthcare Among Active Duty Servicemembers

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Objective: One million women in the US enter menopause each year. As military demographics shift, an increasing percentage of active-duty service members (ADSMs) are experiencing the menopausal transition. Additionally, service-related exposures and PTSD may uniquely heighten service women’s risk of premature ovarian insufficiency and early menopause. While menopause can challenge physical fitness and combat readiness, its full impact on military service is understudied. This project aims to characterize the population of active duty service women with menopause-related diagnoses and their utilization of therapies. **Design:** This retrospective cohort study analyzed de-identified health and military service data sourced from the Medical Assessment and Readiness System. Researchers identified female ADSMs from January 2011 to March 2025 and compared those with and without menopause-related diagnoses. Demographic and military service variables (age, race, ethnicity, body mass index, service branch, and fitness test scores) were analyzed using chi-squared tests, odds ratios, and two-tailed t-tests in relation to menopausal diagnoses. We also assessed menopausal therapy utilization. Research data were derived from protocol 17-02683, approved by the Naval Medical Center Portsmouth Institutional Review Board. **Results:** Among the 647,897 ADSMs serving during the study period, 1.9% (12,430) received a menopause-related diagnosis. The mean age at initial diagnosis was 36.7 years. Abnormal uterine bleeding was the most frequent initial perimenopausal diagnosis, occurring at an average age of 34.3 years. Factors associated with a higher rate of premature menopause included low AFQT score, bachelor’s degree, Marine Corps service, and ranks E-5, E-6, and O-3. During the study period 46,251 systemic estrogen prescriptions were issued, with the majority being for oral therapy (61%) and for vasomotor symptoms. There were a total of 1634 non-hormonal prescriptions, including selective serotonin reuptake inhibitors and gabapentin, for menopausal symptoms. **Conclusion:** Service women exhibit distinct trends in their experience of menopause, often seeking care at an early age and showing robust adoption of hormone therapies. To preserve the health, readiness, and retention of service women, it is critical to understand their experience and address barriers to timely, comprehensive menopause-related care. Further research is needed to better understand this patient population.

Sources of Funding: None

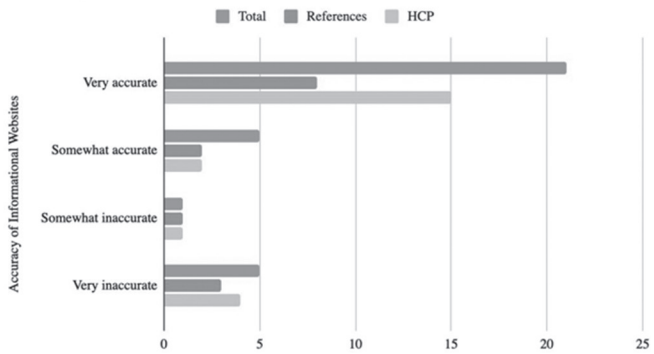
P-84. Internet and Menopause Hormone Testing: What Information Is Available to Patients?

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Objective: Menopause remains a clinical diagnosis defined retrospectively after 12 months of amenorrhea, with no single reliable biomarker due to hormonal variability during the menopause transition. Despite this, direct-to-consumer hormone testing is increasingly marketed online. Given that many women rely on nonmedical sources for menopause education, this study evaluates the accuracy, content, and commercialization of online information related to hormone testing for perimenopause and menopause. **Design:** A systematic web search was conducted independently by two reviewers using Google, Yahoo, and Bing in an incognito browser with location services disabled. Search terms included “hormone test menopause,” “hormone test perimenopause,” “blood test

menopause,” and related queries. Websites were categorized by type (informational, healthcare, laboratory, retail), sponsorship status, and content characteristics. Data collected included healthcare professional involvement, references or citations, and claims regarding hormone testing. Informational websites were assessed for accuracy using a four-point scale by a menopause society certified obstetrician-gynecologist. Non-U.S.-based websites were excluded. **Results:** A total of 156 websites were analyzed: 57.7% informational, 23.7% healthcare, 14.1% laboratory, and 4.5% retail. Sponsored content comprised 30.1% of results, most commonly from online healthcare platforms. Most informational websites accurately stated that no single test is required to diagnose menopause or perimenopause and appropriately described hormonal variability, including elevated follicle-stimulating hormone and decreased estradiol levels. The majority were rated “very accurate,” although fewer than half included references or clear healthcare professional attribution. In contrast, commercial websites widely promoted direct-to-consumer hormone testing using blood, urine, or saliva samples, with costs ranging from \$72 to \$700. These platforms frequently claimed the ability to determine reproductive status or predict menopause onset, often recommending serial testing or subscription-based monitoring. Many lacked clear clinical interpretation or involvement of qualified healthcare professionals. Laboratory-based services and hybrid telehealth platforms similarly marketed testing as a tool to guide care, with variable integration of clinician oversight. **Conclusion:** Online information regarding menopause hormone testing presents a dual landscape of generally accurate educational content alongside highly commercialized testing services with limited clinical validation. This study highlights a critical gap between evidence-based recommendations and direct-to-consumer marketing. Improved patient education and proactive clinician counseling are needed to address misconceptions, guide appropriate use of hormone testing, and support informed decision-making during the menopause transition.

Sources of Funding: None

Accuracy of Informational Websites



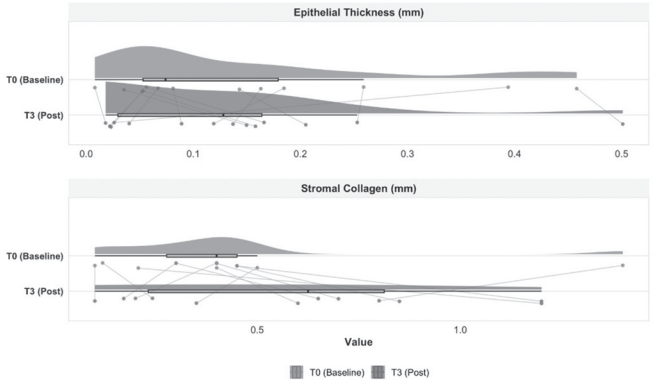
P-85. Effects of Microablative Fractional Radiofrequency on Vaginal Epithelial Morphometry and Collagen Neogenesis in Women with Genitourinary Syndrome

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Objective: To evaluate the effects of microablative fractional radiofrequency (MAFRF) on vaginal epithelial morphometry and collagen neogenesis in postmenopausal women with genitourinary syndrome of menopause (GSM). **Design:** A prospective, longitudinal, quasi-experimental study with repeated pre- and post-intervention measures was conducted in 14 postmenopausal women with GSM recruited by convenience sampling from the Menopause Outpatient Clinic of the School of Medical Sciences of Santa Casa de São Paulo, Brazil (2019–2025). The protocol consisted of four visits at monthly intervals (T0–T3), including vaginal biopsies at baseline (T0) and after treatment completion (T3), and three consecutive MAFRF sessions (T0–T2). Samples were analyzed using microscopy (Axioscop 40, Zeiss) with digital epithelial thickness measurement (ZEN 2011 software) and immunohistochemistry for type I collagen, with measurement of the largest stained collagen fiber using a micrometric ruler. All histological analyses were performed by a single observer and validated by an experienced pathologist. **Results:** Variables were non-normally distributed (Shapiro–Wilk) and analyzed using paired Wilcoxon tests. Epithelial thickness increased from T0 to T3 (median $\Delta = +0.0010$ mm [−0.0290, 0.0620]; $p = 0.761$), with interindividual variability and four participants showing increases >100%. Stromal collagen ($n = 12$) also increased (median $\Delta = +0.1615$ mm [−0.1395, 0.3750]; $p = 0.230$), likewise with four participants showing increases >100%. Despite these trends, neither variable reached statistical significance. Distributions overlapped substantially between time points. Jackknife analysis detected no influential observations. **Conclusion:** MAFRF showed a trend toward increased vaginal epithelial thickness and stromal collagen fiber size, with heterogeneous responses and no statistically significant differences in this pilot sample. Histomorphometric evidence on MAFRF in GSM remains limited, particularly for objective stromal collagen quantification. Findings are consistent with small sample size and biological variability. Limitations include single-arm design, lack of a control group, and reduced collagen availability. Larger studies are needed to confirm findings and identify predictors of histological response.

Sources of Funding: None

Descriptive Statistics of Non-Normally Distributed Morphometric and Immunohistochemical Variables

Characteristic	N	Median [IQR]
Epithelial thickness T0 (mm)	14	0.0740 [0.0530, 0.1846]
Epithelial thickness T3 (mm)	14	0.1280 [0.0260, 0.1660]
Δ Epithelial thickness (mm)	14	0.0010 [-0.0290, 0.0620]
Stromal collagen T0 (mm)	12	0.4000 [0.2535, 0.4500]
Stromal collagen T3 (mm)	13	0.6000 [0.2420, 0.8000]
Δ Stromal collagen (mm)	12	0.1615 [-0.1395, 0.3750]



Raincloud plots of vaginal epithelial thickness (mm) and stromal collagen fiber length (mm) before (T0, top) and after (T3, bottom) treatment with microablative fractional radiofrequency (MAFRF).

P-86.

Missing the Forest for the Trees: A Qualitative Analysis of Menopause Experiences and Care Gaps for Women Service Members and Veterans

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Objective: Military service provides risks for increased severity of menopause symptoms and earlier onset of menopause, yet the health needs of military service members and veterans experiencing the menopause transition are woefully understudied. We aimed to assess the midlife and menopause experiences and unmet health needs of women service members and veterans. **Design:** We conducted virtual focus groups with women service members and veterans 45-60 years old using a semi-structured, open-ended interview guide focused on midlife and menopause experiences and related health care access from June to August 2025 until thematic saturation was met. Transcripts were coded and thematic analysis performed using Atlas.ti software. **Results:** We conducted five focus groups with 30 participants (mean age 51.5; 53.3% active duty). Participants received health care across the Military Health System, Veterans Health Administration, and private sector. Three categories emerged: individual experiences of midlife and menopause, menopause-related care delivery, and effects of menopause on military career. Within these categories, six themes were identified: feeling unprepared and navigating menopause independently, effects on relationships, frustration with care delivery, positive care delivery experiences, effects on military performance and readiness, and operational settings complicating symptom recognition and treatment. Frustration with care delivery included feeling dismissed, symptom misattribution or treatment of individual symptoms, lack of menopause knowledge among clinicians, inconsistent access to knowledgeable clinicians, and seeking care outside the Military Health System or Veterans Health Administration. Positive care experiences included continuity of care, symptom validation, and provision of treatment. Participants also provided recommendations for improving menopause care delivery. **Conclusion:** Menopause symptoms substantially affect quality of life and occupational functioning among women service members and veterans, with system-level gaps in menopause care frequently overshadowing positive experiences. Findings highlight deficiencies in clinician education, care access, and care continuity across military and veteran health systems. Targeted interventions to improve menopause-specific clinical competency and access to evidence-based care are needed to support quality of life and maintain military readiness.

Sources of Funding: Military Women's Health Research Program

P-87.

Quality of Life and Whole-Person Menopause Care: A Landscape Assessment to Inform an Equity-Oriented Interprofessional Initiative in North Texa

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Objective: To identify priorities for developing an evidence-based, equity-oriented, multidisciplinary menopause initiative centered on quality of life, function, and whole-person care for midlife women in North Texas. **Design:** Qualitative landscape

assessment. Semi-structured interviews were conducted with 26 stakeholders across academic, clinical, community, advocacy, and organizational settings to identify implementation-relevant priorities for menopause-focused research, education, and service. Data were analyzed using Braun and Clarke's six-phase thematic analysis to guide program design, incorporating iterative coding and analytic memoing to enhance rigor and trustworthiness. **Results:** Findings converged around six priorities: patient-centered whole-person menopause care; menopause education and competency-building for both providers and patients; experiential learning and workforce pipeline development; equity, access, affordability, and navigation as core design requirements; interprofessional clinical scope across pelvic and sexual health, musculoskeletal health, sleep, mood, cognition, and metabolic health; and research and measurement priorities anchored in quality of life and function. Stakeholders consistently emphasized the need for a trusted, evidence-based center that moves beyond narrow hormone-only models toward culturally responsive, multidisciplinary menopause care. **Conclusion:** Quality of life and function emerged as overarching outcomes that capture the lived impact of menopause across symptoms, daily functioning, and care access. These findings provide an implementation-ready framework for an interprofessional menopause initiative that integrates research, workforce development, and accessible, whole-person care.

Sources of Funding: Supported in part by a \$40,000 small grant from Texas Woman's Foundation.

P-88.

A Perimenopause-Specific Supplement Reduces Perceived Stress: Results from a Randomized, Double-Blind, Placebo-Controlled Trial

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Objective: Millions of women in the United States experience perimenopause each year, a transitional stage typically lasting several years. Perimenopause is associated with multiple symptoms, such as heightened perceived stress, impaired sleep, fatigue, and reduced quality of life. While neuroendocrine alterations are associated with many of these symptoms, the efficacy of nonpharmacologic approaches for addressing these interconnected pathways remains understudied. This study investigated the effects of a perimenopause-specific supplement formulation on perceived stress and menopause-related symptoms in women self-reporting perimenopausal symptoms for 3 months or longer. **Design:** A decentralized, randomized, double-blind, placebo-controlled clinical trial was conducted in which 498 women (aged 40-64) who reported experiencing menopausal transition symptoms for ≥3 months received either a Perimenopause Support Pack or placebo for 6 weeks. The primary outcome was perceived stress assessed using the NIH Toolbox Perceived Stress (Ages 18+) – Item Bank v3.0/Fixed Form. Secondary outcomes included menopause-related symptom burden (Radicle General Menopausal Health Issues Survey), fatigue (PROMIS Fatigue 8a), sleep disturbance (PROMIS Sleep Disturbance 8a), and sleep related impairment (PROMIS Sleep Related Impairment 8a). A mixed-effects modeling approach examined treatment effects over time, including treatment-by-week interactions, with adjustment for baseline values and relevant covariates under a modified intention-to-treat framework. **Results:** Of 498 enrolled participants, 389 completed the study with at least 80% compliance and were included in analyses (intervention n = 201; placebo n = 188). After 6 weeks, the intervention group demonstrated a greater rate of stress reduction compared to placebo (treatment × time interaction P = 0.0217). More specifically, predicted marginal slopes indicated a weekly reduction of -0.74 points (95% CI -0.94 to -0.54) in the intervention group versus -0.41 points (95% CI -0.61 to -0.21) with placebo. Although fatigue, sleep disturbance, and general menopausal health symptoms improved over time in both groups, no statistically significant between-group differences were observed. **Conclusion:** After 6 weeks, supplementation with a formulation designed to target neuroendocrine perimenopausal symptoms mitigated perceived stress in perimenopausal women. These preliminary findings suggest that nutraceutical interventions targeting stress related pathways may be a strategy for supporting psychological well being during the menopause transition, warranting further investigation.

Sources of Funding: Perel Health

P-89.

Severity of perceived stress, sleep dysfunction, and fatigue in a cohort of perimenopausal women

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Objective: Perimenopause is the transitional stage preceding menopause and affects millions of women worldwide. Common symptoms, including fatigue, sleep disruption, and perceived stress are frequently reported; however, the severity distribution and multi-domain burden of these symptoms using standardized T-score based metrics remain incompletely characterized. This observational study aims to characterize the severity distribution of fatigue, sleep disturbance, sleep-related impairment, and perceived stress among a cohort of women experiencing perimenopause in the United States. **Design:** A cross-sectional analysis of baseline data from a randomized, double-blind, placebo-controlled trial in women who reported being in perimenopause was conducted. Participants completed online health surveys. Perceived stress was assessed by NIH Toolbox Perceived Stress (Ages 18+) – Item Bank v3.0/Fixed Form. Fatigue, sleep disturbance, and sleep related impairment, were assessed using, PROMIS Fatigue 8a, PROMIS Sleep Disturbance 8a, and PROMIS Sleep Related Impairment 8a respectively. T-scoring was used to categorize symptom severity according to NIH Toolbox and PROMIS conventions (mean = 50, SD = 10). Mild, moderate, and severe symptoms

were defined as T-scores ≥ 50 , ≥ 60 , and ≥ 70 , respectively. The proportion of participants within each severity category was calculated. **Results:** 498 participants completed the surveys (mean age 47 years; mean BMI of 29.9 kg/m²). Perceived stress was present in 99% of participants; 28% mild, 65% moderate, or 6% severe. Fatigue affected 90% of the cohort; 17% mild, 57% moderate, and 16% severe. Sleep-related impairment was observed in 89% (19% mild, 48% moderate, and 22% severe) and sleep disturbance in 80% (23% mild, 41% moderate, and 16% severe). Notably, 67% of participants reported moderate-to-severe symptoms across ≥ 3 domains. **Conclusion:** Moderate-to-severe fatigue, sleep dysfunction, and perceived stress are highly prevalent and frequently co-occur among perimenopausal women, indicating substantial multi-domain symptom burden. These findings underscore the need for targeted strategies to address symptom severity during this life stage.

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P-90.

Prescribing with Purpose: A risk assessment curriculum for menopausal hormone therapy

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Objective: This study evaluates whether a curriculum incorporating an adapted clinical decision tool improves management reasoning for menopause hormone therapy (MHT) candidacy and risk assessment compared to a traditional didactic curriculum among internal medicine (IM) residents. **Design:** This is a quasi-experimental, two-arm pre-test/post-test study compared two approaches to teaching MHT eligibility and risk assessment among IM residents. Arm 1 (traditional curriculum) consisted of a didactic session and case-based practice. Arm 2 incorporated a clinical decision tool adapted from the peer-reviewed Menopause Treatment Tool published in *Maturitas* (2025), used with author permission. Faculty facilitators completed a structured training session prior to curriculum delivery. Curricula were delivered sequentially in March and April 2026 during pre-clinic conference, a regularly scheduled didactic during an ambulatory rotation. Arm assignment was determined by block scheduling established at residency entry. Residents completed pre- and post-curricular case-based management reasoning assessments, along with demographic and confidence surveys. Two independent raters, blinded to group assignment, scored assessment responses using a standardized rubric to capture the comprehensiveness and accuracy of MHT risk stratification. Data collection was completed in May 2026. **Results:** Preliminary descriptive findings are reported here. We will estimate within-arm and between-arm changes in total scores before and after curricular delivery using a single linear mixed-effects model, with outcomes expected by August 2026. 150 eligible IM residents (75 per arm) were invited to participate. Response rate for the pre-assessment was 80% (n=60) in Arm 1 (traditional curriculum) and 72% (n=54) in Arm 2 (clinical decision tool). For the post-assessment, response rate was 60% (n=45) in Arm 1 and 51% (n=38) in Arm 2. Matched pre- and post-curricular assessments were completed by 68 residents (45% total; n=30 in Arm 1, n=33 in Arm 2). Participants in both arms were comparable in gender distribution [n=16 (54%) Arm 1, n=20 (60%) female Arm 2] and PGY level. Baseline surveys revealed a substantial gap in both prior training and confidence; over 60% of residents across both arms reported fewer than 2 hours of prior dedicated menopause education, with 14% reporting none. Further, 65% of Arm 1 and 70% of Arm 2 residents reported little to no confidence in determining candidacy for MHT. **Conclusion:** IM residents demonstrate substantial gaps in menopause education and confidence in MHT candidacy determination, findings with direct implications for the quality of primary care that perimenopausal women receive. This study represents one of the first comparative evaluations of a structured clinical decision framework as an educational intervention for teaching MHT risk assessment in residency training. Outcome analysis of management reasoning skills is anticipated by July 2026; findings are expected to inform evidence-based strategies for closing the menopause education gap at the graduate medical education level.

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P-91.

Gynecologist and patient perspectives on vaginal hormone therapy for the management of the genitourinary syndrome of menopause in Canada

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Objective: The objectives of this real-world study were to examine current practice patterns and perceptions related to vaginal HT for the management of GSM in Canada from both patient and gynecologist perspectives and to better understand gaps in the optimal management of GSM. **Design:** Non-interventional, survey-based quality assessment and improvement study that surveyed 13 Canadian gynecologists with a menopause-focused practice and 119 patients with a diagnosis of GSM who were either eligible for vaginal HT but had not been prescribed this treatment (naïve cohort) or currently being treated with vaginal HT (on-treatment cohort). Surveys were completed in March to April 2025. **Results:** The main therapies prescribed by gynecologists for GSM were vaginal moisturizers or lubricants (49%), vaginal estrone/conjugated estrogen creams (35%), vaginal estradiol inserts (26%) or tablets (20%), and vaginal dehydroepiandrosterone (DHEA) ovules (12%). Common driving factors for selection of vaginal HT formulations included applicator-free convenience/comfort, patient preference, cost/insurance coverage, and ease of use. The greatest challenges faced by gynecologists in managing GSM were patient awareness/education, patient-perceived risks associated with HT use, taboos associated with GSM

and its treatment, and long-term adherence. Among vaginal HT-naïve patients, the most common GSM symptoms were vaginal discomfort, dryness, itching and burning, and pain during sexual intercourse. After consultation with their gynecologist, 78% of vaginal HT-naïve patients planned to initiate treatment, most commonly estradiol inserts (33%), estrone/estrogen creams (19%) and DHEA ovules (19%). Factors impacting treatment selection among vaginal HT-naïve patients were ease of use, onset of action, and low risk of systemic hormone absorption. Most patients in the on-treatment cohort (78%) were satisfied with their current vaginal HT yet 77% would consider switching vaginal HTs most commonly due to convenience factors (e.g., messiness/residual discharge, ease of application). After consultation with their gynecologist, 43% of patients on vaginal HT switched treatments, mainly to estradiol inserts (43%) or DHEA ovules (36%). Nearly half (46%) of on-treatment patients had no planned change in their treatment plan, yet 65% of these patients experienced at least one issue with their current vaginal HT (mostly messiness and cost/affordability). Patients who were dissatisfied with their current vaginal HT (22%) all discontinued the treatment and/or initiated a new treatment. Patients who are neutral or dissatisfied with their current vaginal HT could benefit from a dialogue with their gynecologist about alternative treatment options. However, one-third of participating gynecologists do not routinely assess and document patient satisfaction during follow-up visits after initiating treatment for GSM, representing a missed opportunity to optimize patient care and outcomes. **Conclusion:** Gaps and opportunities to improve the current management of GSM in Canada were identified. Notably, education about GSM and available treatment options could be strengthened to support improvements in shared decision-making.

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P-92.

Safety, Pharmacokinetics, Pharmacodynamics, and Preliminary Efficacy of ABCL635, an NK3R Monoclonal Antibody Antagonist for the Treatment of Vasomotor Symptoms: A Phase 1/2 Study

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Objective: Up to 80% of women experience vasomotor symptoms (VMS) during the menopausal transition. While hormone therapy is effective for managing VMS, non-hormonal alternatives are needed. Neurokinin 3 receptor (NK3R), a G-protein coupled receptor expressed on KNDy neurons in the hypothalamus, is a clinically validated therapeutic target for VMS. While oral small-molecule NK3R antagonists are currently available, they require daily adherence and hepatic monitoring. ABCL635 is a novel, long-acting, NK3R-specific monoclonal antibody antagonist currently in clinical development as a once-monthly subcutaneous injectable. This study evaluates the safety, tolerability, pharmacokinetics (PK), pharmacodynamics (PD), and clinical efficacy of ABCL635. **Design:** This randomized, double-blind, placebo-controlled multicenter Phase 1/2 study (NCT07118891) was designed to evaluate both single- and multiple-ascending doses of ABCL635. The single-ascending dose (SAD) cohort enrolled healthy men and postmenopausal women (N=40, median age 54.5 years) randomized 6:2 to receive a single subcutaneous (SC) injection of ABCL635 (30, 100, 300, 600, or 900 mg) or placebo. The multiple-ascending dose (MAD) cohort enrolled healthy postmenopausal women (N=16, median age 62 years) randomized 6:2 to receive 3 SC doses administered once every 4 weeks of either 300 mg or 600 mg ABCL635 or placebo. Primary outcome measures included safety and tolerability, monitored by physical exam, adverse events (AEs) and comprehensive laboratory and liver function assessments. Secondary outcomes included PK profiling and PD markers of target engagement. In the ongoing Phase 2 portion of the study, clinical efficacy, including the reduction of VMS frequency and severity, is being evaluated in postmenopausal women with moderate-to-severe VMS. **Results:** ABCL635 demonstrated a favorable safety and tolerability profile in the SAD and MAD portions of the study. There were no serious or severe AEs reported, no dose-limiting toxicities, and notably, no clinically significant elevations in liver function tests. In the SAD part of the study, the most common treatment-emergent AE in ABCL635 group was mild, transient headache (n=7; 23.3%) observed predominantly at the highest dose level of 900 mg (n=4) within the first few days following administration. PK analysis revealed dose-proportional systemic exposure and a terminal half-life of approximately 24 days, supporting a once-monthly SC dosing regimen. Robust, concentration-dependent target engagement was confirmed via central hypothalamic-pituitary-gonadal axis suppression. In male participants, a 65% to 80% reduction in testosterone from baseline was observed, accompanied by corresponding decreases in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) at the 300 mg to 900 mg dose levels. At the time of presentation, the 4-week topline safety and efficacy results of the ongoing Phase 2 proof-of-concept cohort in postmenopausal women with moderate-to-severe VMS are expected to be available. **Conclusion:** ABCL635 is a well-tolerated, long-acting NK3R monoclonal antibody that achieves potent, sustained target engagement and exhibits a favorable PK profile optimized for monthly subcutaneous administration. These findings support the continued clinical development of ABCL635 as a long-acting, non-hormonal therapeutic option for VMS management. Efficacy data from the Phase 2 part of the trial, which investigated the impact of monthly ABCL635 dosing on the reduction of moderate-to-severe VMS in postmenopausal women, will be presented.

