THURSDAY CONCURRENT SESSION #1

S-1.

Experimentally Induced Vasomotor Symptoms in Young Premenopausal Women Are Preceded by an Adverse Cardiometabolic Profile

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Objective: Menopause is associated with adverse cardiovascular risk factors such as central adiposity, dyslipidemia, and type 2 diabetes mellitus. Vasomotor symptoms (VMS) are a core manifestation of menopause and have been associated with an adverse cardiometabolic profile in postmenopausal women, notably increased central adiposity, dyslipidemia, lower adiponectin levels, and higher blood glucose levels. The extent to which this association is independent on age or is preceded by adverse cardiometabolic health indicators is unknown. We leveraged an experimental menopause model in young, premenopausal women to determine if an adverse cardiometabolic profile predisposes to the development of VMS. **Design:** We conducted a study in 27 healthy premenopausal women (mean ± SD age: 28.4 ± 5.6 years, BMI: 24.4 ± 3.6 kg/m^2) who underwent gonadotropin-releasing hormone (GnRH) agonist-induced estradiol suppression, an experimental model mimicking menopause. Serum estradiol, to confirm successful induction of hypogonadism, was measured before and after administration of GnRH agonist. Body composition (assessed by dual-energy X-ray absorptiometry), fasting lipid panel, adiponectin, and HbA1c were measured at baseline. Women were categorized based on whether they developed objectively measured VMS (through skin conductance) after estradiol suppression. Baseline differences in total body fat, trunk/limb fat mass ratio (a marker for visceral adiposity), lipid profile, adiponectin, and HbA1c were compared between women who developed VMS, compared to those who did not, after estradiol suppression using t-test or Wilcoxon rank sum test based on data distribution. **Results:** Consistent with data of women going through natural menopause, two-thirds (n = 18; 66.6%) of women developed VMS, while 9 (33.3%) did not. As expected, following GnRH agonist administration, estradiol was suppressed from 86 to 7 pg/ml ($p < 0.001$). There were no between-group differences in mean age (28 ± 6 vs. 29 ± 6 years, $p = 0.7$), BMI (25.3 ± 3.3 vs. 23.8 ± 4.0 kg/m^2, $p = 0.3$), or total body fat (25.9 ± 7.7 vs. 22.3 ± 7.3 kg, $p = 0.3$). Women who developed VMS, compared to those who did not, had significantly higher median baseline trunk/limb fat mass ratios (0.8 [0.7, 0.9] vs. 0.7 [0.6, 0.7], $p = 0.01$), significantly lower median HDL (53 [47, 59] vs. 70 mg/dl [62, 73], $p = 0.001$), higher median VLDL (14 [12, 22] vs. 11 mg/dl [10, 12], $p = 0.03$), higher median triglyceride (73 [61, 123] vs. 55 mg/dl [52, 61], $p = 0.04$), lower median adiponectin (4.7 [4.2, 6.4] vs. 6.2 ug/ml [6.1, 6.4], $p = 0.04$), and higher median HbA1c (5.3 [5.1, 5.4] vs. 5.0% [5.0, 5.2], p = 0.048). **Conclusion:** In healthy premenopausal women undergoing pharmacologic estradiol suppression to mimic menopause, the subset developing VMS exhibited an adverse baseline cardiometabolic profile relative to those who did not develop VMS. Interestingly, despite similar BMI and total body fat in both groups, greater central adiposity was associated with VMS. Furthermore, cardioprotective biomarkers, such as HDL and adiponectin, seem to be inversely associated with the development of VMS. These findings suggest that cardiometabolic health impacts susceptibility to developing VMS and warrant further investigation of cardiometabolic health as a possible therapeutic target for lowering the risk of developing VMS during the menopausal transition.

Sources of Funding: HJ (R01AG053838, U54AG062322)

S-2.

Sex and Age Differences in Markers of the Cholinergic Anti-inflammatory Pathway among Mid-life and Older Adults: Role of Menopause

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Objective: Several anti-inflammatory mechanisms exist to counter regulate rising levels of systemic inflammation. One of these operates via the vagus nerve and is termed "the cholinergic anti-inflammatory pathway" (CAP). The existence of this pathway is supported by findings of negative associations between inflammation with high-frequency heart rate variability (HF-HRV), a marker primarily of cardiac vagal or parasympathetic activity. While some studies have examined sex differences in these relationships, here we explore these differences in the associations between HF-HRV and two cytokines whose levels and effects have been observed to differ by sex: interleukin (IL)-8 and tumor necrosis factor-alpha (TNF-α). Although it is known that HRV is reduced and inflammation rises with age and at menopause, there have been no studies examining whether the relationship between these markers differs between midlife and older age, or by menopausal status. This study aimed to address these gaps. **Design:** As part of the biomarker subproject of the Mid-life in the United States (MIDUS) Study, 1153 adults (Ages 25-74, 57% female, 90.1% White) completed a two day stay at a clinical research center to assess various biomarkers including 11-mins total of resting electrocardiogram (ECG) recordings and a blood draw to provide inflammation levels. HF-HRV (0.15-0.40 Hz) was determined from spectral analysis and natural logarithmic transformed. Multiple linear regression models, adjusted for covariates (age, sex, race, BMI, smoking status, relevant medications and conditions), were used to examine associations between IL-8 and TNF-α with HF-HRV, as well as interactions by sex. Additional regression analyses were run with the sample stratified by age group [<60 (N=572) or ≥60 (n=425)] and menopausal status [postmenopausal (1 year without a menstrual period and no history of surgical menopause, n=103) or pre/perimenopausal (n=149)]. **Results:** Both IL-8 (β= -0.08, p=0.018) and TNF-α (β= -0.13, p<0.001) were negatively associated with HF-HRV in adjusted models within the full sample. There were also significant HF-HRV by sex interactions in predicting IL-8 and TNF-α (p=0.01 and p=0.02, respectively), such that these associations were significant among females (p=0.018 and p<0.001) but not males (*p*s>0.53). In women, stratification by age and menopausal status revealed that this association for IL-8 was no longer apparent among females age 60+ or following menopause (*p*s>0.52) but was significant for pre/perimenopausal women (β= -0.25, p=0.007). For TNF-α, this association was seen regardless of age for women (*p*s<0.01), and among both menopausal status groups (*p*s<0.02). **Conclusion:** The negative associations found in this study between IL-8 and TNF-a with HF-HRV among females but not males, and only among premenopausal females for IL-8, suggest that menopause is associated with the loss or reduction in strength of a critical anti-inflammatory pathway for one pertinent inflammation marker. The loss of this pathway could exacerbate age-related increases in systemic inflammation (i.e. inflammaging) among females and may have implications for the risk of developing inflammatory conditions and chronic diseases with age. Further, the menopause transition may represent a critical window for interventions targeting the CAP.

Sources of Funding: None

S-3.

Circulating markers associated with cardiometabolic outcomes during the menopause transition

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Objective: During the menopause transition, the risk for cardiometabolic diseases increases dramatically. Cytokine levels have been associated with cardiometabolic outcomes, but the complexity of immune-related pathways has limited their predictive utility. Understanding how the comprehensive disease-relevant pathways act in concert with declining estradiol levels to increase cardiometabolic risk during aging has the potential to greatly inform future prevention and treatment efforts. Thus, the current study sought to examine circulating cytokines and growth factors prospectively associated with worse cardiometabolic outcomes during the menopause transition. **Design:** Participants included 151 healthy perimenopausal or early postmenopausal women (ages 45-60) from a larger clinical trial. Women were randomized to receive hormone treatment (HT) of transdermal estradiol (TE; 0.1 mg/day) and intermittent micronized progesterone (200 mg/day for 12 days) or identical placebo patches and pills for 12 months. Blood samples were obtained at baseline to examine circulating predictors of cardiometabolic biomarkers. Values outside the limits of detection (LOD) were set to the assay LOD for each circulating marker. Homeostatic model assessment of insulin resistance (HOMA-IR), flow mediated dilation (FMD; a measure of endothelial-dependent vascular function), and metabolic syndrome were measured at baseline, 6 months, and 12 months. Quantitative cytokine array profiling of 80 circulating markers involved in systemic inflammation, metabolic regulation, and coagulation was conducted. Analyses examined cardiometabolic outcomes 6 months after baseline to maximize analytic sample size. Linear regressions were used for continuous outcomes (e.g., HOMA-IR, FMD), and logistic regression was used for metabolic syndrome as a binary outcome. Covariates included: age, race, treatment group (HT, placebo), smoking status, and baseline variables for each outcome (e.g., FMD at baseline for FMD models). Exploratory analyses assessed the ability of a weighted cytokine score (WCS) of significant predictors to discriminate individuals with and without metabolic syndrome using receiver operating characteristic (ROC) curve analysis. Follow-up analyses also examined whether an interaction term between WCS at baseline and HT significantly predicted cardiometabolic outcomes. **Results:** After controlling for relevant covariates, greater baseline levels of Eotaxin (β=0.78, *p*=.042), IL-10 (β=0.16, *p*=.049), IL-12p70 (β=0.21, *p*=.008) and Insulin (β=0.21, *p*=.016) independently predicted increased HOMA-IR at six months. Greater baseline BDNF (β=0.30, *p*=.009) levels were associated with increased FMD six months later. Greater levels of IL-4 (β=0.64, *p*=.048), Eotaxin (β=0.75, *p*=.045), GDF-15 (β=1.18, *p*=.024), and IL-12p40 (β=0.94, *p*=.015) at baseline predicted increased probability of metabolic syndrome. However, no markers survived correction for multiple testing. HT did not interact with any of the significant markers or the WCS metrics to predict any cardiometabolic outcomes (*p*>. 05). In ROC analyses of metabolic syndrome, the area under the curve (AUC) was 0.68, indicating fair discriminatory performance. **Conclusion:** The current study indicates that higher levels of multiple circulating markers, broadly involved in metabolic regulation and inflammatory signaling, predict worse cardiometabolic outcomes after six months in a sample of healthy peri- and postmenopausal women. HT did not moderate these predictions. While our findings await validation in independent cohorts, they suggest that multi-marker profiling may hold promise as an independent predictor of cardiometabolic outcomes during the menopausal transition.

Sources of Funding: This study was supported by National Institute on Aging (R21AG078630).

S-4.

Sex Hormone Trajectories during Midlife and Future Cardiac Health: The Study of Women's Health Across the Nation (SWAN)

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Objective: Postmenopausal women show greater left ventricular mass, wall thickness, and poorer left ventricular functions than age-matched premenopausal women. As women traverse menopause, sex hormones dynamically change and could contribute to future cardiac health. Our aim was to test whether sex hormone trajectories over midlife are associated with future metrics of cardiac health. **Design:** Women from SWAN who participated in the Echocardiography Imaging protocol at visit 17 (2021-2023) and had at least 3 measures of endogenous estradiol (E2) and/or Anti-Mullerian Hormones (AMH) measured during midlife before visit 17 were included. Trajectories of E2 and AMH anchored to the final menstrual period (FMP) were identified utilizing Group-based trajectory modeling and linked to cardiac health metrics of interest using linear regression. **Results:** The study included 657 women (mean visit 17 age ± SD: 71.6 ± 2.7years) who contributed to the E2 analysis, of whom 309 women contributed to the AMH analysis. Four distinct trajectories of E2 and two of AMH were identified (**Figure-Panel A**) and assessed separately in relation with cardiac health measures (**Figure-Panel B**). Compared to the Low/Slow decline E2, Rise/Slow decline and Rise/Steep decline groups showed greater tricuspid regurgitation peak velocity (TRV) and pulmonary artery systolic pressure (PASP), while Low/Flat E2 group showed greater mitral valve early peak velocity (E' velocity). On the other hand, compared to the low-decline AMH, the high-fast decline group was associated with lower peak atrial global longitudinal strain (LA strain). **Conclusion:** Data suggests a link between rises in E2 during midlife and higher future pulmonary arteries pressure as well as between greater decline in AMH and future left atrial dysfunction.

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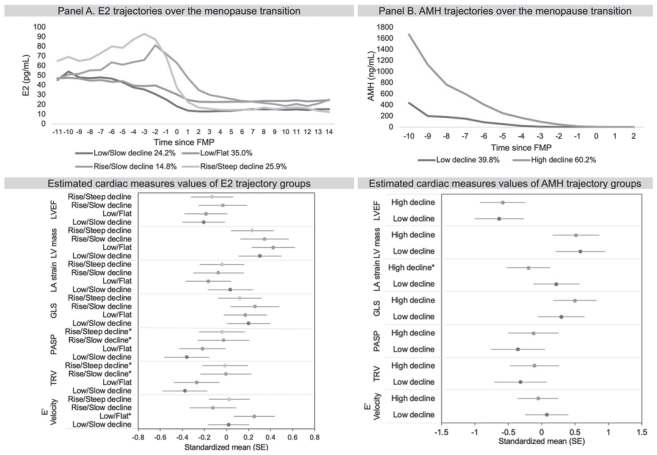
Figure. Hormone trajectories and estimated mean cardiac measures of trajectory groups.



*Significant difference between the group and the reference group (Low/Slow decline for E2 analysis and Low decline for AMH analysis). Final models were adjusted for race/ethnicity, and visit 17 values of age, body mass index, systolic blood pressure, fasting lipids and glucose, physical activity score, smoking status, financial hardship, alcohol consumption, self-reported ever CVD events, anti-diabetic, anti-lipid, and anti-hypertension medication use; and ever use of hormone therapy over the course of the study.
Points represent the standardized estimated mean (standard error) of the corresponding cardiac measures when keeping all covariates at fixed/reference levels. The mean (standard deviation) for LVEF, LV mass, LA strain, GLS, PASP, TRV and E' velocity was: 63.4 (4.8), 71.9 (15.7), 29.5 (7.0), -20.7 (2.8), 21.6 (6.5), 8.0 (2.1), 2.1 (0.4).
AMH: antimüllerian hormone; E' Velocity: mitral valve early peak velocity; E2: estradiol; GLS: global longitudinal strain; FMP: final menstrual period; LA strain: peak atrial global longitudinal strain; LV mass: left ventricular mass; LVEF: left ventricular ejection fraction; PASP: pulmonary artery systolic pressure; TRV: tricuspid regurgitation peak velocity.

S-5.

A Phase 3 Trial of Estetrol in Postmenopausal Women with Moderate to Severe Vasomotor Symptoms Shows No Effect on Blood Pressure, Including in Women with Cardiovascular Risk Factors

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Objective: Estetrol (E4) is a natural estrogen with selective tissue action, being investigated for the treatment moderate to severe vasomotor symptoms in menopause. E4 15 mg is approved as the estrogenic component in a combined oral contraceptive (COC) with drospirenone 3 mg. This COC has been demonstrated to decrease blood pressure (BP) with -7.6/-4.0 mmHg (systolic/diastolic) in pre-menopausal women ≤45 years, who have high-normal BP (>140/90 mmHg) when starting the COC. Here, we present the effects of E4 on BP in postmenopausal (PM) women enrolled in the E4COMFORT II Phase 3 trial which included participants with and without cardiovascular (CV) risk factors. **Design:** E4COMFORT II was a multicenter, two-part phase 3 trial conducted in the United States and Canada. The trial evaluated the efficacy and safety of E4 for the treatment of moderate to severe vasomotor symptoms in PM women aged 40-65 years. The trial only enrolled participants with a normal baseline BP (≤130/80 mmHg). In the double-blind, placebo-controlled efficacy component of the trial participants were randomly assigned to receive either E4 15 mg (n=192), E4 20 mg (n=193) or placebo (n=194) once daily for one year. In the open label safety part of the trial all participants (n=430) received E4 20 mg once daily for one year. We assessed the CV risk factors HbA1c and lipid profile at baseline and determined changes from baseline BP after one year of treatment with E4 compared to placebo using analyses of covariance. **Results:** At baseline, 43.4% of participants had HbA1c levels above the threshold of pre-diabetes, defined as ≥5.7%. Elevations were noted in total cholesterol (≥6.2 mmol/L) in 20.1%, low density lipoprotein cholesterol (≥4.1 mmol/L) in 20.9%, and triglycerides (≥2.3 mmol/L) in 8.1% of participants. High-density lipoprotein cholesterol was reduced (<1.3 mml/L) in 21.4% of participants. These baseline CV risk factors were equally distributed across treatment groups. Baseline mean BP values were comparable among groups (Table 1), with no apparent differences between participants with normal HbA1c and participants with higher HbA1c. BP fluctuated slightly during treatment showing minimal increases after one year of treatment in both E4 treatment groups and placebo (Table 1). Changes in baseline BP were similar for participants with normal baseline HbA1c as well as those with higher HbA1c levels. Statistical analysis showed no significant difference in changes from baseline between E4 treatment groups and placebo (p>0.05). **Conclusion:** One year treatment with E4 15 mg and E4 20 mg had no impact on BP in PM women, including those with CV risk factors.

Sources of Funding: Estetra, Liège, Belgium, a wholly owned company of Gedeon Richter PLC, Budapest, Hungary.

Table 1. Systolic and diastolic blood pressure (mean mmHg) at baseline and after 1 year of treatment

		E4 15 mg	E4 20 mg	Placebo
All participants	Baseline	119.0/74.2	119.4/74.5	119.3/75.2
	1 year	121.5/75.7	119.4/76.0	120.7/76.6
Participants with HbA1c <5.7%	Baseline	119.9/74.4	117.9/74.6	118.6/74.7
	1 year	121.9/77.1	118.9/75.4	120.7/76.6
Participants with HbA1c ≥5.7%	Baseline	118.0/73.9	118.5/74.3	120.1/75.8
	1 year	121.2/74.7	121.3/76.4	120.6/76.7

S-6.

Effect of Estetrol on Acquired Activated Protein C Resistance in Postmenopausal Women: A Phase 3 Randomized Study

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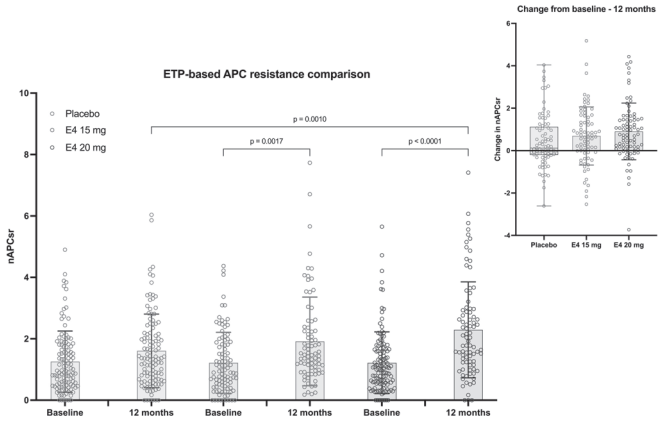
Objective: To investigate the impact of estetrol (E4) on thrombin generation-based activated protein C resistance (ETP-based APCr) in postmenopausal women as part of the E4COMFORT II Phase 3 clinical study. **Design:** E4COMFORT II is a multicenter, double-blind, randomized, placebo-controlled Phase 3 study conducted in postmenopausal women aged 40–65 years. Participants were randomly assigned to receive E4 15 mg (n=192), E4 20 mg (n=193), or placebo (n=194) once daily for one year. APC resistance was evaluated at baseline and after 12 months using the ETP-based APCr. Results are expressed as normalized activated protein C sensitivity ratio (nAPCsr). Changes from baseline were analyzed using Brown-Forsythe and Welch ANOVA tests. The analysis was realized on the per protocol population. **Results:** At baseline, mean nAPCsr values were comparable across all groups (1.22 for E4 15 mg, 1.22 for E4 20 mg, 1.26 for placebo). After 12 months, the mean nAPCsr increased to 1.93 (E4 15 mg), 2.29 (E4 20 mg), and 1.70 (placebo). The mean absolute changes from baseline after 12 months were 0.69 (E4 15 mg), 0.90 (E4 20 mg), and 0.47 (placebo). Both active treatments resulted in a mild significantly higher nAPCsr after 12 months. Nevertheless, the changes from baseline were not statistically different between the groups. These findings corroborate earlier Phase 2 results in post-menopausal women (E4RELIEF data), which had already demonstrated a modest and non-clinically relevant increase in nAPCsr with E4 15 mg over 12 weeks (+42%). **Conclusion:** One-year treatment with estetrol, either at 15 mg or 20 mg, does not induce clinically relevant nAPCsr changes in postmenopausal women compared with placebo. This further reinforces the reassuring hemostatic profile of E4 regardless of whether it is used alone or in combination with a progestin such as drospirenone, as in the contraceptive indication. This limited prothrombotic effect of E4-containing products has consistently translated into a favorable safety profile with respect to venous thromboembolism risk.