Sources of Funding: The study is sponsored by AbCellera Biologics, Inc., with contributions from the Governments of Canada and British Columbia.

P-93.

Compounded Invisibility: Women's Health Outcomes at the Intersection of Menopause, Parenting, and Social Support in Midlife

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Objective: This mixed-methods study examined how women's health outcomes during the menopausal transition are shaped by parenting dynamics and psychosocial support. We investigated associations between parenting experiences with adolescent and young adult (AYA) children and menopausal symptom severity, and the buffering effects of relationship satisfaction and social support. **Design:** A convergent mixed-methods design was used. The quantitative strand included 117 midlife mothers (ages 45–60) of AYA children who completed an online survey including validated measures of menopausal symptoms, relationship satisfaction, and perceived social support; Kendall's τ_b correlations were examined. The qualitative strand used interpretive phenomenological analysis (IPA) with 14 mothers in perimenopause or menopause; semi-structured interviews explored meaning-making at the intersection of menopausal and parenting transitions. **Results:** Supporting children's independence was protective, with significant negative correlations across depressive symptoms ($\tau_b = -0.190, p = .024$), somatic complaints ($\tau_b = -0.170, p = .043$), and menopausal symptom severity ($\tau_b = -0.232, p = .026$). Negative parenting appraisals showed the strongest adverse associations with depression ($\tau_b = 0.282, p = .001$) and anxiety ($\tau_b = 0.269, p = .001$). Family support demonstrated the strongest buffering effects on total symptom burden ($r = -0.303, p < .001$). IPA revealed four themes: Learning to Let Go; The Default Parent; Reconstructing Maternal Identity; and Work as Refuge and Challenge. Across themes, women described *compounded invisibility*, indicating that menopausal symptoms were unacknowledged at work, while maternal labor went unrecognized at home. **Conclusion:** Women's health outcomes during menopause are meaningfully shaped by parenting dynamics and psychosocial support, factors rarely assessed in clinical settings. Supporting children's autonomy functions as a protective factor, while negative parenting experiences and maternal burden increase symptom severity across domains. Relationship satisfaction and family support provide robust buffering effects. Healthcare providers should adopt holistic approaches that assess parenting roles and social support alongside symptom burden. The concept of compounded invisibility, whereby menopausal symptoms go unrecognized at work while maternal labor is unacknowledged at home, identifies a structural intervention target to support midlife mothers' health and well-being.

Sources of Funding: None

Table 1 Correlations Between Parenting Variables and WHQ Subscale Scores (N = 117)

Parenting Variable	Depressed	Somatic	Memory	Vasomotor	Anxiety	Menopause
Communication	-0.19*	—	—	—	-0.21*	—
Independence	-0.19*	-0.17*	-0.17*	—	—	-0.23*
Education/Career Concerns	-0.17*	—	—	—	—	—
Health & Wellbeing Concerns	-0.18*	—	—	—	—	—
Life Satisfaction	—	-0.18*	—	—	—	—
Negative Aspects	0.28**	0.20*	—	—	0.27**	—
Chores	—	—	—	0.19*	—	—
Childcare Responsibilities	—	—	—	0.22*	—	—
Financial Stress	—	—	-0.21*	0.17*	—	—
Time-Related Stress	—	—	—	0.25*	—	—

Note. Values are Kendall's τ_b correlation coefficients. WHQ = Women's Health Questionnaire. Only statistically significant correlations are reported; — indicates $p > .05$. * $p < .05$. ** $p < .01$.

Table 2 Correlations Between Relationship Satisfaction, Social Support, and WHQ Subscale Scores (N = 117)

	Depressed	Somatic	Anxiety	Sex	Attention	Symptoms
CSI	-0.20*	-0.17*	-0.20*	—	-0.29**	-0.23*
MSPSS — Significant Other	—	—	-0.21**	-0.17*	-0.29**	-0.24*
MSPSS — Family	-0.25**	—	-0.27**	—	-0.30**	-0.28**
MSPSS — Friends	-0.20*	—	-0.23**	-0.18*	-0.20*	-0.24*
MSPSS — Total	-0.23**	—	-0.26**	-0.17*	-0.29**	-0.27**

Note. Values are Kendall's τ_b correlation coefficients. CSI = Couples Satisfaction Index. MSPSS = Multidimensional Scale of Perceived Social Support. WHQ = Women's Health Questionnaire. Symptoms = total WHQ symptom burden. Only statistically significant correlations are reported; — indicates $p > .05$. * $p < .05$. ** $p < .01$.

P-94.

A programmable vaginal ring platform for phase-informed delivery of ovarian hormones as an alternative to conventional hormone replacement therapy

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Objective: Menopause is characterized by the loss of ovarian hormone production, resulting in vasomotor symptoms, urogenital changes, and increased long-term health risks. Conventional hormone replacement therapies, delivered orally, transdermally, or via vaginal devices, typically provide continuous, static hormone exposure that does not reflect endogenous ovarian hormone dynamics. As such, this study describes the development of a modular vaginal ring that is engineered for coordinated, time-controlled release of multiple ovarian hormones over a monthly period. **Design:** This study details the fabrication of modular reservoirs using biodegradable polymer systems with tunable composition and architecture to control the release of estradiol, progesterone, or testosterone. Reservoirs were assessed under simulated vaginal conditions in vitro to characterize hormone release kinetics and cumulative hormone release profiles over 30 days. Then, the release characteristics of compounded hormone formulations were assessed by integrating reservoirs into silicone rings and confirming discrete release

kinetics and profiles for each hormone. Additional in vitro experiments were designed to assess device stability, swelling behavior, and mechanical integrity throughout a 30 day study period. **Results:** Early formulation and modeling experiments demonstrated that polymer composition and device architecture can be utilized to direct hormone-specific diffusion rates and release kinetics. Prototype rings demonstrated the successful incorporation of multiple hormone reservoirs with distinct compositions into a single device while maintaining staggered, phase-informed release of hormones throughout a 30 day period without burst effects. Throughout the test period, device stability and mechanical performance remained consistent, with no evidence of premature degradation or changes in structural integrity. **Conclusion:** These findings support the feasibility of a next-generation vaginal ring platform designed to deliver ovarian hormones in structured, cyclic-mimetic patterns rather than continuous exposure. By enabling programmable hormone release within a monthly replacement device, this approach aims to improve physiologic relevance and tolerability of hormone replacement therapy for menopause. The next stages in development will focus on refining release kinetics and dosing schedules, as well as optimizing device robustness, to enable future clinical evaluation. **Sources of Funding:** This study is funded by ARPA-H (ARPA-H-ICHUB-24-101-1089) and Gameto Inc.

P-95.

Factors Associated with Turnover Intention among Peri- and Postmenopausal Working Women: A Cross-Sectional Study Focusing on Psychological Symptoms

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Objective: Turnover related to menopause has emerged as a critical global socioeconomic challenge, impacting female career longevity and organisational productivity. While environmental adaptations and workplace accommodations are frequently discussed, there is little empirical evidence that comprehensively evaluates the continuous degree of turnover intention across specific menopausal stages while adjusting for socioeconomic strata and caregiving burdens. This study aimed to identify the independent predictors of turnover intention among working women in the perimenopausal and postmenopausal stages to inform targeted occupational health interventions. **Design:** This study was approved by the Institutional Review Board of the authors' institution. An internet-based cross-sectional survey was conducted targeting working women aged 45–60 years in Japan. Premenopausal women with regular menstrual cycles, individuals with a history of hysterectomy, and those currently receiving hormone therapy were excluded from the analysis. A total of 1,631 perimenopausal (n=490) and postmenopausal (n=1,141) women were included. The dependent variable was defined as the mean score of a 3-item Turnover Intention Scale (continuous variable). Following univariate analyses to compare background factors and individual symptoms between groups, a multiple linear regression analysis (enter method) was executed with 13 independent variables to control for potential confounding: age, marital status, annual income, exercising habits, psychiatric history, caregiving roles, the three distinct subscales of the Menopause Rating Scale (MRS: psychological, somatic, and urogenital subscales), and treatment necessity awareness. **Results:** The multiple linear regression model demonstrated robust statistical significance ($F = 19.520, p < 0.001$, Adjusted $R^2 = 0.119$) with no multicollinearity issues (all Variance Inflation Factors [VIF] < 2.2 ; Durbin-Watson = 2.062). Among all variables, the MRS psychological subscale exhibited the most powerful, independent positive association with turnover intention ($\beta = 0.315, B = 0.126, p < 0.001$). Conversely, MRS somatic symptoms ($\beta = 0.022, p = 0.536$), urogenital symptoms ($\beta = -0.035, p = 0.240$), and having caregiving roles ($\beta = 0.020, B = 0.006, p = 0.793$) completely lost their statistical significance after multivariate adjustment, despite being significant in univariate analyses. Regarding socioeconomic factors, being married ($\beta = -0.081, B = -0.212, p = 0.002$) and having a low annual income ($\beta = -0.065, B = -0.170, p = 0.015$) were significantly associated with lower turnover intention. Subjective treatment necessity variables were absorbed by the objective MRS psychological score. **Conclusion:** The primary driver of increased turnover intention among peri- and postmenopausal employees is the severity of menopause-specific psychological symptoms, rather than physical symptoms or external environmental factors such as caregiving responsibilities. Furthermore, the socioeconomic paradox, whereby lower-income women exhibit lower turnover intention, suggests that financial constraints may prevent them from resigning, regardless of their symptom severity. To effectively mitigate menopause-related turnover, workplace initiatives must pivot from superficial environmental adjustments towards ensuring accessible medical care and psychological support.

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P-96.

Reliability and Validity of the Japanese Version of the Menopause Rating Scale: A Cross-Sectional Web-Based Survey

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Objective: To date, no patient-reported outcome measures (PROMs) for menopausal symptoms whose validity has been fully established have existed in Japan. The development of a validated PROM is urgently required to advance both clinical research and medical practice for menopausal women in Japan. This study aimed to evaluate the psychometric properties, specifically the reliability and validity, of the Japanese version of the Menopause Rating Scale (MRS). **Design:** The English version of the MRS was translated into Japanese following established methodology. A cross-sectional, web-based survey was conducted among 1,600 Japanese women aged 45 to 60 years. Participants completed the Japanese MRS, the 36-Item Short Form Health Survey (SF-36), the Hospital Anxiety and Depression Scale (HADS), and the modified Kupperman Index (mKI). Psychometric evaluation included internal consistency (Cronbach's alpha), test-retest reliability (intraclass correlation coefficient [ICC]), exploratory factor analysis (EFA), confirmatory factor analysis (CFA), criterion-related validity, and receiver operating characteristic (ROC) analysis. **Results:** The scale demonstrated high internal consistency (Cronbach's alpha = 0.884) and excellent test-retest reliability (ICC = 0.834). EFA identified three factors consistent with the original scale, accounting for 66.8% of the total variance. CFA supported this three-factor structure with an acceptable model fit (comparative fit index [CFI] = 0.930; root mean square error of approximation [RMSEA] = 0.081). Regarding criterion-related validity, the MRS-Psychological subscale showed a strong negative correlation with the SF-36 Mental Component Summary ($r = -0.604$) and a weak negative correlation with the Physical Component Summary ($r = -0.256$), supporting convergent and discriminant validity. Similar trends were observed between the MRS-Psychological subscale and HADS scores. Furthermore, a strong correlation was observed between the MRS total score and the mKI score. ROC analysis indicated high diagnostic accuracy for detecting severe menopausal symptoms (area under the ROC curve [AUC] = 0.894). **Conclusion:** The Japanese version of the MRS is a reliable and valid instrument for evaluating menopausal symptoms and health-related quality of life among menopausal women in Japan.

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P-97.

The Forgotten Partner: Cross-National Survey Findings on Male Partners' Experiences, Knowledge, and Support Needs During Menopause

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Objective: To examine male partners' experiences, knowledge, and support needs during menopause. Although menopause research has traditionally focused on women, little is known about how male partners experience and respond to the menopause transition. This study explored the impacts of relationships, menopausal knowledge, support-seeking behaviors, and educational needs among male partners in Canada and the United Kingdom. **Design:** Cross-sectional mixed-methods online surveys were conducted among male partners of women experiencing or having experienced menopause in Canada (September 2025; n=51) and the United Kingdom (November 2022; n=44). Participants were recruited through patient community networks and social media and included men connected to women receiving care within publicly funded healthcare systems. Surveys assessed knowledge of menopause, relationship impact, communication, support-seeking behaviors, and educational needs. Quantitative data were analyzed descriptively, and open-text responses were analyzed thematically. **Results:** A total of 95 men participated. Menopause often affects intimacy, communication, emotional connection, and relationship functioning. In Canada, 67% reported changes in intimacy or connection, and 29% reported weakened relationships. In the UK, 50% reported that menopause affected their sexual relationship. Many participants wished to support their partners but felt underprepared. Among Canadian respondents answering the knowledge question, 68% (28/41) reported knowing little or nothing about menopause before their partner's transition, whereas only 43% (19/44) of UK respondents reported understanding menopause well enough to support their partner effectively. Substantial unmet support needs were identified. In the United Kingdom, 50% (22/44) reported that men are not supported during their partner's menopause transition. In Canada, 88% (45/51) had never sought support; however, 90% (46/51) indicated that a support program would help or might help. Thematic analysis identified four dominant themes: loss of intimacy and physical connection, desire to support partners while feeling underprepared, emotional distress and relationship strain, and lack of male-focused education and support resources. **Conclusion:** Male partners are an underrecognized facet of menopause care. Across both countries, men report meaningful changes in relationships, limited preparedness, and significant unmet support and educational needs. Menopause is frequently a shared couple experience, underscoring the need for partner-inclusive education and support to improve outcomes.

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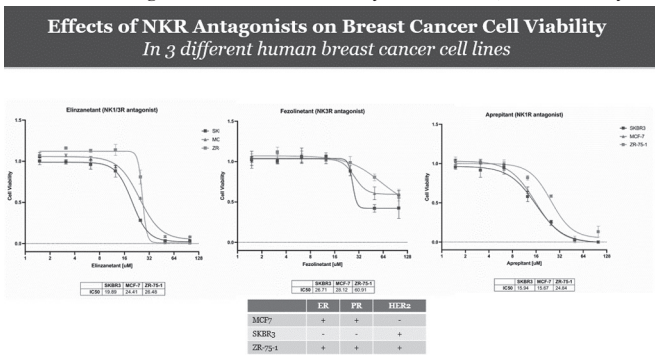
P-98.

Exploring the promise of NKR antagonists - beyond the flashes, the sweats & sleep

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Objective: To examine the role of neurokinin receptor signaling in modulating breast cancer risk. **Design:** a) In silico analyses of neurokinin (tachykinin) receptor signaling in relation to breast cancer risk, b) Immunohistochemical examination of NKR's 1 and 3 expression in human breast tissue samples (normal, cancer adjacent, invasive ductal, hyperplasia and frankly malignant) and c) in vitro examination of effects of modulation of NKR 1 and 3 signaling on human breast cancer cell viability and on downstream molecular pathways in human breast cancer cells of varying ER, PR and HER2 expressivity. **Results:** On in-silico analyses, downregulation of NKR signaling (as occurs with use of NKR antagonists) suppresses molecular pathways that promote invasiveness and metastatic spread; these data suggest that NKR antagonists may hold a potential of modifying breast cancer cell behavior towards reducing invasiveness and spread. On immunohistochemical analyses, a linear increase in the tissue expression of NKR's (1 and 3) was observed from normal to hyperplastic to cancerous breast tissue; these findings suggest a relevance of NKR signaling in cancer progression. In vitro treatment of various human breast cancer cells with NKR antagonists resulted in reduced cancer cell viability, and downregulated AKT/ERK, oncogenic pathways that are relevant to cancer progression and resistance to therapeutics. **Conclusion:** Our findings suggest a therapeutic potential for NKR antagonists in harnessing breast cancer progression and potentially in preventing cancer recurrence, i.e. benefits may extend well beyond the thusfar recognized effectiveness of this class of drugs against issues of VMS and sleep.

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P-99.

Exploring The Psychosocial Impact of Testosterone Use Among Women With Hypoactive Sexual Desire Disorder: A Retrospective, Qualitative Study

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Objective: To identify self-reported psychosocial benefits and inconveniences of testosterone use in postmenopausal women with HSDD. To evaluate adverse events suspected to occur secondary to testosterone use. **Design:** 144 charts were randomly selected and 137 charts were reviewed which met our inclusion/exclusion criteria: postmenopausal women aged ≥ 45 , diagnosed with hypoactive sexual desire disorder (HSDD), seen at the Mayo Clinic Arizona Women's Health Internal Medicine department in the past two years and had prior or active use of testosterone treatment. **Results:** The most commonly reported benefits were improvement in libido and energy. One participant reported additional improvements in joint pain, cognitive clarity, hair thickness, and skin quality. The most commonly reported inconveniences were lack of insurance coverage of testosterone and out-of-pocket costs associated with frequent monitoring of serum testosterone levels. Additionally, some commercial pharmacies were unable to supply specific formulations of testosterone, requiring compounding at specialty pharmacies and resulting in delays in care. Some participants expressed concern for possible transference of topical testosterone to their pets or loved ones. Many participants reported difficulty with consistent application, including accurate dosing and adherence to daily use. Strategies to improve consistency included switching from estimating pea size amounts from testosterone tubes to using 5 mL pre-filled testosterone gel syringes, but this option increased cost. Many participants experienced occasional supratherapeutic testosterone levels, which were typically corrected through dose adjustments (e.g., reduced dosing frequency), pharmacist consultation, and avoidance of application immediately before lab draws. A minority opted to continue testosterone pellets despite supratherapeutic levels due to lower cost. Adverse events suspected to be secondary to testosterone use included: hair loss, facial acne, irritability, and increased appetite with subsequent weight gain. Two participants initiated spironolactone to manage facial acne. A subset of participants reported no improvement in libido with up to six months of consistent use. **Conclusion:** Despite demonstrated benefits of testosterone use in postmenopausal women with HSDD, the lack of an FDA approved

dosing formulation for women continues to limit timely and affordable access to testosterone therapy. Pre-filled syringes were the most commonly reported strategy to improve dosing consistency and may help reduce adverse events correlated with supratherapeutic levels. Repackaging testosterone into pre-filled 5 mL syringes is a method that was pioneered by the Mayo Clinic Arizona Women’s Health Internal Medicine Department to allow precise dosing. Further validation is required for application standardization.
Sources of Funding: None

P-100.
Rapid and sustained reductions in VMS frequency and severity with elinzanetant in late perimenopausal women: pooled subgroup analysis from the OASIS-1–3 trials

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Objective: Up to 76% of perimenopausal women experience vasomotor symptoms (VMS; hot flashes and night sweats), but few non-hormonal therapies have been tested specifically in this population. Elinzanetant, a dual neurokinin (NK) targeted therapy (NK1 and NK3 receptor antagonist) approved for the treatment of moderate-to-severe VMS associated with menopause and (in Europe) endocrine therapy, significantly reduced VMS frequency and severity across the pivotal OASIS-1–3 trials. This analysis evaluated efficacy and safety in a small subgroup of late perimenopausal women. **Design:** This post hoc subgroup analysis of pooled data from OASIS-1–3 included women aged 40–65 with ≥50 moderate-to-severe VMS/week. Following FDA guidance, women with >6 and <12 months of spontaneous amenorrhea, serum FSH >40 mIU/mL, and estradiol <30 pg/mL were considered postmenopausal for the primary analysis. For the post hoc subgroup analysis, this group was classified as late perimenopausal per STRAW+10 criteria. Participants were randomized to elinzanetant 120mg or placebo for 12 weeks. Women completed a daily hot flash e-diary in the morning and evening, with daily averages calculated over 7 days. Patient-Reported Outcomes Measurement Information System Sleep Disturbance Short Form (PROMIS SD SF) 8b, Menopause-specific Quality of Life (MENQOL) questionnaires, and EQ-5D-5L Visual Analog Scale (VAS) were completed. Baseline VMS values were derived from data from 14 days pre-treatment. Standard safety data were recorded. Changes in moderate-to-severe VMS frequency, VMS severity scores, PROMIS SD SF 8b total T-scores, and EQ-5D-5L VAS from baseline to Weeks 1, 4, and 12, as well as MENQOL total scores from baseline to Weeks 4 and 12, were analyzed descriptively. No statistical testing was performed. **Results:** The pooled subgroup analysis included 32 late perimenopausal women; 13 receiving elinzanetant and 19 placebo. Mean ages were 52.5 years (standard deviation, [SD] 3.9) and 51.9 years (SD 2.9), respectively; most (90.6%, n=29) were Caucasian. Results are presented in Table 1. Baseline data were similar between the treatment groups. At Week 12, VMS frequency decreased by –9.68 (95% confidence interval [CI] –12.40 to –6.96) and –3.44 (CI –5.39 to –1.50), and VMS severity scores by –1.21 (CI –1.70 to –0.71) and –0.51 (CI –0.74 to –0.2), in the elinzanetant and placebo groups, respectively. Reductions from baseline in VMS frequency and severity, and improvements in PROMIS SD SF 8b total T-scores and EQ-5D-5L VAS, were numerically greater with elinzanetant than placebo at Weeks 1, 4, and 12, as were MENQOL scores at Weeks 4 and 12. Treatment-emergent adverse effects (TEAEs) reported in 61.5% of participants receiving elinzanetant and 47.4% receiving placebo were mostly mild or moderate. Dyspepsia, headache, and fatigue were the most frequently reported TEAEs (≥2 in any group). No serious TEAEs or new safety concerns were reported. **Conclusion:** In this small post hoc subgroup analysis of late perimenopausal women from pooled OASIS-1–3 clinical trial data, elinzanetant was associated with greater mean reductions in VMS frequency and severity, as well as improvements in sleep disturbance and menopause-related quality of life, than placebo. Although the small sample size limits our ability to interpret the results more fully, these data in perimenopausal women were consistent with the full trials.

Sources of Funding: Bayer CC AG
Mean change from baseline in average daily moderate-to-severe VMS frequency and severity, PROMIS SD SF 8b total T-score, MENQOL total score, & ED-5D-5L VAS

Endpoint	Weekly VMS frequency		Weekly VMS severity score		PROMIS SD SF 8b total T-score		MENQOL score		EQ-5D-5L VAS	
Mean (95% CI)	Elinzanetant (n=13)	Placebo (n=19)	Elinzanetant (n=13)	Placebo (n=19)	Elinzanetant (n=12)	Placebo (n=18)	Elinzanetant (n=13)	Placebo (n=19)	Elinzanetant (n=12)	Placebo (n=15)
Baseline	10.41 (8.01, 12.80)	10.57 (9.09, 12.05)	2.49 (2.39, 2.58)	2.52 (2.41, 2.63)	60.0 (56.3, 63.7)	61.3 (58.8, 63.8)	4.48 (3.74, 5.21)	4.48 (3.79, 5.16)	77.5 (63.3, 91.6)	73.3 (63.4, 83.2)
Change from baseline to Week 1	–1.44 (–6.15, –2.16)	–2.58 (–2.58, –0.30)	–0.65 (–0.83, –0.47)	–0.23 (–0.33, –0.13)	–7.9 (–14.2, –1.5)	–0.5 (–2.9, 1.9)	-	-	7.4 (–6.7, 21.5)	1.7 (–3.8, 7.2)
Change from baseline to Week 4	–5.75 (–8.85, –2.65)	–2.60 (–4.47, –0.73)	–0.75 (–1.16, –0.35)	–0.34 (–0.46, –0.21)	–10.6 (–16.0, –5.2)	–1.8 (–5.8, 2.2)	–1.68 (–2.32, –1.04)	–0.34 (–0.69, 0.00)	5.8 (–12.6, 24.2)	3.8 (–2.0, 9.7)
Change from baseline to Week 12	–9.68 (–12.40, –6.96)	–3.44 (–5.39, –1.50)	–1.21 (–1.70, –0.71)	–0.51 (–0.74, –0.2)	–12.4 (–16.3, –8.5)	–1.8 (–5.0, 1.4)	–1.84 (–2.37, –1.32)	–0.78 (–1.16, –0.40)	12.2 (–1.6, 26.1)	2.9 (–4.7, 10.4)

P-101.
Does Administration Method Matter? Comparison of Self-Administered and Clinician-Guided Greene Climacteric Scale Scores in Postmenopausal Women

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Objective: To compare Greene Climacteric Scale scores obtained through self-administration and clinician-guided assessment in postmenopausal women during the same clinical encounter **Design:** A comparative, cross-sectional study was conducted among 20 postmenopausal women recruited during a menopause health campaign in April 2026. At the same clinical visit, participants first completed the Greene Climacteric Scale in a digital self-administered format while in the waiting area. Subsequently, during the medical consultation, the same questionnaire was administered by a clinician who was unaware of the participants’ previous responses. Statistical analyses were performed using GraphPad Prism (v. 10.4.1). Continuous variables were compared using a paired t-test or Wilcoxon signed-rank test according to data distribution. Statistical significance was set at p < 0.05. **Results:** The participants had a median age of 53 years (IQR: 49–55), a median BMI of 26.8 kg/m² (IQR: 23.9–31.2), and a median time since menopause of 3.5 years (IQR: 1–6.7). Total scores were significantly higher in the digital format compared to the clinician-guided administration (24.35 ± 9.59 vs. 20.95 ± 10.62; p = 0.009). Subscale analysis revealed significantly higher scores in the self-administered format for the Anxiety (6.55 ± 3.80 vs. 5.2 ± 3.42; p = 0.003), and Depression (6.4 ± 3.13 vs. 5.25 ± 4.01; p = 0.041). No statistically significant differences were observed between administration methods for the Somatic (p = 0.317), Vasomotor (p = 0.315), or Sexual (p > 0.99) domains. (Table 1). **Conclusion:** Self-administered digital completion of the Greene Climacteric Scale resulted in higher reporting of anxiety and depressive symptoms compared with clinician-guided administration. While clinician assistance is often used to improve efficiency and clarify questionnaire items, it may unintentionally minimize the reporting of psychological symptoms. Digital self-administration may reduce social desirability bias and facilitate more open disclosure of emotional symptoms, providing a more accurate assessment of menopausal symptom burden. Consideration should therefore be given to the mode of questionnaire administration in both clinical practice and research settings.

Sources of Funding: None
Comparison of Greene Climacteric Scale total and domain scores obtained through clinician-guided and digital self-administered assessment

	Personnel-guided (n=20)	Digital (n=20)	p-value
Total score	20.95 ± 10.62	24.35 ± 9.59	0.009
Anxiety	5.2 ± 3.42	6.55 ± 3.80	0.003
Depression	5.25 ± 4.01	6.4 ± 3.13	0.041
Somatic	5 (3.25-8)	3.5 (2-5)	0.317
Vasomotor	3 (1-6)	3.5 (2-5)	0.315
Sexual	3 (1-3)	2 (1-3)	>0.99

P-102.
Handgrip Strength as an Independent Predictor of Peripheral Bone Mineral Density in Postmenopausal Women

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Objective: Given the calcaneus is a weight-bearing bone that plays a central role in skeletal loading and locomotion, we aimed to evaluate the association between handgrip strength and peripheral bone mineral density, assessed by calcaneal T-score, in postmenopausal women. Furthermore, we aimed to determine whether muscle strength independently predicts calcaneal T-score **Design:** A cross-sectional study was conducted from October 2025 to April 2026 and included 39 postmenopausal women. Bone Mineral Density (BMD) was assessed using peripheral dual-energy X-ray absorptiometry (pDXA) at the calcaneus to obtain the T-score. Muscle strength (kg) was measured using a handgrip dynamometer. Data were analyzed using GraphPad Prism software (ver.10.4.1). Initially, the bivariate association between handgrip strength and calcaneal T-score was evaluated using Pearson’s correlation. Subsequently, a multiple linear regression model was constructed, adjusted for body mass index (BMI) and duration of menopause (years)—excluding age due to a lack of statistical significance—to determine the independent predictive value of muscle strength on the peripheral T-score. Finally, the population was categorized into two groups based on the clinical cutoff for handgrip strength in women (<18 kg vs. ≥18 kg), and their mean T-scores were compared using an independent-samples t-test. p-values < 0.05 were considered statistically significant **Results:** In the bivariate analysis, a moderate and statistically significant positive correlation was observed between handgrip strength and the peripheral calcaneal densitometry T-score (r = 0.373; 95% CI: 0.065 - 0.616; p = 0.0194). To determine whether this association remained independent of other clinical factors, a multiple linear regression model was fitted and optimized by excluding the age variable, as it was not statistically significant. The refitted multiple linear regression model (T-SCORE ~ Intercept + BMI + duration of menopause (years) + handgrip strength (kg)) showed an improvement in overall significance (F (3, 35) = 3.403, p = 0.0282). Following this adjustment, muscle strength, retained its role as the sole significant and independent predictor of the peripheral calcaneal T-score (beta = 0.0730, 95% CI: 0.0130 to 0.1330; p = 0.0185). Neither BMI (p = 0.0911) nor duration of menopause (p = 0.7035) reached statistical significance,

confirming that peripheral physical strength maintains a close and direct association with calcaneal bone density in this population, independent of metabolic status (BMI) and duration of estrogen deprivation. Finally, the population was categorized according to the clinical handgrip strength cutoff value for women (18 kg), dividing them into two groups: ‘weak strength’ (<18 kg) and ‘normal strength’ (≥18 kg). When comparing bone status using an independent samples t-test, the peripheral calcaneal densitometry T-score was significantly lower in the weak strength group compared to those with normal strength (p = 0.026). These results demonstrate that the 18 kg cutoff point not only discriminates muscle functionality but is also statistically significantly associated with critical variations in peripheral bone mineral density **Conclusion:** Handgrip strength was positively and independently associated with calcaneal bone mineral density in postmenopausal women. Given the mechanical loading characteristics of the calcaneus, these findings reinforce the biological relationship between muscle function and skeletal health, particularly at weight-bearing skeletal sites such as the calcaneus, and suggest that handgrip dynamometry may represent a practical and cost-effective screening tool for identifying women who need further assessment of bone health and osteoporosis risk. **Sources of Funding:** none

P-103.
Total Cost of Care and Utilization Outcomes in Menopausal Women Receiving Comprehensive Virtual Care

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Objective: Women experience a disproportionate burden of chronic, multisystem, and life stage–dependent conditions, with menopause representing a critical period associated with increased symptom burden and healthcare utilization. Care delivery during this stage is often fragmented across specialties, leading to duplicative testing, delayed diagnosis, and increased costs. This study evaluates whether a comprehensive virtual, multidisciplinary care model improves healthcare utilization and reduces total cost of care among women, with a focus on menopausal populations while assessing outcomes across broader gynecologic cohorts. **Design:** We conducted a retrospective, propensity score–matched cohort study using deidentified commercial claims data from May 2023 through May 2025. Women receiving care through a comprehensive virtual women’s health program were matched to controls based on demographic characteristics, baseline utilization and cost, medication use, behavioral health utilization, and high-cost condition burden. Outcomes were assessed using a difference-in-differences framework comparing healthcare utilization and spending during the six months before and after program initiation. Participants were stratified into two subgroups to account for fundamentally different care pathways, risk profiles, and utilization patterns - A surgical and non-surgical complex gynecologic cohort. The non-surgical cohort included conditions managed through longitudinal medical care, including menopause, representing 60% of this subgroup, polycystic ovary syndrome, thyroid disorders, and weight-related conditions. The surgical cohort included conditions commonly managed with procedural intervention, such as endometriosis, fibroids, heavy menstrual bleeding, and dyspareunia. **Results:** Among 600 participants matched to 2,941 controls, program participation was associated with a \$3,429 reduction in total allowed costs per member over six months (P=0.02). The largest reductions were observed in the non-surgical cohort, composed largely of peri- and postmenopausal women, with savings of \$3,635 per member (P<0.001), driven by reductions in outpatient, specialist, and gynecologic utilization. In the surgical complex gynecologic cohort, participation was associated with \$2,197 in savings per member over six months (P=0.02), primarily driven by reductions in facility and professional spending. Across cohorts, participants experienced fewer emergency department visits, inpatient admissions, outpatient encounters, and specialist visits, alongside a small relative increase in appropriate primary care utilization. **Conclusion:** In this retrospective analysis, a comprehensive virtual care model was associated with meaningful reductions in total cost of care and healthcare utilization within six months of initiation. The greatest reductions were observed among non-surgical patients, predominantly peri- and postmenopausal women, consistent with the value of early, coordinated management of menopause-related symptoms and comorbidities. These findings highlight menopause as a high-impact opportunity for improving care delivery through integrated, comprehensive approaches that reduce unnecessary utilization while improving care pathways for women at midlife. **Sources of Funding:** This study was conducted using deidentified commercial claims data analyzed by an independent actuarial organization. Study design and interpretation were conducted collaboratively. The sponsor had no role in claims adjudication.

Difference-in-Differences Estimates of Utilization and Per Member Per 6 Month Costs — Non-Surgical Cohort

Cohort	Cost Category	Baseline		Treatment		Difference			Util P-Value	PMPGM P-Value	Util Metric	Explanation Relative to Control: Appx 4 reduced outpatient claims for every 5 Visana patients relative to the control. This is driven by reduction in OP utilization Other than ER and Lab
		Control Mean	Visana Mean	Control Mean	Visana Mean	Control Diff	Visana Diff	DiD				
Non-Surgical	Facility visits counts	-0.31	-0.34	-1.26	-0.44	-0.95	-0.1	-0.85	<0.0001	0.00	Admits	
Non-Surgical	Op visits counts	-0.31	-0.33	-1.22	-0.44	-0.91	-0.11	-0.8	<0.0001	0.00	Unique Claims	
Non-Surgical	ER visits	-0.05	-0.06	-0.15	-0.07	-0.1	-0.01	-0.09	0.02	0.05	Unique Claims	
Non-Surgical	Lab Counts	-0.04	-0.05	-0.26	-0.08	-0.22	-0.03	-0.19	0.00	0.04	Unique Claims	
Non-Surgical	Other OP Counts	-0.22	-0.23	-0.8	-0.28	-0.58	-0.05	-0.53	0.00	0.00	Unique Claims	
Non-Surgical	Professional visit counts	-14.47	-20.51	-60.27	-30.5	-45.8	-9.99	-35.81	<.0001	<.0001	Sum of Proc.	Significant reduction in professional services utilization driven by specialist utilization relative to the control
Non-Surgical	Specialist visit counts	-12.88	-18.87	-52.98	-25.24	-40.1	-6.37	-33.73	<.0001	<.0001	Sum of Proc.	

P-104.
Beyond Sexual Function: Multi-Domain Symptomatic and Biomarker Outcomes of Individualized, Bloodwork-Guided Testosterone Therapy in Women

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Objective: Testosterone is the most abundant biologically active sex steroid in women, yet randomized trial evidence has focused predominantly on sexual function. The 2019 Global Consensus Position Statement and ISSWSH guidelines endorse testosterone therapy in postmenopausal women only for hypoactive sexual desire disorder (HSDD). Real-world data on the broader symptomatic and cardiometabolic effects of individualized, biomarker-guided testosterone replacement therapy (TRT) across multiple treatment durations remain limited. We characterized multi-domain symptomatic outcomes, 12-week biomarker changes, and duration-dependent response patterns in women receiving individualized TRT through a telehealth-based clinical platform. **Design:** Retrospective observational analysis of 332 women (age 27 to 78; mean 45.7 ± 7.1 years) receiving TRT as routine clinical care. Dose titration targeted serum total testosterone of 25 to 50 ng/dL (upper physiologic premenopausal range) via topical (1 to 10 mg/day), oral (0.5 to 2 mg per dose), or subcutaneous (2 to 10 mg per injection) routes. Participants completed a structured survey rating change across 8 symptom domains: energy/fatigue, memory, concentration, irritability, depression, anhedonia, sexual interest, and relationship satisfaction, plus overall quality of life. Respondents were stratified by TRT duration: 1 month (n=37), 1 to 3 months (n=112), 4 to 6 months (n=80), 7 to 12 months (n=70), and >12 months (n=33). A subset of 120 participants underwent paired biomarker assessment at baseline and 12 weeks for total testosterone, free testosterone, SHBG, hemoglobin, and triglycerides at CLIA-certified reference laboratories. Paired changes were analyzed by two-tailed t-tests with Cohen’s d effect sizes. **Results:** Improvement was reported across all 8 symptom domains. Energy/fatigue showed the strongest response (84.3%; mean 4.17 ± 0.73), followed by depression (70.8%), irritability (69.0%), anhedonia (67.5%), and sexual interest (66.9%). Cognitive domains, memory (54.5%) and concentration (57.8%), started at the lowest scores at 1 month but produced meaningful gains beginning at 4 to 6 months and continuing through 7 to 12 months, suggesting a delayed, neurosteroid-mediated mechanism. Quality of life improved in 89.7% overall, with significant improvement rising from 5.4% at 1 month to 51.5% at >12 months and no participants in the longest-duration group reporting no change or worsening. Patient-identified primary benefits were energy/fatigue (64.2%) and mood (49.7%), both ranked above sexual desire (41.3%). All 5 biomarkers changed favorably with large effect sizes: total testosterone 16.8 ± 4.4 to 42.3 ± 8.7 ng/dL (+151.8%; d=3.60), free testosterone 1.2 ± 0.3 to 3.8 ± 0.9 pg/ mL (+216.7%; d=3.01), hemoglobin 12.7 ± 0.6 to 13.4 ± 0.7 g/dL (+5.5%; d=2.03), SHBG 74.4 ± 15.5 to 64.5 ± 15.9 nmol/L (-13.3%; d=1.57), and triglycerides 159.6 ± 30.5 to 139.5 ± 34.5 mg/dL (-12.6%; d=1.28). All post-treatment values remained within physiologic reference ranges. Responder analysis showed 100% biochemical response on testosterone, with 86.7%, 77.5%, and 74.2% achieving meaningful improvement in hemoglobin, SHBG, and triglycerides, respectively. Symptom worsening was reported in 5.1% or fewer participants across all domains. **Conclusion:** In one of the largest reported real-world cohorts of women receiving bloodwork-guided TRT, individualized therapy was associated with broad symptomatic improvement extending well beyond sexual function, a clinically actionable duration-dependent cognitive trajectory, and favorable cardiometabolic and hematologic biomarker changes at physiologic doses. Patient-prioritized benefit centered on energy and mood rather than sexual desire, suggesting current clinical and regulatory frameworks underrepresent the therapeutic breadth of testosterone in women. These findings support reconsidering TRT indications beyond HSDD and provide a foundation for biomarker-guided personalization in routine practice. Larger prospective controlled trials with validated instruments and extended follow-up are warranted.

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P-105.

A Real-World Observational Study Evaluating Treatment Satisfaction Among Women in the United States (US) With Moderate to Severe Vasomotor Symptoms (VMS) Due to Menopause

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Objective: To assess treatment satisfaction among women in the US receiving treatment for moderate to severe VMS due to menopause including hormone therapy (HT), fezolinetant, non-hormone therapy (non-HT) other than fezolinetant, or over-the-counter Thermella. **Design:** A non-interventional, cross-sectional survey was conducted among US women aged 40–65 who were currently receiving treatment for VMS due to menopause. All participants had initiated their current therapy within the previous year and had self-reported moderate to severe VMS before treatment initiation. Primary endpoints included perceived symptom and quality of life improvement from treatment start to survey administration, and participant-reported treatment satisfaction. No statistical comparisons were conducted. **Results:** Results were reported for 525 participants in total and by current treatment cohort: HT (n=224), non-HT (n=150), fezolinetant (n=121), and Thermella (n=30). Mean (standard deviation [SD]) age was 49.7 (6.0) years overall and similar across cohorts. Most participants were White (overall 74.5%, n=391; HT 85.3%, n=191; Thermella 76.7%, n=23; non-HT 72.0%, n=108; fezolinetant 57.0%, n=69). Median (IQR) VMS duration was 2.0 (1.0, 3.8) years. Mean (SD) time on current treatment was 6.7 (2.6) months for fezolinetant, 6.6 (3.4) HT, 6.6 (3.1) non-HT, and 5.4 (2.7) Thermella. A greater percentage of fezolinetant users (31.4%, n=38) than other groups had discontinued other, prior VMS treatments within the past 12 months (non-HT 14.7%, n=22; Thermella 13.3%, n=4; HT 7.1%, n=16). HT and fezolinetant were associated with the greatest improvements in daytime VMS: for HT 69.6% (n=156), fezolinetant 66.9% (n=81), non-HT 56.0% (n=84) and Thermella 30.0% (n=9) reported substantial improvement (defined as “quite a bit” or “very much” improved) since treatment initiation. Fezolinetant showed the greatest improvement in night sweats: for fezolinetant 75.2% (n=91), HT 63.4% (n=142), non-HT 58.7% (n=88) and Thermella 36.7% (n=11) reported substantial improvement. Beyond VMS, over half of fezolinetant users (58.7%, n=71) reported substantial improvement in sleep (non-HT 48.0%, n=72; HT 46.9%, n=105; Thermella 26.7%, n=8) and daily activity disruption (fezolinetant 54.5%, n=66; non-HT 47.3%, n=71; HT 33.9%, n=76; Thermella 26.7%, n=8). Most fezolinetant users (62.0%, n=75) reported substantial improvement in overall quality of life (HT 50.9%, n=114; non-HT 47.3%, n=71; Thermella 36.7%, n=11). Mean Menopause Symptoms Treatment Satisfaction Questionnaire (MS-TSQ, range 0–100 [SD]) scores were high among fezolinetant (74.3 [11.0]) and HT (73.4 [15.2]; non-HT 69.5 [15.9]; Thermella 66.0 [17.5]). Consistently, the majority of fezolinetant (83.5%, n=101) and HT (81.7%, n=183) users were satisfied or extremely satisfied with their treatment (non-HT 68.7%, n=103; Thermella 63.3%, n=19). Current VMS treatment was mostly prescribed by an obstetrician-gynecologist (57.3%, n=301) or a primary care physician (36.6%, n=192). Satisfaction with provider interactions was high (78.9%, n=414); however, many participants reported unmet needs in how providers could better support VMS management, including more information on how VMS may change over time (36.8%, n=193), impact of VMS on quality of life (32.4%, n=170), what to expect during menopause (31.8%, n=167), and offer more treatment options (31.0%, n=163). **Conclusion:** In this study of women in the US receiving treatment for moderate to severe VMS, the greatest overall improvements in VMS and quality of life were seen with fezolinetant, followed by HT, other non-HT, and Thermella, respectively. Findings show that a third of women had discontinued another treatment prior to receiving fezolinetant, suggesting unmet need for treatment of VMS. These results suggest that fezolinetant may fill an important gap in the evolving landscape for women with moderate to severe VMS due to menopause.

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P-106.

A Systematic Review of Menopause Categorization in Resistance Training Interventions of Middle-Aged and Older Women

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Objective: Menopause represents a significant life period, comprising approximately one third of the female lifespan. The stages of menopause, from perimenopause to late postmenopause, have unique hormonal changes, symptoms, and characteristics that may influence a person's responses to exercise training. Declines in estrogen have been linked to losses in muscle mass and strength, as well as decreases in bone density, both of which can be improved by resistance training. Despite increasing awareness of the benefits of resistance training for menopausal individuals, it remains to be seen whether studies of resistance training account for menopausal status in study design or execution. We therefore conducted a systematic review to identify the methods used to classify and report menopausal status in studies of resistance training for middle-aged and older women. **Design:** We searched five databases, including CINAHL, Embase, PubMed, Scopus, and Web of Science, for studies published prior to February 2026. Our eligibility criteria were studies that: 1) were peer-reviewed, randomized controlled trials that included a resistance training exercise intervention; 2) included adult, female human participants over the age of 40; 3) reported the menopausal status of participants; and 4) were available in English. We excluded studies that: 1) included male participants, younger adult women, or children; 2) used exercise interventions that combined resistance training with other modalities; 3) did not employ a resistance training intervention in an

experimental fashion, i.e. case reports, reviews, or observational studies. Two reviewers independently screened studies for eligibility, performed data extraction, and assessed studies for risk of bias using the Cochrane Risk of Bias tool (RoB1) for randomized controlled trials. Disagreements were resolved by consensus or by discussion with a third party. **Results:** Our search identified 20,646 papers for title and abstract screening after duplicates were removed. We evaluated these studies based on our criteria, reviewed 692 texts in full, and included 94 of these for data extraction. The included studies were published between 1991 and 2025, with participants ranging in age from 40 to 91 years old in sample sizes of 16 to 258 participants. About 30% of studies were conducted in Brazil (30/94), followed by 15% from the United States (14/94) and 12% from Canada (11/94). Overall, studies had a low- to moderate risk of bias, most often arising from unclear reporting methods regarding allocation protocols and blinding of personnel. Per our inclusion criteria, all studies reported the menopausal status of participants, with 84% of studies including only postmenopausal women (79/94). The methods used to determine menopausal status varied, with the most common being amenorrhea of 12 months or more in 27% of studies (25/94) followed by measures of follicle-stimulating hormone (FSH) and estradiol in 15% of studies (14/94). Over a third of studies did not report the method used to determine menopausal status (34/94). Finally, 18% of studies (17/94) reported hormone replacement therapy as an exclusion criterion. **Conclusion:** Our findings suggest that resistance training intervention studies generally do not assess the menopausal status of participants. We found over 600 studies of resistance training interventions in midlife women, yet only 94 of the identified randomized controlled trials reported the menopausal status of participants. The randomized controlled trial is considered the most rigorous study methodology for human subjects research, yet even within those 94 studies the methods of determining menopausal status were not standardized. Additionally, the use of hormone therapy as an exclusion criterion may create bias in study results by excluding individuals with a less symptomatic experience of menopause. Future experimental studies should use established methods for classifying menopause status, such as the Stages for Reproductive Aging Workshop (STRAW) criteria, and account for menopause status as a covariate in analysis to better understand the impact that the stages of menopause may have on resistance training outcomes.

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P-107.

It's Not Just Age: Early Postmenopause Independently Predicts Lower Cognitive Performance on Digital Neuropsychological Measures

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Objective: The menopausal transition is associated with cognitive changes; however, it remains unclear whether menopausal stage has an effect on cognition independent of age-related effects. As the hormonal environment differs across pre-, peri-, and postmenopausal stages, these distinct environments may be associated with differences in cognitive performance, with potential implications for identifying optimal windows for cognitive monitoring in midlife women. We hypothesized that cognitive performance would be lower in the early postmenopausal stage compared to pre- and perimenopausal stages, independent of age and education. **Design:** Women aged 45–52 (N = 57; pre/perimenopausal = 39, postmenopausal = 18) completed the Linus Core Cognitive Evaluation, a digital cognitive assessment including 3-word recall (Immediate and Delayed) and clock drawing test (CDT) indices: drawing efficiency, simple and complex motor function, information processing, and spatial reasoning) and total Linus score (0–5). Menopausal symptoms were assessed with the Menopause Rating Scale (MRS). Groups did not differ significantly in age (M: pre/perimenopausal = 48.62 ± 2.31, postmenopausal = 49.61 ± 2.25; t = -1.52, p = .133), education (M: pre/perimenopausal = 17.67 ± 2.35, postmenopausal = 16.56 ± 2.12; t = 1.71, p = .094), or menopausal symptom burden (MRS Total M ± SD: pre/perimenopausal = 9.67 ± 5.94, postmenopausal = 12.22 ± 7.42; t = -1.39, p = .169), isolating menopausal stage as a key differentiating variable. One-way ANCOVAs with age and education as covariates examined group differences in cognitive scores. Partial eta squared (η^2) is reported as a measure of effect size. **Results:** Postmenopausal women performed significantly worse than pre/perimenopausal women across all cognitive scores. For drawing efficiency, adjusted mean performance was higher in pre/perimenopausal women (adjusted M = 0.82) compared to postmenopausal women (adjusted M = -0.36), F(1,53) = 13.23, p = .001, η^2 = .200. Similarly, for information processing, pre/perimenopausal women demonstrated higher adjusted scores (adjusted M = 0.16) than postmenopausal women (adjusted M = -0.67), F(1, 53) = 8.39, p = .006, η^2 = .137. For global cognitive scores, adjusted total Linus scores were higher in pre/perimenopausal women (adjusted M = 4.32) relative to postmenopausal women (adjusted M = 3.20), F(1, 53) = 6.60, p = .013, η^2 = .111. In memory domains, delayed recall was higher in pre/perimenopausal women (adjusted M = 2.68) compared to postmenopausal women (adjusted M = 2.03), F(1, 53) = 5.06, p = .029, η^2 = .087, and immediate recall was also higher in pre/perimenopausal women (adjusted M = 3.00) than in postmenopausal women (adjusted M = 2.83), F(1, 53) = 6.55, p = .013, η^2 = .110. Effect sizes were moderate to large across all outcomes. **Conclusion:** These findings suggest that menopausal stage has an effect on cognition, independent of age. In this modest sample, early postmenopausal women showed lower performance across multiple cognitive scores, highlighting the early postmenopausal period as a window for cognitive change.