Sources of Funding: Estetra, Liège, Belgium, a wholly owned company of Gedeon Richter PLC, Budapest, Hungary



Impact of E4 at doses of 15 and 20 mg on the nAPCsr compared to placebo

THURSDAY CONCURRENT SESSION #2

S-7.

Reductions in Cortical Volumes Associate with Age, Not with Menopause Stage in Midlife Women

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Objective: There is growing interest in the effects of menopause stage on the brain, but longitudinal neuroimaging studies that examine brain changes across menopause are lacking. Existing cross-sectional studies on brain outcomes (e.g., volumes, glucose metabolism) by menopause stage are limited by small sample sizes (e.g., n = 12-15 per stage), study designs that complicate interpretation of stage effects (e.g., inclusion of menopausal hormone therapy [MHT] users, confounding of stage with Alzheimer's disease [AD] risk factors, use of non-standard definition of menopause stage), and limited applicability to U.S. women generally (e.g., higher prevalence of genetic AD risk factors than is found in the U.S. population). To better characterize potential effects of menopause on brain structure during midlife, we examined whether cortical volumes differed between pre-, peri-, and postmenopausal women in a larger (N=229) cohort of cognitively normal midlife women enrolled in the Human Connectome Project in Aging (HCP-A), a study of typical aging across the lifespan. **Design:** The sample included 229 women aged 40-60 years (baseline mean age=49.7±5.8; 24% *APOE4* carrier; 56% White, 23% Black) enrolled in the HCP-A who were not surgically menopausal or MHT users. Of these women, 108 returned for a second study visit one to two years later. While too few HCP-A participants transitioned across menopause stages throughout the study duration to perform an ideal longitudinal analysis, we used a mixed effects model to examine group differences between pre-, peri-, and postmenopausal women leveraging data from multiple timepoints. Cortical regions (180 per hemisphere) were defined using the Glasser atlas and processed using the HCP Minimal Processing Pipeline. Women were categorized as premenopausal (n=87), perimenopausal (n=69), or postmenopausal (n=73) by STRAW+10 criteria. We used a mixed effects model to examine cortical volumes by menopause stage with a random intercept of participant, controlling for age, race (white vs. non-white), education, study visit, and estimated intracranial volume. A false discovery rate correction was applied to all models to control for multiple comparisons. **Results:** At baseline, perimenopausal women were significantly older than premenopausal women (b = 4.23, p<.001) and significantly younger than postmenopausal women (b= -6.44, p<.001). Compared to the pre- and perimenopausal women, postmenopausal women had significantly less education (Pre vs. Post, b = -1.15, p<.001; Peri vs. Post, b = -0.87, p<.05) and had a higher proportion of white participants to non-white participants (X^2=9.77, p<.01). Mixed effects models showed no menopause stage differences in any cortical volume, p_{FDR} >.05. However, results revealed that the volume of 121 cortical regions spanning multiple cognitive networks (e.g., 26 regions in the default mode network) were significantly negatively associated with age, p_{FDR} < .05. **Conclusion:** In a large sample of cognitively normal midlife women, cortical volumes did not significantly differ by menopause stage, but many declined with age. These findings, using a large sample and multiple visits, counter previous reports that menopause accelerates the loss of brain volume at midlife beyond normal aging. A more definitive conclusion awaits longitudinal findings.

Sources of Funding: National Institutes of Aging of the National Institutes of Health (U19AG073585, U01AG052564-01).

S-8.

Greater carotid intima thickness associated with decreased hippocampal subfield volumes in postmenopausal women

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Objective: Cardiovascular disease (CVD) is a major contributor to brain aging and dementia. CVD is the leading cause of death in women, and women have a higher incidence of Alzheimer's disease (AD) compared to men; thus, CVD and AD are major women's health issues. Midlife and the menopause transition are critical windows for the development of disease pathology for both CVD and AD. To assess relationships between CVD and AD, we tested whether higher carotid intima thickness (IMT), an indicator of potential atherosclerosis, was associated with lower hippocampal subfield volumes, brain regions critical to memory formation, in postmenopausal women. Further, we predicted that hippocampal regions with lower volume would be associated with worse cognitive performance. **Design:** Participants were enrolled in MsBrain, a cohort study of postmenopausal women, a subsample of whom completed ultra-high resolution 7T MRI with the Tic-Tac-Toe head coil, carotid images via B-mode ultrasound, physical measures, and cognitive assessments (n=51, mean age 58.24 +/- 4.69 years, 84.31% white, 0.375x0.37x1.5mm^3 T2-weighted images and 0.75mm isotropic T1-weighted images). Segmentation of the hippocampus using ASHS atlas for T2-weighted MRI yielded yielded subfield volumes of the CA1, CA2/3, dentate gyrus, subiculum, and entorhinal cortex. Linear regressions examined associations between IMT and hippocampal subfield volumes. Next, associations of hippocampal volumes with cognition were tested, with a focus on regions statistically significantly associated with IMT. Models controlled for age, education, body mass index, and total intracranial volume. **Results:** Higher IMT was associated with lower volumes in the left CA2/3 (β(SE)= -342.69 (160.46) p=.04), the right CA2/3 (β(SE)= -403.67 (155.18), p=.01), and the right dentate gyrus (β(SE)= 650.90 (315.13), p=.04. Lower right CA2/CA3 volume was in turn associated with lower delayed verbal recall on the Logical Memory (b(SE)=0.089 (0.041), p=.03). **Conclusion:** Building on prior work linking atherosclerosis with lower total hippocampal volume in older adults, higher IMT was associated specifically with lower volume in the CA2/3 subregion of the hippocampus, a region associated with verbal memory. This work highlights the importance of assessing CVD risk in midlife women as a modifiable risk factor for dementia.

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S-9.

Inflammation and *APOE* ε4 genotype modify the link between earlier menopause and memory decline

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Objective: Earlier age at menopause is associated with greater risk for late-life cognitive decline and Alzheimer's disease dementia. We investigated whether the association between age at menopause and memory decline was modified by *APOE* ε4 genotype and/or systemic inflammatory markers. **Design:** We used longitudinal data from the Religious Orders Study, Rush Memory and Aging Project, and Minority Aging Research Study. Participants were without known dementia at baseline. Menopause history was self-reported. *APOE* ε4 genotype was categorized as ε4 carrier vs. non-carrier. Memory performance was quantified with a composite score of episodic memory tests, administered annually. In a subset of participants, serum inflammatory markers at baseline were quantified on ELISA. We examined composite scores of age-related inflammation (i.e., interleukin-1β, tumor necrosis factor-α, interleukin-6) and vascular inflammation (i.e., interleukin-6 receptor, matrix metallopeptidase-9, vascular cell adhesion molecule). Linear mixed models tested the independent and interactive associations of age at menopause, *APOE* ε4 status or inflammation on memory decline, adjusting for baseline age, years of education, menopause cause (spontaneous/surgical), hormone therapy use, baseline systolic blood pressure, baseline body mass index, and their interactions with time. **Results:** We included N=2,575 female participants (age=77.4±7.75 years, age at menopause=47.0±6.86 years, 36% surgical menopause, follow-up=8±6 years). Earlier age at menopause was associated with faster memory decline (β=0.038, p=.009). There was a significant three-way interaction between age at menopause, *APOE* ε4 status, and time, such that *APOE* ε4 carriers (vs. non-carriers) showed stronger associations between earlier menopause and faster decline (β=0.074, p=.009). In N=257 participants with available data for inflammatory markers, higher levels of age-related inflammation exacerbated the effect of earlier menopause on memory decline (β=0.113, p=.03). By contrast, levels of vascular inflammation did not significantly modify the association between age at menopause and memory scores (β=0.054, p=.29). Post hoc analyses suggested that the interactive effects of inflammation and age at menopause on memory decline were of larger magnitude in *APOE* ε4 carriers than in non-carriers. **Conclusion:** The presence of *APOE* ε4 and age-related inflammation strengthened the link between earlier age at menopause and faster memory decline, suggesting that these factors may be especially salient contributors to Alzheimer's disease dementia risk in women with earlier menopause.

Sources of Funding: None.

S-10.

Impact of Menopausal Hormone Therapy on Longitudinal Changes in Blood Biomarkers of Alzheimer's Disease by Menopausal Stage: A Secondary Analysis from the ELITE

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Objective: While blood biomarkers of Alzheimer's disease (AD) are emerging as a tool for predicting AD and AD related dementia, to date, it is not known if and how MHT may affect these biomarkers in postmenopausal women. We conducted a secondary analysis of the data generated in the Early vs. Late Intervention Trial with Estradiol (ELITE) to evaluate the effect of MHT on longitudinal changes in plasma AD biomarkers, considering the role of duration of menopause and ApoE4 status. **Design:** In ELITE, 643 healthy postmenopausal women stratified into early (<6 years) or late (≥10 years) postmenopause were randomized to 1mg daily oral 17-β estradiol or placebo; women with intact uterus also received vaginal progesterone or placebo. Concentrations of AD biomarkers including Aβ40, Aβ42, Aβ42/Aβ40 ratio, glial fibrillary acidic protein (GFAP), neurofilament light chain (NfL), and phosphorylated tau-181 (ptau181) were measured in baseline and 2.5-year post-randomization plasma samples from 438 women using SIMOA technology. Linear mixed-effects models were used to assess the MHT effect on the rates of change in each biomarker level, stratified by early/late postmenopause category and ApoE4 genotype to evaluate any effect modification by those factors. Cohen'd effect sizes (95% CI) were calculated for comparison of treatment effects within early- and late-postmenopause groups. **Results:** Among all participants, MHT significantly accelerated the decline in Aβ40 compared to placebo (p=0.049); MHT effects on other biomarkers were not statistically significant. In early postmenopausal women, MHT-treated participants showed numerically greater declines in Aβ42 and greater increases in Aβ42/Aβ40 ratio compared to placebo, although differences were not statistically significant. GFAP levels declined in both randomized groups among early postmenopausal women, with slightly greater declines in the MHT group. Among ApoE4 carriers in early postmenopause, MHT was associated with a more pronounced decline in Aβ40 and Aβ42 compared to placebo, however, those differences did not reach statistical significance. MHT had no effect on any biomarker in the late postmenopausal women. **Conclusion:** Estradiol containing MHT initiated in early postmenopause may influence trajectories of Alzheimer's disease-related biomarkers, particularly amyloid beta measures, although observed differences did not consistently reach statistical significance. These findings partially support the critical window hypothesis and suggest a need for larger studies to confirm neuroprotective effects of MHT during early postmenopause.

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Mean rate of change in biomarker Post menopause stratum	Placebo (n=222) (early=96, late=126)	Estradiol (n=216) (early=103, late=113)	P-value treatment within menopause stratum	Between-Group Effect Size (Cohen's d, 95% CI)	P-value for Tx by menopause interaction
Aβ40 (pg/ml) /year					0.41
Early postmenopause Late postmenopause	−3.64 (−5.06, −2.22) 0.94 (0.15, 1.74)	−5.12 (-6.50, -3.75) 0.39 (-0.45, 1.23)	0.14 0.35	0.20 (-0.08, 0.48) 0.12 (-0.13, 0.37)	
Aβ42 (pg/ml) /year					0.93
Early postmenopause Late postmenopause	−0.14 (−0.23, −0.05) 0.06 (0.003, 0.12)	−0.19 (-0.27, -0.11) 0.02 (-0.05, 0.08)	0.39 0.30	0.12 (-0.16, 0.40) 0.13 (-0.12, 0.39)	
Aβ42/Aβ40 % /year					0.15
Early postmenopause Late postmenopause	0.14 (0.07, 0.22) −0.002 (−0.05, 0.05)	0.21 (0.14, 0.29) −0.02 (-0.07, 0.03)	0.22 0.52	-0.17 (-0.45, 0.11) 0.09 (-0.17, 0.34)	
*GFAP (pg/ml) /year					0.66
Early postmenopause Late postmenopause	−0.04 (−0.06, −0.01) 0.03 (0.01, 0.04)	−0.05 (-0.07, -0.03) 0.02 (0.01, 0.04)	0.42 0.66	0.12 (-0.16, 0.40) 0.07 (-0.19, 0.32)	
*NfL (pg/ml) /year					0.06
Early postmenopause Late postmenopause	0.02 (−0.01, 0.05) 0.02 (−0.01, 0.04)	-0.007 (-0.04, 0.03) 0.04 (0.02, 0.07)	0.22 0.15	0.18 (-0.10, 0.46) -0.18 (-0.43, 0.08)	
*pTau181 (pg/ml) /year					0.78
Early postmenopause Late postmenopause	-0.009 (−0.03, 0.02) 0.002 (−0.02, 0.02)	−0.03 (-0.05, 0.00) −0.01 (-0.03, 0.01)	0.30 0.40	0.14 (-0.14, 0.42) 0.11 (-0.15, 0.36)	

***log transformed;**

Mean annual rate of change (slope per year) in plasma biomarker levels comparing estradiol and placebo treatment groups, stratified by menopausal stage (early postmenopause <6 years; late postmenopause ≥10 years). Slopes and 95% confidence intervals were derived from linear mixed-effects models with an interaction term for treatment and time. Cohen's d and corresponding 95% CIs quantify the standardized between-group effect size (estradiol group vs. placebo group) for each biomarker trajectory. The P value for interaction tests whether the effect of estradiol differs significantly by menopausal group.

S-11.

One Size Does Not Fit All: Menopause Hormone Therapy Type and Route of Administration Influences Cognitive Health

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Objective: Menopause represents a key transition point in the aging trajectory (Gravelsins & Galea, 2025). Use of menopausal hormone therapy (MHT) has been associated with reduced dementia risk and benefits for cognition and brain health, though other studies report no benefits or negative effects (Espeland et al., 2013; Kim et al., 2021). These inconsistencies may be explained by a failure to account for MHT formulation, MHT administration route, and cognitive domain. Estradiol (E2), the most potent of the estrogens, has the greatest binding affinity to estrogen receptors (ER). Comparatively, estrone (E1) has significantly lower binding affinity. Oral E2 is largely converted to E1 via first-pass metabolism. In contrast, transdermal E2 largely circumvents this conversion, resulting in higher circulating E2 (Gleason et al., 2005). The cognitive domains of executive functions and episodic memory may be differentially sensitive to MHT, as they rely on different brain regions. The objective of this study was to examine how E2- and E1-based MHT affect distinct cognitive domains, considering administration route, in order clarify inconsistencies in the MHT literature. **Design:** Using baseline data in 4,776 mostly healthy postmenopausal females from the Canadian Longitudinal Study of Aging, we examined the influence of E2- and E1-based MHT on performance in three cognitive domains: episodic memory, prospective memory, and executive functions. **Results:** Transdermal E2 was associated with higher episodic memory scores (p=0.0077, Cohen's d=0.193), whereas oral E2 and transdermal E1 were associated with higher prospective memory scores (E2: p=0.0413, Cohen's d=0.212; E1: p=0.0413, Cohen's d=0.306), compared never use of MHT. Neither MHT formulation nor route of administration influenced the executive functions composite. Using a combination of multiple estrogens (e.g., oral E2 and vaginal E1) or progestogens alone was not associated with cognitive benefits compared to never never use of MHT. **Conclusion:** These results underscore the differential effects of E2- and E1-based MHT depending on route of administration and cognitive domain tested. Notably, these results may reflect dose-dependent effects of estrogens; episodic memory may benefit from greater ER activation than prospective memory. This work clarifies the mixed MHT literature and may inform emerging precision medicine approaches for cognitive aging in females.

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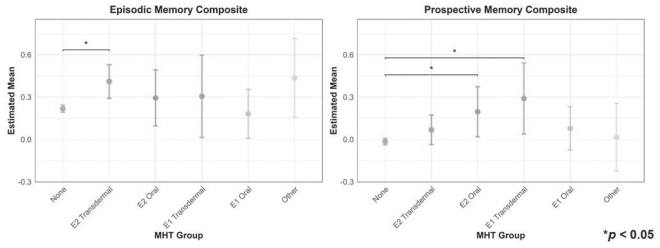

S-12.