Sources of Funding: None

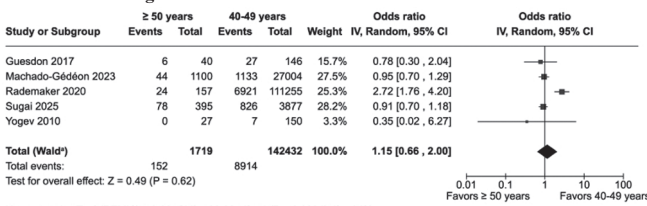
P-108.

Obstetrical Outcomes in Women Aged ≥50 Years Versus 40–49 Years: A Systematic Review and Meta-analysis

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Objective: To compare obstetrical outcomes related to hemorrhage, specifically postpartum hemorrhage (PPH) and hysterectomy, in women aged ≥50 years versus those aged 40–49 years. **Design:** A systematic review and meta-analysis were conducted. Searches were performed in the Cochrane Library, Embase/Scopus, and PubMed from inception to May 2026. Observational studies comparing obstetrical outcomes in pregnant women aged ≥50 years with those aged 40–49 years were included. The primary outcomes were PPH and hysterectomy. Analyses were performed using RevMan with a random-effects model. **Results:** A total of 6 studies were included. The total number of participants was 2,604 in the ≥50 years group and 163,255 in the 40–49 years group. There was no statistically significant difference in PPH between groups (OR 1.15, 95% CI 0.66–2.00; p = 0.62; I² = 84%; Figure 1), or in hysterectomy group (OR 1.86, 95% CI 0.93–3.72; p = 0.08; I² = 53%; Figure 2). **Conclusion:** Pregnancy in women aged ≥50 years was not associated with a statistically significant increase in PPH or hysterectomy compared with women aged 40–49 years. However, substantial heterogeneity was observed between studies, and despite the large sample size, the number of included studies was small.

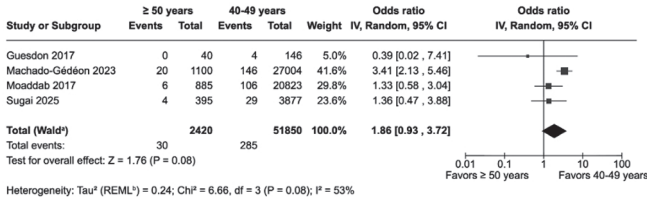
Sources of Funding: None



Footnotes

*CI calculated by Wald-type method.

*Tau² calculated by Restricted Maximum-Likelihood method.



Footnotes

*CI calculated by Wald-type method.

*Tau² calculated by Restricted Maximum-Likelihood method.

P-109.

From Black Box Warning to Wake-Up Call: Menopausal Hormone Therapy Prescribing Patterns at a Large Academic Medical Center

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Objective: To characterize menopausal hormone therapy (MHT) prescribing patterns over 18 years within a large academic medical center and evaluate demographic and clinical factors associated with MHT use. **Design:** We conducted a retrospective observational study using electronic health record data from January 1, 2007, through December 31, 2024. The cohort included biologically female patients aged ≥45 years with at least one outpatient encounter (N = 305,053). The primary outcome was the proportion of women with any documented MHT prescription. Prescriptions were categorized as local, systemic, or combination therapy. Associations between MHT use and race, birth year, comorbidity burden (Charlson Comorbidity Index), and urinary tract infection (UTI) history were evaluated using chi-square tests and multivariable logistic regression. **Results:** Overall, 6.99% (21,327/305,053) of women had at least one documented MHT prescription. Among users, 54.61% received local therapy, 37.66% systemic therapy, and 7.37% combination therapy. Significant racial disparities were observed: African American (adjusted odds ratio [AOR] 0.467; 95% CI 0.443–0.492), Hispanic (AOR 0.563; 95% CI 0.537–0.591), and Asian women (AOR 0.701; 95% CI 0.635–0.772) had lower odds of MHT use compared with White women. Each additional comorbidity was associated with reduced likelihood of MHT use (AOR 0.901; 95% CI 0.892–0.910). UTI history was strongly associated with MHT use (AOR 12.315; 95% CI 11.73–12.93). **Conclusion:** MHT prescribing remained persistently low over nearly two decades despite strong evidence and guideline endorsement. Marked racial disparities and lower use among women with greater comorbidity burden highlight a sustained evidence-to-practice gap in menopause care. The strong association between MHT use and UTI history suggests that prescribing may increase when indications are

clearly defined and widely recognized. These findings point to a complex implementation science challenge potentially driven by multilevel factors, including clinician risk perception shaped by historical evidence, fragmented ownership of menopause care, gaps in training, and inequities in access and counseling. MHT underutilization may therefore reflect a systems-level failure of implementation rather than a knowledge deficit alone. With recent reassessment of boxed warnings, a critical opportunity exists to improve uptake. Addressing this gap will likely require coordinated, multidisciplinary strategies across primary care, gynecology, pharmacy, and health systems. Potential approaches include clinical decision support within electronic health records, standardized care pathways, targeted clinician education, patient-centered decision aids, equity-focused interventions, and audit and feedback to monitor prescribing patterns. Without deliberate action, many women may continue to experience avoidable and prolonged symptom burden despite the availability of effective therapies.

Sources of Funding: MHT prescribing remained persistently low over nearly two decades, despite evolving evidence supporting its use in appropriately selected symptomatic women. Significant racial disparities and reduced prescribing among women with greater comorbidity burden highlight a sustained gap between evidence-based recommendations and real-world menopause care. This study reframes MHT underutilization not as a knowledge deficit alone, but as a systems-level failure of implementation, requiring coordinated, scalable interventions to align clinical practice with current evidence.

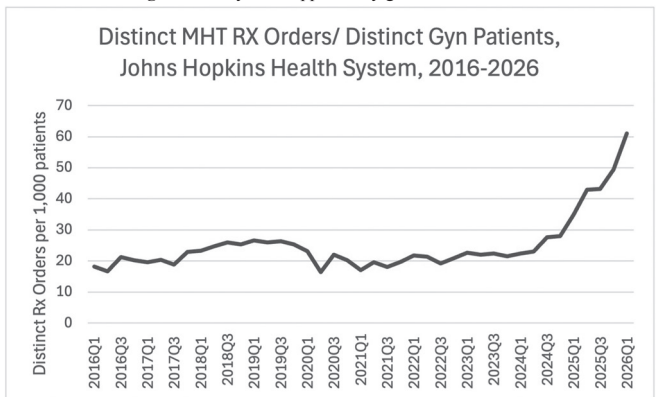
P-110.

Contemporary trends in menopause hormone therapy

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Objective: Menopause hormone therapy (MHT) is an effective treatment for menopausal symptoms, but prescribing declined sharply following the '02 WHI trial and subsequent FDA black box warning, with clinician and patient hesitancy persisting since. Accumulating evidence support a more nuanced, individualized approach to MHT risk, and major medical societies now endorse appropriate use. In 11/25 the FDA lifted the black box warning on all formulations. Despite anecdotal reports of rising MHT use, large-scale quantitative data remain limited. Quantifying population-level MHT trends is essential for anticipating supply chain needs, ensuring access to preferred formulations, and examining whether changes are equitable across racial, socioeconomic, and geographic groups. Using the Johns Hopkins Health System (JHHS) EMR data, we aimed to quantify temporal trends in MHT prescribing and assess changes following the '25 FDA policy change. **Design:** We used data from JHHS EMR from 2016 to Q1/2026. To proxy perimenopausal/menopausal women, we included female patients age 40–69 years who were seen in Gyn-Ob at any JHHS location. First, we looked at absolute distinct MHT orders over time. Second, we created a MHT prescription rate to account for a dynamic number of patients seen over time; this was defined as the number of distinct MHT prescriptions orders/1,000 distinct patients in a given quarter/year. We graphed the overall MHT rate over time, as well as by five-year age groups between 40–69 to observe age-specific trends. **Results:** Our aggregate sample from 2016 to Q1/2026 included 103,488 patients. The absolute number of distinct MHT orders per quarter/year rose over time, from 176 in Q1/2016 to 469 in Q1/2025 and 840 in Q1/2026. The MHT prescription rate also increased over time (Figure 1). The MHT rate hovered between 18 to 28 distinct orders per 1,000 patients from Q1/2016 to Q4/2024. In 2025, the MHT rate increased from 35 to 50 distinct orders per 1,000 patients from Q1 to Q4. In Q1/2026, the MHT rate increased to 61 distinct orders per 1,000 patients. Analyses stratified by age groups revealed increases across all age groups, with the sharpest rises occur among women age 45–59 years. **Conclusion:** MHT prescribing has increased substantially among middle-aged women, likely reflecting growing patient demand, increased physician awareness, and recent regulatory change. Rates were rising prior to the 11/25 FDA policy change, with further acceleration following it. Findings provide quantitative support for anecdotal reports of increasing MHT demand and have implications for supply chain planning and equitable patient access. Future analyses will stratify by formulation, race/ethnicity, insurance, and surgical history to assess equitable access.

Sources of Funding: This study was supported by grant P2CHD042854 from NICHD.



P-111.

Opportunities in Postmenopausal Skin Cancer Prevention: Improving Genital Examination During Skin Cancer Screening in Dermatology

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Objective: Skin cancer incidence increases with age, but genital skin examination remains an under-characterized and often omitted component of skin cancer screening (SCS). This gap is particularly relevant for postmenopausal populations who experience hormonal changes affecting vulvar skin, leading to atrophy, altered immune surveillance, and increasing risk for vulvar malignancy.[1,2] Even among asymptomatic patients, comprehensive skin examinations yield clinically relevant findings, underscoring the importance of consistent vulva screening. However, variability in implementation persists. Studies on guideline-directed cervical cancer screening indicate how even well-established screening programs suffer from implementation gaps, suggesting the utility of standardized strategies in closing them.[3] We implemented a quality improvement initiative to evaluate and standardize rooming communication to support consistent, comprehensive skin cancer screening, especially in postmenopausal patients. **Design:** We conducted a mixed-methods quality improvement study in an academic dermatology department. To understand our baseline, we surveyed the entire departmental support staff including medical assistants, technicians, scribes, registered nurses, licensed nursing assistants, and nurse practitioners (n=19) as well as some physician providers: resident physicians (n=6) and faculty physicians (n=3). Questions included language used when asking patients to disrobe, perceptions on role with SCS, and perceived barriers to genital skin exams. Then, we facilitated two multidisciplinary focus groups with nursing and support staff, providing data from our surveys as well as department statistics on LS diagnosis during SCS. Semi-structured discussion during the first session identified key barriers for staff, specifically language. The second session functioned to facilitate staff generated solutions to language barriers and co-design a standardized, plain-language patient-facing script for full skin exams. **Results:** Among 19 unique rooming scripts, there were 13 patient-centered (positive) phrases and 6 provider-directed (negative) phrases. Recurrent themes included provider preference for complete disrobing (n=12), patient comfort/autonomy framing (n=13), and implicit limitation of examination based on clothing (n=6). Focus group participants (n=36) evaluated compiled scripts, identifying key themes: (1) framing SCS as preventive care emphasizing early detection, (2) using clear, plain-language explanations of exam scope, and (3) normalizing expectations to improve patient comfort and acceptance. Subsequent focus group discussion involving nursing staff and leadership (n=36) synthesized these themes into standardized patient prep language for SCS, now rolled out as a laminated script. **Conclusion:** Genital skin exams are inconsistently included in SCS, providing a clear opportunity for workflow interventions to support preventive care in postmenopausal patients. These insights highlight the impact of quality improvement interventions in improving the standard of care for all patients across dermatology, OB/GYN, and primary care. Future Plan-Do-Study-Act cycles will focus on clinician education, emphasizing how to offer, perform, and normalize comprehensive skin examinations in an efficient and patient-centered manner.

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P-112.

The “Silent” Dermatitis: Dermatologic Screening as a Critical Safety Net for Lichen Sclerosus in Postmenopausal Women

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Objective: Background: Lichen sclerosus (LS) is a chronic inflammatory condition with a peak incidence in postmenopausal women.[1] If undetected, LS leads to irreversible architectural distortion and increased risk of vulvar squamous cell carcinoma (VSCC). [2] While routine gynecologic examinations often decline following the cessation of cervical cancer screening[3], postmenopausal women frequently maintain longitudinal dermatologic follow-up for skin cancer surveillance. This clinical shift represents a critical, yet underutilized, opportunity for LS detection. **Objective:** To characterize the frequency, clinical features, and statistical differences of vulvar LS diagnosed incidentally in a postmenopausal cohort during routine dermatologic full skin cancer screenings (SCSs). **Design:** Methods: We conducted a retrospective chart review of patients diagnosed with vulvar LS at a tertiary academic center (2014–2025). “Incidental” cases were defined as those identified during a skin cancer screening conducted in a dermatology clinic unrelated to a vulvar chief complaint or referral. Demographic data, menopausal status, insurance type, and symptom status were analyzed. Statistical comparisons between menopausal groups were performed using Kruskal-Wallis and Chi-Square tests. **Results:** Results: Of 214 patients diagnosed with vulvar LS, 70 (32.7%) were identified incidentally. The majority of these cases were postmenopausal (82.9%, median age 67), representing a statistically significant age difference compared to menopausal and premenopausal cohorts ($p < 0.001$). Notably, 81.4% of all incidental cases were completely asymptomatic[4]; this lack of symptoms was consistent across all menopausal groups ($p = 0.265$). Despite being asymptomatic, one-third of patients exhibited permanent architectural distortion at the time of incidental diagnosis. Postmenopausal women showed a trend toward higher public insurance utilization ($p = 0.063$) and a higher number of prior “missed” opportunities,

with a median of two prior FSEs performed before the diagnosis was finally established ($p = 0.066$). **Conclusion:** Conclusion: In this study, nearly one-third of LS cases were caught incidentally, primarily in asymptomatic postmenopausal women. As postmenopausal women transition away from regular gynecologic care, the dermatologic FSE serves as a vital “safety net.” The finding that symptoms do not significantly differ by menopausal status reinforces that patient-reported complaints are an unreliable screening tool.[4] Proactive vulvar inspection during routine skin checks is an innovative strategy to ensure early diagnosis, prevent irreversible scarring, and mitigate cancer risk in the midlife and beyond population.[1] References 1. Kirtschig G. Lichen Sclerosus-Diagnosis and Management. Dtsch Arztebl Int. 2016;113(19):337-343. 2. Veerabagu SA, et al. Lichen Sclerosus Prevalence and Squamous Cell Carcinoma Development in Female Medicare Beneficiaries. JAMA Dermatol. 2025;161(9):978-980. 3. Perkins RB, et al. Risk of Inadequate Cervical Cancer Screening in Older Women. Gynecol Oncol. 2021;162(2):345-351. 4. Lee A, Fischer G. Diagnosis and Treatment of Vulvar Lichen Sclerosus: An Update for Dermatologists. Dermatol Ther.2018;31(3):e12553.

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Demographic and Clinical Characteristics of Patients with Incidentally Diagnosed Lichen Sclerosus Categorized by Menopausal Status.

Clinical Feature	Post-Menopause (n=58)	Menopausal (n=3)	Pre-Menopause (n=9)	p-value
Age (years), Mean $\pm$ SD	67.2 $\pm$ 9.6	56.0 $\pm$ 1.0	36.8 $\pm$ 9.3	<0.001
Prior Full Skin Exams, Median (Range)	2.0 (0–13)	0.0 (0–0)	1.0 (0–6)	0.066
Asymptomatic Status, n (%)	46 (79.3%)	2 (66.7%)	9 (100%)	0.265
Public Insurance, n (%)	34 (58.6%)	0 (0%)	3 (33.3%)	0.063
Reason for Visit: Routine FSE, n (%)	55 (94.8%)	3 (100%)	7 (77.8%)	0.158

Table 1. Comparison of postmenopausal, menopausal, and premenopausal cohorts identified during routine dermatologic screening. Statistical significance was determined using Kruskal-Wallis tests for continuous variables (Age, Prior FSEs) and Chi-Square tests for categorical variables (Symptoms, Insurance, Reason for Visit). P-values <0.05 were considered statistically significant.

P-113.

Awareness and Understanding in Reproductive Aging (AURA): A digital health solution to enhance women’s primary care

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Objective: To evaluate the effectiveness of an online education platform, AURA, in conjunction with virtual menopause care in improving knowledge and overall health and well-being in women navigating the late reproductive stage (LRS) to menopausal transition (MT). We hypothesize that participants seeking (peri)menopause-specific care and engaging with AURA to enhance their understanding of the MT will report increases in their quality of life while experiencing decreases in their menopausal symptom burden.

Design: This study will employ a prospective pragmatic control trial. Women aged 40-60 in the LRS to MT, who are enrolled at the virtual clinic for (peri)menopause care will be invited to participate in this study. Study arms: 1. Clinical care only (control): Nurse practitioner-led assessment and management, including prescribing menopausal hormone therapy (MHT). 2. Clinical + AURA: Arm 1 plus access to AURA. 3. AURA only: Access to AURA. Delivery of AURA for Arm 2 and Arm 3: Week 1-4: The first four weeks of AURA, will feature educational modules specific to the MT. Content will be delivered through animated videos narrated by subject matter experts to ensure clarity and accuracy. Video and resource topics will include sexual health, genitourinary issues, cardiovascular health, MHT, physical activity, indigenous plants for relief, and supplement usage. Week 5-12: Afterwards, participants will begin an eight-week tailored intervention. Participants will be placed into one of two streams, restorative or strength, based on their menopause symptom burden. The restorative stream focuses on supporting symptoms such as brain fog/ memory concerns, sleep disturbances, hot flashes, and mood changes. The strength stream consists of an exercise intervention, designed to build muscle mass, improve balance, support bone density through resistance training, and enhance cardiovascular health. Data Collection To evaluate baseline knowledge and learning outcomes, participants will complete brief pre- and post-module assessments. These assessments will capture participants’ existing knowledge prior to content engagement and quantify changes in knowledge following each module, allowing us to assess whether the educational materials are clearly understood and effective in improving participant knowledge. Clinical data will be collected throughout the intervention to characterize participants’ experiences during the MT. This will include medical history, current and past therapeutic interventions, symptom severity and frequency, and relevant physiological measures. Longitudinal data collection will enable evaluation of symptom trajectories, treatment responsiveness, and overall health outcomes across the duration of the program. The Utian Quality of Life measure and the Menopause-Specific Quality of Life questionnaire will be used at pre- and post-intervention to measure general and menopause-specific quality of life scores. **Results:** Recruitment is set to begin in April. Analyses will use descriptive statistics and pair t-tests to describe the demographic and clinical data, and assess the pre- and post-averages of knowledge assessments and quality of life scores. Preliminary findings will be disseminated at the conference, describing the

effectiveness of AURA in supporting knowledge and overall health and well-being in women navigating the LRS to MT. **Conclusion:** This study will generate new knowledge on the effects of enhanced education and support on outcomes among women in the MT. **Sources of Funding:** We acknowledge the Alberta Women's Health Foundation, Shopper's Foundation for Women's Health, and the Women and Children's Health Research Institute.

P-114.

How healthcare professionals discuss menopause on social media: a cross-platform analysis in the US and Canada

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Objective: Women increasingly turn to social media for menopause information, yet the visibility, quality, and impact of healthcare professional (HCP) voices across this landscape remain unclear. We examined HCP activity on major social media platforms to characterize content, engagement, and implications for evidence-based communication.

Design: This retrospective social media listening study examined HCP posts across the US and Canada from Nov 2024 to Oct 2025. Using the social listening tool Brandwatch, HCP voices were identified through two platform-specific approaches. On X, keywords in biographies identified HCP authors from menopause posts. On Instagram and Facebook, HCPs were identified from the highest-frequency menopause posters. Analysis focused on content reaching and resonating with audiences, with engagement measured through likes, comments, and shares. Descriptive statistics were combined with qualitative analysis. Limitations included self-reported professional identity and sampling differences across platforms. **Results:** Across platforms, a small number of HCPs, particularly obstetrician/gynecologists (OB/GYNs), dominated conversation and engagement. On Instagram, 5,237 posts from 96 HCPs produced 9.8M engagements, largely concentrated among high-visibility OB/GYNs: 18 OB/GYNs generated 77% (7.5M) of engagement with 1,815 posts, with one account contributing 71% (6.9M) from 733 posts. Some posts combined clinical authority with commercial content (e.g., supplements, lab checklists, podcasts) and built patient communities through visual, personal, and empowerment-led content. Following OB/GYNs, non-specialist physicians, naturopathic doctors, and surgeons each contributed roughly 4–5% of engagement on Instagram. On Facebook, engagement similarly centered on a small subset of OB/GYN authors: among 22 HCPs, four OB/GYNs generated 88.3% (725K of 820K) of engagement from 745 of 1,254 HCP posts, often focused on preventive medicine, health equity, and hormone therapy. On X, the landscape differed sharply. General physicians ranked highest by volume of engagement, though this was skewed by ~530 promotional posts from a single holistic health account. Urologists (seven HCPs, 71 posts, 11K engagement [29.0%]) and cardiologists (25 HCPs, 60 posts, 3,214 engagements [9.0%]) were the next most engaged groups, with urologists posting advocacy- and guideline-focused content, followed by cardiologists who posted evidence-led, peer-to-peer content. **Conclusion:** Menopause information provided by HCPs on social media is shaped by a small number of influential accounts owned by individuals from various disciplines. Content mixes clinical guidance with wellness and promotional messaging, complicating the identification of evidence-based sources. Increasing the visibility of accessible, evidence-based communication may help improve clarity and support public understanding of menopause. Findings from this study highlight an unmet need and potential opportunity for broader HCP participation in digital education.

Sources of Funding: Bayer CC AG

P-115.

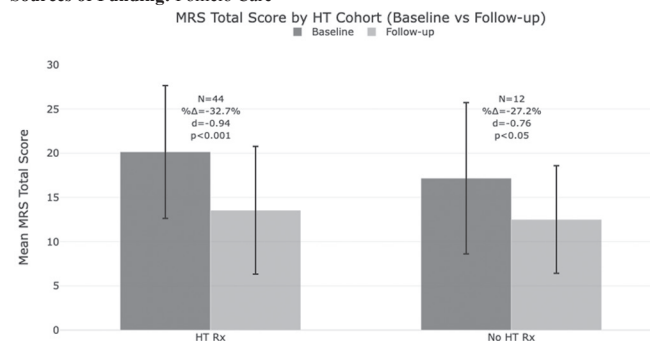
Early performance of a multidisciplinary virtual care model in reducing symptom burden for (peri)menopausal symptoms via hormonal and non-hormonal pathways

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Objective: This retrospective quality improvement analysis evaluated early clinical outcomes for individuals enrolled in a virtual care model designed to treat individuals experiencing (peri)menopausal symptoms within an employer-sponsored health benefit. The care model provided access to asynchronous chat-based support and scheduled audio or video visits with a multidisciplinary team, including menopause providers (MDs, NPs, or CNMs with specialized menopause training), nutritionists, and mental health specialists. **Design:** Patients were included in this preliminary evaluation if they completed at least one menopause provider visit, a baseline Menopause Rating Scale (MRS) screener, and a follow-up MRS screener sent approximately 60 days after the baseline. Patients also answered questions pertaining to workplace productivity along with both screeners. Patients were stratified into those prescribed hormone therapy (HT) by program menopause providers and those with no record of HT prescription. Paired t-tests and Cohen's d were used to determine statistical significance and measure effect size of changes in MRS scores between baseline and follow-up screeners. Shapiro-Wilk tests confirmed that the differences between each of the paired observations were normally distributed for both cohorts ($p > 0.05$). **Results:** In an initial cohort of patients

($n=56$), 80.4% of patients experienced a reduction in their total MRS score over the observation period. Patients prescribed HT ($n=44$) by program menopause providers saw a significant reduction in mean total MRS score from baseline (20.1, standard deviation (SD): 7.5) to follow-up (13.6, SD: 7.2). This represented a 32.7% reduction in symptom burden (Cohen's $d = -0.94$; $p < 0.001$), with 84.1% of individuals in this cohort showing clinical improvement. Patients not prescribed HT ($n=12$) also experienced a significant reduction in mean total MRS score from baseline (17.2, SD: 8.6) to follow-up (12.5, SD: 6.1). This subgroup achieved a 27.2% reduction (Cohen's $d = -0.76$; $p < 0.05$), with 66.7% of individuals showing clinical improvement (see figure). At baseline, 39.3% (22/56) of patients reported that their symptoms impacted their ability to work within the last 60 days, with 90.9% (20/22) reporting difficulty focusing at work. By the follow-up questionnaire, 86.4% (19/22) of these patients reported meaningful improvement in their ability to work in their current job, with 63.6% (14/22) reporting that their symptoms no longer impacted their ability to work at all. **Conclusion:** Participation in this model was associated with a statistically significant reduction in menopause symptom burden. While the sample size of this early cohort is small, the effect sizes indicate holistic care is a potentially effective pathway for significant symptom reduction, both for patients utilizing and not utilizing hormonal therapy. Future analyses will evaluate these outcomes in larger cohorts as the program scales.

Sources of Funding: Pomelo Care



P-116.

Menopause Symptom Screening at the Annual Well-Woman Visit: Are We Doing Enough?

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Objective: Menopause can cause debilitating symptoms that affect women physically, mentally and financially. Recent studies show that these symptoms are not adequately screened by primary care providers. Gynecologists serve as primary care providers for many women presenting for annual visits. These visits are an opportunity to screen for and treat symptoms of menopause. The primary objective of this study is to determine how often gynecologists at an academic center are screening patients of 45 to 60 years of age presenting for annual visits for menopause symptoms. The secondary objective is to estimate the proportion of patients who receive counseling and treatment. **Design:** This is a retrospective cohort study. Using electronic medical records, we reviewed visit notes for patients aged 45 to 60 who presented for well-woman visits at an outpatient gynecologic clinic affiliated within one year at an academic medical center. We excluded follow up visits. We collected demographic and clinical information, including provider type. For each visit note, we searched the entire document for any mention of menopause symptoms including hot flashes, night sweats, mood changes, joint pain, vaginal dryness or discomfort, urinary leakage, sexual problems, and brain fog. Upon identifying any mention of symptoms, we noted any counseling, laboratory testing, or prescriptions sent. We conducted descriptive statistical analyses and used the Chi Squared or Fisher's Exact test to compare proportions across groups. We used Stata SE Version 16.0 for all analyses, setting the level of significance at 5%. The study was approved by the New York Medical College Institutional Review Board. **Results:** We included in total 667 unique patient visits between June 1, 2024, and June 30th, 2025. A total 459 (68.8%) of visits had a mention of menopause symptoms. Of these, 280 (41.98%) included a discussion of menopausal hormone therapy (MHT), but only 78 (43.96%) had a prescription for MHT sent, and fewer still (15, or 18.52%) presented for a follow-up visit within three months to monitor treatment response. Resident, advanced practice providers and attending physician visits were similar in terms of the proportion of visits with mention of menopause (58.92%, 74.36%, and 67.47% respectively, $p=0.114$). There were no differences in terms of insurance (68.5% of visits had a mention of menopause for publicly insured patients compared to 69.4% of privately insured ones ($p=0.813$), or ethnicity (67.4% of Hispanic patients vs. 69.4% of non-Hispanic patients, $p=0.617$). **Conclusion:** Approximately two thirds of well-woman visits among 45-60 year-old patients had any mention of menopause symptoms, but fewer documented counseling on treatment options and fewer still included a prescription for management of symptoms. Increasing clinician awareness through education and implementing a universal screening questionnaire may increase detection and treatment rates for menopausal symptoms, ultimately improving women's quality of life.

Sources of Funding: None

P-117.**Objectification, Self-Compassion, and Well-being for Diverse Peri- and Post-Menopausal Women**

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Objective: Intersectionality theory (Crenshaw, 1991) and objectification theory (Frederickson et al., 2007) provide grounding frameworks for our study. Our main hypotheses are that age-group, race-group, and objectification type would play intersecting roles in relation to outcomes. Further, we hypothesized that self-compassion would mediate the impact of objectification on outcomes. Our objective was to expand research on young and mostly white samples of women to those in mid-life and older ages and women of color. **Design:** A cross-sectional internet-administered survey of 349 women aged 50-87 years (M age = 66, SD = 8.35). The sample included 125 Black or African American women, 107 Latinas, and 117 White women and was divided into a mid-life and an older-age group for analyses. We measured two types of objectification (Invisibility and Self-Objectification), bothersome peri-post menopausal symptoms, self-esteem, and self-compassion, as well as self-rated health (which we used as a control variable). **Results:** Descriptive analyses showed that higher scores on the Invisibility and Self-Objectification scales were significantly associated with lower self-esteem and more bothersome symptoms. Self-compassion was significantly associated with less frequent bothersome symptom scores and higher self-esteem. Self-compassion was also correlated with lower Self-Objectification and Invisibility scores. Latina participants reported the highest level of bothersome peri-post menopausal symptoms in both age groups, but these comparisons reached only marginal significance ($p < .07$). Symptoms were significantly higher for the participants in mid-life compared to older adulthood ($p < .01$), and there was no significant interaction of age-group and race-group. Mid-life participants reported significantly higher Self-Objectification and Invisibility scores compared to older adult participants (both p -values $< .01$), but there were no differences in either measure by race-group. Regression analyses using PROCESS (Hayes, 2022) showed that both types of objectification were significantly associated with lower self-esteem and more bothersome peri/post-menopausal symptoms, regardless of age- and race-group. Finally, self-compassion mediated the impact of both types of objectification on symptoms and self-esteem (p -values $< .01$). Neither race-group nor age-group significantly moderated the mediation pattern. **Conclusion:** Our findings highlight outcomes of both risk and resilience across both age and race-group experiences, and the potential of self-compassion to provide an important antidote to women's objectification, whether imposed by others or experienced internally. Some limitations of this study include the cross-sectional design, which disallows investigation of age changes over time, and the survey design, which may have included measurement error and/or self-report bias. Nonetheless, we have a unique sample of mid-life and older women from three different race and ethnic groups who gave us information about their lived experience. While it is tempting to believe that objectification is limited to young adulthood, we show that being rendered an object, or even worse, invisible, carries significant weight even into late adulthood. This weight impacts both physical symptoms and psychological well-being, but can be mitigated by other psychosocial resources. Future research could expand sample diversity even further, conduct a longitudinal survey, and consider other psychosocial variables.

Sources of Funding: None

P-118.**Quality improvement assessment of an 8-session menopause education group**

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Objective: To evaluate the effectiveness of an eight-session menopause education curriculum and identify opportunities to improve delivery, engagement, and access to VA resources. **Design:** An eight-session menopause education curriculum based on The Menopause Guidebook (9th Ed.) published by the North American Menopause Society, was developed addressing the following topics: what is menopause, premature menopause, common signs and symptoms, treatment options, body changes, post-menopause health and aging, and staying healthy. Sessions occurred weekly for 60–90 minutes as a hybrid in-person/virtual format. Groups were co-facilitated by a clinical social worker and registered nurse. Guest experts included a dietitian, pharmacist, pelvic floor therapist, and personal health coach. Surveys were administered at course completion to assess helpfulness, format preferences, facilitator strengths and areas of improvement, barriers, and suggestions for improvement. Survey methods progressed from paper to email/mail-back and later to Qualtrics and REDCap to enhance efficiency and data quality. Collaboration with Wichita State University improved survey design and literacy alignment. **Results:** From October 2022 to February 2026 a total of 12 groups were completed. 174 menopause referrals were placed with 196 female veterans enrolled, 146 attending more than one session and 101 completing the curriculum. 736 unique encounters were completed and 49 returned surveys. Veterans preferred hybrid or in-person sessions with extended time and lunchtime scheduling. Positive feedback emphasized practical symptom education, printed materials, small-group confidentiality, access to VA resources, interdisciplinary speakers, and peer connection. Challenges included technology issues, inability to attend in person, feeling excluded virtually, and limited time in 60-minute sessions. Suggested improvements included expanding post-menopause content, adding videos and case examples, increasing discussion time, offering morning or evening groups, and providing podcast-style resources. **Conclusion:** A structured menopause education curriculum improves Veteran knowledge, confidence, and engagement while reducing stigma and supporting informed care. Quality-improvement findings informed refinements to session

structure, teaching strategies, and provider training. Planned program expansions include a one-day menopause workshop open to Veterans and their partners and development of a Cognitive Behavioral Therapy for Menopause group. This work provides a replicable VA model for advancing menopause care.

Sources of Funding: This material is the result of work supported by resources and the use of facilities at the Robert J. Dole VAMC. The contents do not represent the views of the U.S. Department of Veterans Affairs or the United States Government.

P-119.**Dry Eye Syndrome of Menopause (DESM): A Proposed Clinical Framework for an Underrecognized Endocrine Symptom**

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Objective: To synthesize published epidemiologic, clinical, and mechanistic evidence characterizing dry eye disease as a prevalent, hormonally mediated manifestation of the menopausal endocrine transition, and to propose the term dry eye syndrome of menopause (DESM) as a clinical framework analogous to genitourinary syndrome of menopause (GSM). **Design:** Narrative evidence synthesis of peer-reviewed literature examining dry eye symptom prevalence across menopausal status, objective ocular surface parameters, sex hormone receptor expression in ocular tissues, hormonal mechanisms of tear film dysregulation, and hormone therapy effects on the ocular surface, including observational cohorts, randomized controlled trials, and meta-analyses. **Results:** Dry eye symptom prevalence of 64% to 80% was identified in peri- and postmenopausal women, comparable to vasomotor symptom prevalence (~75%) and significantly exceeding perimenopausal rates (58.6% to 76.4%). The DREAM study found that postmenopausal women had significantly worse objective ocular surface signs than premenopausal women: corneal staining (3.74 vs 2.58), tear osmolarity (304 vs 299 mOsm/L), tear break-up time (3.37 vs 3.93 s), despite similar subjective symptom reporting, mirroring the symptom-sign dissociation recognized in GSM. Sex hormone receptors for androgens, estrogens, and progesterone are expressed throughout ocular surface tissues. Androgen decline of approximately 50% following menopause reduces meibomian gland lipid secretion and lacrimal output, representing the dominant endocrine driver. Estrogen therapy is associated with 69% increased odds of dry eye diagnosis at the population level, while randomized trial data demonstrate objective ocular surface improvements in treated patients, a methodologic distinction with direct clinical counseling implications. DESM parallels GSM across six dimensions: shared endocrine etiology, majority prevalence in menopausal women, underreporting by patients, underscreening by clinicians, progression without intervention, and hormone therapy sensitivity. **Conclusion:** Dry eye symptoms are prevalent, endocrine-driven, and systematically overlooked in menopause care. We propose DESM as a clinical framework situating ocular surface disease within the menopause care continuum alongside GSM, enabling earlier recognition, informed hormone therapy counseling, and timely ophthalmologic referral

Sources of Funding: None

P-120.**Improvements in sleep disturbance with elinzanetant: analysis of PROMIS SD SF 8b domains from the OASIS-1 and -2 clinical trials**

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Objective: Sleep disturbances are a common and disruptive symptom in menopausal women. This post hoc exploratory analysis characterized the efficacy of elinzanetant, a dual neurokinin (NK)-1 and NK-3 receptor antagonist, in improving sleep among women with natural or surgical menopause. Self-reported sleep disturbances across specific questionnaire items from the Patient-Reported Outcomes Measurement Information System Sleep Disturbance Short Form 8b (PROMIS SD SF 8b) were evaluated. **Design:** Data were pooled from two randomized placebo-controlled double-blinded Phase III trials: OASIS-1 and -2. These two 26-week (first 12 weeks placebo-controlled) trials enrolled women aged 40–65 years with natural or surgical menopause and ≥ 50 moderate-to-severe vasomotor symptoms (VMS) per week. PROMIS SD SF 8b is an 8-item instrument evaluating self-reported sleep disturbance over a 7-day recall period using a 5-point Likert scale. The 8 items investigate restless sleep, satisfaction with sleep, refreshing sleep, difficulties falling asleep, staying asleep, getting to sleep, amount of sleep, and sleep quality. This analysis assessed changes in the proportion of women classified by raw PROMIS SD SF 8b item scores by treatment arm over time using descriptive statistics. **Results:** Table 1 lists participant responses of the PROMIS SD SF 8b items at baseline and Week 12 from OASIS-1 and -2. At baseline, PROMIS raw item scores were mostly comparable between participants in the elinzanetant and placebo groups; the most frequently reported items indicating impaired sleep for elinzanetant vs. placebo were sleep dissatisfaction (78.2% vs. 69.6%), difficulties staying asleep (77.2% vs. 72.0%), and non-refreshing sleep (73.4% vs. 68.3%). By Week 12, a higher proportion of women reported improved raw scores across all 8 items with elinzanetant vs. placebo. For example, the proportion of women reporting poor/very poor sleep quality decreased more with elinzanetant (65.6% at baseline vs. 20.5% at Week 12) than placebo (57.8% at baseline vs. 38.7% at Week 12). **Conclusion:** A greater proportion of

participants reported improvements in PROMIS SD SF 8b scores across all questionnaire items with elinzanetant than placebo, indicating overall improved sleep quality in women with moderate-to-severe VMS due to natural or surgical menopause.

Sources of Funding: Bayer CC AG

Participant distribution by PROMIS SD SF 8b raw item score in OASIS-1 and -2

Item ↓	Score→	Elinzanetant, n (%)			Placebo, n (%)		
		0–1 Not at all – A little bit	2 Somewhat	3–4 Quite a bit – Very much	0–1 Not at all – A little bit	2 Somewhat	3–4 Quite a bit – Very much
My Sleep Was Restless	Baseline	32 (8.6%)	81 (21.8%)	259 (69.6%)	46 (12.4%)	75 (20.2%)	251 (67.5%)
	Week 12	193 (55.0%)	93 (26.5%)	65 (18.5%)	139 (40.4%)	98 (28.5%)	107 (31.1%)
I Was Satisfied With My Sleep	Baseline	291 (78.2%)	59 (15.9%)	22 (5.9%)	259 (69.6%)	78 (21.0%)	35 (9.4%)
	Week 12	107 (30.5%)	104 (29.6%)	140 (39.9%)	160 (46.5%)	103 (29.9%)	81 (23.5%)
My Sleep Was Refreshing	Baseline	273 (73.4%)	74 (19.9%)	25 (6.7%)	254 (68.3%)	86 (23.1%)	32 (8.6%)
	Week 12	123 (35.0%)	112 (31.9%)	116 (33.0%)	173 (50.3%)	98 (28.5%)	73 (21.2%)
I Had Difficulty Falling Asleep	Baseline	163 (43.8%)	63 (16.9%)	146 (39.2%)	142 (38.2%)	76 (20.4%)	154 (41.4%)
	Week 12	286 (81.5%)	42 (12.0%)	23 (6.6%)	187 (54.4%)	80 (23.3%)	77 (22.4%)
I Had Trouble Staying Asleep	Score→	0–1 Never – Rarely	2 Sometimes	3–4 Often –Always	0–1 Never – Rarely	2 Sometimes	3–4 Often –Always
	Baseline	21 (5.6%)	64 (17.2%)	287 (77.2%)	31 (8.3%)	73 (19.6%)	268 (72.0%)
I Had Trouble Sleeping	Week 12	139 (39.6%)	98 (27.9%)	114 (32.5%)	85 (24.7%)	97 (28.2%)	162 (47.1%)
	Baseline	35 (9.4%)	89 (23.9%)	248 (66.7%)	44 (11.8%)	96 (25.8%)	232 (62.4%)
I Got Enough Sleep	Week 12	179 (51.0%)	97 (27.6%)	75 (21.4%)	100 (29.1%)	116 (33.7%)	128 (37.2%)
	Baseline	238 (64.0%)	103 (27.7%)	31 (8.3%)	203 (54.6%)	119 (32.0%)	50 (13.4%)
My Sleep Quality Was...	Week 12	95 (27.1%)	117 (33.3%)	139 (39.6%)	136 (39.5%)	116 (33.7%)	92 (26.7%)
	Score→	0–1 Very Poor – Poor	2 Fair	3–4 Good – Very Good	0–1 Very Poor – Poor	2 Fair	3–4 Good – Very Good
My Sleep Quality Was...	Baseline	244 (65.6%)	103 (27.7%)	25 (6.7%)	215 (57.8%)	120 (32.3%)	37 (9.9%)
	Week 12	72 (20.5%)	128 (36.5%)	151 (43.0%)	133 (38.7%)	121 (35.2%)	90 (26.2%)

N numbers (elinzanetant, placebo) with the available data at each time point:
baseline: 372, 372; Week 12: 351, 344.

P-121.

Incidence of Breast Cancer in Ospemifene-Treated Women with Genitourinary Syndrome of Menopause

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Objective: Genitourinary syndrome of menopause (GSM) is a prevalent, chronic condition in postmenopausal women, particularly among those with a history of breast cancer, and available treatments are often limited by safety concerns related to hormonal therapies. Ospemifene, a non hormonal selective estrogen receptor modulator indicated in postmenopausal women for treatment of moderate to severe dyspareunia and/or vaginal dryness, has demonstrated efficacy for GSM with no increased breast cancer risk in prior studies, warranting updated real world evaluation using more recent data and longer follow up. The purpose of this study was to compare breast cancer (BC) incidence in postmenopausal BC naïve women with GSM between ospemifene treated and untreated women. **Design:** Women diagnosed with GSM without history of BC were retrospectively identified from IQVIA’s New Data Warehouse between January 2012 and September 2023. BC naïve women treated with ospemifene after the GSM diagnosis date were 1:2 matched with untreated women on age at GSM diagnosis, baseline Charlson Comorbidity Index score, year of GSM diagnosis, US region of residence, and total months of follow up. Women were required to have 12 months of baseline and at least 12 months of follow up data available. Incidence rates of BC were assessed over the variable follow up period for treated and untreated women. An incidence rate ratio (IRR) was calculated as the incidence of BC in the treated vs. untreated population. Unadjusted Poisson regression with a log link function was used to generate 95% confidence intervals (CI) for the incidence rates. **Results:** The final BC naïve samples comprised 4,952 women treated with ospemifene and 9,904 untreated women. The median age was 60 years, 55% were from the South, and ≥77% had third party insurance. On average, women had 5.4 years of follow up time, and the average duration of ospemifene exposure (i.e., sum of days’ supply) among treated women was 4.9 years. The incidence rate of BC over the duration of follow up was 3.16 per 1,000 person-years (PY) (95% CI: 2.55-3.92) and 3.43 PY (95% CI: 2.96-3.97) for treated and untreated women, respectively. Although not significant, the rate of BC was 8% less among treated patients than untreated (IRR: 0.92; 95% CI: 0.71-1.20). **Conclusion:** In this large, real world retrospective cohort of postmenopausal BC naïve women with GSM, treatment with ospemifene was not associated with increased incidence of BC compared with untreated patients. These findings provide reassuring evidence regarding the BC safety profile of ospemifene in routine clinical practice and may help inform treatment decision making for GSM.

Sources of Funding: Duchesnay Pharmaceutical Group

P-122.

Gastrointestinal Symptoms are Associated with Anxiety Across the Menopause Trajectory: Findings from the MOMENTUM Canadian Menopause Cohort

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Objective: To characterize gastrointestinal symptom burden and anxiety across the menopause trajectory in Canadian midlife women and examine the association between gastrointestinal symptoms and anxiety. **Design:** MOMENTUM (Movement, MENopause, and optimum Health) is a prospective longitudinal cohort established at the University of Calgary in Calgary, Alberta, Canada to examine biological, behavioral, and psychosocial changes across the menopause trajectory. Women between 40 and 60 years of age completed self-report questionnaires, provided stool and blood samples, underwent physical and cognitive assessments, and participated in qualitative interviews. For the purposes of this abstract, a total of n=1832 participants and their baseline data were included for analysis. Self-report data for gastrointestinal (GI) symptom burden (PROMIS-GI questionnaire) and anxiety severity (GAD-7 questionnaire) was analyzed. Participants were classified as: Premenopause (n = 576), Perimenopause (n = 697), Postmenopause (n = 559). Our objective was to examine GI symptom burden and anxiety severity across the three menopause stages in Canadian women. Statistical analysis was conducted using IBM SPSS Statistics (Version 31.0). **Results:** Among 1832 participants, mean age (50.0 ± 5.3 years) increased across the menopause trajectory (Premenopause (46.1 ± 4.0 years), Perimenopause (49.5 ± 4.1), and Postmenopause (54.9 ± 5.3) and differed significantly (one-way ANOVA test; F (2, 1823) = 724.81, p < 0.001, η² = 0.443). PROMIS-GI scores are shown in Table 1. Bloating and Gas was the most prevalent GI symptom with 65.6% of women scoring above the normal severity range. The majority of the T-scores for the other domains remained with the normal population range. GI symptom severity did not differ significantly by menopause stage across any domain. Mean GAD-7 anxiety scores were highest during perimenopause (5.8 ± 4.8) compared to premenopause (5.0 ± 4.4) and postmenopause (5.3 ± 4.9). Overall, 17.5% of participants reported moderate-severe anxiety (GAD-7 ≥10). This was lowest in premenopause (14.6% in the moderate-severe category) and remained elevated in both perimenopause (19.2% in the moderate-severe category) and postmenopause (19.0% in the moderate-severe category). All five PROMIS-GI domains correlated significantly with GAD-7 scores (r = 0.20 - 0.27), p < 0.001 for all), surviving Bonferroni correction. **Conclusion:** The findings of this study show that bloating and gas are a consistent burden for women across the menopause trajectory and are not strictly limited to peri- or postmenopause. All five PROMIS-GI domains are significantly associated with GAD-7 anxiety scores, suggesting a possible relationship between the two throughout menopause. Moderate-severe anxiety increases as women progress from premenopause to perimenopause and stays elevated into postmenopause. The next step in this work is to assess gut microbiota profiles and their relationship to GI symptoms and anxiety. Year 2 testing is ongoing and future use of cohort data will look at changes over time in these measures. Our findings suggest that more research is needed to understand the relationship between GI symptoms and anxiety across the menopause journey. Clinicians should screen for both GI symptoms and anxiety in women regardless of menopause stage.

Sources of Funding: Joan Snyder Fund for Excellence in Kinesiology Research; Canadian Institute of Health Research (CIHR)

PROMIS-GI Scores and Correlation with GAD-7

PROMIS-GI Domain	Within Normal Range (%)	Above Normal Range (%)	Moderate-Severe (%)	Correlation with GAD-7 (r)	p-value
Bloating and Gas	34.4	65.6	27.9	0.27	<0.001
Constipation	76.7	23.3	8.3	0.27	<0.001
Diarrhea	86.4	13.6	4.0	0.20	<0.001
Pain	80.4	19.6	11.0	0.27	<0.001
Nausea	89.8	10.2	3.5	0.27	<0.001

Note: within normal range = T-score < 55, above normal range = T-score ≥ 55, moderate-severe is a T-score ≥ 60. Data was available for bloating and gas (n = 1852), constipation (n = 1893), diarrhea (n = 1880), pain (n = 1886), nausea (n = 1891). Participants with both PROMIS-GI scores and GAD-7 were included in correlation analysis regardless of menopause stage classification.

P-123.

Implementation of a Menopause Curriculum for OB/Gyn Trainees

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Objective: To evaluate the impact of a comprehensive menopause curriculum on OB/GYN trainees’ knowledge and comfort with menopause topics. **Design:** Obstetrics and gynecology (OB/GYN) residents completed a 7-part lecture series on menopause physiology and treatment, cardiovascular health, bone health, geriatric care, urogynecology, and sexual health. Pre- and post-curriculum surveys assessed comfort (4-point Likert scale across 7 categories; max 28) and knowledge (23 multiple-choice questions; max 23). “Menopause treatment” comfort was an additional primary outcome. Pre/post changes were analyzed using Wilcoxon signed-rank tests with continuity correction. Associations between PGY and scores were assessed using Wilcoxon rank-sum tests, and correlations between knowledge and comfort using Spearman’s rank correlation. **Results:** Response rates were 87% for the pre-curriculum survey and 80% for the post-curriculum survey. There were 16 complete (paired) observations for knowledge scores and 19 for comfort scores. Median knowledge scores increased

by 2 points following the curriculum ($p = 0.009$). Median comfort scores increased by 5 points ($p < 0.001$). There was no significant association between PGY level and either knowledge or comfort scores (Figure 1). No correlation was observed between knowledge and comfort at baseline. However, post-curriculum analysis demonstrated a positive correlation between knowledge and comfort scores ($p = 0.007$) (Figure 2). **Conclusion:** Implementation of a structured menopause curriculum for an OB/GYN residency program was associated with significant improvements in both trainee knowledge and self-reported comfort in managing menopause-related topics.