MenoZen: An AI-Enhanced Virtual Reality Program for Menopause Symptom Management

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Objective: Vasomotor symptoms (VMS-hot flashes and night sweats) affect about 80% of midlife women and typically last 7-9 years. Although menopause hormone therapy is the most effective treatment for VMS, only 4–6% of women use it due to concerns about safety, side effects, and stigma. Cognitive behavioral therapy (CBT) for the treatment of VMS is a recommended and evidence-based treatment to improve VMS burden and improve quality of life. Virtual reality (VR) and AI enabled VR (AI-VR) have shown promise in delivering behavioral health interventions like CBT. This study presents the preliminary qualitative analysis of midlife women's perceptions, preferences, and experiences following their interaction with a novel AI-VR program, MenoZen, to support menopause symptom management. **Design:** We recruited 8 women between the ages of 45 and 60 with bothersome VMS (≥28 episodes per week), not currently receiving menopause hormone therapy for the qualitative study. Participants were recruited through the midlife women's health clinic at Mayo Clinic in Jacksonville, Florida and completed a baseline survey: demographics, previous experiences with VR and therapy/counseling, and Menopause Rating Scale (MRS). Women then engaged in a 30-minute CBT session

with an AI-VR avatar, an AI-powered virtual mental health program incorporating various behavioral therapy principles such as CBT, motivational interviewing, and mindfulness, using Apple Vision Pro VR goggles. After the session, women participated in a 45-minute post-session interview to determine participant experience and obtain feedback. Interviews were recorded and transcribed and a mixed-methods approach, including quantitative and qualitative analysis with thematic analysis was used to analyze the data. **Results:** The mean age of participants was 57 years with average total MRS scores of 13.38 indicating moderate to severe menopause symptoms. A majority, 7 of the 8 women, had little to no experience using VR and 75% had never experienced therapy or counseling. When describing their overall VR experience, 6 of 8 women considered their experience as relaxing or soothing, while 5 of 8 women commented on the ease and simplicity of their experience. Overall, 7 women liked the immersive aspect of VR, while 4 of the participants expressed a desire for cold and cooling environments to combat hot flashes. All the participants perceived the AI-VR avatar as being comforting, calming, or supportive. Additionally, 62.5% of women described the AI-VR avatar as being non-judgmental or neutral in tone. Suggested improvements included (i) addition of cooler environments (ii) addition of education components, and (iii) increased tailoring and personalization. **Conclusion:** Preliminary findings from this ongoing study suggest that this novel AI-VR CBT program for menopause-symptom management is a feasible, acceptable, and engaging tool for delivery of behavioral therapy-based support. AI-VR CBT has the potential to reduce symptom burden and improve the quality of life, while also addressing barriers to care including increasing accessibility.
Sources of Funding: Mayo Clinic

TOP-SCORING ABSTRACT PRESENTATIONS

S-13.
Efficacy of Estetrol (E4) in Reducing Weekly Weighted Scores of Vasomotor Symptoms in Postmenopausal Women: Results from Two Phase 3 Trials

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Objective: Estetrol (E4) is a natural estrogen with a unique mechanism of action, characterized by selective tissue activity through its agonistic effects on nuclear estrogen receptor alpha (ERα) and 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. E4 has demonstrated efficacy and safety 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. Here, we present secondary efficacy results focusing on the reduction of moderate-to-severe VMS, assessed using the Weekly Weighted Score (WWS), in PM women. **Design:** Two double-blind, placebo-controlled, randomized Phase 3 trials—E4COMFORT I (NCT04209543) and E4COMFORT II (NCT04090957)—evaluated once-daily oral E4 (15 mg or 20 mg) versus placebo over 12 weeks in PM women aged 40–65 years with ≥7/day or ≥50/week moderate to severe VMS. In E4COMFORT I, 640 women were randomized to E4 15 mg (n=213), E4 20 mg (n=213), or placebo (n=214). In E4COMFORT II, 579 women were randomized to E4 15 mg (n=192), E4 20 mg (n=193), or placebo (n=194). The WWS of VMS was calculated using the Food and Drug Administration method: at baseline, WWS = [(2 × number of moderate VMS) + (3 × number of severe VMS)] if at least one moderate/severe VMS was recorded. For post-baseline, WWS = [(1 × number of mild VMS) + (2 × number of moderate VMS) + (3 × number of severe VMS)] if at least one mild/severe VMS was recorded, and zero otherwise. Statistical analyses of changes from baseline were conducted using a Mixed Model for Repeated Measures. **Results:** In both studies, the WWS decreased in all treatment arms, including placebo, from Week 1. However, E4 15 mg and 20 mg treatment resulted in greater and statistically significant reductions from baseline compared to placebo, with the 20 mg dose demonstrating the largest and earliest improvements. In E4COMFORT I, the E4 15 mg group showed a mean reduction from baseline versus placebo of -21.66 (95% CI: -41.54, -1.79; p=0.0299 vs placebo) at Week 4, which further improved to -40.68 (-61.45, -19.92; p<.0001 vs placebo) by Week 12. The E4 20 mg group showed a statistically significant reduction as early as Week 3, with a mean difference of -22.33 (-42.04, -2.63; p=0.0231 vs placebo), reaching -60.81 (-81.58, -40.04; p<.0001 vs placebo) at Week 12. In E4COMFORT II, E4 15 mg resulted in a mean difference of -21.59 (-43.35, 0.18; p=0.0523 vs placebo) at Week 4 and -29.47 (-51.94, -7.01; p=0.0072 vs placebo) at Week 12. E4 20 mg showed reductions of -29.00 (-50.80, -7.21; p=0.0063 vs placebo) at Week 4 and -41.06 (-63.68, -18.45; p=0.0001 vs placebo) at Week 12. In both studies, E4 20 mg consistently achieved the most pronounced effect, and reductions were generally greater in E4COMFORT I compared to E4COMFORT II. WWS provides a comprehensive assessment of VMS, capturing treatment effects that may not be fully reflected by separate frequency and severity analyses. **Conclusion:** Both doses of E4 significantly reduced the WWS of moderate to severe VMS in PM women across the E4COMFORT I and E4COMFORT II studies. Improvements were observed as early as Week 3 and sustained through Week 12, with the 20 mg dose of E4 demonstrating the most consistent and robust symptom relief. E4 represents a promising option for managing the VMS in PM women.
Sources of Funding: The study was funded by Estetra SRL, a wholly owned company of Gedeon Richter PLC, Liège, Belgium.

S-14.
Greater levels of FSH associated with lower hippocampal subfield volumes in postmenopausal women

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Objective: In the US, 4.1 million women aged 65 years or older are living with Alzheimer's disease (AD) dementia. Attempts to identify factors contributing to sex differences in AD have pointed to midlife changes in endogenous sex hormones [estrone (E1), estradiol (E2), and follicle stimulating hormone (FSH)] during the menopause transition. These hormones play a sex-dependent role in hippocampal function, a brain region critical for memory, yet associations between hippocampal subregions, brain regions critical to memory formation, and reproductive hormones have not been evaluated in older women. We hypothesized that lower levels of E1 and E2, and greater levels of FSH, levels indicative of older endocrine age, would be associated with lower hippocampal subregion volumes. **Design:** Participants were enrolled in MsBrain, a cohort study of midlife postmenopausal women. Participants underwent physical measures, reproductive hormone assessments (LC/MS-MS), and a subsample completed ultra-high resolution 7T MRI with the Tic-Tac-Toe head coil (n=51, mean age=58.24 +/- 4.69 years, 84.31% white, 0.375x0.375x1.5mm^3 T2-weighted images and 0.75mm isotropic T1-weighted images). Hippocampal segmentation using ASHS atlas for T2-weighted MRI yielded yielded subregional volumes of the CA1, CA2/3, dentate gyrus, subiculum, and entorhinal cortex, controlling for age, years of education, BMI, and total intracranial volume. **Results:** Higher FSH levels were associated with lower volumes of the left dentate gyrus (β(SE)= -74.12(33.05), p=.03), left entorhinal cortex (β(SE)= -128.30 (58.49), p=.03, right subiculum (β(SE)= -147.26 (64.10), p=.03), bilateral subiculum (β(SE)= -253.29 (111.52), p=.03), and total left hippocampus (β(SE)= -292.60 (118.55), p=.02). Neither E1 nor E2 were statistically significantly associated with hippocampal volumes (E1, β(SE)= -185.54 (307.46), p=.55; E2, β(SE)= 135.80 (183.91), p=.46). **Conclusion:** Higher FSH levels were associated with lower hippocampal subfield volumes in postmenopausal women. Specifically, greater FSH was associated with lower volumes in the dentate gyrus and entorhinal cortex, regions with the highest density of FSH receptors and among the earliest to decline in those with AD. These findings implicate FSH in hippocampal degeneration, representing a modifiable risk factor for dementia.
Sources of Funding: Supported NIH grant R01AG053504 (Thurston & Maki)

S-15.
Pooled Safety of Elinzanetant for the Treatment of Vasomotor Symptoms Associated With Menopause Across the US Population From 4 Placebo-Controlled Studies

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Objective: Elinzanetant (EZN) is a neurokinin-targeted therapy for the treatment of moderate-to-severe vasomotor symptoms (M/S VMS), also known as hot flashes, in postmenopausal women. SWITCH-1 was a Phase 2b study that determined the optimal dose of EZN to be 120 mg. The Phase 3 studies OASIS-1 and OASIS-2 demonstrated the efficacy of EZN in reducing the frequency and severity of VMS and improving sleep disturbances and quality of life vs placebo (PL) in women with 50 or more VMS/week. The OASIS-3 study further supported the sustained efficacy and safety of EZN over 52 weeks (wks) in women with no requirement for a minimum number of VMS events. To assess the overall safety and tolerability of EZN in women in the United States with M/S VMS due to menopause utilizing pooled data from the 4 clinical trials. **Design:** Safety data of 40 to 65-year-old US women with M/S VMS receiving EZN 120 mg were pooled from 4 double-blind, randomized, PL-controlled studies. The Phase 2b SWITCH-1 study randomized patients 1:1:1:1:1 to receive either EZN 40, 80, 120, or 160 mg or PL per wk for 12 wks. OASIS-1 and OASIS-2 were Phase 3 studies in which patients were randomized 1:1 to receive either EZN 120 mg for 26 wks or PL for 12 wks followed by EZN for 14 wks. Patients from the Phase 3 OASIS-3 study were randomized to receive 120 mg EZN or PL for 52 wks. Treatment-emergent adverse events (TEAEs) were assessed across all studies. **Results:** A total of 690 women were included in this analysis (EZN 120 mg [n=516] and PL [n=347]; total exceeds 690 as the EZN group includes those who switched from PL after 12 weeks in OASIS-1 and -2). Over 52 wks, TEAEs were experienced by 259 EZN-treated patients (50.2%) and 163 PL-treated patients (47.0%). The exposure-adjusted incidence rates (EAIRs) for TEAEs were 169.67 per 100 subject-years (/100sy) in EZN-treated patients and 187.61/100sy in PL-treated patients. The most frequently reported TEAEs were COVID-19 infection (4.3% EZN [EAIR: 10.01/100sy], 5.5% PL [EAIR: 12.70/100sy]) and headache (4.8% EZN [EAIR: 9.95/100sy], 2.9% PL [EAIR: 8.38/100sy]) (Table). Most TEAEs had a mild or moderate maximum intensity; 30 patients experienced a severe TEAE (18 with EZN, 12 with PL) and 22 patients reported a serious TEAE (15 with EZN, 7 with PL). Fifty-one patients in total discontinued treatment due to TEAEs. Seven cases of somnolence were reported on EZN (1.4% [EAIR: 2.76/100sy], 0.3% PL [EAIR: 0.46/100sy]); 5 of these were mild, and all resolved. In EZN-treated patients, there was one case of abnormal alanine aminotransferase levels, increased alkaline phosphatase and increased blood bilirubin; and 3 cases of increased aspartate aminotransferase; all were mild and subsequently resolved. **Conclusion:** This pooled analysis of data in US

women from 4 studies supports the safety of EZN 120 mg for the treatment of M/S VMS in postmenopausal women. EZN was well tolerated for up to 52 wks of treatment, with most TEAEs mild or moderate in severity.

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

Most frequently reported TEAEs (>2.0% of participants, either treatment group)

n (%) [EAIR /100sy]	EZN 120 mg (n=516, week 1-52)	PBO (n=347, week 1-52)
COVID-19	22 (4.3) [10.01]	19 (5.5) [12.70]
Headache	25 (4.8) [9.95]	10 (2.9) [8.38]
Urinary tract infection	21 (4.1) [7.96]	8 (2.3) [5.11]
Upper respiratory tract infection	11 (2.1) [4.51]	8 (2.3) [5.11]
Arthralgia	13 (2.5) [4.74]	10 (2.9) [9.33]
Fatigue	14 (2.7) [5.29]	5 (1.4) [4.09]
Increased depression rating score	11 (2.1) [3.64]	8 (2.3) [8.38]
Gastro-oesophageal reflux disease	11 (2.1) [4.07]	5 (1.4) [2.93]
Depression	10 (1.9) [3.74]	8 (2.3) [6.67]

S-16.

Impact of Reproductive Stage and Menopausal Hormone Therapy on Weight Loss Outcomes with Tirzepatide

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Objective: While midlife weight gain is mostly related to aging, menopause itself contributes to metabolic changes, including increased central adiposity. Obesity medications, such as tirzepatide, a dual GIP/GLP-1 receptor agonist and currently the most effective medication available, offer a valuable strategy for weight loss. Understanding the influence of the reproductive stage and the potential impact of menopausal hormone therapy (MHT) on treatment outcomes is essential. In this study, we aim to explore the long-term, real-world weight loss outcomes with tirzepatide, stratified by reproductive stage and use of MHT. **Design:** We conducted a retrospective study of women prescribed tirzepatide for weight management, categorized into reproductive stage groups. Premenopausal women were defined as those under 45 years of age without signs of menopause. Perimenopausal women were aged 45–54 not satisfying criteria for being postmenopausal. Postmenopausal women in the MHT– group included those with no prior or current use of MHT, a documented last menstrual period at least 12 months before treatment initiation, history of bilateral oophorectomy, or a documented FSH level >50 IU/L in cases of hysterectomy or endometrial ablation. The MHT+ group included postmenopausal women with continuous use of oral or transdermal MHT during tirzepatide treatment. The primary outcome was total body weight loss (TBWL%) at last follow-up (mean 18 months). To mitigate confounding, we established four distinct comparison cohorts through triple implementation of 1:1 nearest-neighbor propensity score matching (PSM). Postmenopausal MHT+ women were matched with three groups: premenopausal, perimenopausal, and postmenopausal MHT– women. Matching was based on diabetes status, prior use of weight loss medications, and baseline BMI. Subsequently, we applied linear mixed-effects modeling (LMM) to assess longitudinal weight change across groups. Models were fitted using restricted maximum likelihood estimation, with degrees of freedom estimated via the Kenward-Roger method. Results are reported as estimated marginal means (EMMs) and standard errors (SE). Differences across groups were assessed using unadjusted pairwise t-tests. **Results:** After propensity score matching of 521 women, 160 were included in the final analysis (mean age 50 ± 10 years, BMI 34 ± 5 kg/m2) with 40 women in each group: premenopausal (37 ± 5 years, BMI 34 ± 5 kg/m2), perimenopausal (49 ± 3 years, BMI 34 ± 5 kg/m2), postmenopausal MHT- (59 ± 7 years, BMI 34 ± 6 kg/m2), and postmenopausal MHT+ (56 ± 6 years, BMI 34 ± 5 kg/m2). No significant differences in baseline cardiometabolic comorbidities were observed across groups. Tirzepatide was associated with significant TBWL% across all groups. At last follow-up, the MHT+ group experienced the greatest TBWL%: 19.9% (SE 1.4), significantly greater than 15.6% (SE 1.6) observed in the MHT– group ($p = 0.02$). Premenopausal women achieved a TBWL of 18.7% (SE 1.9), and perimenopausal women 18.6% (SE 1.3), neither of which differed significantly from the MHT+ group ($p = 0.64$ and $p = 0.53$, respectively). **Conclusion:** Tirzepatide led to substantial and progressive weight loss across reproductive stages. Notably, postmenopausal women using MHT+ achieved significantly greater weight loss than those not on MHT-, with outcomes closely resembling those of pre- and perimenopausal women. Further large-scale, controlled studies are warranted to confirm these findings and elucidate underlying mechanisms.

Sources of Funding: None

FRIDAY CONCURRENT SESSION #1

S-17.

Evaluating the Accuracy and Readability of Large Language Model Responses on Menopause and Hormone Therapy

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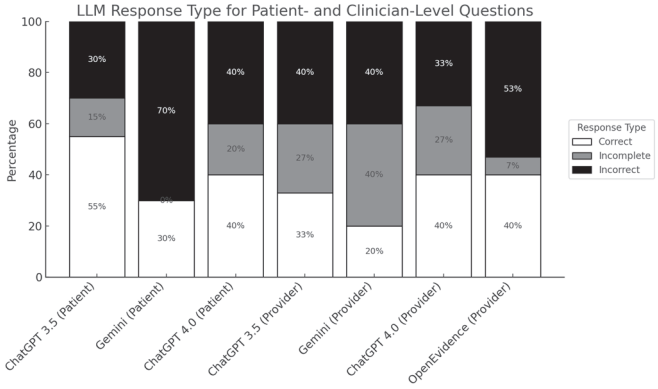
Objective: Generative artificial intelligence (AI) has rapidly advanced and is now explored in healthcare as a resource for both patient and clinician education. As large language models (LLMs) are increasingly used to answer medical queries, evaluating their performance in providing accurate and reliable information is essential. This study aims to assess and compare the accuracy and readability of four leading LLMs: ChatGPT 3.5 (free), Gemini (Google Bard), ChatGPT 4.0 (paid), and OpenEvidence in answering questions about menopause and hormone therapy (HT). **Design:** A total of 35 questions (20 patient-level, 15 clinician-level) were entered into each LLM individually. OpenEvidence was used for clinician-level questions only. Four expert reviewers, blinded to the LLM used, evaluated responses and alignment with guidelines, rating each as correct (2 points), incomplete/missing (1 point), or incorrect (0 points). Readability of patient-level responses was assessed using the Flesch Reading Ease Score (FRES) and word count. The FRES scale ranges from 0–100, with lower scores indicating greater complexity. Statistical analysis included normality tests and ANOVA to compare FRES and word count across models. **Results:** The accuracy of responses varied across the four LLMs (Figure). For patient-level questions, ChatGPT 3.5 had the highest accuracy, correctly answering 55%, followed by ChatGPT 4.0 (40%) and Gemini (30%). Gemini also had the highest incorrect response rate at 70%, compared to 40% for ChatGPT 4.0 and 30% for ChatGPT 3.5. FRES scores differed significantly ($P < 0.001$), with Gemini scoring highest (38.9 ± 7.3), indicating greater readability, and ChatGPT 4.0 scoring lowest (26.5 ± 8.6), suggesting a higher level of complexity. No significant differences in word count were found ($P = 0.12$). For clinician-level questions, ChatGPT 4.0 and OpenEvidence had the highest accuracy (40%), while ChatGPT 3.5 and Gemini answered 33% and 20% correctly, respectively. OpenEvidence also had the highest incorrect response rate (53%), followed by ChatGPT 3.5 and Gemini (40% each) and ChatGPT 4.0 (33%). Across both patient- and clinician-level questions, incomplete responses ranged from 7–40%. **Conclusion:** LLMs demonstrated suboptimal performance in responding to questions about menopause and HT, often providing inaccurate or incomplete information. Although accuracy remained low across models, ChatGPT 3.5 achieved the highest accuracy for patient-level questions, while ChatGPT 4.0 and OpenEvidence performed relatively better on clinician-level questions. These findings emphasize the need for continued evaluation and refinement of LLMs in healthcare to ensure delivery of accurate, clear, and reliable information to both patients and clinicians.

Sources of Funding: None



S-18.

White Matter Hyperintensities and Pituitary-Ovarian Hormones in Postmenopausal women in the Kronos Early Estrogen Prevention (KEEPS) Continuation Study

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Objective: White matter hyperintensities (WMH) in the brain are considered indicators of cerebrovascular health and linked to future cognitive decline. A previous study demonstrated associations of pituitary-ovarian hormones and WMH volumes in recently menopausal women on menopausal hormone therapy (MHT). Because brain changes often occur over long periods, the purpose of this study was to evaluate WMH 10 years after women were treated with MHT. The focus was to assess the relationship between WMH and pituitary-ovarian hormones and to assess if that association depends on the previous MHT 10 years after use. **Design:** The Kronos Early Estrogen Prevention Study (KEEPS) was a randomized, blinded, placebo-controlled 4-year trial of MHT (oral conjugated equine estrogens (oCEE), transdermal 17β-estradiol (tE2), or placebo patches or pills). The current study, KEEPS Continuation, collected additional data a decade after the conclusion of MHT. Serum estradiol (E2), estrone (E1), follicle-stimulating hormone (FSH), luteinizing hormone (LH), testosterone and androstenedione and WMH volume (from MRI with an automated segmentation algorithm) were measured. Linear regression

was performed testing if there was an interaction between hormones (log-transformed) and MHT type when predicting WMH volumes (log-transformed). If the interactions were insignificant, we evaluated if the hormones were associated with WMH. Models were adjusted for age, total intracranial volume, and site. **Results:** Levels of FSH, LH, E2, E1, testosterone and androstenedione were not associated with WMH volumes ($p>0.05$) 10 years after MHT use. Furthermore, there were no statistically significant treatment group interactions modifying the association of pituitary-ovarian hormones and WMH volumes ($p>0.05$). **Conclusion:** Pituitary-ovarian hormones do not appear to be associated with WMH volumes many years after MHT use, and these relationships did not depend on treatment. These relationships should be evaluated in larger samples.
Sources of Funding: This study was funded by the NIH RF1AG57547, Alzheimer Drug Discovery Foundation, and Aurora Foundation to the Kronos Longevity Research Institute.

S-19.

Elinzanetant improves sleep disturbances in menopausal women partially independently of reductions in vasomotor symptoms

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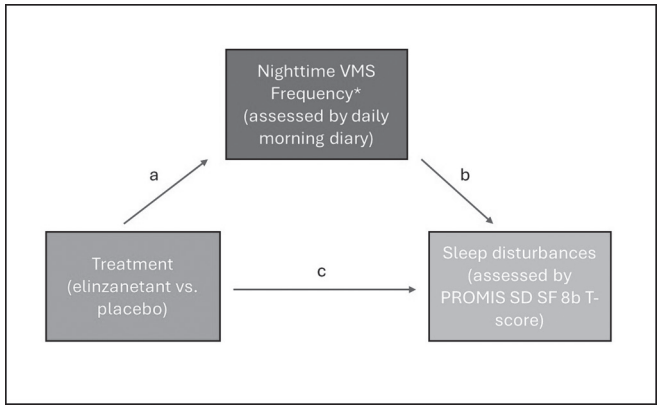
Objective: Elinzanetant (EZN), a dual neurokinin-targeted therapy targeting NK-1 and NK-3 receptors, has demonstrated efficacy in reducing vasomotor symptoms (VMS) and sleep disturbances in postmenopausal women. This analysis assessed the extent to which EZN improves sleep disturbances independently of nighttime VMS reduction versus mediation analysis through nighttime VMS reduction. **Design:** Pooled data from EZN 120 mg and placebo (PCB) arms of the phase 3 OASIS-1, -2, -3 trials and the phase 2 NIRVANA trial were analyzed. 12-week OASIS cohorts included postmenopausal women with moderate-to-severe VMS (≥50 per week for OASIS-1 & -2, no minimum requirement for OASIS-3) but no requirements for sleep disturbances. NIRVANA included postmenopausal women with VMS (≥20 per week) and sleep disturbances. In all studies, VMS frequency was documented twice daily via a morning diary (recalling nighttime VMS) and evening diary (recalling daytime VMS). Sleep disturbances were assessed using PROMIS SD SF 8b T-scores at weeks 1,2,3,4, 8 & 12. Nighttime moderate-to-severe VMS frequency served as a mediator. Longitudinal causal mediation analysis partitioned total treatment effect (EZN vs placebo), natural direct effect (NDE, independent of nighttime VMS reduction) of EZN on sleep, and natural indirect effect (NIE, impact of EZN on sleep mediated by nighttime VMS reduction), adjusted for baseline scores and confounders (Fig 1). **Results:** Among 1,345 women included in the pooled analysis (668 EZN; 677 placebo), at baseline mean nighttime moderate-to-severe VMS frequency was 4.83 (StdDev 4.84), while PROMIS SD SF 8b T-scores were 59.58 (StdDev 7.26). The total effect of EZN on PROMIS SD SF 8b T-score vs PCB was -4.92 (95% CI -5.73,-4.12). Of this effect, the NDE accounted for -2.67 (95% CI -3.28,-2.07), while the the NIE contributed for -2.25 (95% CI -2.81, -1.69). The proportion of the total effect attributable to direct effects of EZN on sleep was 54.3% (95% CI 45.8,62.8). **Conclusion:** This analysis suggests a substantial proportion of this effect is direct and independent of improvements in nighttime VMS. These findings highlight the potential for EZN to improve sleep through mechanisms beyond VMS alleviation and support the notion that sleep disturbances in menopause are not solely caused by VMS. Further research is warranted to elucidate the pathways through which EZN exerts its direct effects on sleep.
Sources of Funding: Bayer CC AG, Basel, Switzerland



S-20.

Efficacy of elinzanetant for the treatment of vasomotor symptoms associated with menopause in US African American women: pooled data from two Phase 3 studies

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Objective: Racial disparities in the frequency and duration of vasomotor symptoms (VMS), also known as hot flashes, associated with menopause were reported in The Study of Women's Health Across the Nation, with African American (AA) women having a higher frequency compared with White women (adjusted odds ratio: 1.63; 95% confidence interval [CI]: 1.21, 2.20).[1] Therefore, there is a significant need for additional effective treatments to address VMS in this racial group. In the OASIS-1 and OASIS-2 global Phase 3 trials, the dual neurokinin-1 and -3 receptor antagonist, elinzanetant (EZN), significantly reduced VMS frequency/severity compared with placebo (PL), improved sleep disturbances and menopause-related quality of life, and had a favorable safety profile in women with moderate-to-severe (M/S) VMS.[2] This exploratory pooled analysis of primary endpoint data provides combined data from OASIS-1 and OASIS-2 in AA women in the United States with M/S VMS due to menopause included in these studies. 1. Gold EB, et al. *Am J Public Health.* 2006;96(7):1226–1235. 2. Pinkerton JV, et al. *JAMA.* 2024;332(16):1343–1354. **Design:** Postmenopausal women who experienced ≥50 M/S VMS per week (wk) were randomly assigned in a 1:1 ratio to receive either EZN 120 mg for 26 wks or PL for 12 wks followed by EZN for 14 wks. The pooled analysis endpoints included the primary endpoints of mean change in frequency of M/S VMS from baseline (BL) to wks 4 and 12 and mean change in severity of M/S VMS from BL to wks 4 and 12. These endpoints were analyzed using a mixed model with repeated measures, and the one-sided p values were indicative rather than confirmatory. An overview of safety data, given as treatment-emergent adverse events (TEAEs) by treatment group up to wk 12, is also included. **Results:** In total, 410 women in the United States were randomized across both studies; 133 (32%) were AA (EZN: n=71; PL n=62). Like other studies, frequency of M/S VMS was higher at BL for AA women than for other races (AA: EZN 16.69, PL 18.91; non-AA: EZN 13.46, PL 15.03). Reductions from BL in M/S VMS daily frequency (difference in least squares [LS] means [95% CI]) were greater with EZN vs PL in AA and non-AA women at wk 1 (-2.95 [95% CI: -5.34, -0.55]; p=0.0079) and (-1.88 [95% CI: -3.04, -0.71]; p=0.0008), wk 4 (-3.63 [95% CI: -7.18, -0.08]; p=0.0226) and (-3.49 [95% CI:-4.95, -2.02]; p<0.0001), and wk 12 (-3.90 [95% CI: -8.35, 0.55]; p=0.0428) and (-3.47 [95% CI: -5.02, -1.92]; p<0.0001), respectively. There was a significant reduction in M/S VMS daily severity from BL with EZN vs PL at wk 12 in AA women (-0.21 [95% CI: -0.44, 0.02]; p=0.0374) and non-AA women (-0.40 [95% CI: -0.58, -0.23]; p<0.0001). TEAEs up to wk 12 were reported in 25 (35.2%) vs 22 (36.7%) AA women, and 67 (50%) vs 59 (41.5%) non-AA women with EZN vs PL, respectively. Table shows the most commonly reported TEAEs at wk 12 (>5%, any treatment group). No cases of liver enzyme elevations meeting criteria for liver injury were reported in either AA or non-AA women. **Conclusion:** This pooled analysis of the OASIS-1 and OASIS-2 Phase 3 trials demonstrated the efficacy of EZN for treating M/S VMS due to menopause in AA and non-AA women in the United States. Overall, the reductions in the frequency of VMS with EZN relative to PL were comparable to non-AA women, and EZN was well tolerated in AA women. This analysis highlights the importance of understanding treatment effects in women across different racial backgrounds.
Sources of Funding: Bayer U.S., Whippany, NJ, USA

TEAE, %

	EZN AA (N=71)	PL AA (N=60)	EZN Non-AA (N=134)	PL Non-AA (N=142)
Headache	4.2	1.7	6.7	3.5
Increase in depression rating scale score	4.2	3.3	5.2	4.2
Arthralgia	1.4	3.3	5.2	4.2
Fatigue	4.2	1.7	5.2	1.4
Somnolence	5.6	0	0.7	0

N values are provided for the safety analysis set, which is a subset of all randomised participants.

S-21.

Efficacy of elinzanetant 120 mg across different populations of women from four phase 3 OASIS studies

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Objective: To explore the efficacy of elinzanetant 120 mg, a dual neurokinin-targeted therapy, in reducing vasomotor symptoms (VMS, also known as hot flashes) across different populations of women. **Design:** This analysis assessed efficacy data from four multicenter, double-blind, placebo-controlled, randomized, phase 3 OASIS trials. OASIS-1, -2

and -3 included naturally or surgically induced postmenopausal women, aged 40–65 years, experiencing moderate-to-severe VMS associated with menopause. OASIS-1 and -2 required ≥50 moderate-to-severe VMS per week, while OASIS-3 did not have a minimum frequency threshold for inclusion in the study. OASIS-4 included women aged 18–70 years, receiving endocrine therapy, with HR+ breast cancer and experiencing ≥35 moderate-to-severe VMS per week. All were randomized to receive elinzanetant 120 mg or matching placebo during the first 12 weeks. Across all four trials, mean (95% confidence interval) daily moderate-to-severe VMS frequency and severity (descriptively assessed in OASIS-3 and -4), as well as Patient-Reported Outcomes Measurement Information System Disturbance Short Form (PROMIS SD SF) 8b total T-scores (descriptively assessed in OASIS-3) were evaluated at baseline and week 12. **Results:** OASIS-1, -2, -3, and -4 included 396, 400, 628, and 474 women, respectively. Across all four OASIS trials, larger mean changes from baseline to week 12 were consistently observed in daily moderate-to-severe VMS frequency and severity and PROMIS SD SF 8b total T-score in women who received elinzanetant 120 mg compared with placebo (Table 1). **Conclusion:** Elinzanetant 120 mg reduced daily moderate-to-severe VMS frequency and severity, in addition to PROMIS SD SF 8b total T-scores, from baseline to week 12 to a greater extent than placebo in all four OASIS studies. These results suggest consistent efficacy across differing populations of women, including those with a lower baseline symptom burden (OASIS-3) and those with VMS caused by endocrine therapy for the treatment of breast cancer (OASIS-4).

Sources of Funding: Bayer CC AG, Basel, Switzerland

Table 1: Summary of efficacy parameters at baseline and week 12 in OASIS-1, -2, -3 and -4

	Elinzanetant 120 mg				Placebo			
Mean (95% CI)	OASIS-1 (n=19)	OASIS-2 (n=200)	OASIS-3 (n=313)	OASIS-4 (n=316)	OASIS-1 (n=197)	OASIS-2 (n=200)	OASIS-3 (n=315)	OASIS-4 (n=158)
Baseline daily moderate-to-severe VMS frequency	13.4 (12.5, 14.3)	14.7 (13.1, 16.2)	6.7 (5.9, 7.5)	11.4 (10.7, 12.2)	14.3 (12.3, 16.2)	16.2 (14.6, 17.7)	6.8 (6.1, 7.5)	11.5 (10.5, 12.5)
Week 12 daily moderate-to-severe VMS frequency	4.4 (3.7, 5.06)	4.8 (3.9, 5.8)	1.6 (1.3, 1.9)	3.6 (3.2, 4.1)	8.7 (6.4, 11.0)	9.2 (7.7, 10.7)	3.4 (2.9, 3.9)	7.4 (6.5, 8.3)
Baseline daily VMS severity	2.6 (2.5, 2.6)	2.5 (2.5, 2.6)	2.3 (2.2, 2.3)	2.5 (2.5, 2.5)	2.5 (2.5, 2.6)	2.5 (2.5, 2.6)	2.3 (2.2, 2.3)	2.5 (2.5, 2.5)
Week 12 daily VMS severity	1.6 (1.5, 1.7)	1.6 (1.4, 1.7)	1.1 (1.0, 1.2)	1.5 (1.4, 1.6)	2.0 (1.9, 2.1)	1.9 (1.8, 2.0)	1.5 (1.4, 1.6)	2.0 (1.9, 2.1)
Baseline PROMIS SD SF 8b total T-score	61.0 (59.9, 62.1)	61.7 (60.8, 62.6)	57.4 (56.6, 58.2)	60.6 (59.9, 61.3)	60.2 (59.1, 61.3)	60.7 (59.7, 61.7)	58.0 (57.1. 58.9)	60.7 (59.7, 61.8)
Week 12 PROMIS SD SF 8b total T-score	50.3 (49.0, 51.6)	51.0 (49.9, 52.2)	49.5 (48.6, 50.5)	50.1 (49.2, 51.0)	55.3 (54.0, 56.7)	55.0 (53.8 56.2)	52.8 (51.9, 53.7)	56.6 (55.5, 57.8)

CI, confidence interval

FRIDAY CONCURRENT SESSION #2

S-22.

Advancing Person-Centered Menopause Care: Development and Implementation of a Novel Facilitated Group Care Model

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Objective: Menopause significantly impacts health and well-being, yet access to comprehensive care remains limited. Standard one-on-one care is often fragmented, time-limited, and inconsistent, leaving patients without whole-person support and exacerbating disparities. Group care models have improved satisfaction and clinical outcomes in other healthcare areas but remain underutilized for menopause. This project developed and piloted a novel facilitated group care (FGC) model for menopause that empowers patients through interdisciplinary education, relational care, and community support. **Design:** Our approach adapted the Centering Healthcare Institute (CHI) framework—originally designed for prenatal care—which integrates individual clinical encounters and activity-based group discussion. In partnership with CHI, a certified menopause provider and 10 multidisciplinary specialists from UCLA's Comprehensive Menopause Program (CMP) developed an evidence-based, menopause-specific FGC curriculum guided by adult learning theory and person-centered care principles. The pilot launched in March 2025. Patients seen at their initial CMP provider visit between February 6-28, 2025 were offered the option to opt into FGC or continue standard one-on-one care. Pilot participants completed surveys before and after each session. **Results:** Our FGC program comprises 10 in-person, 2-hour sessions covering key menopause topics (see Table 1). Sessions are led by 2 trained co-facilitators and a guest specialist aligned with the session's focus. Each session includes education and skill-building in symptom monitoring and goal setting, along with one-on-one specialist visits. While sessions follow a consistent structure (see Table 2) and prepared plan, facilitators adapt content to group dynamics and participant needs. A corresponding participant guide offers accessible educational content, self-assessment tools, reflection prompts, and mind-body practices. Of the 37 patients invited to join the pilot, 12 expressed interest and enrolled, and 10 completed the program. The cohort ranged from age 45-59, spanning early perimenopause to >5 years post-menopause. Participants rated the quality of information and support highly (M=4.9 on a 5-point scale), with 92% selecting "very good" or "excellent." Sessions exceeded expectations (M=4.4), with 70% reporting they were "far exceeded." Respondents valued collaborative learning and open dialogue with specialists. Individual consultations allowed them to address personal concerns not covered in the group. Providers noted that FGC supported efficient multidisciplinary care by addressing common concerns collectively, enabling more focused individual visits. **Conclusion:** This FGC model is a novel approach to menopause care, offering an integrated, relationship-centered alternative to traditional care and streamlining access to menopause specialists. Findings suggest that the model is feasible within existing clinical frameworks and valued by patients and providers. A mixed-methods evaluation is underway to comprehensively assess the impact of the model using clinical survey data and qualitative interviews. Next steps include curriculum refinement, evaluation of clinical outcomes, and broader implementation.

Sources of Funding: None

Table 1: Overview of Facilitated Group Care Sessions

Session	Topic	Specialist
1	Vasomotor Symptoms & Hormone Therapy	Menopause Provider
2	Gut Health & Nutrition	Gastroenterology Dietician
3	Sleep	Pulmonary Sleep Medicine
4	Genitourinary & Sexual Health	Menopause Provider, Urogynecologist
5	Cognition	Menopause Neurologist
6	Cardiovascular Health	Women's Cardiologist
7	Body, Weight, & Supplements	Integrative Medicine Endocrinologist, Disordered Eating Dietician
8	Bone Health	Bone Endocrinologist
9	Mental Health	Reproductive Psychiatrist
10	Preventative Health	Lifestyle Medicine Specialist

Table 2: Standard Facilitated Group Care Session Structure with Sleep Session Example

Segment	Description	Example: Session 3 (Sleep)
Opening (15 min)	Participants arrive, share snacks, and engage in a brief community-building activity to foster connection and prepare for collaborative engagement.	Triad Opening: In groups of three, participants identify three shared traits and one unique trait per person, then return to the larger circle to share.
Interactive Learning (50 min)	Facilitated activities and discussions focused on the session topic. May include small group breakouts, reflective exercises, and discussions.	Activity 1 (Continuum): Participants physically place themselves along a 1–10 scale in response to sleep-related questions, then reflect as a group on barriers to healthy sleep and sleep hygiene. Activity 2 (Spinner): Participants take turns spinning a wheel labeled with common contributors to sleep disturbance in menopause and discuss how each affects sleep. Activity 3 (Charades): Participants act out sleep hygiene practices from prepared cards while others guess, using this playful activity to spark discussion about habits they may want to adopt. Activity 4 (Circle Discussion): Participants engage in a facilitated conversation to explore strategies for improving sleep, including pharmacologic and non-pharmacologic treatment options, and discussing tracking sleep with wearables or apps.
Closing (10 min)	A guided mind-body practice (e.g., breathing, yoga, or grounding exercises) to close each session. These practices are part of holistic menopause care, and participants are encouraged to explore and incorporate the ones that resonate with them.	Mind-Body Practice (Diaphragmatic Breathing): To close the session, participants are guided through diaphragmatic breathing—a mind-body practice that promotes relaxation, supports sleep and digestion, and helps manage menopause-related symptoms like insomnia and bloating.
Specialist 1:1 Visits & Self-Assessment (45 min)	Remaining time is used for tracking symptoms and lifestyle habits, checking blood pressure, and reflecting on and setting goals. They may also share written reflections or recommendations on a community board.	Participants have the option to meet individually with the sleep medicine specialist to discuss personal sleep issues, assess for potential sleep disorders such as sleep apnea, and determine whether further evaluation (e.g., a sleep study) or treatment (e.g., CBT-I, medications, or lifestyle changes) is appropriate.