Sources of Funding: None

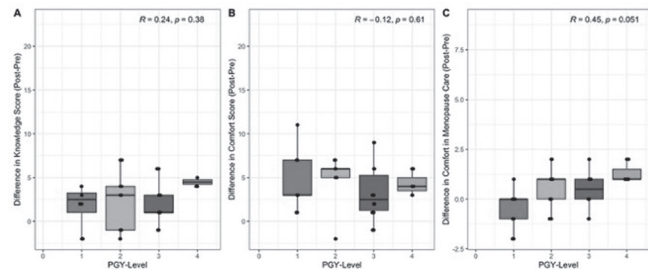


Figure 1: Correlation between PGY-Level and Scores
There was no significant association between PGY-level and improvement in comfort (A), knowledge (B), or comfort with menopause care (C). Data presented as Median [Q1,3]. A Wilcoxon rank-sum test was used.

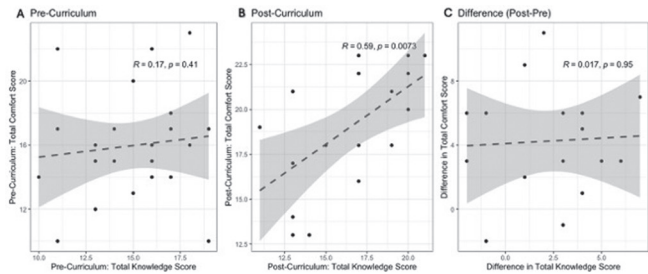


Figure 2: Did higher comfort scores correlate with higher knowledge scores?
A. We did not observe a correlation between total knowledge score and total comfort score at the pre-curriculum timepoint.
B. A statistically significant positive correlation between total knowledge score and total comfort score post curriculum ($p = 0.007$). In other words, higher knowledge scores were associated with higher comfort scores after the curriculum.
C. We did not observe the same trend when analyzing the change in scores between the two timepoints.

P-124.

Pilot Study of Efficacy, Tolerability, and Absorption of Topical Estriol or Estradiol Ingredients in Postmenopausal Women Using a Facial Cream
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Objective: Evidence reported in the medical literature on how estrogens can diminish skin changes associated with aging, photoaging, and hypoestrogenemia is limited. However, using estrogens to improve overall skin health has peaked recent interest. The objective of this pilot study was to evaluate the efficacy, tolerability, and absorption of estriol 0.3% or estradiol 0.01% facial cream compared with a placebo facial cream in postmenopausal women. **Design:** Postmenopausal women (no period >12 months; age 50-60 years) in this randomized, double-blind, placebo-controlled, single-site, pilot study had mild to moderate facial photoaging and Fitzpatrick skin types I-VI, and never used systemic hormone therapy. Women were randomized to 3 pumps (1 mL) of 0.3% estriol, 0.01% estradiol, or placebo facial cream to use once daily on their entire face after washing at bedtime for 12 weeks. Investigator- (primary endpoint) and participant-assessed endpoints and tolerability (all using a 5-point scale, 0=none, 4=severe), noninvasive biomeasurements, and photographs were evaluated at baseline and weeks 4, 8, and 12. Changes from baseline to weeks 4, 8, and 12 were analyzed between the estriol, estradiol, and placebo groups for all parameters (here we present results from week 12). Serum estriol and estradiol levels were also assessed for safety. **Results:** Of 90 participants (30/arm), 86 completed the study; most (67%) were White and 27% were Black. Investigator-assessed changes from baseline to week 12 (Table) were significantly different with estriol vs placebo for radiance, tactile and visual roughness, firmness, hydration, elasticity, and overall health, and the same with estradiol, except for elasticity. Estriol also significantly increased ($P=0.042$) skin water content vs placebo; estradiol vs placebo ($P=0.061$). No between-group differences were found for participant-assessed efficacy, or for biomeasures of elasticity, melanin, or water loss. No tolerability issues were reported with investigator- or participant-assessed measures. Serum estriol levels were not detectable or 0.10 ng/mL with estriol or estradiol at baseline and week 12; serum estradiol levels from baseline to week 12 were 23.07±28.51 to 20.95±18.38 pg/mL with estriol use, and 12.92±7.19 to 16.60±8.99 pg/mL with estradiol use. No estriol or estradiol levels were different than those in placebo-treated participants. **Conclusion:** In this randomized, double-blind, placebo-controlled, pilot study, facial cream with estriol 0.3% or estradiol 0.01% applied daily at bedtime for 12 weeks significantly improved (vs placebo) most skin parameters of the investigator-assessed, primary endpoint, with no tolerability issues reported. Systemic levels of estriol and estradiol were not significantly different than those with placebo, and not outside of normal laboratory error or the expected physiological range for this population.

Sources of Funding: Alloy Health

Percent changes from baseline in investigator-assessed skin parameters with estriol, estradiol, and placebo at week 12

Skin parameter	Percent change from baseline at week 12			P-value*	
	Estriol	Estradiol	Placebo (P)	Estriol vs P	Estradiol vs P
Fine lines	-3	1	-1	0.228	1.000
Wrinkles	-1	2	-1	0.450	1.000
Tone	0	1	-1	1.000	0.434
Radiance	-29	-29	-16	0.029	0.004
Tactile roughness	-31	-33	-13	0.003	<0.001
Visual roughness	-31	-31	-13	0.003	<0.001
Firmness	-15	-15	-7	0.077	0.020
Pores	-1	2	-1	0.426	0.434
Hydration	-22	-26	-7	0.002	<0.001
Elasticity	-12	-5	-2	0.016	0.186
Overall health	-19	-18	-7	0.004	0.006

*P-value is based on analysis of difference in change from baseline between groups.

P-125.

Qualitative Validation of MenoZen VR™: An AI-Enhanced Virtual Reality Program for Menopause Symptom Management

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Objective: Approximately 80% of midlife women experience vasomotor symptoms (VMS; hot flashes and night sweats). VMS are a common reason women seek treatment during the menopause transition and are a major contributor to a reduction in overall quality of life. Although hormone therapy remains the gold standard pharmacologic intervention for VMS, recent data show that its use is low, with only 1.7% of US women using it in 2023. Cognitive behavioral therapy (CBT) is an evidence-based, non-hormonal treatment endorsed by both the National Institutes of Health (NIH) and The Menopause Society (TMS) for the management of VMS, insomnia, and depression associated with menopause. Additionally, CBT has demonstrated efficacy across a spectrum of other menopause associated symptoms including anxiety and sexual dysfunction. Despite the robust evidence showing the ability of CBT to manage menopause symptoms and improve overall quality of life, access remains limited. Growing evidence supports the use of virtual reality (VR) and artificial intelligence (AI)-enabled VR (AI-VR) in delivering behavioral health interventions like CBT. Using principles of human-centered design, this study aims to develop a novel AI-VR program, MenoZen VR™, for menopause symptom management tailored to the biopsychosocial needs of midlife women. **Design:** Between August 2025 and November 2025, we recruited 20 women, ages 45 to 60 with bothersome VMS (≥28 episodes per week) and who were not currently receiving hormone therapy. Participants were recruited through the midlife women's health clinic at Mayo Clinic in Jacksonville, Florida and completed baseline surveys including demographics, previous experiences with VR and therapy or counseling, and the Menopause Rating Scale (MRS). Women then used the MenoZen VR™ program on a Meta Quest 3S headset for 45-minutes. This involved an AI-VR avatar, Maia, navigating participants through modules incorporating various behavioral therapy and psychoeducation principles, such as CBT, talk therapy, mindfulness, and paced breathing exercises. After the session, women completed post-session surveys: Intervention Usability Scale (IUS), Session Rating Scale (SRS) and participated in a post-session semi-structured interview to determine participant experience and obtain feedback. Interviews were recorded, transcribed verbatim, and a thematic analysis was conducted.

Results: The mean age of the 20 participants was 55 years ± 3.6 years (SD) with an average MRS score of 16.9 ± 7.5 (SD). A majority (65%; n=13) of women had little to no experience using VR and 50% had little to no experience with therapy or counseling. Nine overarching themes emerged (1) prior VR experience and familiarity (2) headset design and usability (3) program design and usability (4) educational value (5) symptom management value (6) perceptions of Maia (7) personalized support and tailoring (8) overall accessibility and (9) global recommendations and future directions for MenoZen VR™. All participants described Maia, the AI-VR avatar, as being non-judgmental. Additionally, all of the women would use this program again and would recommend this program to a family member or friend going through menopause. **Conclusion:** Findings from this qualitative validation study suggest that midlife women are highly interested in using a menopause specific, personalized, non-pharmacologic intervention like MenoZen VR™ for menopause symptom management. This study demonstrates early feasibility and acceptability of an AI-VR program such as MenoZen VR™ for the management of menopause symptoms. MenoZen VR™ has the potential to deliver evidence-based therapies to reduce symptom burden and improve the quality of life, while also addressing barriers to care such as accessibility. Future studies are planned to evaluate MenoZen VR™ use over longer follow-up to further explore feasibility, acceptability, tolerability, and initial clinical efficacy.

Sources of Funding: Mayo Clinic

P-126.

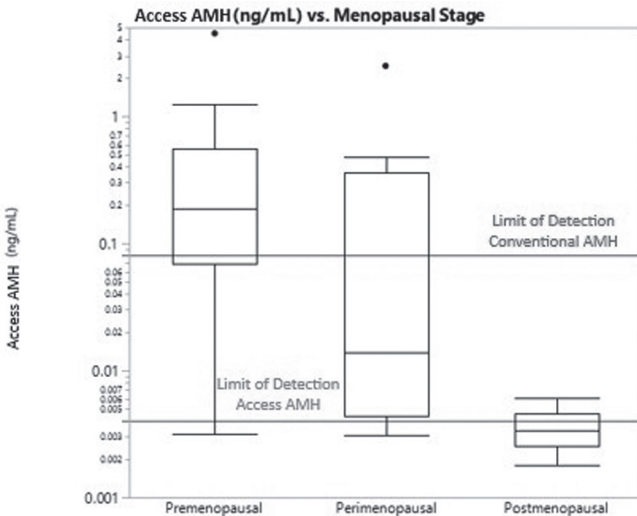
AMH—a Promising Biomarker to Monitor Ovarian Aging during Menopausal Transition

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Objective: The menopausal transition involves depletion of the primordial follicle pool and remodeling of the ovarian microenvironment. Follicle stimulating hormone (FSH) is widely used to track this process, while anti-Müllerian hormone (AMH) is recommended for monitoring ovarian aging by the ENDO Society. However, measurement of low AMH concentrations remains challenging during this transition due to limited assay sensitivity. The newly available AMH assay on the Beckman Dxl 9000 analyzer demonstrated up to 20-fold improved sensitivity. This study evaluated AMH and FSH distributions across menopausal stages and compared their ability to differentiate menopausal status.

Design: Serum samples were collected from women ≥40 years with both ovaries intact. Key exclusions included PCOS, prior ovarian surgery, gonadotoxic exposure, recent hormonal therapy, pregnancy, and major endocrine disorders. Menstrual status was determined by questionnaire assessing menstrual cycles and related symptoms per the Staging of Reproductive Aging Workshop+10 (STRAW+10) staging system. AMH and FSH were measured on the Dxl 9000 platform. Results were reported as medians and 95% CIs. **Results:** Forty-five (45) samples met the enrollment criteria with comparable BMI values across menopausal stages. Median age increased across menopausal stages (pre- 46.3 years, peri- 50.1 years, post-menopause 63.6 years). AMH concentrations differed across the three stages (median [95% CI], ng/mL): pre- 0.190 (0–1.13); peri- 0.014 (0–0.591); post-menopause 0.003 (0–0.004) (Figure 1). FSH concentrations rose markedly across the three stages, with greater overlap between the peri- and post-menopausal stages (median [95% CI], mIU/mL): pre- 7.7 (3.91–26.2); peri- 31.5 (22.8–52.8); post-menopause 48.6 (46.9–73.5). **Conclusion:** In this cohort, AMH declined and FSH increased monotonically across menopausal stages, consistent with ovarian aging biology. Highly sensitive AMH measurements approached the analytical floor in postmenopause while remaining differentiated from perimenopausal and especially premenopausal values, supporting utility in late transition and postmenopausal assessment. The wide dispersion of FSH underscores the value of combining AMH with gonadotropins for menopausal staging, highlighting the complementary roles of these markers in assessing ovarian aging, particularly when menopausal status informs patient management during the menopausal transition.

Sources of Funding: Beckman Coulter



Distribution of the Access AMH Levels across Menopausal Stages

P-127.

Effect of a Standardized Asparagus racemosus Root Extract (CLSi017, ≥5% Shatavarin IV) on Sleep Quality and Subjective Hair Parameters in Pre-, Peri-, and Postmenopausal Women: Prespecified Exploratory Endpoints From a Randomized, Double-Blind, Placebo-Controlled Trial

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Objective: Asparagus racemosus (Shatavarin) is a classical Ayurvedic women's-health botanical, but controlled data on its effect on menopausal sleep disturbance and hair-related quality of life are limited. We evaluated the effect of CLSi017 a root extract standardized to not less than 5% Shatavarin IV, on sleep quality and subjective hair parameters as prespecified exploratory endpoints within a trial whose primary endpoint was the Menopause Rating Scale. **Design:** Randomized, double-blind, placebo-controlled, parallel-group, two-arm superiority trial (CTRI/2025/02/079989) at three Indian sites. Healthy women aged 29 to 65 years (pre-, peri-, and postmenopausal) were allocated 1:1 to CLSi017 100 mg once daily or matched brown-rice-starch placebo for 6 weeks, with follow-up to Week 8. Sleep quality was measured by the Pittsburgh Sleep Quality Index (PSQI) global score and subjective hair parameters (fall, volume, appearance) by a Likert-scale questionnaire total score at Weeks 0, 2, 4, 6, and 8. Change from baseline

was analyzed by a mixed model for repeated measures (MMRM) with treatment, visit, treatment-by-visit interaction, and baseline score as covariate, in the modified intent-to-treat population (N=119; CLSi017 58, placebo 61); two-sided p<0.05. **Results:** Baseline PSQI and Likert scores were balanced between arms. For PSQI, both arms improved significantly from baseline at all visits (within-group p<0.0001). At Week 8 the least-squares mean change was -1.46 (95% CI -1.77 to -1.15) for CLSi017 and -1.71 (95% CI -2.01 to -1.41) for placebo; the between-group difference was 0.25 (95% CI -0.19 to 0.68; p=0.2622), and no between-group difference reached significance at any visit. For the Likert hair score, both arms also changed significantly from baseline (within-group p<0.0001), with a Week-8 least-squares mean change of +2.65 (95% CI 1.56 to 3.74) for CLSi017 versus +2.29 (95% CI 1.23 to 3.35) for placebo; the between-group difference was 0.36 (95% CI -1.16 to 1.88; p=0.6395). CLSi017 was well tolerated: adverse events occurred in 7.9% of the CLSi017 group and 7.8% of placebo, with no serious adverse events in either arm. **Conclusion:** Over 6-8 weeks, sleep quality and subjective hair parameters improved significantly within both arms, but CLSi017 did not separate from placebo on either exploratory endpoint, indicating a substantial placebo response in this healthy-volunteer population. CLSi017 demonstrated a favorable safety profile comparable to placebo. These prespecified exploratory findings should be interpreted cautiously given the short duration, healthy participants with low baseline symptom burden, and the exploratory, non-alpha-protected nature of the analyses. Longer trials enriched for participants with clinically significant sleep disturbance or hair concerns are warranted to determine whether a treatment effect emerges.

Sources of Funding: None

CLSi017 CT

Endpoint / Visit	CLSi017 LS mean Δ (95% CI)	Placebo LS mean Δ (95% CI)	Between-group Δ (95% CI)	p Value
PSQI global, Week 6	-1.50 (-1.80, -1.20)	-1.32 (-1.61, -1.02)	-0.18 (-0.60, 0.23)	0.3851
PSQI global, Week 8	-1.46 (-1.77, -1.15)	-1.71 (-2.01, -1.41)	0.25 (-0.19, 0.68)	0.2622
Likert hair total, Week 6	+1.76 (0.76, 2.77)	+1.44 (0.46, 2.43)	0.32 (-1.09, 1.73)	0.6547
Likert hair total, Week 8	+2.65 (1.56, 3.74)	+2.29 (1.23, 3.35)	0.36 (-1.16, 1.88)	0.6395

Δ, least-squares mean change from baseline; CI, confidence interval; p, between-group comparison (MMRM). PSQI: lower score = better sleep. Likert hair total: higher score = better subjective hair status. mITT N=119 (CLSi017 58, placebo 61).

P-128.

Brain Fog or ADHD? Executive Dysfunction in Perimenopause: A Scoping Review of the Role of ADHD Medications

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Objective: The menopausal transition is characterized by a significant decline and fluctuation in 17-β estradiol which mediates catecholaminergic signaling within the prefrontal cortex. This neurobiological shift results in "brain fog," involving quantifiable deficits in working memory, attentional control, and processing speed that mirror the core diagnostic criteria for Attention-Deficit Hyperactivity Disorder (ADHD). Despite the impact of these symptoms on quality of life, there is currently no FDA-approved pharmacological intervention, leaving clinicians challenged with differentiating between perimenopausal cognitive decline and exacerbation of previously compensated, undiagnosed ADHD. Therefore, we aim to synthesize the current literature on the utility of ADHD medications as a novel, targeted therapy to improve executive dysfunction experienced during the perimenopause period. **Design:** This scoping review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Scoping Review guidelines. Four main databases (MEDLINE (via PubMed), Embase, PsycINFO, and Cochrane Central Register of Controlled Trials (CENTRAL)) were utilized to search for original research studies investigating ADHD medications' (lisdexamphetamine - LDx, methylphenidate - MPH, atomoxetine - ATX) effects on outcome measures associated with cognition and ADHD symptom severity. Inclusion criteria included biological women 45-60 years of age with a last menstrual period less than 10 years ago. Exclusion criteria included transgender women, disordered sleep, surgical menopause, primary ovarian insufficiency, pre/early menopause, and previous or current cancer diagnosis. We described study characteristics, key findings, and identify gaps in existing literature. **Results:** After an extensive analytical review of existing literature, five studies ultimately met inclusion criteria: three randomized crossover trials and two cross-sectional observational studies. The crossover trials provide preliminary evidence that both stimulant (LDx) and non-stimulant (ATX) medications significantly improve executive function. This was shown by a marked reduction in total Brown Attention Deficit Disorder Scale (BADDSS) scores compared to placebo: LDx lowered scores from a baseline of 35.7 to 21.2 (vs. 29.8 for placebo, p < 0.001), while ATX lowered scores from a baseline of 38.6 to 25.5 (vs. 30.1 for placebo, p = 0.009). Neuroimaging data further supports these findings, showing that LDx modulates catecholaminergic pathways by increasing glutamate levels, causing neural activation in the dorsolateral prefrontal cortex (F=2.9, df=11, P=0.12) and right insula (F=20.7, df=11, P=0.0008) during working memory tasks. Despite these improvements in subjective "brain fog," these medications had little to no significant impact on objective cognitive measures, such as delayed paragraph recall (p > 0.05) or processing speed (p > 0.05). Furthermore, while cross-sectional data suggests a positive correlation between ADHD symptom severity and the intensity of menopausal symptoms (72.8% vs. 28.9%, PR = 2.53, 95% CI = 2.35–2.73), findings regarding the impact of a formal ADHD diagnosis on somatic and psychological complaints remain inconsistent. **Conclusion:** Preliminary evidence suggests that ADHD medications effectively improve subjective executive function, and not cognition, by modulating catecholaminergic

pathways that are often disrupted during the menopausal transition. Moreover, cross-sectional evidence suggests that baseline ADHD symptom severity may compound the pre-existing impairments associated with the perimenopausal period. While these findings open a non-hormonal therapeutic option for addressing the perimenopausal executive dysfunction, the small sample sizes and reliance on subjective, retrospective measures are key limitations. Thus, there is a need for longitudinal, prospective studies to validate its efficacy and establish ADHD pharmacotherapy as an additional clinical intervention in perimenopausal executive dysfunction.

Sources of Funding: None

P-129.

Knowledge and Awareness of Perimenopause

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Objective: Perimenopause affects virtually all women yet remains poorly understood, with many experiencing symptoms for years before receiving a diagnosis or appropriate support. Despite growing recognition of the impact of perimenopause on quality of life, mental health, and long-term cardiometabolic health, awareness and education remain inadequate, particularly among younger women who have not yet reached midlife. The postpartum period represents a critical but overlooked window: new mothers are actively engaged with healthcare systems and digital health platforms. As the age at which women become mothers continues to rise, a growing number will face an overlap between postpartum recovery and early perimenopause, adding complexity to an already demanding life stage. A first step toward supporting these women is to characterize current patterns of knowledge and information-seeking in order to develop interventions grounded in lived experience. This study aimed to characterize perimenopause awareness, knowledge, and information-seeking behavior in a population of mothers, and to identify preferred settings and touchpoints for perimenopause education. **Design:** This cross-sectional, descriptive study surveyed mothers recruited through the Nanit user base and Nanit social media followers in May 2026. Inclusion was restricted to respondents whose last birth occurred in May 2016 or later (N = 832). Outcome measures included: self-reported perimenopause status [five categories: Not in perimenopause/menopause, Perimenopausal (periods with symptoms), Unsure if perimenopausal/menopausal, No periods, unsure of status, Post-menopausal (no period ≥1 year)]; retrospective knowledge of perimenopause before age 40 (assessed only among respondents aged ≥40, n = 158, via a single item with three response options: not informed at all, some knowledge, very informed); information-seeking behavior (sources consulted, stage at which information was sought); and attitudes toward perimenopause/menopause. Preferred settings for perimenopause education and engagement with healthcare providers were also assessed. Frequencies and proportions were reported for all variables. **Results:** Respondents had a mean age of 35.7±4.8 years and were, on average, 24.3±21.2 months postpartum. The majority (61.4%) reported not being in perimenopause or menopause, while 17.3% identified as perimenopausal and 14.4% were unsure of their status. Nearly one-third (32.1%) had not yet started thinking about perimenopause; among those who had, the mean age at which they began was 34.5 years. Among those who specifically looked for information about menopause (30.27%), it was most commonly sought at symptom onset (46%) or before symptoms appeared (40%). The most frequently used information sources were friends (20.0%), social media (19.0%), and health professionals (16.7%), while only 6.5% had consulted official menopause society websites. Among respondents aged 40 and over (n = 158), most reported feeling uninformed about perimenopause before age 40: 55.7% felt not informed at all, 38.6% had some knowledge, and only 5.7% felt very informed. Three-quarters (75.1%) had never discussed perimenopause with a health professional. Respondents most commonly endorsed apps (61.3%), high school (59.4%), and the perinatal period (48.2%) as appropriate settings and timing for menopause education. Attitudes toward perimenopause and menopause were predominantly neutral (38.5%) or negative, with 36.1% reporting they were dreading perimenopause/menopause. **Conclusion:** This population of mothers demonstrates substantial knowledge gaps around perimenopause, with low rates of proactive information-seeking and limited engagement with health professionals. The perinatal period and digital platforms represent underutilized but preferred touchpoints for perimenopause education.

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P-130.