S-23.

The Role of Health Centers in Menopause Care: A National Analysis of Care Delivery and Equity

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Objective: The Women's Health Initiative (WHI) left behind a well documented "menopause vacuum": vasomotor and genitourinary symptoms remain highly prevalent, yet remain severely undertreated. This vacuum is largest for poor and underserved women—populations exceedingly cared for by Health Centers (HCs), a network that encompasses Federally Qualified Health Centers (FQHCs) and lookalikes as well as tribal, urban Indian, and Native Hawaiian sites. For instance in 2023, FQHCs served over 32 million people nationwide, accounting for one in five uninsured individuals, one in three people living in poverty, and one in five rural residents. No prior studies have evaluated menopause care delivery within this setting. We asked (1) How often do HC visits address menopause or genitourinary syndrome of menopause (GSM), and are there racial and ethnic disparities in this care? (2) Has menopause care delivery changed over the years? **Design:** We utilized cross sections from publicly available National Ambulatory Medical Care Survey (NAMCS) data that included Health Center (HC) data in 2006 and 2010 years and provided HC data separately for the 2015 and 2023 years. NAMCS is a nationally representative survey meant to provide national level estimates of all HC visits in a particular year. We included female visits aged 45–64 years, performed complete case analysis, and applied visit weights to generate nationally representative rates of menopause related encounters. ICD9CM (2006, 2010, 2015) and ICD10CM (2023) codes flagged menopause (N95.1, N95.8, N95.9, Z78.0, R23.2; ICD9 627.0627.9) and GSM (N95.2, N94.1, N90.5, N76.0/N76.9; ICD9 627.3, 625.0, 616.10/616.11). The primary outcome was the proportion of HC visits with ≥1 menopause or GSM code (primary or nonprimary). Subanalyses were stratified by race/ethnicity (non-Hispanic [NH] White, NH Black, Hispanic, Other) for the 2023 cross section. All analyses were performed using Stata 17.0. **Results:** Across nationally weighted NAMCS (HC)

samples, menopause- or GSM-related issues were addressed in fewer than 3 percent of mid-life women's visits: 0.8% percent in 2006, 0.9% in 2010, 2.2% in 2015, and 2.4% by 2023. In 2023, menopause codes appeared in 1.6% (1.2–2.2%) of visits and GSM codes in 1.1% (0.8–1.6%); only 8.2% and 14.9%, respectively, were listed as the primary diagnosis. Rates of menopause and/or GSM codes were similarly low across racial/ethnic groups–2.4% NH White, 2.1% NH Black, 1.9% Hispanic, 2.0% Other—with overlapping confidence intervals. The racial and ethnic distribution of patient visits for females aged 45-64 years in 2023 included 32.1% NH White, 16.1% NH Black, 39% Hispanic, 6% other race, and 6.8% did not have race data reported. **Conclusion:** HCs deliver a significant and increasing amount of outpatient care to low income and BIPOC women yet address menopause/GSM in <3% of midlife visits—a modest uptick since 2006 but still likely far below symptom prevalence. The uniformly low rates mask the heavier symptom burden borne by Black women and signal a systemwide care gap rather than a narrow disparity. Scaling menopause specific training, clinical decision support, and paired clinician and patient education within HCs could shrink the vacuum for >16 million women who rely on this safety net system.

Sources of Funding: None

Table 1. Number of visits to Health Centers by midlife women and rates of menopause codes in those visits

Year	Weighted visits by women 45-64yo (millions)	% with Menopause or GSM code (95% CI)
2006	2.4	0.8% (0.2-2.2)
2010	3.0	0.9% (0.4-1.9)
2015	9.8	2.2% (1.6-2.9)
2023	23.1	2.4% (1.7-3.2)

S-24.

Machine Learning (ML) Uncovers Six Latent Menopausal Phenotypes in SWAN (10-Year Follow-up).

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Objective: To use a novel multi-factor machine learning(ML)/artificial intelligence(AI) approach on the Study of Women's Health Across the Nation (SWAN) cohort to identify clinically meaningful menopausal phenotypes and to characterize their symptom and health profiles, aiming to inform personalized menopause care beyond traditional single-factor stratification. **Design:** We studied a longitudinal cohort of ~3,000 midlife women from SWAN (multiethnic U.S. cohort), following each patient each year from baseline (Visit 1) to their 10-year follow-up (Visit 10). We used unsupervised machine learning (K-means clustering and latent class analysis) to group participants by longitudinal measures of menopausal symptom severity (vasomotor, sleep, mood), anthropometric and cardiometabolic measures (BMI, blood pressure, fasting glucose, lipids), and sex hormone levels. Six optimal phenotypic clusters were derived based on validation metrics (e.g., silhouette analysis). Clinical characteristics were compared across the derived phenotypes, and cluster stability and transitions over time were assessed. Additionally, we evaluated the associations of hormone therapy (HRT) use and family medical history with phenotype membership and transitions. **Results:** Six distinct phenotypes emerged: High multi-symptom (multiple severe menopausal symptoms with moderate metabolic elevations); Metabolic risk (obesity, hypertension, and adverse glucose/lipid profile, but relatively few menopausal symptoms); Asymptomatic (minimal symptoms, healthy metabolic and hormonal profile); Mood-dominant (elevated depression/anxiety with minimal vasomotor complaints, moderate metabolic status); Healthy obese (high BMI but metabolically healthy, low symptom burden); and Mild symptoms (generally mild menopausal symptoms with average health metrics). These phenotypes differed in outcomes: the High multi-symptom group had the poorest quality of life and more persistent severe symptoms into late menopause, while the Asymptomatic group had the fewest chronic health issues. The Metabolic risk phenotype showed a higher 10-year incidence of type 2 diabetes and metabolic syndrome (hazard ratio ~1.8 versus the Asymptomatic group), whereas the Healthy obese group did not experience excess metabolic events. Phenotype stability: ~65% of women remained in the same phenotype from baseline to visit 10. HRT use influenced transitions: women on HRT were more likely to shift from a high-symptom to a milder phenotype by visit 10 compared to non-users (odds ratio ~2.0), consistent with symptom relief. Conversely, women not on HRT more often persisted in their initial phenotype. Family history factors were associated with phenotype patterns: a family history of metabolic or cardiovascular conditions was associated with remaining in the Metabolic risk group, whereas a family history of mood disorders was linked to the Mood-dominant phenotype. Compared to prior SWAN symptom-only latent class analyses, this multi-factor approach yielded more distinct clusters (higher silhouette scores indicating greater separation) and the new phenotypes more effectively predicted health outcomes. **Conclusion:** This exploratory study demonstrates the utility of AI/ML in uncovering latent phenotypes in menopause. ML-driven multi-factor stratification revealed clinically meaningful subgroups that traditional single-factor stratification overlooked. These data-driven phenotypes point toward more personalized menopause care via subgroup-specific interventions. Our findings underscore the potential of AI in menopause research and warrant further validation of subgroup-specific clinical treatment response trajectories.

Sources of Funding: None

S-25.

Novel Urine-Based Biomarker Panel for Detecting Muscle Health Decline in Menopausal Women.

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Objective: Menopause accelerates muscle loss due to hormonal changes, particularly declining estrogen levels. Early identification of muscle deterioration is critical to prevent sarcopenia and preserve quality of life, but current methods such as DXA scans are costly, inaccessible, and unsuitable for routine monitoring. In this study, we evaluated whether a panel of biomarkers could be used to detect differences in muscle health between menopausal and non-menopausal women. Then, we showed that urine biomarkers can provide a more accessible alternative to identify early stage sarcopenia in menopausal women. **Design:** Women were grouped based on menopausal status. Urine samples were collected after overnight fasting and analyzed using enzymatic colorimetric and fluorescence assays to quantify five key metabolites related to muscle metabolism. A proprietary algorithm was used to combine biomarker concentrations into a single muscle health score for each participant. Muscle health scores and biomarker concentrations were compared between menopausal and non-menopausal groups. Receiver operating characteristic curves were used to assess performance of our biomarker panel versus DXA scans. Unequal variance t-test was used to compare muscle scores and biomarker concentrations between the two groups. **Results:** The biomarker-based muscle health test showed a 91% concordance rate with DXA for detecting sarcopenia. The, we showed that urinary markers of muscle metabolism measured in 113 women (n=28 non-menopausal, n=85 menopausal) were significantly different. Muscle health scores were significantly lower in menopausal women (44.21% ± 1.88% SEM) compared to non-menopausal women (53.98% ± 2.01% SEM, p=0.003). Menopausal women had significantly lower markers associated with protein building (89.95 μM ± 17.90 vs. 189.01 μM ± 39.08, p<0.0001) and higher markers of oxidative stress (99.87 μM ± 10.21 vs. 52.67 μM ± 5.81, p<0.001). Additionally, menopausal women had lower concentrations of markers involved in fatty acid metabolism (1.98 μM ± 0.37 vs. 6.04 μM ± 1.51, p<0.0001). Interventions based on diet and exercise recommendations helped to improve overall muscle health scores over time. **Conclusion:** Our findings demonstrate that menopause is associated with measurable biochemical changes tied to muscle health decline, including impaired protein synthesis capacity, reduced mitochondrial energy metabolism, and elevated oxidative stress. A non-invasive urine-based biomarker panel was able to detect these changes accurately. By offering a practical and accessible tool for early identification of muscle deterioration, urinalysis of this biomakers may support more proactive clinical strategies. Dietary personalized recommendations targeting muscle protein synthesis, energy metabolism, and oxidative balance can be developed based on individual biomarker profiles, providing a new avenue to help preserve muscle health during the menopausal transition. Building on this foundation, the study also laid the groundwork for developing a rapid, at-home test that enables women to assess their muscle health and receive a tailored action plan, empowering early intervention and personalized care.

Sources of Funding: National Research Counsil of Canada and Atlantic Canada Opportunity Agency.

S-26.

Association of Hormone Therapy with Autoimmune Disease Risk in Postmenopausal Women: A TriNetX-Based Analysis

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Objective: Autoimmune diseases disproportionately affect women, with notable shifts in incidence following menopause, suggesting a potential role of sex hormones in immune regulation. Hormone therapy (HT), commonly used to alleviate menopausal symptoms, may influence immune responses; however, its relationship with the development of autoimmune diseases in postmenopausal women remains poorly understood. This study aimed to investigate the association between HT use and the incidence of autoimmune diseases among postmenopausal women. **Design:** This retrospective cohort study utilized data from the TriNetX Global Health Research Network within the U.S. Collaborative Network to identify adult females with ICD-10 codes indicating menopause (N95, Z78.9, or E28.31). Women with records of estrogen use (VA class HS300) on or after the menopause diagnosis were assigned to the hormone therapy (HT) cohort (n = 889,413), while those without such records comprised the non-HT cohort (n = 2,646,652). Propensity score matching was conducted to balance baseline characteristics, including age, ethnicity, and comorbidities such as obesity, type 2 diabetes, essential hypertension, and major depressive disorder. The index date was defined as the date of HT initiation for the HT group and the date of menopause diagnosis for the non-HT group. Individuals with a prior diagnosis of any of 17 predefined autoimmune diseases were excluded. Outcomes assessed included the incidence of these autoimmune diseases at 5 years, 10 years, and across the full postmenopausal period. Risk differences, risk ratios (RR), and odds ratios with 95% confidence intervals (CI) were calculated. Kaplan–Meier analysis and the log-rank test assessed time to event, and Cox proportional hazards models estimated hazard ratios (HRs). **Results:** After propensity score matching, each cohort included 889,413 postmenopausal women with a mean age (SD) of 60.5 ± 11.3 years. Compared to non-users, HT users had a higher incidence of autoimmune disease at 5 years (6.7% vs. 5.3%), 10 years (8.6% vs. 6.7%), and across the full postmenopausal period (9.0% vs. 7.1%). HT use was significantly associated with an increased risk of developing any autoimmune disease at 5 years (RR [95% CI] = 1.29 [1.27–1.30], p < .0001), 10 years (RR [95% CI] = 1.28 [1.27–1.29], p < .0001), and at any point after menopause (RR [95% CI] = 1.27 [1.25–1.28], p < .0001). When evaluating individual autoimmune conditions over the full

postmenopausal period, statistically significant increases in risk were observed for all autoimmune diseases except Graves' disease and autoimmune hepatitis, with RR ranging from 1.03 for Psoriasis to 2.90 for Lichen Sclerosis (Table 1). The hazard of developing any autoimmune disease over the full follow-up period was also elevated among HT users (HR: 1.33, 95% CI: 1.32–1.35, p < .001). **Conclusion:** In this large, matched cohort study, HT use among postmenopausal women was associated with a significantly higher incidence and risk of developing autoimmune diseases. These findings highlight the need for further prospective research to clarify the underlying mechanisms and temporal relationship between HT and autoimmune disease onset, and to support individualized risk–benefit evaluations in menopausal care.

Sources of Funding: None

Incidence of AI diagnosed after menopause onset in HT vs. non-HT cohort (regardless of time since menopause)

Condition	HT Cohort (N = 889,413)	HT Outcome Count	HT Risk (%)	Non-HT Cohort (N = 889,413)	Non-HT Outcome Count	Non-HT Risk (%)	Risk Difference (%)	Risk Ratio (95% CI)	Odds Ratio (95% CI)	p-value
Any Autoimmune Disease	749,363	67,542	9.013	789,037	56,131	7.114	1.899	1.267 (1.253–1.281)	1.293 (1.278–1.309)	< 0.0001
SLE	879,281	3,830	0.436	881,908	3,263	0.370	0.066	1.177 (1.124–1.233)	1.178 (1.124–1.234)	< 0.0001
Rheumatoid Arthritis	859,071	15,907	1.852	863,162	14,593	1.691	0.161	1.095 (1.071–1.120)	1.097 (1.072–1.122)	< 0.0001
Hashimoto's Thyroiditis	867,982	10,706	1.233	873,992	10,204	1.168	0.066	1.056 (1.028–1.085)	1.057 (1.029–1.086)	< 0.0001
Sjögren's Syndrome	875,556	10,334	1.180	881,692	5,968	0.677	0.503	1.744 (1.689–1.800)	1.753 (1.697–1.810)	< 0.0001
Graves' Disease	881,153	3,335	0.378	882,509	3,492	0.396	-0.017	0.957 (0.912–1.003)	0.956 (0.912–1.003)	0.0657
Psoriasis	870,574	10,573	1.214	873,254	10,305	1.180	0.034	1.029 (1.002–1.057)	1.030 (1.002–1.058)	0.0367
Psoriatic Arthritis	884,748	2,886	0.326	885,412	2,533	0.286	0.040	1.140 (1.081–1.203)	1.141 (1.081–1.203)	< 0.0001
Atopic Dermatitis	875,097	12,095	1.382	879,712	9,489	1.079	0.303	1.281 (1.248–1.316)	1.285 (1.251–1.321)	< 0.0001
Multiple Sclerosis	881,006	1,912	0.217	883,009	1,727	0.196	0.021	1.110 (1.040–1.184)	1.110 (1.040–1.185)	0.0017
Celiac Disease	882,555	2,987	0.338	885,081	2,193	0.248	0.091	1.366 (1.293–1.443)	1.367 (1.294–1.445)	< 0.0001
Autoimmune Hepatitis	888,174	776	0.087	888,355	735	0.083	0.005	1.056 (0.955–1.168)	1.056 (0.955–1.168)	0.2895
Systemic Sclerosis	886,956	1,104	0.124	887,524	966	0.109	0.016	1.144 (1.049–1.247)	1.144 (1.049–1.247)	0.0023
Polymyalgia Rheumatica	884,569	3,779	0.427	885,747	3,178	0.359	0.068	1.191 (1.136–1.248)	1.192 (1.137–1.249)	< 0.0001
Ankylosing Spondylitis	887,016	1,789	0.202	887,857	1,388	0.156	0.045	1.290 (1.203–1.384)	1.291 (1.203–1.385)	< 0.0001
Vasculitis	885,773	3,145	0.355	886,636	2,567	0.290	0.066	1.226 (1.164–1.292)	1.227 (1.165–1.293)	< 0.0001
Lichen Sclerosis	868,544	13,888	1.599	883,766	4,873	0.551	1.048	2.900 (2.807–2.996)	2.931 (2.836–3.028)	< 0.0001
Lichen Planus	883,654	4,904	0.555	886,983	2,444	0.276	0.279	2.014 (1.919–2.114)	2.020 (1.924–2.120)	< 0.0001

Patients were excluded from results if they had the outcome prior to the index date.

POSTER PRESENTATIONS

P-1.

Cardiovascular Health Awareness and Perceptions Among Women in a Rural Community Outreach Program

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Objective: The purpose of this study was to assess the current level of awareness and perception to cardiovascular health and cardiovascular disease (CVD) as the leading cause of death across a target population of randomly selected female in our outreach rural community from racial/ethnic minorities backgrounds. **Design:** This is a pilot Study as part of a QI project within our LCH. A survey was conducted among a randomly selected sample of 50 women in an Outreach Community in Hialeah, Florida. A standard interviewer-assisted questionnaire was used. Descriptive statistic (as proportions) to display the awareness, perceived personal CVD risk, barriers to a heart-healthy lifestyle, and self-reported actions taken to reduce CV risk in the studied women. **Results:** We had a response form 30 of 50 (60% response rate) women in the local underserved community. Sixty percent of women were between age of 45-50 years. Seventy percent were of Hispanic background, and 40 % were college graduates. Hypertension was reported as the highest CV risk factor in 30% of surveyors. Interestingly, only 50% of women reported the leading cause of death in women is CV disease, while 16% reported Breast cancer and 16% reported any cancer are leading cause of death (Figure 1). Most women voiced their opinion as strongly agreeing that Women's CV health and well-being are of paramount importance for better performance in our society. In 17% of women, the Atherosclerotic cardiovascular risk calculator was high risk in > 20%, raising an alarm for immediate lifestyle modifications. Only 53% of woemn were aware of the educational camapign "Go red for Women" (Figure 2). Two reported major barriers to improving CV health were lack of time and life stress. **Conclusion:** General awareness of CVD risk among women is of paramount importance to target preventive action. Educational lifestyle interventions need to be targeted at racial/ethnic minority women across our rural community. Two reported major barriers to improving CV health were lack of time and life stress.

Sources of Funding: None

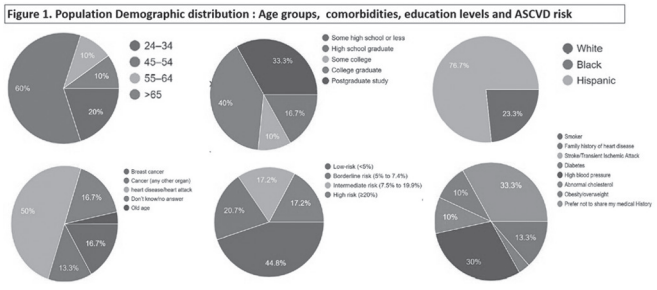

Figure 1. Population Demographics

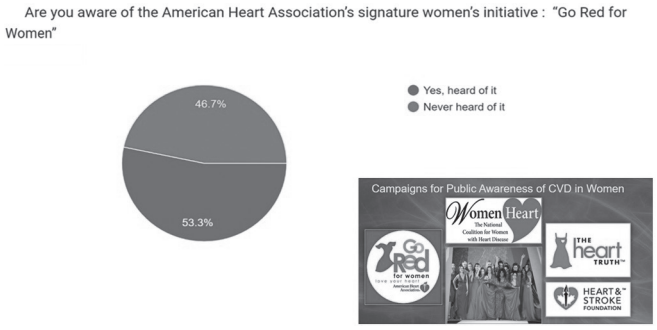

Figure 2. Awarness of the "Go red for Women" Campaign

P-2.