Sleep Quality and Anxiety Symptoms Across the Perimenopausal Period in Mothers of Young Children

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Objective: Perimenopause, the period of transition to menopause, is associated with significant disruptions to sleep and mental health lasting on average 4-8 years. With delayed childbearing becoming an increasing global trend, for many women perimenopause and the postpartum period overlap, yet little is known about the implications for these women's health. This study examined whether perimenopausal status is associated with poorer sleep quality and higher anxiety in mothers of young children, controlling for time since birth. **Design:** Data were drawn from an online survey of 805 mothers from the US. Participants were classified into three groups based on self-reported menopausal status: no perimenopause (n = 511, M=34.1 years, 41.2% in the first year postpartum), perimenopausal (n = 144, M=40.1 years, 7.0% in the first year postpartum), and uncertain menopausal status (n = 150, M=37.2 years, 36.1% in the first year postpartum). Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI; global score 0–21 and seven components) with a threshold of >5 considered

as poor sleep and the Menopause Rating Scale (MRS) sleep item. Anxiety symptoms were assessed using the EPDS-3A, a validated 3-item anxiety subscale of the Edinburgh Postnatal Depression Scale (items 3, 4, 5; range 0–9). Time since last birth (months postpartum) was included as a covariate in all one-way ANCOVAs. **Results:** Mothers in the perimenopausal and uncertain groups reported poorer global sleep quality than those not yet in perimenopause (PSQI means: 9.53 vs 9.29 vs 7.68). Pairwise comparisons showed that both the perimenopausal and uncertain groups scored significantly worse than the no-perimenopause group (p's < 0.001). Among perimenopause, 87% were poor-sleepers compared to 85.2% in the uncertain group and 74% of the no-perimenopause group. Pairwise comparison showed that percentages of poor sleepers were significantly higher in the perimenopausal and uncertain groups compared to the no-perimenopause group (p=0.003 and p=0.04). Component-level analyses revealed that both the perimenopausal and uncertain groups scored significantly worse than the no-perimenopause group on subjective sleep quality (C1; b=0.45, p<0.001, b=0.25, p<0.01) and sleep duration (C3; b=0.28, p=0.008, b=0.0.28, p=0.004). These findings were corroborated by the MRS sleep item: 80% of perimenopausal, 68% of uncertain, and 51% of no-perimenopause mothers reported sleep problems of any severity, and moderate-to-severe sleep problems were reported by 49%, 39%, and 22%, respectively. Pairwise comparisons showed that both the perimenopausal and uncertain groups differed from the no-perimenopause group (both p<0.001). Anxiety symptoms followed a dose-response pattern across groups. Perimenopausal mothers scored higher on the EPDS-3A than the no-perimenopause group (M: 4.81 vs 3.68; p<.001), with uncertain mothers intermediate (M=4.47; p=.001); at-risk rates (EPDS-3A ≥ 5) were 61%, 52%, and 37%. MRS anxiety severity showed all three groups differing significantly: 85% of perimenopausal, 77% of uncertain, and 67% of no-perimenopause mothers reported anxiety of any severity, and moderate-to-severe anxiety was reported by 53%, 42%, and 29%, respectively. Pairwise comparisons showed that both the perimenopausal and uncertain groups differed significantly from the no-perimenopause group (p<0.001 & p=0.013, respectively). Depressive mood followed a similar pattern: 74% of perimenopausal, 69% of uncertain, and 47% of no-perimenopause mothers reported depressive symptoms of any severity, and moderate-to-severe depressive mood was reported by 39%, 31%, and 12%, respectively. Pairwise comparisons showed that both the perimenopausal and uncertain groups differed significantly from the no-perimenopause group (both p<0.001). **Conclusion:** Perimenopausal status is associated with substantially worse sleep quality and higher anxiety in mothers of young children, independent of time since birth. Critically, mothers uncertain of their menopausal status showed a burden comparable to that of those with confirmed perimenopause across almost all measures, suggesting that unrecognized or early-stage menopausal transition may go unaddressed.

Sources of Funding: N/A

P-131.

Symptom Burden and Management Strategies Across Perimenopause Status

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Objective: Perimenopause is a transitional phase preceding menopause characterized by fluctuating hormone levels and symptoms spanning somatic, psychological, and urogenital domains. Despite growing attention to menopause awareness, perimenopause itself remains underrecognized, and little is known about symptom burden, healthcare engagement, and management strategies across differing perimenopause perceptions. The objective of this study is to characterize and compare symptom burden, healthcare engagement, and management strategies across women categorized by their self-reported perimenopause status. **Design:** This cross-sectional study analysed data from an online survey completed by women in May 2026 (N=805). Participants self-reported perceived perimenopause status and were categorized into three groups: No perimenopause (not currently in perimenopause or menopause), Perimenopausal (still having periods whilst experiencing perimenopausal symptoms), and Uncertain (unsure whether symptoms represented perimenopause). Symptom burden was assessed using the validated Menopause Rating Scale (MRS), an 11-item patient-reported outcome measure assessing somatic, psychological, and urogenital symptoms (total score range: 0–44). MRS scores were available for 758 participants (94.3%); No perimenopause n=483, Uncertain n=141, Perimenopausal n=134. Healthcare engagement was defined as having spoken with a healthcare provider (HCP) regarding perimenopausal symptoms. Use of pharmacological, lifestyle, psychological, complementary, and digital management strategies was also assessed. **Results:** Mothers in the Perimenopausal group were older (40.1±4.5 years) than those in the Uncertain (37.2±3.9 years) and No perimenopause groups (34.1±4.3 years). Mean total MRS scores demonstrated a clear gradient across groups, with the highest symptom burden observed in the Perimenopausal group (14.2±6.7), followed by the Uncertain (11.0±6.2) and No perimenopause groups (7.0±5.4). Overall, 82.8% (n=111) of Perimenopausal women scored in the moderate-to-severe symptom range (MRS ≥9), compared with 65.2% (n=92) of Uncertain women and 33.4% (n=161) of women not identifying as perimenopausal. Despite elevated symptom burden, only 52.1% of Perimenopausal women had spoken with an HCP regarding their symptoms, while 22.9% had not sought care and 25.0% intended to seek care soon. Healthcare engagement was substantially lower in the Uncertain group, with only 16.7% having spoken with an HCP and 62.0% not having sought care. In the No perimenopause group, only 4.3% had engaged with an HCP regarding symptoms. Within both the Perimenopausal and Uncertain groups, women who had engaged with an HCP reported higher somatic symptom burden than those who had not (Perimenopausal: 4.95 vs 3.84, p=0.034; Uncertain: 3.84 vs 2.89, p=0.043). Psychological, urogenital, and total MRS scores did not differ by healthcare engagement status across any group (all p > 0.10). Among Perimenopausal women, exercise (37.5%), nutritional changes (26.4%), SSRIs/SNRIs (11.8%), and menopausal hormone therapy (MHT; 6.9%) were the most commonly reported management strategies,

although 32.6% reported using no symptom management strategies. Half of women in the Uncertain group (50.7%) and 80.0% of women in the No perimenopause group reported using no management strategies. Use of digital health applications for symptom management was low and similar across groups (No perimenopause: 21.1%; Uncertain: 25.0%; Perimenopausal: 21.3%). **Conclusion:** This study demonstrates a clear gradient in symptom burden across perimenopause status, with most perimenopausal women reporting moderate-to-severe symptoms, yet nearly one-quarter had not spoken with a healthcare provider about their symptoms. The uncertain group, representing nearly one in five respondents, showed a substantial and largely unmanaged symptom burden, highlighting a critical gap in recognition and clinical engagement. Existing management strategies, including MHT, are underutilised across all groups. These findings underscore the need for proactive screening, provider education, and accessible digital health tools tailored to women navigating perimenopause, a population whose symptoms remain under-recognised and under-supported.

Sources of Funding: None

P-132.

Vulvovaginal Symptoms and Treatment Gaps in Postpartum Mothers

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Objective: Vulvovaginal symptoms are well-recognised features of perimenopause and menopause and are commonly linked to declining estrogen levels. Similar symptoms are also reported during the postpartum period, a time of substantial hormonal change, yet their prevalence, clinical management, and psychological correlates among postpartum mothers remain poorly understood. As more women give birth later in life, postpartum symptoms may increasingly overlap with early midlife reproductive transitions. Understanding vulvovaginal symptoms in postpartum mothers may help identify unmet care needs across both postpartum and midlife women's health. The objective of this study was to examine the prevalence, treatment engagement, and psychological correlates of vulvovaginal symptoms in postpartum mothers. **Design:** An online survey conducted in May 2026 had 735 responses from postpartum mothers who had given birth within five years at the time of the survey (607 aged <40 years, 128 aged ≥40 years; mean age 35.3±4.7 years; mean time since last birth 21.3±16.4 months). Vulvovaginal symptoms were assessed using the Menopause Rating Scale (MRS) vaginal dryness item and the Vulvar Symptom Questionnaire (VSQ). Symptomatic status was defined as reporting vaginal dryness and/or at least one vulvovaginal symptom on the VSQ. Treatment engagement was determined through self-reported healthcare-provider (HCP) contact and treatment use. Psychological distress was assessed using the Edinburgh Postnatal Depression Scale (EPDS). Binary outcomes were analysed using logistic regression adjusted for months since birth. **Results:** Vulvovaginal symptoms were common: 29.0% of mothers reported vaginal dryness and 28.6% reported at least one VSQ symptom, including vulvar irritation, pain with intercourse, and psychosocial impact. Among the 275 symptomatic women, only approximately one in five had discussed their symptoms with a healthcare provider (20.4%), only 5.1% were using topical vaginal estrogen, and 62.2% had received no treatment. Mothers aged ≥40 years were nearly three times more likely than younger mothers to have spoken with a healthcare provider (40.4% vs 15.1%; adjusted OR=3.06, 95% CI 1.56–6.03, p=0.001) and were more likely to report any treatment use (54.4% vs 33.5%; adjusted OR=2.07, 95% CI 1.13–3.79, p=0.019). However, vaginal estrogen use remained low and did not differ between the groups (7.0% vs 4.6%, p=0.651). Across the full sample, mothers reporting vulvovaginal symptoms had higher EPDS scores than asymptomatic mothers (8.82 vs 6.08, p<0.001). **Conclusion:** Vulvovaginal symptoms were common among postpartum mothers and were associated with higher depressive symptoms, yet few symptomatic women had discussed symptoms with a healthcare provider or used topical vaginal estrogen. These findings highlight the importance of asking about vulvovaginal symptoms during postpartum and midlife women's health care.

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P-133.

Impact of Ovarian Follicle Depletion and Estradiol Addback on the Transcriptome of Mouse Cardiometabolic Tissues

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Objective: In humans, the depletion of ovarian follicles triggers hormonal and physiological changes throughout the body, ultimately leading to menopause. Unfortunately, menopause often worsens cardiovascular and metabolic disease risk factors, increasing incidence of metabolic syndrome and coronary heart disease and stroke risk after menopause. To date, scientists have a limited understanding of the molecular-level changes that are set in motion as ovarian follicle supplies dwindle and estradiol levels fall with menopause, especially in non-reproductive tissues. Here, we sought to identify cardiometabolic tissue gene expression changes caused by ovarian follicle depletion in a mouse model of the menopause transition and to determine which changes were reversed by estradiol (E2) addback. **Design:** To induce gradual ovarian follicle depletion, we injected 3-month-old female C57BL/6J mice with the chemical VCD (4-vinylcyclohexene dioxide; N=17). We similarly injected male (N=10) and additional female (N=19) mice with sesame oil as a control. After 8 weeks, a non-terminal blood draw was conducted for FSH (follicle-stimulating hormone) measurement. In a subset of VCD-treated mice, estradiol (N=5) or placebo (N=5) pellets were implanted subcutaneously during week 18. Mice were euthanized during week 21, with blood collected via cardiac puncture and cardiometabolic (gonadal adipose, liver, and aorta) tissues collected for RNA-sequencing analysis. Prior to the blood draw and sacrifice, vaginal cytology was performed to document estrous cycling

of female mice. PolyA-selected, paired-end, strand-specific RNA-sequencing libraries were prepared from mouse tissue RNA samples and sequenced. Sequence fragments were aligned using STAR 2-pass alignment, PCR duplicates were removed using Picard MarkDuplicates, genes were quantified using FeatureCounts, and differential expression analyses were conducted using DESeq2. **Results:** As confirmation of ovarian follicle depletion, VCD-treated female mice had elevated FSH levels compared to control-treated mice by week 8 of the experiment (23.9±8.6 vs. 3.1±3.4 ng/ml; p=8×10⁻⁹). E2 pellet implantation reduced FSH levels compared to placebo in VCD-treated females by the end of the experiment (10.8±2.9 vs. 26.6±5.1 ng/ml; p=0.0008). At a false-discovery rate (FDR) of 5%, VCD treatment significantly altered the expression of 26 genes in a combined-tissue meta-analysis. VCD-upregulated genes included *Ide* (insulin degrading enzyme), while VCD-downregulated genes included *Gpx3* (which protects against reactive oxygen species and regulates blood pressure), *Pck1* (a key regulator of gluconeogenesis), and *Cdkal1* (a gene associated with type 2 diabetes risk that facilitates insulin secretion). E2 pellet implantation had significant effects on female VCD-treated mouse gene expression in adipose (1781 genes) and aorta (725 genes), but had a more modest effect in liver (95 genes). E2-responsive genes included known estrogen-regulated genes (e.g. *Greb1*, *Oxtr*, and *Gpx3*) and were enriched for pathways including glutathione, lipid, and fatty acid metabolism, inflammatory response, and hormone signaling. Genes that were differentially expressed between control-treated females in metestrus/early diestrus (low E2) versus proestrus/estrus (high E2) were significantly enriched for involvement in lipid and fatty acid metabolism and PPAR signaling. Extensive sexual dimorphism in gene expression was also observed in all 3 tissues from control-treated mice. **Conclusion:** Our findings demonstrate that ovarian follicle depletion initiates molecular shifts in mouse cardiometabolic tissues, influencing the expression of genes involved in insulin and glucose metabolism and oxidative stress. Estradiol pellet implantation had tissue-specific effects on gene expression, influencing many metabolic pathways relevant to cardiometabolic disease. Even transient changes in hormone levels during the estrous cycle influenced expression of genes involved in lipid homeostasis. By detecting molecular-level changes induced by ovarian follicle depletion, this study identifies specific pathways that may be leveraged for early risk stratification and targeted therapeutic interventions to preserve cardiometabolic health during the menopause transition.

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Abstract Withdrawn by Author

P-135.

Effects of sequencing to antiresorptives after abaloparatide or teriparatide on hip fracture risk: A real-world study in US women

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Objective: The parathyroid hormone analogs, abaloparatide (ABL) and teriparatide (TPTD), are anabolic therapies for osteoporosis (OP). Currently, OP treatment guidelines recommend that patients are treated with an antiresorptive (AR) agent following anabolic therapy. This analysis assessed the effect of postanabolic AR therapy on hip fracture outcomes in women with osteoporosis who were prescribed ABL or TPTD. **Design:** Anonymized patient claims data from ICON's Symphony Health PatientSource Integrated Database were used for this study. Women ≥50 years of age who had an initial prescription filled for ABL or TPTD (≥6 months) from January 2018 to June 2021, and medical or pharmacy records for ≥1 year before and 3 years after anabolic therapy were included. Women were grouped by postanabolic AR use (AR therapy [≥6 months] initiated within 1 year of anabolic treatment vs no AR therapy), and matched groups were created using logistic-regression propensity score matching. Cox proportional hazards model was used to compare the time to first hip fracture incidence over 3 years in patients with postanabolic AR therapy vs without postanabolic AR therapy. **Results:** 5854 women treated with ABL (2927 with postanabolic AR vs without; median age: 65 years) and 5468 women treated with TPTD (2734 with postanabolic AR vs without; median age: 67 years) were included after propensity score matching. Prior to the respective anabolic therapy, 78% of women in the ABL and 77% of women in the TPTD groups had diagnosed OP. Across groups, a history of any fracture was reported in 34%–38% of women, the most reported fracture was a spine fracture (18%–25%), and 5%–6% of women had a history of hip fracture. At any time prior to initiating ABL or TPTD, 51% of women received AR therapy (about 43% received a bisphosphonate and 10% received denosumab). The mean treatment duration for ABL and TPTD was 15 months, and 67% received ABL or TPTD for >12 months. About 58% of women who initiated AR therapy did so within 3 months after discontinuing ABL or TPTD. The absolute risk of hip fracture at 3 years after ABL was 1.0% with postanabolic AR therapy and 1.5% without, while after TPTD it was 1.3% with postanabolic AR therapy and 1.9% without. Women who received postanabolic AR therapy had a reduced risk of hip fracture vs those without (HR [95% CI]: ABL: 0.66 [0.41, 1.06], P=0.08; TPTD: 0.67 [0.43, 1.03], P=0.07; ABL+TPTD: 0.66 [0.48, 0.91], P=0.01). **Conclusion:** This study used real-world patient claims data to assess the effect of postanabolic AR therapy on hip fracture outcomes in women who were prescribed ABL or TPTD. Over 3 years,

the risk of hip fracture was significantly reduced in women treated with ABL and TPTD who received postanabolic AR therapy within a year of completing the anabolic vs women who did not receive postanabolic AR therapy. These data support current recommendations and highlight the need for AR therapy after anabolic therapy to ensure greater protection against hip fracture.

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P-136.

Patient-Reported Atopic and Histamine-Associated Symptoms During Midlife Estradiol Therapy

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Objective: Atopic conditions, histamine intolerance, and mast cell activation syndrome (MCAS) may influence symptom burden and hormone therapy tolerance in midlife women. Mast cells express estrogen receptors, and estradiol may influence mast cell activation and mediator release (Zaitse et al., 2007; Zierau et al., 2012). Because MCAS diagnosis requires more than symptoms alone, including recurrent systemic symptoms, objective mediator evidence, and response to mast-cell-directed therapy, patient-reported symptoms should be interpreted cautiously (Gülen et al., 2021; Valent et al., 2021). This descriptive practice-based survey summarized self-reported atopic and histamine-associated symptoms among patients receiving menopause care and patient-perceived relationships between estradiol changes and symptom flares. **Design:** A convenience survey questions were distributed from April 29 to May 16, 2026, to a convenience sample of patients in a menopause-focused clinical practice. Responses were voluntary and self-reported. Descriptive statistics summarized respondent characteristics, self-reported atopic or histamine-related conditions, symptoms attributed by respondents to estradiol changes, and flare timing. Open-text comments related to histamine or mast-cell-type symptoms were reviewed descriptively for recurring themes. Findings should be interpreted as exploratory and descriptive rather than population prevalence estimates or evidence of causality. **Results:** A total of 766 respondents completed the survey; 79.9% reported current hormone therapy use. Among respondents who answered comorbidity items, 12 of 686 (1.8%) reported a formal MCAS diagnosis, 39 of 686 (5.7%) reported histamine intolerance, and 232 of 686 (33.8%) reported allergies, asthma, or eczema. Recent skin changes, including dryness, itching, or breakouts, were reported by 331 of 663 respondents (49.9%). Among 132 respondents who answered estradiol-related histamine or mast-cell questions, 55 (41.7%) reported that estradiol changes seemed to trigger histamine, allergic, or mast-cell-type responses. Common symptoms attributed to estradiol changes included mood changes or anxiety (68/132, 51.5%), brain fog or difficulty concentrating (56/132, 42.4%), itching with or without visible rash (44/132, 33.3%), palpitations or racing heartbeat (35/132, 26.5%), flushing or sudden redness (30/132, 22.7%), abdominal changes or diarrhea (25/132, 18.9%), hives or welts (14/132, 10.6%), shortness of breath or wheezing (12/132, 9.1%), and nausea or vomiting (11/132, 8.3%). Regarding timing, 21 of 128 respondents (16.4%) reported symptoms before menses, 14 of 128 (10.9%) reported symptoms at the initiation of hormone therapy or at a dose change, and 49 of 128 (38.3%) reported no clear pattern. Review of 32 open-text comments identified recurring patient-described themes, including gradual estradiol titration, sensitivity to dose changes, new or worsening atopic symptoms during perimenopause, and antihistamine use by some respondents while continuing estradiol therapy. **Conclusion:** In this practice-based convenience sample, self-reported atopic conditions and histamine-associated symptoms were common among respondents receiving menopause care. A subset perceived a relationship between estradiol changes and symptoms such as anxiety, brain fog, itching, palpitations, flushing, and gastrointestinal or respiratory symptoms. These findings support asking about atopic history, histamine intolerance, medication sensitivity, and symptom timing during menopause intake. They also suggest that patients who report hormone sensitivity may need individualized estradiol titration, consistent with menopause guidance that hormone therapy should be individualized by formulation, dose, route, duration, timing, and patient-specific risk profile (The North American Menopause Society Advisory Panel, 2022). Prospective evaluation is needed to better characterize the relationship between estradiol therapy, symptom timing, and mast-cell-associated symptoms in midlife women.

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P-137.

Targeting Hormone Treatment for the Brain in Menopause

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Objective: Estrogens are neuroprotective, and menopause may contribute to neurodegeneration. In contrast to estradiol that binds strongly to estrogen receptor (ER) alpha in breast, the pregnancy hormone estradiol binds weakly to ER alpha. Instead, estradiol preferentially binds to ER beta, and this induces neuroprotection in multiple sclerosis (MS) models. Previously, oral estradiol treatment in women with MS improved cognitive processing speed and reduced cerebral cortex atrophy at treatment month twelve. Here, we repurpose estradiol treatment in women with MS to healthy women with cognitive symptoms of menopause. To this end, we determine effects of estradiol treatment on otherwise healthy women with cognitive symptoms of menopause, and we show neuroprotective mechanisms of estradiol treatment by targeting ERβ in brain astrocytes in the menopause model. **Design:** Treatment with a blisterpack designed for

healthy menopausal women which contains estradiol and progesterone was examined for its effect on cognitive domain-specific symptoms in a case series of twenty menopausal women (mean age 53.5 years). Ovariectomized midlife female mice that demonstrated cognitive deficits, glial activation, and synaptic loss in dorsal hippocampus were used to assess the role of Enolase 1 (ENO1), a key protein in glucose utilization, in astrocytes. Gonadally intact female mice with ER beta selectively deleted from astrocytes were then compared with the effect of ovariectomy on the same cognitive and ENO1 outcomes. Conversely, treatment with either ERβ ligand or estradiol were examined for effects on ENO1 expression in hippocampal astrocytes and cognitive performance.

Results: The Voskuhl Menopause Brain Fog Assessment was administered at month 0 (baseline) and again at treatment month 12 to determine the effect of treatment using a patented blisterpack designed for healthy menopausal women. At treatment month twelve, there were significant improvements in self-reported brain fog, concentration, working memory, processing speed, verbal memory, and problem solving. Covariates were assessed, including effects of age, education, prior MHT use, and estradiol dose (2mg or higher). A preclinical model of cognitive deficits of menopause explored mechanism. Ovariectomized midlife female mice had cognitive deficits, glial activation, and synaptic loss in dorsal hippocampus. Astrocytes had increased levels of Enolase 1 (ENO1), a key protein in glucose utilization. Increased ENO1 correlated with worse cognitive performance. Deletion of ERβ in astrocytes in midlife females recapitulated effects of ovariectomy at midlife. Conversely, treatment with either ERβ ligand or estradiol reduced ENO1 expression in hippocampal astrocytes and improved cognitive performance.

Conclusion: This preliminary study suggests that our treatment for cognitive symptoms of menopause warrants further investigation given the safe use of these hormones in Europe and Asia for decades to reduce other menopausal symptoms.

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P-138.

Navigating the Transdermal Estradiol Patch Shortage: A Pharmacist-Guided Clinical Framework for Therapeutic Substitution in Menopausal Hormone Therapy

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Objective: To provide practical clinical guidance on therapeutic alternatives to transdermal estradiol patches during ongoing supply shortages. Because transdermal estradiol is often preferred for its favorable pharmacokinetic profile and lower venous thromboembolism risk compared with oral estrogen, limited availability has created challenges for maintaining menopausal hormone therapy. This review highlights key pharmacologic and clinical considerations for therapeutic substitution and transitioning patients to alternative systemic estrogen delivery systems while preserving symptom control and safety. **Design:** A targeted clinical and pharmacologic review of available FDA approved systemic transdermal estradiol formulations was conducted using prescribing information, pharmacokinetic data, and current clinical guidance on menopausal hormone therapy. Alternative estrogen delivery systems—including transdermal gels, sprays, and systemic vaginal rings—were evaluated for dosing characteristics, systemic absorption, clinical indications, and practical substitution considerations. Pharmacy practice factors including formulary coverage, prior authorization requirements, medication availability, and patient cost were incorporated to develop pragmatic therapeutic substitution guidance.

Results: Multiple systemic estradiol formulations provide alternatives to transdermal patches. However, important differences exist in dosing flexibility, absorption variability, application technique, and adherence considerations. Insurance formularies and cost-sharing requirements frequently influence therapy selection and may limit access to certain products. Pharmacists play a critical role in evaluating therapeutic alternatives, navigating formulary restrictions, ipatient cost-sharing, and counseling patients on proper administration. Clinicians must also reassess the need for progestogen in patients with an intact uterus when transitioning between systemic estrogen therapies. **Conclusion:** The transdermal estradiol patch shortage highlights the importance of pharmacist involvement in menopause care during medication supply disruptions. Integrating pharmacologic expertise with medication access considerations—including insurance coverage, formulary status, and cost—supports effective therapeutic substitution and continuity of menopausal hormone therapy. Pharmacist-guided strategies provide a practical framework to help clinicians maintain symptom management during periods of drug shortage.