Menopause & Its Constellation of Syndromes

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Objective: The broad spectrum of actions of steroid hormones enables them to have actions in practically all systems and organs of the economy. Practically, there isn't any part of the body that doesn't depend in one way or another on the presence of these hormones. Their absence develops disorders in almost any system: neurological and cognitive, psychological, cardiovascular (CV), gastrointestinal (GI), dermatological, genitourinary, musculoskeletal, sexual, immunological, endocrine, microbiotic, and oral. **Design:** An extensive review of the literature in each medical specialty regarding the actions of steroid hormones (biochemistry), the symptoms and disorders produced by their absence, and the prevention and treatment of these pathologies with hormonal replacement therapy was conducted. **Results: Neurological Syndromes of Menopause (NSM)**: Insomnia, headaches, neuronal atrophy, decreased number of synapse formation, memory loss (loss of concentration and attention), worsening ADHD, cognitive impairment, Parkinson's disease, Alzheimer's, vascular dementia and brain density loss. **Psychological Syndromes of Menopause (PSM):** Anxiety, depression, panic attacks, irritability, mood swings, suicidal thoughts, self-esteem loss, dementia, easy crying, schizophrenic symptoms. **Cardiovascular syndrome of Menopause (CVSM):** Hot flashes, night sweats, palpitations, fatigue, arteriosclerosis, generalized atrophy secondary to decreased blood flow and cardiovascular arterial disease. **Gastrointestinal syndrome of Menopause (GISM)**: Microbiota alterations, increased colon cancer, dental deterioration, low GI motility, increased gut sensitivity, gallbladder issues, and malabsorption syndromes. **Metabolic Syndrome of Menopause (MSH, already described)**: Visceral fat gain, insulin resistance, abnormal cholesterol levels and dyslipidemia, high blood pressure, non alcoholic fatty liver disease. **Ophthalmologic syndrome of menopause (OSM):** Sjögren syndrome, cataracts, small-angle glaucoma, retinal detachment, macular degeneration, optic nerve atrophy, increased floaters, decreased corneal thickness, and decreased lacrimal gland function. **Tegomentry syndrome of Menopause (TSM)**: Dermo-mucosal atrophy and secondary dryness, hair loss, onychodysplasia, poor growth of nails, increased wrinkles, increased skin sensitivity, chronic itching, and melasma. **MSK syndrome of Menopause (MSSM, already described):** Osteopenia and osteoporosis, sarcopenia, osteoarthritis, tendinitis, myalgias, fibromyalgia, postural changes, increased falls, and carpal tunnel syndrome. **Genitourinary syndrome of Menopause (GSM, already described):** Vulvovaginal atrophy (VVA), vulvovaginal obliteration (VVO), recurrent UTI, urinary incontinence, fecal incontinence, dyspareunia, and loss of pelvic tone. **Sexual syndrome of Menopause (SSM):** Hypoactive sexual desire disorder (HSDD), orgasmic dysfunction, arousal dysfunction, vulvodynia, etc. Immunological syndrome of Menopause (ISM): Decrease local and systemic immunological responses, increase autoimmune disease, allergic disorder, including asthma. **Endocrine syndrome of Menopause (ESM):** Hashimoto's, Myasthenia gravis, metabolic syndrome, autoimmune diseases, diabetes. **Dental syndrome of Menopause (DSM):** Dental deterioration, alveolar atrophy, dry mouth, altered taste sensation, increased periodontal disease. **Conclusion:** Menopause is much more than GSM and sexual problems. Every single system of our body is involved in the action of steroid hormones, and they need to be supplied once we enter hypogonadism.

Sources of Funding: None

P-3.

"Does it really last 3 months?": A qualitative review of the systemic estradiol acetate vaginal ring

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Objective: Preliminary assessment of absorption and return of vasomotor symptoms throughout the three-month vaginal estradiol ring. **Design:** Patients from a single private practice were isolated using a free text search and medication history. Those who have been prescribed "Femring" and an estrogen patch or gel were initially isolated. Patients who were using a patch or gel to supplement the "Femring" at any point throughout the 90 day period were retained in the analysis. Additionally, a free text search in the electronic medical records for "wears off", "runs out", and "ring not enough" yielded

additional patients with this experience. Direct quotations from patient-provider encounter notes and relevant serum estradiol levels were included as they related to this investigation. **Results:** 31 patients were identified to experience the ring "wearing off" (Table 1). Serum estradiol (E2) levels were not reliably reported/tested at the beginning and end of the ring period. Where available, direct quotes were analyzed from patient chart notes. Of the 31 patients, 11 were perimenopausal and 20 were postmenopausal (including one documented surgical menopause). Common symptoms that coincided with the end of the estradiol ring period were compiled (Table 1). Among this group, 3 patients were found to change their ring ahead of the 90 day use period, 17 were found to supplement the ring in the last 2-4 weeks with either a patch or gel, and at least 1 was found to change from the ring completely to a different formulation. **Conclusion:** This preliminary assessment highlights a disconnect between the pharmacokinetic expectations of the three-month estradiol vaginal ring and the lived experience of some patients using it, which in some cases greatly impacts the quality of life of these women. These findings raise important considerations regarding individual variability in estradiol absorption and support the need for more flexible or responsive treatment strategies. Future directions should include direct comparison of pharmacokinetics and E2 serum levels in patients on the systemic estradiol acetate vaginal ring.

Sources of Funding: None

Table 1. Thematic analysis of patient experience in the last month of the estradiol acetate 90-day vaginal ring.

Theme	Number of patients with this experience	Sample quote from patient chart note
Ring wears off feeling	31	"Feels it runs out early"
Sleep disturbances	6	"Notices sleep worsens at the end"
Return of genitourinary and sexual symptoms	5	"Harder to orgasm in last several weeks… and then much easier when new ring is placed"
Return of vasomotor symptoms	3	"had some night sweats this week… nearing the end of the ring"
Return of mental/mood symptoms	2	"starting to feel depressed towards the end of the ring"
Feels like they're dragging/"not feeling like myself"	2	"The last 3 weeks are dragging. I don't feel good."
Bleeding	1	"bleeding on and off for 3 days, just took out Femring and added new one, seems to happen at end of 3 month cycle"
Return of nerve pain	1	"symptoms of nerve pain… that I get as the ring period comes to an end"

P-4.
Sleep Disruptions and Physical Activity Through the Menopause Transition

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Objective: Frequent awakening is a prominent form of sleep disruption for women around the time of menopause. Hot flashes (HF) may contribute to awakening although the evidence is mixed. Physical activity (PA) is recognized to promote improvements in sleep. The objectives of this analysis were to: 1) assess awakenings in a population of midlife women by determining the number of awakenings associated and not associated with HF and 2) evaluate if there were relationships between awakenings and self-reported PA and sedentary behavior. **Design:** Pre-, peri- and postmenopausal women ages 45-57 not taking hormonal medication were included in this study. Light, moderate and vigorous-intensity PA and sedentary time were determined using the International Physical Activity Questionnaire (IPAQ). Objective HFs were assessed over 24hr via sternal skin conductance (Biolog, UFI, Morrow Bay, CA). HFs were defined by a ≥2umho increase in skin conductance over 30s. Participants concurrently wore an actigraphy monitor on their wrist. Objective sleep and awakenings were assessed from actigraphy using the R package GGIR (GGIR version 3.2-6, R version 4.5.1 (2025-06-13)). Objective sleep time was calculated using GGIR's HDCZA algorithm. Awakenings were identified using the Van Hees 2015 algorithm. An awakening was considered to be associated with a HF if it occurred in the 10 minutes before or after the HF. Differences in proportions for types of awakenings (associated with HF or not associated with HF) by menopausal status were assessed using a Kruskal-Wallis Test. Multilevel negative binomial regression models and multilevel generalized poisson regression models were used to evaluate relations between PA and awakening types. Models included age, total sleep time (TST), menopausal status, and activity types. Models were checked for goodness of fit using the DHARMa package in R. **Results:** In total, 173 participants (mean age 51.0±2.88 years old; mean BMI of 27.5±6.3 kg/m2) were included for analysis; 22 (12.7%) were premenopausal, 85 (49.1%) were perimenopausal, and 65 (37.6%) were postmenopausal. Participants had an average sleep time of 8.8±1.8 hours and an average wake after sleep onset (WASO) of 1.2±0.8 hours; 2452 total awakenings occurred, with an average of 14±7.9 awakenings per participant. Finally, 554 objective HF were recorded, and on average 2.1±1.75 HF were associated with an awakening. In the premenopausal group, 12.2% (34/284) of awakenings were associated with HF, compared to 13.5% (170/1257) in the perimenopausal group, and 16.5% (150/911) in the postmenopausal group. There were no significant between-group differences. Participants averaged 57.1±80.9 minutes of light activity, 30.6±65.7 minutes of moderate activity, 20.6±26.7 minutes of vigorous activity and 405.4±181.9 minutes of sedentary time per day. Modeling for total awakenings showed that 1hr of additional sedentary time was associated with a 2% decrease in total awakenings (Incidence Rate Ratios [IRR]=0.98; 95% CI, 0.95-1.00; p=0.044). Menopause stage was a significant factor with more total awakenings in peri- compared with premenopausal women (IRR=1.30; 95% CI, 1.04-1.62; p=0.021). Increased sedentary behavior was associated with 3% decrease in awakenings not associated with a HF (IRR=0.97; 95% CI, 0.94-1.00; p=0.019). Menopause stage was a significant factor with more awakenings not associated with HF in peri- compared with premenopausal women (IRR=1.32; 95% CI, 1.03-1.68; p=0.026). More moderate PA increased awakenings associated with HF by 8% (IRR=1.08; 95% CI, 1.00-1.17; p=0.043). Menopause stage was a significant factor with more awakenings associated with HF in peri- compared with premenopausal women (IRR=1.41; 95% CI, 1.07-1.87; p=0.017). **Conclusion:** Our data suggest that a greater burden of awakenings in midlife women are not associated with HF. Further, sedentary behavior and moderate PA may influence objectively assessed sleep disruptions.

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P-5.
The Efficacy of a Neurokinin 3 Receptor Antagonist on Sleep in Menopausal Females

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Objective: Thermella®, a neurokinin 1, 3 receptor antagonist, has previously shown beneficial results for menopause-related symptoms (hot flashes, night sweats, sleep, and others) in smaller cohorts. The main objective of this trial was to examine the effects of 12 weeks of supplementation with Thermella® on sleep-related outcomes. **Design:** 112 females (55 perimenopause; 57 postmenopause; 55.5 ± 6.2 yrs) supplemented with two tablets of Thermella®, a proprietary blend of curcumin extract, green tea extract, and spirulina extract for 12 weeks. Participants were enrolled if they experienced menopausal symptoms for at least 6 months and experienced ≥ 5 moderate to severe hot flashes per day on average. The primary outcomes included the Patient Reported Outcomes Measure Short Form Sleep Disturbance 8B (PROMIS) and a Sleep Disturbance 100mm Visual Analog Scale (VAS) at baseline, week 4, week 8, and week 12. Data were analyzed using a one-way repeated measures ANOVA for main effect for time, and group x time repeated measures ANOVA for comparisons between menopause groups with alpha level set at $p < 0.05$. **Results:** Participants experienced a significant decrease in their PROMIS T-Score, with both menopausal statuses starting at a "Moderate" level of Sleep Disturbances (61.3 ± 7.2) and improving to "Within Normal Limits" by week 4 (54.1 ± 8.1), with continued score improvements through week 12 (52.3 ± 10.3), a statistical improvement when compared to their baseline values ($p < 0.001$). Participants experienced improvements in sleep quality, as indicated by reductions in sleep quality scores (where higher scores reflect worse sleep). Perimenopausal females demonstrated a 21% improvement by week 4 (Baseline: 3.9 ± 0.8; Week 4: 3.0 ± 1.0; $p < 0.001$), with continued improvements at week 8 (2.9 ± 1.1; $p < 0.001$) and week 12 (2.9 ± 1.1; $p < 0.001$). Similarly, postmenopausal females showed a 20% improvement at week 4 (Baseline: 3.6 ± 0.9; Week 4: 2.9 ± 1.0; $p < 0.001$), with continued improvement through week 8 (3.0 ± 1.1; $p < 0.001$) and week 12 (2.9 ± 1.0; $p < 0.001$). No statistically significant differences were observed between menopausal groups at any time point (Baseline: $p = 0.069$; Week 4: $p = 0.494$; Week 8: $p = 0.534$; Week 12: $p = 0.877$). For Sleep Disturbance VAS, there were no statistical differences between menopausal groups. There was a main effect of time for Thermella® supplementation, with week 4 having a 36.5% decrease in sleep disturbance scores, and continued improvements throughout the 12-week trial with a 47.8% decrease at week 12 (Baseline: 77.2 ± 21.6; Week 4: 49.0 ± 31.1; Week 8: 45.7 ± 30.1; Week 12: 40.3 ± 29.9; $p < 0.001$ for all time points). **Conclusion:** The results of this clinical trial demonstrate that Thermella®, a neurokinin 1, 3 receptor antagonist, significantly and clinically meaningfully improves sleep quality in peri- and postmenopausal females experiencing menopause-related sleep disturbances. Participants experienced marked reductions in PROMIS Sleep Disturbance scores, transitioning from the "Moderate" range (T score between 60 to 70) to "Within Normal Limits" (T score less than 55) by week 4 — an improvement that reflects a clinically meaningful change based on established thresholds. These gains were maintained through week 12 and observed consistently across menopausal subgroups, supporting the broad applicability of Thermella®. Furthermore, sleep disturbance scores on the VAS decreased by nearly 48%, a magnitude generally considered clinically relevant. These findings highlight the potential of Thermella® as a non-hormonal option for managing menopause-related sleep issues.

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P-6.
Training the Trainers: Building Gender-Affirming Menopause Care Capacity in Clinical Practice

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Objective: To address systemic gaps in menopause education by equipping healthcare providers with the frameworks, tools, and cultural competencies needed to deliver gender-affirming menopause care to trans and gender-expansive patients. **Design:** This practice-based training introduces a modular framework for building clinical capacity in gender-affirming menopause care. Adapted from and rooted in the Genderqueer Menopause Coach Gender-Affirming Menopause Certification program, *Genderqueer Menopause* (Lasara Firefox Allen, North Atlantic Books, 2025), and a comprehensive review of current research on menopause in gender-expansive populations, the model integrates adult learning theory, trauma-informed approaches, and trans-led frameworks. The session highlights three foundational components: (1) inclusive language and

patient-facing materials; (2) trauma-informed protocols for affirming care; and (3) clinical coaching strategies for addressing complex GAHT/HRT intersections. Participants receive actionable tools and case-based guidance to increase cultural competency and advance systemic change. **Results:** Implementation of the Genderqueer Menopause Coach Gender-Affirming Menopause Certification program training model has led to measurable gains in provider knowledge, confidence, and practice change. Participant surveys from pilot cohorts report: - Increased clinical confidence in managing menopause care for trans and gender-expansive patients, including those on GAHT - Improved ability to identify and mitigate gendered trauma triggers in clinical settings - High satisfaction scores (average 4.9/5) regarding the usefulness of trauma-informed approaches and redesign of patient-facing materials - Direct application of learned tools into practice, including updates to intake forms, symptom tracking resources, and HRT protocols In post-training interviews and follow-up coaching sessions, providers reported increased clarity around the physiological and psychological nuances of gender-expansive menopause, and many described integrating core components into organizational policies and internal staff trainings. **Conclusion:** Trans and gender-expansive individuals who have or have had uteri and/or ovaries remain significantly underserved in menopause care. Structural gaps in provider education perpetuate healthcare avoidance, misdiagnosis, and disparities in care quality. Recent estimates suggest that between 1.5 and 2 million AFAB (assigned female at birth) transgender, nonbinary, and gender-expansive adults ages 18–65 reside in the United States — individuals who may experience menopause but are often excluded from research and care models (Williams Institute, 2022; Pew Research Center, 2022; Gallup, 2022). The Genderqueer Menopause Coach training model demonstrates that targeted, trauma-informed, gender-affirming education can equip providers with the tools needed to close these gaps. By integrating inclusive language, trauma-informed clinical protocols, and affirming GAHT/HRT coaching strategies, healthcare professionals can foster more equitable, responsive menopause care for all genders. Scaling this model across clinical education programs offers a critical pathway toward improving health outcomes for gender-diverse populations in midlife and beyond.
Sources of Funding: None.