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P-139.

Blood Pressure Trajectories During the Menopausal Transition Among Women Without Preexisting Hypertension: Associations with Gynecologic and Lifestyle Factors in a US Digital Cohort

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Objective: Prior studies using clinic measurements showed that blood pressure (BP) rises during perimenopause. However, less is known regarding how real-world gynecologic and lifestyle factors inform individual variations in BP trajectory parameters. Using high-density, mobile-application-logged BP data, we examined BP trajectory parameters (overall level, the timing of BP changes, and rate of change) and their associations with

early to mid-life sociodemographic and health factors among women with no prior diagnosis of hypertension. **Design:** We included participants from a US-based digital cohort study (Apple Women’s Health Study) who enrolled during 11/2019-12/2025, provided consent, were menopausal (self-reported), reported no prior physician diagnosis of hypertension at enrollment, and shared systolic BP (SBP) and diastolic BP (DBP) data in the Apple Health app. We restricted to BP records with physiologically plausible values (SBP: 80–200; DBP: 40–150 mmHg), excluding outliers, spanning 6 years before the self-reported final menstrual period (FMP) date to 7 years after FMP. We fitted Super Imposition by Translation and Rotation (SITAR) models (a spline-based mixed effects model designed for growth curves or other physiologic trajectories) to estimate the mean population-level BP trajectories as well as participant-specific random effects for BP trajectory size (magnitude), tempo (timing), and velocity (rate). We then fitted multivariable regression models including sociodemographics, gynecological conditions, reproductive history, menopause-related factors, perceived stress, lifestyle factors, and physical activity (PA) categorized as low/moderate-low/moderate-high/high (based on Apple Watch activity ring measures among those with an Apple Watch), to estimate their associations with the SITAR-derived BP parameters. Sensitivity analyses used latent class trajectory models (LCTM) to evaluate evidence of distinct subgroups. **Results:** Among 534 eligible participants with 90,099 BP records, most were non-Hispanic White (NHW, 80%), experienced natural menopause (76%), and aged ≥40 years at menopause onset (92%); 35% had obesity; and 43% reported using prescribed hormones for menopause symptoms. The mean population curve from the SITAR model showed SBP and pulse pressure (PP) increased from 6 years pre-FMP toward FMP, flattened in early post-FMP, then increased again through 7 years post-FMP. DBP showed modest changes (range: 75–77 mmHg). Mean arterial pressure (MAP) peaked 1–2 years post-FMP. For SBP magnitude, overweight and obesity were associated with higher SBP [β (95%CI): 3.02 (1.23, 4.80) and 3.32 (1.39, 5.25) mmHg], while prescription hormone use for menopause symptoms was associated with lower SBP [β (95%CI): -1.97 (-3.43, -0.52) mmHg]. Having polycystic ovary syndrome (PCOS) or early-life irregular cycles, low PA, higher stress score, or experiencing severe heart discomfort during menopause was associated with earlier SBP progression along the trajectory (by 0.53, 0.46, 0.45, and 0.74 years earlier, respectively; p-values <.05). SBP velocity was higher among Asian or non-Hispanic Black (vs. NHW) participants by 1.27 (95%CI: 1.04, 1.54) and 1.11 (95%CI: 1.01, 1.23) times, and was higher among those who reported gaining >30 lbs during perimenopause. For PP and MAP, lifetime hormone use or PCOS/irregular cycles were associated with earlier or faster increases. The LCTM favored a 1-class model; 2- and 3-class models added marginal information identifying only 8-9 participants with high absolute BPs. **Conclusion:** In this analysis of real-world BP measurements during perimenopause, gynecologic history, obesity, hormone use, stress, race/ethnicity, and PA were associated with differences in BP trajectory magnitude, timing, and velocity. Despite limitations including a relatively small sample size, measurement variability, and device heterogeneity, these findings provided preliminary evidence for identifying higher-risk subgroups and modifiable factors beyond traditional clinic-based assessments. **Sources of Funding:** Apple Inc. AMJ is supported by Z01ES103333 from the Intramural Research Program of the National Institutes of Health.

P-140.
Vaginal Estrogen Use and Perioperative Urinary Tract Infection Rates in Fragility Fracture Patients

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Objective: Fragility hip fractures pose a substantial public health burden among postmenopausal women. Perioperative urinary tract infections (UTI) are a common complication among this population, contributing additional morbidity and mortality. The genitourinary syndrome of menopause (GSM) - characterized by estrogen deficiency affecting the urogenital epithelium - predisposes postmenopausal women to recurrent UTIs and may increase their risk of perioperative UTI. Vaginal estrogen is a preventive therapy for recurrent UTIs in postmenopausal women with GSM, but the role of vaginal estrogen in the perioperative setting has not been investigated. The purpose of this study is to characterize vaginal estrogen utilization and its association with perioperative hip fracture complications, including perioperative UTI, in postmenopausal women. **Design:** A retrospective cohort study was performed on women age ≥50 years with hip fractures treated at a large academic health system between July 1, 2023, and December 31, 2025. Patient characteristics, perioperative vaginal estrogen use, and postoperative outcomes were collected from the electronic health record. The primary outcome was perioperative UTI, defined as UTI occurring between 2 weeks preoperatively and 90 days postoperatively. Secondary outcomes included 30-day emergency department (ED) visits, 31-day hospital readmission, and 365-day mortality. Group comparisons were completed using Chi-squared or Fisher’s exact tests. Multivariable logistic regression evaluated associations between vaginal estrogen use and perioperative UTI, adjusting for age and history of recurrent UTI. **Results:** In a sample of postmenopausal women (N=375) experiencing hip fracture (age 80.0±9.85), 8.8% (n=33) reported perioperative use of vaginal estrogen. 32 of these 33 women had been using vaginal estrogen for at least 6 weeks prior to surgery. 25.97% (n=94) of this sample experienced at least one perioperative UTI. 28 women (7.46%) experienced a preoperative UTI. UTIs occurred in 6.30% (n=23) within 30 days and 8.12% (n=29) within 90 days postoperatively. History of recurrent UTI was present in 14.97% (n=56) of the study sample and was more common among vaginal estrogen users than non-users (36.36% vs 12.90%). Vaginal estrogen use was associated with history of recurrent UTI (OR 3.84; 95% CI 1.60 – 8.86, p<0.01). In unadjusted analysis, vaginal estrogen use was associated with increased risk of perioperative UTI ($\chi^2=9.22$, p<0.001). In models adjusted for age

and history of recurrent UTI, vaginal estrogen use (aOR 2.56, 95% CI 1.17-5.54) and history of recurrent UTI (aOR 2.51, 95% CI 1.35-4.63) were associated with higher odds of perioperative UTI. Vaginal estrogen use was not significantly associated with other perioperative hip fracture complications including 30-day ED visits, 31-day readmission, or 365-day mortality. **Conclusion:** This retrospective analysis revealed that overall utilization of vaginal estrogen is low in a population of postmenopausal women experiencing hip fractures. In this sample, women with a history of recurrent UTIs were both more likely to report perioperative vaginal estrogen use and have a perioperative UTI. Furthermore, perioperative vaginal estrogen use was significantly associated with history of recurrent UTI. Vaginal estrogen has been shown to be effective in prevention of recurrent UTIs in postmenopausal women with GSM. Therefore, the results of this analysis likely represent the fact that vaginal estrogen is currently indicated only in a population of women with a history of recurrent UTI who are also at increased risk of perioperative UTI. There is limited evidence describing the potential utility of vaginal estrogen for perioperative UTI prevention for postmenopausal women with or without history of recurrent UTI. Given the substantial morbidity and mortality associated with hip fractures and perioperative UTIs, this study underlines the importance of additional prospective investigation to further evaluate the role of vaginal estrogen in perioperative UTI prevention.

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Occurrence of Perioperative UTI in Vaginal Estrogen Users and Vaginal Estrogen non-Users

	Preoperative UTI	30d UTI	90d UTI	No Perioperative UTI	Totals
Vaginal Estrogen Users	8	3	5	16	32
Vaginal Estrogen non-Users	30	20	24	252	326

P-141.
Positive and negative emotions are worse during a vasomotor symptom event

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Objective: Self-reported vasomotor symptoms (VMS) have been associated with poor mood, with most work in this area focusing on depression. Distinct from prolonged mood states like depression, emotional well-being can vary from moment-to-moment and comprises both positive (i.e., happy, calm, energetic, interested/involved) and negative (i.e., sad, lonely, angry/irritated, nervous/anxious, stressed) emotional states. Initial work finds that worse positive and negative emotions follow a day with self-reported VMS compared to a day without self-reported VMS. Similarly, self-reported VMS that are not corroborated by physiologic VMS (i.e., false positive) are marginally more likely to coincide with higher frustration and lower happiness compared to control times. However, to our knowledge, no study has directly assessed differences in positive and negative emotions during all self-reported VMS compared to other times. Here we compare the positive and negative emotions experienced by midlife postmenopausal women during self-reported VMS to those experienced at other times. We hypothesize that positive emotions will be lower and negative emotions will be higher during a self-reported VMS event compared to emotions experienced at other times across the monitoring period. **Design:** From an initial sample of 274 women enrolled in MsBrain I, 131 women (mean age=58.5y, mean education=15.4y, 77.1% White) met inclusion criteria of having reported emotions both during VMS and at other times during the monitoring period. VMS and emotion measures were self-reported over 72h using ecological momentary assessment with a handheld device. In response to an alarm on the device (randomly 4x per day from 9am to 6pm) or when experiencing VMS, participants were instructed to complete a survey on the device. In the survey, participants indicated how strongly they currently felt each positive and negative emotion on a scale of 1 to 6. Analyses comparing positive and negative emotions during, versus not during, VMS were conducted using mixed-effects models, controlling for age, race, years of education, income, marital status, and number of VMS-initiated responses. Models included a random intercept for day, as well as a random intercept for participant with a random slope for type of response (during VMS vs. not during VMS). **Results:** Across women, there were 2223 total emotion reports, 38.0% of which occurred during VMS. Positive emotions were lower (b=-1.52, SE=.18 p<.001, B=-.43) and negative emotions were higher (b=.54, SE=.18, p=.003, B=.12) when experienced during VMS compared to while not experiencing VMS, with more pronounced effects for positive emotions. **Conclusion:** In midlife postmenopausal women with self-reported VMS, real-time ratings of positive emotions were lower and negative emotions were higher during VMS than not during VMS. The more pronounced effect of VMS on positive emotions underscores the importance of both positive and negative emotions when characterizing the emotional sequelae of VMS. Further, findings suggest that interventions to mitigate VMS and their emotional impacts may be important to maintaining women’s daily emotional well-being. **Sources of Funding:** This research was supported by the National Institutes of Health, National Institute on Aging (grant numbers: R01AG053504 and R01AG053504 to Thurston and Maki).

P-142.
Menopause Symptoms, Quality of Life, and Physical Activity Among Mothers of Children with and Without Disabilities

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Objective: Mothers of individuals with developmental disabilities (DD) often experience caregiving demands that limit opportunities for physical activity and affect their quality of life. Among midlife mothers, menopause symptoms may make these challenges

even harder, yet few studies have examined how menopause symptoms, quality of life, and physical activity are connected in this population. Therefore, the purpose of this study was to compare menopause symptoms, quality of life, and physical activity, among mothers of individuals with and without DD. **Design:** This cross-sectional study included 200 mothers aged 35–65 years. Participants were mothers of children with DD (N = 100) and mothers of children without DD (N = 100). All participants completed questionnaires assessing menopause symptoms, quality of life, and physical activity. Group differences were examined using univariate analyses of covariance, controlling for age, income, and race. Regression analyses were used to examine associations among menopause symptoms, quality of life, and physical activity. **Results:** Mothers of children with DD reported more severe menopause symptoms and lower quality of life compared with mothers of children without DD, whereas physical activity levels were similar between groups. After adjusting for age, income, and race, disability status remained a significant predictor of quality of life ($p < .001$), along with income ($p < .001$). No significant group differences in physical activity were found after controlling for these covariates. Physical activity was not significantly associated with quality of life or menopause symptoms for either group or when both groups were analyzed together. **Conclusion:** Mothers of children with DD reported poorer quality of life and more severe menopause symptoms, even though their physical activity levels were comparable to mothers of children without DD. These findings indicate that physical activity by itself does not explain the differences in quality of life between groups. Future interventions for this population should go beyond exercise programming and incorporate menopause education and symptom management strategies that account for the caregiving demands these mothers experience.

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P-143.

Generational differences among Chinese American mother-daughter dyads towards healthcare and menopause: A mixed methods study

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Objective: Background Compared to other areas of women's health, menopause has historically been understudied and underfunded in research and has not been inclusive of communities of color. Cultural beliefs, values, and practices play a critical role in how women navigate this transition period. Among Chinese American women, stigma, society gender roles, and conservative cultural expectations may affect menopause awareness and access to symptom management. Mother-daughter dyadic relationships play a pivotal role in shaping women's health trajectories across the lifespan. As primary socialization agents, mothers often serve as the first and enduring models of health beliefs, behaviors, and coping strategies, while daughters actively contribute to and transform these patterns through reciprocal interaction. Understanding the quality, structure, and dynamics of mother-daughter relationships is therefore critical for designing effective, culturally responsive menopause-related interventions. **Objective** To understand generational differences among Chinese American mother and daughter dyads on perceptions of menopause with a goal of leveraging relationships to improve health and develop more culturally responsive care across the reproductive life course. **Design:** We administered brief surveys and conducted semi-structured interviews in English and Mandarin with 15 Chinese American mother-daughter dyads (n=30) to understand knowledge and attitudes towards healthcare and menopause, sources of support, caregiving behaviors, and interest in an intergenerational health intervention. **Results:** Survey results found that mothers reported higher levels of listening support provided to daughters than daughters reported receiving ($t=2.8$, $p<0.05$) and that amongst various health conditions affecting the Chinese American community in New York City, menopause ranked top amongst daughters but not mothers as being of highest interest. Dyadic interviews revealed both generational differences and influences between mothers and daughters. While both characterized menopause as a natural process, mothers framed their menopause experience with indifference whereas daughters expressed strong interest in learning more about the issue. Mothers' own personal experience influenced daughters' knowledge and attitudes. Daughters indicated seeking support for menopause from obstetrician-gynecologists, traditional Chinese medicine doctors, their own mothers, and women support groups—emphasizing the guidance should come from other women. Daughters also said they would search for information online for its convenience but commented that online information can be less trustworthy. Most dyads described positive relationship quality and mutual support with one another. Healthcare support was bidirectional – with mothers providing general health advice and daughters assisting with interpretation and logistics. **Conclusion:** These findings highlight the potential of leveraging Chinese American mother-daughter relationships to enhance menopause awareness and support. Future programming should be developed by considering mother-daughter dynamics and cultural attitudes towards menopause as well as other constructs – such as high interest amongst younger generation Chinese American women, the tendency to turn towards online resources, and desire for scientifically sound, trusted support from other women.

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P-144.

Understanding Menopause Symptom Burden in Women with Rheumatoid Arthritis

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Objective: Rheumatoid arthritis (RA) is the most common chronic systemic autoimmune disease that leads to joint pain, destruction, and disability and disproportionately affects women. In women with RA, menopause is associated with functional decline, hormonal changes that may exacerbate disease activity, and the additive risk for comorbidities including cardiovascular disease and osteoporosis. Menopause-related symptoms are rarely assessed in women with RA, limiting understanding of the scope and severity of menopausal symptoms in this population. This study aimed to quantify menopause-related symptom burden in women with RA using the Menopause Rating Scale (MRS) and to compare symptom severity in women with and without RA, adjusting for key demographic and clinical factors. **Design:** A cross-sectional analysis of women age 40-65 receiving care at Mayo Clinic (Rochester, MN; Scottsdale, AZ; Jacksonville, FL) utilizing the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS) and the Hormones and Experiences of Aging (HERA) data set with and without RA. RA was identified using two ICD codes for RA recorded ≥ 30 days apart. Menopause symptoms were assessed using the Menopause Rating Scale (MRS), a validated 11-item questionnaire evaluating somatic, psychological, and urogenital symptoms (scores 0–4 per item; higher scores indicate greater symptom burden). Covariates included age, body mass index, race/ethnicity, antidepressant use (SSRI/SNRI), systemic menopause hormone therapy (HT) use, menopause status, partner status, and immune mediated inflammatory diseases (IMID), including systemic lupus erythematosus (SLE), multiple sclerosis (MS), psoriasis, inflammatory bowel disease (IBD). Descriptive statistics were summarized as medians (IQRs) or frequencies (%), and associations were evaluated using logistic regression. **Results:** A total of 9,356 participants were included, of whom 215 (2.3%) had RA. Participants with RA were similar in age to those without RA (mean 54.1 vs. 53.6 years, $p=0.20$). Race distributions differed significantly between groups ($p=0.033$), with slightly higher proportions of Hispanic and “Other” race among individuals with RA. Obesity was more common in individuals with RA (38.1% vs. 29.9%, $p=0.015$). Use of SSRIs/SNRIs did not differ significantly by RA status ($p=0.12$), nor did systemic HT use ($p=0.83$). Women with RA reported significantly higher menopause-related symptom severity. Severity of hot flashes differed by RA status, with RA participants more likely to report very severe symptoms (9.3% vs. 4.4%, $p=0.024$). Total MRS scores were higher in the RA group (median 15 vs. 13, estimated difference 2.19, 95% CI 1.21–3.17), and a greater proportion had clinically significant symptom burden (MRS ≥ 12 : 72.1% vs. 56.5%, OR 1.99, 95% CI 1.47–2.68). RA was also associated with severe/very severe hot flashes (OR 1.40, 95% CI 1.00–1.95). After multivariable adjustment for immune-mediated inflammatory diseases, including SLE, MS, psoriasis, and IBD, RA remained associated with higher MRS total scores (estimate 1.90, 95% CI 0.93–2.86) and greater odds of MRS ≥ 12 (OR 1.96, 95% CI 1.44–2.67). The association between RA and severe/very severe hot flashes attenuated and did not reach statistical significance in adjusted models (OR 1.34, 95% CI 0.95–1.89, $p=0.096$). **Conclusion:** Women with RA experienced significantly greater menopause-related symptom burden, as measured by MRS scores, independent of age, obesity, hormone therapy use, and compared with other immune-mediated inflammatory diseases. By directly characterizing menopause symptom severity in women with RA, this study fills a critical gap in the literature and suggests that menopause symptoms represent an important contributor to symptom burden in this population.

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P-145.

Menstrual cycle regularity definitions may be temporally incomplete: Women may be classified as regular or irregular depending on observational window

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Objective: Menstrual cycle regularity is a core characteristic used to define abnormal uterine bleeding. However, unlike cycle length, bleeding duration, or flow volume, regularity cannot be evaluated from a single cycle and requires longitudinal observations. The 2018 FIGO guideline defines cycle irregularity in two ways: the range between shortest and longest cycles exceeding 7–9 days, depending on age (definition 1), or the standard deviation of cycle lengths exceeding 4 days (definition 2). However, the observational window over which these thresholds should be applied is not explicit. As a result, the same woman may be classified as regular or irregular depending on how long her cycles are observed. This study examined how FIGO-based menstrual cycle regularity classifications change across observational windows and age groups, as a first step toward identifying clinically meaningful time horizons for assessing menstrual cycle regularity. **Design:** Using longitudinal tracking data from 70,000 Flo users aged 18-55 (excluding hormonal contraception use or pregnancy within the study window) collected over a 24-month window ending 2026-05-25, we compared how cycle irregularity classifications shift across 3-, 6-, and 12-cycle retrospective windows using two FIGO definitions. Users were evaluable if they contributed ≥ 12 valid cycles (10-90 days) and had logged a cycle within 30 days of the window end. Cycle irregularity prevalence and agreement between definitions were estimated and stratified by age band. **Results:** Across both FIGO-based definitions, the proportion of women classified as irregular increased markedly as the observational window lengthened from 3 to 12 cycles. Using the range-based definition, irregularity prevalence increased from 30.1% over a 3-cycle

window to 48.0% over 6 cycles and 65.7% over 12 cycles. Using the SD-based definition, prevalence increased from 33.8% to 40.5% and 47.5%, respectively. The irregularity prevalence varied across age groups with a consistent U-shaped pattern: higher in the youngest age groups, lowest in peak reproductive years, and rising sharply in the oldest age groups, when the perimenopause onset becomes increasingly common. Agreement between the two FIGO definitions declined with longer observational windows. Raw agreement fell from 96.0% at 3 cycles to 81.8% at 12 cycles and the disagreement peaks among the 31–35 and 36–40 age group, where the raw agreement declined to 73.4% and 74.9%. **Conclusion:** Menstrual cycle regularity classifications appear highly sensitive to observational window length. For the same cohort, irregularity prevalence varied substantially depending on how long cycles were observed, particularly when using the range-based definition. Agreement between FIGO-based definitions was generally high, but declined with longer observational windows, with the greatest disagreement occurring during peak reproductive years (ages 31–40). This pattern suggests that different operational definitions may capture related but distinct dimensions of cycle variability. These findings suggest that current definitions of menstrual cycle regularity are temporally incomplete. Specifying observational windows may be essential for identifying when cycle variability reflects transient disruptions versus clinically meaningful reproductive or gynecologic change changes.

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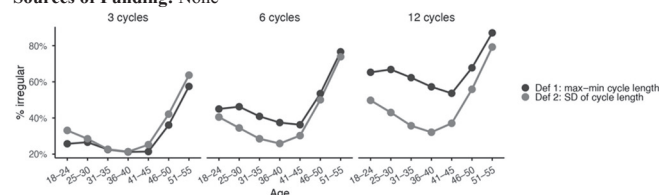


Figure 1. Percentage of eligible participants classified as irregular under FIGO-based definitions by age band across retrospective observation windows over 3, 6, and 12 cycles.

P-146.

Physical activity frequency and perimenopause symptom burden: Global insights from the Flo app

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Objective: Perimenopause, the transitional phase preceding menopause, is marked by hormonal changes leading to physical and psychological symptoms that can impair quality of life. The relationship between physical activity and perimenopause symptom burden remains underexplored, particularly in global populations. This study aimed

to examine the association between physical activity frequency and perimenopause symptom burden using international data from the menstrual tracking application Flo. **Design:** This cross-sectional study included English-, Spanish-, Portuguese-, and French-speaking users of the Flo app aged ≥ 35 years who self-identified as being in perimenopause. Participants using hormonal contraception or hormone therapy were excluded. Respondents completed an online survey including self-reported physical activity frequency (five options: “not physically active” to “ ≥ 5 days/week”) and the Menopause Rating Scale (MRS). The MRS is a validated instrument measuring symptom severity across somatic, psychological and urogenital domains; higher scores indicate greater symptom burden (total score range 0–44; somatic 0–16; psychological 0–16; urogenital 0–12); higher scores indicate greater symptom burden. The association between physical activity frequency and MRS scores was examined using multivariable linear regression models. Confounders were prespecified using a causal framework and included age, BMI, smoking status, comorbidities, healthcare access, and the country-level Socio-Demographic Index. **Results:** A total of 1,808 respondents (mean age $\pm$ SD: 45 ± 4.5 years) across 87 countries over 6 continents were included in the analysis. In unadjusted analysis, mean total MRS scores decreased with increasing physical activity frequency, ranging from 17.46 ± 7.79 in those not physically active to 13.77 ± 7.06 in those active ≥ 5 days/week ($p < 0.001$). A similar pattern was observed across all domains, with scores ranging from 6.06 ± 3.07 to 4.48 ± 2.58 (somatic, $p < 0.001$), 7.77 ± 3.74 to 6.41 ± 3.49 (psychological, $p < 0.001$), and 3.63 ± 2.69 to 2.87 ± 2.56 (urogenital, $p = 0.004$), from not physically active to ≥ 5 days/week. In adjusted multivariable regression, physical activity frequency showed a statistically significant inverse association with total MRS scores ($\beta = -0.57$, $p < 0.001$) and the psychological ($\beta = -0.26$, $p < 0.001$), somatic ($\beta = -0.21$, $p < 0.001$), and urogenital domains ($\beta = -0.10$, $p = 0.020$). **Conclusion:** Perimenopausal women reporting higher physical activity frequency had significantly lower symptom burden overall and across all domains, when fully adjusted. These findings highlight the relevance of physical activity as a modifiable lifestyle intervention for perimenopausal symptom management.

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