P-7.
All Genders Bleed: Menopause Beyond the Binary

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Objective: To challenge cisnormative assumptions embedded in menopause research and care delivery and advance inclusive clinical frameworks that acknowledge and support the menopause experiences of trans and gender-expansive individuals with uteri and/or ovaries. **Design:** This practice-based innovation draws upon clinical coaching experience, lived narratives collected during the development and authoring of *Genderqueer Menopause* (North Atlantic Books, 2026), and a comprehensive review of existing menopause literature through a gender-expansive lens. The framework integrates patient-centered care models, trauma-informed methodologies, and cultural humility practices to reframe menopause as a physiologic and psychosocial transition not limited by gender identity or age. This session highlights core strategies for increasing cultural humility, revising language, adapting clinical protocols, and improving visibility for diverse menopause experiences within healthcare systems. **Results:** Implementation of gender-expansive menopause frameworks in clinical and support settings has resulted in measurable shifts, including: - Increased provider recognition of menopause symptoms outside of cisgender female populations - Adoption of inclusive language in patient-facing materials and clinical assessments - Higher reported comfort and confidence among providers discussing menopause with trans, nonbinary, and gender-expansive patients - Preliminary anecdotal feedback indicating increased patient engagement and satisfaction, alongside reduced healthcare avoidance among trans and gender-diverse individuals seeking menopause support **Conclusion:** Menopause frameworks built solely around cisgender female experiences fail to serve the full spectrum of bodies and identities undergoing this transition. There are an estimated 1.5 to 2 million AFAB (assigned female at birth) transgender, nonbinary, and gender-expansive adults in the United States alone (Williams Institute, 2022; Pew Research, 2022; Gallup, 2022) who may experience menopause, yet clinical education remains overwhelmingly cis-centered. Expanding menopause care models to affirm the experiences of all genders is a critical step toward health equity. By adopting gender-expansive language, updating diagnostic assumptions, and centering lived experience alongside clinical research, healthcare providers can foster more accurate, inclusive, and compassionate menopause care for diverse communities.
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P-8.
Biofeedback Meditation Device to Improve Sleep Quality in Midlife Women

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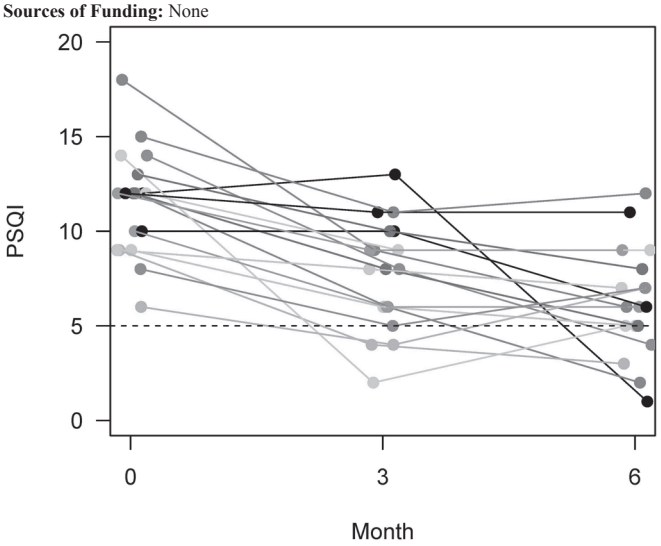
Objective: Sleep disturbances are common among midlife women and management can be challenging. The study evaluated the feasibility and efficacy of using an EEG-based biofeedback meditation headband in management of sleep disturbances in midlife women. The study also evaluated the device's impact on the secondary outcomes of mood and anxiety. **Design:** This was an open label single-arm clinical trial that recruited peri- and postmenopausal women (age 45-60) from outpatient clinics at Mayo Clinic. Women were eligible if they reported significant sleep disturbance (**score ≥ 5** on the Pittsburgh Sleep Quality Index, PSQI, a standard questionnaire used for assessment of sleep quality). Women with moderate or severe vasomotor symptoms, sleep apnea, current use of hormone therapy or supplements that affect sleep, untreated clinically significant psychiatric conditions, and use of prescription sleep aids were excluded. Participants completed questionnaires assessing mood (Patient Health Questionnaire 9, PHQ-9) and anxiety (Generalized Anxiety Disorder 7, GAD-7). Participants received the headband with instructions to use it daily for at least 10 minutes for 6 months. PSQI, PHQ-9, and GAD-7 were completed again at 3 and 6 months. **Results:** A total of 31 women (mean age 56.1) were recruited, and 18 (mean age 56.8) completed the study with regular use of the headband. Among the daily users, the PSQI score showed a steady and significant decline during the study, indicating an improvement in sleep quality (median score [IQR]: 12 [9,13], 8 [6,10], 6 [5,8] at baseline, 3 months, and 6 months, respectively, $p<0.001$). The most significant reduction in the sleep score was noted at 3 months, with a sustained benefit at 6 months (Figure). The PHQ-9 scores improved from baseline to 3 months, but the difference was of marginal clinical significance (median score [IQR]: 5 [3,7], 4 [2,6], 4 [1,6] at baseline, 3 months, and 6 months, respectively, $p<0.001$). The GAD-7 scores also declined steadily, indicating improvement in participants' anxiety symptoms (median score [IQR]: 6 [2,11], 4 [1,6], 3 [1,5] at baseline, 3 months, and 6 months, respectively, $p=0.02$). The improvement in PSQI scores was independent of the improvement in mood ($p>0.6$) or anxiety ($p> 0.15$) scores. **Conclusion:** The biofeedback meditation device appears to be a promising therapeutic option for midlife women with sleeping difficulties.
Sources of Funding: None



Changes in PSQI scores over the study period

P-9.
Influence of physical activity levels on the metaboreflex in postmenopausal females

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Objective: Cardiovascular disease (CVD) is the leading cause of death in aging females. Exaggerated hemodynamic responses to exercise are associated with greater risk of CVD. During exercise, the metaboreflex modulates blood pressure (BP) via group IV afferents that increase blood flow to remove accumulating metabolites from active skeletal muscle. Postmenopausal females demonstrate elevated hemodynamic and sympathetic activity during isolated metaboreflex activation compared with premenopausal females. Although higher physical activity (PA) levels can reduce CVD risk, the effects of PA on the metaboreflex are equivocal and it is unknown whether habitual PA influences the physiological response to metaboreflex activation in postmenopausal females. We hypothesized that postmenopausal females with lower levels of PA (L-PA) would exhibit augmented BP, heart rate (HR), and sympathetic responses to metaboreflex activation compared to those with higher levels of physical activity (H-PA). **Design:** Thirty-seven postmenopausal females completed two study visits. Visit 1: consent, health questionnaires and Minnesota Leisure Time Physical Activity Questionnaire (MNLTPAQ). Using a median split analysis based on MSNA data, participants were divided into two groups based on self-reported PA: L-PA (n=18; MNLTPAQ score<275kcal/day) and H-PA (n=19; MNLTPAQ score>275kcal/day). Visit 2: three handgrip maximal voluntary contractions (MVC); fatiguing isometric handgrip exercise (IHG; 30% of maximal strength to failure with a pre-failure MVC); and circulatory occlusion (PECO; two min post-exercise) to isolate the metaboreflex. Continuous measurements of BP, HR, and muscle sympathetic nerve activity (MSNA), the gold-standard measure of peripheral sympathetic activity, were collected. Either independent t-tests or Mann-Whitney U-tests were used to assess group differences and a two-way repeated-measures ANOVA was used to assess changes in outcome variables throughout PECO. **Results:** Data are presented as mean±SD for normally distributed data or median, IQR for non-normally distributed data. Groups were similar in age (L-PA: 60±5, H-PA: 62±4yrs), menopause age (L-PA: 49±4; H-PA; 49±4yrs), body mass

index (L-PA: 26±4; H-PA: 25±4kg/m^2), and estradiol levels (L-PA: 4, 1.9; H-PA: 4, 2.8pg/mL) (all p>0.05). By design, L-PA had significantly lower levels of PA (118, 62kcal/day) compared to H-PA (397, 215kcal/day, p<0.001). There were no differences in resting systolic BP (SBP; L-PA: 129±15; H-PA: 130±17mmHg), diastolic BP (DBP; L-PA: 82±10, H-PA: 79±10mmHg), HR (L-PA: 63±9, H-PA: 60±9bpm), or MSNA burst frequency (BF; L-PA: 33±10, H-PA: 32±6bursts/min) (all p>0.05). Maximal strength was significantly greater in H-PA (171±26 vs 146±39N; p=0.03), but time-to-task-failure (TTF) was similar between groups (H-PA: 177, 231; L-PA: 144, 84s; p=0.14). Peak SBP (L-PA: 174±23, H-PA: 182±27mmHg), DBP (L-PA: 111±13, H-PA: 114±20mmHg), HR (L-PA: 86±9, H-PA: 90±15bpm), and MSNA BF (L-PA: 45±8, H-PA: 48±11bursts/min) were similar between groups (all p>0.05). During metaboreflex activation, however, L-PA had exaggerated DBP responses (time*group, p=0.02) and a trend for greater SBP responses (time*group, p=0.053) compared to H-PA, but HR and MSNA responses to metaboreflex activation were similar between groups (p>0.05). **Conclusion:** Novel findings suggest that while H-PA and L-PA exhibit similar levels of peak exercise BP, HR, and sympathetic activity during IHG, higher levels of PA may attenuate age-/menopause-related increases in BP reactivity to metaboreflex isolation. Although the exact mechanisms that govern these changes are unknown, decreased hemodynamic responsiveness with unchanged sympathetic activity to the metaboreflex may reflect enhanced vascular function in H-PA postmenopausal females, thus mitigating CVD risk.
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P-10.

Impact of Exercise on Cardiovascular Health of Postmenopausal Women

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Objective: The transition into menopause can present numerous challenges for patients, including pervasive symptoms such as insomnia, diaphoresis, difficulty maintaining a healthy weight, and fatigue. Declining estrogen levels during this period also increases the risk of cardiovascular damage, as estrogen exerts protective effects against vascular oxidative stress. Bearing in mind that cardiovascular disease (CVD) is the leading cause of death among women, it is imperative that we understand the implications of lifestyle modifications on menopausal women. Cardiovascular disease and hyperlipidemia are often underrecognized in women, as their pre-menopausal risk is less than that of men within their age cohort. Despite the increased risk during menopause, routine counseling/screening for CVD prevention remains limited, especially when compared to established screening efforts for bone, breast, and cervical health. Risk for CVD is multifactorial, thus necessitating both medical (i.e. hormone replacement therapy) and lifestyle interventions (i.e. exercise and diet). This literature review seeks to examine the current evidence on the implications of exercise on cardiometabolic health of menopausal women. **Design:** A literature search was conducted on the PubMed database, with the search terms "menopause", "exercise", "cardiovascular", and "cholesterol". **Results:** The current literature suggests that exercise can have a positive impact on post-menopausal women's cardiometabolic profiles. A range of physical activity categories have been studied for efficacy, including aerobic exercise, strength training, walking, yoga, and recreational team sports. Aerobic training was found to improve specific health outcomes, such as systolic and diastolic blood pressure, resting heart rate, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol, and triglycerides. Although less frequently studied than aerobic exercise, other forms of physical activity also demonstrated improvements in cardiometabolic health markers compared to physical inactivity. Existing literature indicates that increase in physical activity can effectively help women manage their CVD risk in their transition into menopause. **Conclusion:** The literature consistently shows exercise to be a highly effective, non-pharmacologic intervention for improving cardiometabolic health in postmenopausal women. It has been shown to have a promising role in reducing blood pressure and improving lipid profiles. These benefits are especially important given the increased CVD risk associated with declining estrogen levels during menopause—a factor that remains underemphasized in clinical care. Clinicians should consider counseling women before and during menopause about their CVD risk, and how it can be managed through lifestyle changes such as exercise. Future studies are needed to further delineate the optimal type, intensity, and duration of exercise for maximizing cardiometabolic protection, as well as analyze barriers to behavioral changes for women during this period.
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P-11.

Closing the Menopause Data Divide: Uncovering Gaps in Electronic Health Record Menopause Status and Symptom Documentation

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Objective: Despite its universal impact on women's health, menopause remains poorly understood. Gaps in menopause status classification, menopause symptom management, and standardized clinical practices are reflected in clinical documentation. Electronic health records (EHR) provide a valuable clinical and data resource that can be examined to inform women's health and health care, but EHR documentation on menopause often uses patient age or self-reported symptoms as a proxy for menopause status. These gaps in menopause clinical data hinder research, limit symptom analysis, and reduce opportunities for personalized care. Enhancing data quality can improve symptom understanding, support EHR-based phenotyping for targeted interventions, and advance data quality, which is needed to support methods such as machine learning and artificial intelligence. To examine these gaps, we conducted a rapid review examining menopause-related documentation to improve clinical management and research for midlife and older women. The research question included: "What are the current and best practices for modernizing/optimizing/updating menopause documentation in the EHR?" Specifically, we aimed to a) identify current approaches to menopause documentation in EHRs, b) uncover gaps, challenges, and needs, and c) explore relevant efforts and lessons for updating menopause documentation in EHRs. **Design:** Primary inclusion criteria for this rapid review were Ovid MEDLINE database 2004-2024, studies using EHR data focusing on menopause (status classification and symptoms), reviews, primary studies, and commentaries from peer-reviewed journals in English. The 20-year period was chosen for review efficiency and because EHRs were still in their early stages, with mandatory use not proposed until 2009. The following search terms were combined using "and" and "or" statements: "Menopause", "Climacteric", "Perimenopause", "Menopause transition", "Data", "Data elements", "Information", "Informatics", "Health information technology", "Electronic health records", "Electronic medical records", and "Documentation". Two researchers screened citations, with a third resolving discrepancies. Rayyan and Excel facilitated article tracking, data extraction, and synthesis. **Results:** The final analysis included 14 peer-reviewed articles. Most included studies were retrospective cross-sectional analyses in U.S. hospital settings (2013-2024), with sample sizes from 70 to 307,512. Eight of 14 studies lacked a menopause definition, while seven provided administrative and diagnosis codes for menopause-related variables in EHRs. The analysis revealed three key themes regarding EHR documentation of menopause status and symptoms and included: 1) Underreported, 2) Undertreated, and 3) Under-documented. Most studies (n=12) relied on the International Classification of Diseases, 9th Revision (ICD-9), International Classification of Diseases, 10th Revision (ICD-10)] codes for menopause identification. **Conclusion:** This rapid review examined the current state of menopause documentation in electronic health records. We identified several gaps, including a lack of prospective designs, varying definitions of menopause, and methods of identifying menopause status or symptoms from the EHR. Findings highlight the need for informatics solutions to enhance EHR data quality for large-scale menopause research. While the growing attention to women's health, including menopause, is encouraging, significant knowledge gaps and implementation barriers remain. Addressing the health needs and outcomes associated with menopause will require active collaboration among healthcare professionals, informatics specialists, policymakers, and researchers to design, standardize, and integrate menopause-specific data elements into EHR systems.
Sources of Funding: None

P-12.

Toward Whole Person Menopause Care: Integrating Consumer-Generated Health Data Across the Menopausal Lifespan

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Objective: Menopause is no longer seen as just a period of hormonal decline, it is now recognized as a multidimensional experience that reshapes women's health across the lifespan. As women live decades beyond menopause, often facing higher rates of poor health than men, advancing healthy aging demands a whole-person approach that strengthens physical activity, stress and sleep management, social connections, and personal resilience. Digital health tools such as, MyStrengths+MyHealth (MSMH), have the potential to unlock new possibilities for delivering personalized, strengths-based care by harnessing consumer-generated health data (CGHD). The objective of this study was to use de-identified data from MSMH to examine women's self-reported strengths, challenges, and needs across the menopausal continuum. **Design:** This retrospective descriptive study used de-identified data from the digital tool, MyStrengths+MyHealth (MSMH). MSMH is a whole-person assessment that record individual self-report of strengths, challenges, and need across four domains of health: Environmental, Psychosocial, Physiological, and Self-care. MSMH was developed to enable individual self-report using a whole-person perspective of health. MSMH is available as a free license for research and clinical use. Data was collected from various community settings in a Midwestern metro area between 2019-2023. From the MSMH dataset (N=1,737), we categorized women into three age groups as a proxy for reproductive stage: reproductive-aged (24–44), midlife (45–64), and post-menopausal (65+). We compared self-reported strengths, challenges, and needs across groups. Strengths were rated on a 5-point scale (1 = low/no strength, 5 = high strength) for each concept. Challenges, defined as concept-specific signs and symptoms (3–19 per concept), were selected by users, with a "None apply" option. Needs were assessed across four categories—Information/Guidance, Hands-on Care, Care Coordination, and Check-ins—or users could indicate "No Needs." Descriptive and inferential statistics were conducted using SPSS (v28.0). **Results:** From the MSMH dataset (N=1,737), we identified adult women from three age groups and categorized as the following: reproductive-aged (24–44, n=238), midlife (45–64, n=329), and post-menopause (65+, n=165). A majority of women were between 45-64 years old (43.8%), white (86.6%), Non-Hispanic (89.6%), married (62.8%), income range $100,000 - $149,999 (17%), and hold a Bachelor's degree (33.4%). The postmenopausal group had more average strengths [24.6% (SD=8.5)] compared to the reproductive-aged [19.5%(SD=12.5)], and midlife age groups [24.3%SD=9.4)] (p<0.001).

The reproductive-age group had more average challenges [44.9% (SD=32)] and average needs [26.3 (SD=14.6)] compared to the midlife and post-menopausal groups (p<0.001). All three groups identified Exercise: "*do not exercise like I should"* (reproductive-aged group) and "*exercise plan not adequate*" (midlife and post-menopause groups) as a top challenge. The concept with the most needs for the reproductive-aged (79.4%) and midlife (67.4%) groups was *Income* and for the post-menopause group as *Oral health* (37.9%). **Conclusion:** This descriptive study examined whole-person health across the lifespan, generating foundational data to guide strengths-based interventions for adult women. Post-menopausal women reported the most strengths, suggesting resilience in aging, while reproductive-aged women reported the most challenges and needs, warranting further exploration. Exercise was the most common challenge across all groups. Findings emphasize the need for earlier, strengths-based interventions to foster resilience, support healthy aging, and promote comprehensive menopause-related care. They also align with emerging research suggesting that menopause-related needs often arise earlier than traditionally recognized.
Sources of Funding: None

P-13.

PH80 Nasal Spray Effects on Brain and Autonomic Activity: A Potential, Rapid, Nonhormonal, Novel Treatment for Vasomotor Symptoms Associated with Menopause

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Objective: PH80 is hypothesized to treat vasomotor symptoms (VMS) as an agonist on receptors in human nasal chemosensory neurons that activate subgroups of microcircuits (glomeruli) in the olfactory bulbs projecting to the limbic amygdala and hypothalamus. Both areas of the brain are involved in the regulation of autonomic nervous system function and thermoregulation. In a phase 2a study of menopausal women experiencing moderate to severe hot flushes, PH80 administered intranasally reduced the number and severity of hot flushes, with a tolerability profile similar to placebo. To better understand PH80's mechanism of action, we characterized the effects of PH80 on the local electrogram (transepithelial electrical potential) recorded from the nasal chemosensory mucosa (EGNR) and on autonomic nervous system biomarkers in healthy subjects. **Design:** Study 1 enrolled healthy female subjects (n=8) of reproductive age (20–45 years). To minimize the influence of cyclic endocrine changes, subjects were studied on day 11 of the menstrual cycle (±2 days). PH80 formulated in 4% ethanol and sterile water for injection was administered intranasally to each subject using a commercially available, metered spray pump delivering 50-μL sprays. The following ascending, PH80 quantities (micrograms) were given to each subject at 15-minute intervals: 0.0 (control), 0.014, 0.072, 0.144, 1.44, and 7.2 μg, such that the total dose of PH80 received was 8.87 μg. In study 2, 20 healthy subjects (10 men and 10 women) were administered PH80 to the surface of the nasal chemosensory mucosa in 1-second, vapor pulses delivering 150 picograms/pulse of PH80 or vehicle (propylene glycol 10%) at 5-minute intervals. The following autonomic nervous system biomarkers were recorded and continuously monitored in both studies: EGNR using a recording electrode positioned in contact with the surface of the nasal sensory mucosa, respiratory rate (RR), heart rate (HR), electrodermal activity (EDA), electromyogram (EMG), body temperature (Study 2 only), and cortical electroencephalograms (EEG) recorded from the medial posterior frontal cortex (CzA1) and the temporal cortex (T3 A1). All physiological recordings were amplified, digitized, computer monitored, and computer stored for off-line processing and analysis. **Results:** In Study 1, 1.44 μg and 7.2 μg PH80 nasal spray produced significant and dose- dependent EGNR depolarization; significantly decreased RR, EDA, and EMG; and increased the alpha frequency band of the EEG (α-EEG). No effect was observed on HR. No local nasal or general adverse events, or study drug-related adverse effects, were reported. In Study 2, 150 picograms of PH80 vapor pulses significantly increased EGNR amplitude in both sexes, and significantly reduced RR, HR, and body temperature in women only. EDA was numerically, but not statistically, higher than control after PH80 in both women and men. PH80 also significantly increased α-EEG in the temporal and frontal cortices of women. The effects of PH80 on autonomic nervous system markers and EEG appeared with a latency of 500±130 milliseconds. No adverse events were reported immediately after PH80 administration, or within 24 hours of the study session. **Conclusion:** The effects of PH80 on nasal chemosensory neurons, brain, and autonomic activity have a rapid-onset effect and support target engagement after intranasal administration of 1.44-μg to 7.2-μg doses. A total dose of 8.87 μg administered within 2 hours produced no adverse effects in healthy volunteers. The present results support ongoing clinical development of PH80 for the treatment of VMS associated with menopause.
Sources of Funding: Vistagen Therapeutics, Inc

P-14.

Evaluating the efficacy and function of the synbiotic medical food, SBD111, for the dietary management of bone loss in early postmenopausal women

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Objective: Decreased estrogen production after menopause leads to rapid loss of bone mineral density (BMD) throughout the body, leaving women at elevated risk for osteopenia, osteoporosis, and associated fractures, but current interventions to maintain BMD are lacking. Postmenopausal bone loss is modulated in part by inflammation and the intestinal microbiota, and probiotics have been shown to improve bone mass in preclinical models of osteoporosis. We developed SBD111, a synbiotic medical food that combines four probiotics derived from fruits and vegetables as well as prebiotic fibers, and we previously showed that SBD111 administration reduced bone loss in an ovariectomized mouse model of osteoporosis. The objective of this study was to determine the efficacy of SBD111 for reducing bone loss in postmenopausal women and to characterize the mechanistic underpinnings of SBD111's bone-sparing benefits. **Design:** We conducted a prospective, multicenter, double-blind, randomized, placebo-controlled trial, enrolling women within six years of menopause, including prespecified subpopulations of women with osteopenia or elevated BMI. Participants received SBD111 ($4.75x10^{10}$ colony forming units/capsule) or placebo (maltodextrin) as oral capsules twice daily for 12-months. The primary endpoint was change in BMD at the lumbar spine over 12-months. We also examined the responses of intestinal epithelial and immune cell populations to SBD111 *in vitro*. **Results:** 286 Women [age 55 ± 3 years (mean ± standard deviation: SD)] were enrolled, with 221 (77%) completing the study. Adherence was 91.23 ± 8.19% (mean ± SD), and SBD111 was well tolerated, with participants in the SBD111 group reporting a significantly lower number of severe GI symptoms compared to participants randomized to placebo (p = 0.02, Pearson's Chi^2 test). For the primary outcome, SBD111 administration was not associated with significantly less bone loss in the lumbar spine after 12-months [0.15% (-0.52%, 0.82%), mean effect size (95% CI) by linear mixed effects regression]. However, SBD111 was associated with reduced BMD loss in the hip for women with BMI ≥ 30 [0.97% (0.015%, 1.925%)] and modestly reduced BMD loss in the femoral neck for women with osteopenia [0.89% (-0.277%, 2.051%)]. In addition, for women with BMI ≥ 30, SBD111 administration was associated with a significant reduction in serum CTX-1, a marker of bone resorption, as well as nonsignificant reductions in inflammatory cytokines that promote bone resorption, including IL-17A, TNF-a, and IL-1b. Together, these data suggest that SBD111 may reduce bone loss through inhibition of osteoclasts and inflammatory responses. As osteopenia and obesity are associated with systemic inflammation, we hypothesized that the beneficial effects of SBD111 in these women were attributable to its anti-inflammatory properties. When we examined SBD111 administration, in vitro, determining that SBD111 increased intestinal barrier integrity and reduced inflammatory mediator secretion (IL-23, IL-6, and CXCL-1) by LPS-challenged human immune cells in a concentration-dependent manner. To determine the effect of SBD111 on osteoclastogenesis, we developed an *in vitro* gut model, composed of basolateral immune cells separated from apical SBD111 or a media control by an intestinal epithelial monolayer. Following an incubation, we harvested basolateral-conditioned media, applied these media to RAW264.7 osteoclast precursor cells, and measured osteoclast development. These experiments revealed that SBD111 conditioning inhibits osteoclast differentiation directly and via its interactions with human cells in an *in vitro* gut model. **Conclusion:** Taken together, this study provides evidence that SBD111 synbiotic medical food reduced bone loss in postmenopausal women with osteopenia or with elevated BMI and that this benefit may be mediated by multiple mechanisms. Specifically, SBD111 administration improved intestinal barrier integrity and reduced inflammatory mediator production by immune cells *in vitro*, potentially reducing osteoclast activity *in vivo*. Furthermore, these data indicate that SBD111 has the potential to inhibit osteoclastogenesis directly and through interactions with the intestinal epithelium and immune cells.
Sources of Funding: This research was funded by Solarea Bio Inc.

P-15.

Development of the Perimenopausal and Menopausal Individuals Dementia Risk (PERI-MIND) Intervention

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Objective: Cognitive complaints are common during the menopause transition. Many people worry that these symptoms may be an early sign of cognitive decline, yet they lack the support and resources needed to manage their concerns. The objective of this study is to demonstrate the feasibility and acceptability of PERI-MIND – a brief digital intervention aimed at promoting brain health awareness and increasing autonomy around dementia lifestyle risk reduction during the menopause transition. **Design:** This is a mixed-methods interventional study. Participants are perimenopausal and early menopausal individuals with a family history of dementia, recruited in two phases using Community Engaged Research approaches. In phase one, 1-hour online focus groups (N=20) were conducted to identify individuals' top priorities regarding dementia risk awareness and management and the most effective ways to deliver digital information and supports. Qualitative focus group data was examined with Dedoose using a reflexive thematic analysis approach. Findings informed the development of our intervention, which includes core components of psychoeducation, psychological grounding, and behavioral activation specifically tailored to the menopause transition. In phase two, we will test the acceptability and feasibility of the intervention across three weeks (N=50). All participants will complete a baseline survey via REDCap capturing demographic information, lifestyle behaviors, mood, menopause symptoms, dementia-related fear and avoidance behaviors, and genetic risk for dementia. The study design was approved by the University of Chicago IRB and all participants provided informed consent. **Results:** Twenty partcipants (mean age 50.3 ± 4.7 years) completed the quantitative

REDCap survey for phase one. Fifty-five percent of participants were black or African American, 30.0% were White, 10.0% were Asian, and 5.0% preferred to self-describe. Per the STRAW +10 staging system, 6 participants were in early perimenopause, 6 were in late perimenopause, and 8 were in early postmenopause. Participants completed 2 standardized screens: Menopause Rating Scale with mean score 13.3 (± 7.6), indicating moderate menopausal symptoms; and Cognitive Change Index with mean score 35.7 (± 12.7), indicating significant cognitive complaints. Three overarching themes emerged from the focus groups: "Is this normal?", "What can I do?" and "Am I alone?". Speaking about current gaps, one participant noted: "There's no education. There's no empowerment. There's no community building. There's no connecting of the dots." These themes guided intervention content development, with target areas for individual-level modifiable risk factors guided by the 2024 Lancet Commission Report on Dementia Prevention, Intervention and Care. All materials are designed to emphasize the connection between dementia and menopause and use health communication best practices to provide relevant and engaging information. The final phase, testing the feasibility and acceptability of the intervention, is expected to be completed by June 2025. **Conclusion:** PERI-MIND is the first digital intervention uniquely tailored to provide information about dementia risk in the context of perimenopause and early menopause. Results will allow us to optimize recruitment and protocol adherence for a fully powered trial in this population.
Sources of Funding: This study is funded by the Menopause Society and the University of Chicago Department of Obstetrics and Gynecology

P-16.
How symptom burdens and access to menopause care vary across regions and ethnic groups in Brazil – findings from a national survey of over 1,000 women

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Objective: Menopause is a universal experience for women, but most research on menopause care is from high-income countries. Brazil is an ethnically and geographically diverse nation where models of care must reach across complex socioeconomic strata. Understanding the interplay between symptom and care experiences, regional disparities and demographic factors is critical to inform the design of inclusive, equitable and effective services. Hence, our objective is to characterise Brazilian women's experiences of menopausal symptoms, health-seeking behaviours and treatments, and to explore variation in these by sociodemographic factors (region, income and ethnicity). **Design:** We conducted a population-based, cross-sectional online survey recruiting women (self-identified) aged 36-65 years from all 27 states in Brazil. Menopausal status was assessed using age, menstrual patterns, surgical history and hormonal contraception use. The Menopause Rating Scale (MRS) quantified symptom burdens. Sociodemographics, health history, self-rated health, and menopause care-seeking behaviour data were collected. Descriptive and inferential analyses focussed on demographic factors. Multivariable adjusted linear regression models assessed symptom burden variations. **Results:** 1,033 women completed the survey. Mean age was 51.1 years; 60.4% were 'White' and 30.55 were 'Mixed Race'. 63 (6.1%) were pre-menopausal, 330 (32.0%) were peri-menopausal, 431 (41.7%) were post-menopausal, 209 (20.2%) were not classifiable. Data for 761 peri- and post-menopausal women were analysed. 46.1% of peri-menopausal women, and 26.2% of post-menopausal women had never consulted a healthcare professional for menopause. Only 16.7% of peri-menopausal women and 34.1% of post-menopausal women had ever used hormone replacement therapy; 33.6% of peri- and 31.8% of post-menopausal women reported herbal supplement use. Generally, peri- and post-menopausal women felt that their treatment approaches were effective: 6.3% stated that treatment was not effective, with 10.9% unsure. 27.9% of peri- and 25.8% of post-menopausal women had a preference for non-hormonal therapy. 35.2% of women reported concerns regarding difficulty of public healthcare access for menopause. Reported difficulty accessing public healthcare varied: i.e. lowest for the South region (28.2%), highest in the North (Amazon) region (52.4%) (p=0.005). HRT use varied across regions, i.e. lowest in the North-East (18.4%) and highest in the North (38.1%) (p=0.03). MRS scores were significantly higher in peri-menopausal women that had a HCP consultation compared to those that didn't (+2.85 points, p=0.007); a similar result was observed for post-menopausal women (+2.90 points, p=0.012). Compared to those from White ethnic groups, women with Mixed Race backgrounds had significantly higher MRS total scores (+2.08 points, p=0.01), somatic domain scores (+0.77, p=0.01), and urogenital domain scores (+0.62 points, p=0.03). No significant differences were seen in MRS scores by education or income group. **Conclusion:** To our knowledge, this is the first nationally representative study in Brazil to link symptom severity and social determinants with healthcare-seeking for menopause. Our findings highlight the universal experience of women traversing the menopause, but also reveal important variations across Brazil in terms of symptom burdens and ease of access to menopause care, particularly in underserved regions. These results underscore the urgent need for proactive case-finding, tailored outreach strategies, and culturally responsive models of menopause care in middle-income countries.
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P-17.
Vaginal Atrophy Symptom Relief and Satisfaction with Revaree Plus®: Consumer Perspectives

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Objective: A patient-reported outcomes survey was administered to female consumers who regularly use Revaree Plus®, a hormone-free vaginal insert containing 10 mg of hyaluronic acid and sweet almond oil. Revaree Plus® is formulated to restore the vaginal epithelium and relieve vaginal atrophy symptoms such as dryness, itching, burning, and dyspareunia. Clinical evidence supports the efficacy of hyaluronic acid in tissue repair and moisture retention, and sweet almond oil enhances hydration and soothes irritation. The purpose of the survey was to assess symptom relief, the impact of Revaree Plus® on quality of life (QOL), and consumer satisfaction with the product. This survey illustrates the efficacy of Revaree Plus® as an effective, well-tolerated, and preferred treatment for long-term relief. **Design:** A survey was emailed to consumers after using Revaree Plus® for at least 30 days. Survey data were analyzed from 2,066 women (age: 60.1±8.7 yrs) between August 2024 and June 2025. Severity of vaginal atrophy symptoms (dryness, burning, dyspareunia, itching, discomfort) was measured via a 5-point Likert scale ranging from "unaffected by this symptom" to "very severe". Questions associated with symptom relief and QOL were measured via a 5-point Likert scale with answers ranging from "strongly disagree" to "strongly agree". Responses of "not applicable" were removed from the total number of responses for specific questions. To measure time to relief, survey participants selected a time for which they began to experience relief ranging from "1 day" to "4+ weeks", or "I did not experience relief", if applicable. Participants were compensated with a $5 gift card for completing the survey. Descriptive statistics were analyzed to characterize the patient-reported outcomes. **Results:** The results of the study highlight the real-life perspectives of Revaree Plus® users (*n*=total applicable responses per question). When asked to rank the benefits they most hoped to gain from using Revaree Plus®, 74% (*n*=1,534) ranked relief from dryness and 64% (*n*=1,321) ranked relief from dyspareunia among their top two priorities. Prior to using the product, 95% (*n*=1,933/2,044) experienced moderate to very severe dryness; 91% (*n*=1,719/1,889) experienced moderate to very severe dyspareunia; 81% (*n*=1,516/1,876) experienced moderate to very severe discomfort; 59% (*n*=709/1,198) experienced moderate to very severe burning; and 51% (*n*=473/919) experienced moderate to very severe itching. While using Revaree Plus®, 45% (*n*=923) of the entire sample reported relief within 1 week, and 93% (*n*=1,922) experienced relief at 4 weeks and beyond; 95% (*n*=1,904/2,006) reported reduced dryness; 94% (*n*=1,712/1,825) reported reduced discomfort; 92% (*n*=981/1,068) reported reduced burning; 91% (*n*=773/852) reported reduced itching; and 88% (*n*=1,486/1,687) reported reduced dyspareunia. Related to QOL, 92% (*n*=1,642/1,777) reported that Revaree Plus® made daily life more comfortable, and 86% (*n*=1,505/1,751) reported improved physical comfort during sex. Of the entire sample, 93% (*n*=1,927) reported that they would recommend Revaree Plus® to others; 92% (*n*=1,900) planned to continue using Revaree Plus®; and 85% (*n*=1,750) wished they had started taking it sooner. **Conclusion:** These survey results build on existing research indicating that Revaree Plus® provides meaningful symptom relief and improves factors related to QOL in a large, real-world sample of women experiencing vaginal atrophy symptoms. Participants reported that the product was easy to use, fast-acting, and provided relief. The high rates of satisfaction, willingness to recommend, and intent to continue to use the product, suggest a growing demand for effective, non-hormonal solutions to support vaginal health and improve comfort in daily life. Given these results, Revaree Plus® may be considered a preferred non-hormonal treatment by healthcare professionals.
Sources of Funding: Bonafide Health, LLC

P-18.
Toward Hormone-Informed Brain Injury Care: Unifying Assessment for Menopause and TBI in Women

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Objective: Despite growing recognition of sex differences in TBI outcomes, the interaction between hormonal transitions—particularly menopause—and brain injury remains significantly underexplored in both research and clinical care. Menopause introduces a complex neuroendocrine shift that may amplify or alter post-concussive symptom expression, potentially delaying recovery or increasing symptom chronicity in women. However, standard TBI assessment tools do not account for hormonal status, leading to missed opportunities for accurate symptom attribution, risk stratification, and individualized treatment. A clearer understanding of how symptom profiles and clinical measures intersect during this life stage is critical to improving care for women with TBI. **To address this gap,** our objective was to evaluate existing symptom assessment tools used in both TBI and menopause, identify overlapping and divergent individual symptoms and symptom domains, in order to inform the future development of a unified, hormone-informed questionnaire that better captures sex-specific symptom profiles in women recovering from TBI. **Design:** This project involved a qualitative review and comparative analysis of validated assessment instruments used in TBI (e.g., SCAT-5, GSQ-30, RPQ,

etc.) and menopause (e.g., Menopause Rating Scale, MenQOL, etc.). The analysis coalesced symptom domains based on prior research and identified overlap, divergences in symptom characterization, time scale, and areas where integrated assessment could improve the identification of sex-specific risks and treatment needs. Selection of measures was informed by prior research identifying these tools as clinically relevant for their respective populations. **Qualitative Compilation of Items** – We extracted all individual symptom items (N = 108) from widely used TBI self-report symptom checklists (Sports Concussion Assessment Tool [SCAT5], Rivermead Post-Concussion Questionnaire [RPQ], General Symptom Checklist [GSC-30]) and menopause instruments (Menopause Rating Scale [MRS], Menopause-specific Quality of Life [MenQOL]). **Content Coding & Domain Mapping** – Reviewers coded items to provisional domains using an inductive–deductive approach. **Results:** The review identified significant symptom overlap between TBI and menopause-related conditions, particularly in domains such as neurocognitive, somatosensory, and mood/affective symptoms. We organized items into six hypothesized higher-order factors: **Neurocognitive** (attention, memory, executive function) **Somatosensory/Pain** (headache, musculoskeletal pain, dizziness) **Mood/Affective** (anxiety, depression, irritability) **Sleep/Fatigue** (insomnia, daytime somnolence) **Vasomotor/Autonomic** (hot flashes, palpitations, thermoregulation) **Gynecologic/Endocrine** (cycle changes, genitourinary symptoms) The analysis also revealed clear opportunities to expand current TBI assessment tools to better capture neuro-endocrine responses—particularly vasomotor symptoms such as hot flashes—so that hormonally driven risk can be recognized in routine concussion care. Structural overlap suggests strong potential for integration, although full factor analysis is planned for a future phase. **Conclusion:** Menopause and TBI share overlapping physiological and psychological symptom profiles that are not currently captured in standard assessments. The lack of integration between these clinical domains may lead to under-recognition of sex-specific recovery challenges in women post-TBI. This work supports the need for the integration of sex- and hormone-informed questions into assessment tools for use in outpatient TBI clinics. By embedding gynecological and neuroendocrine factors into concussion care, we can begin to make the connection between better tailor interventions and improve outcomes for women during critical hormonal transitions.

Sources of Funding: N/A

P-19.

A Global Look at Menopause Perceptions; A Digital Survey using the Flo Application

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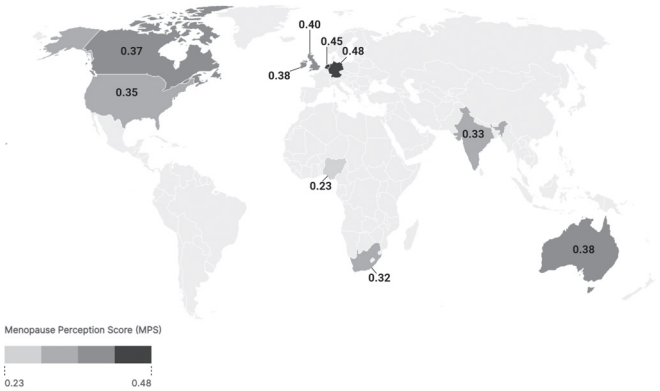
Objective: Menopause is a natural and universal stage in a woman's life, yet many women still feel discomfort discussing it. Perceptions of menopause may differ across countries, influenced by cultural norms, societal attitudes, workplace expectations, and varying levels of awareness. This study aimed to assess women's perceptions of menopause and explore how these vary across countries. **Design:** We conducted a cross-sectional, global survey using the Flo application. Countries with at least 100 respondents were included, totaling 10 countries over 5 continents. Participants were presented with targeted questions to evaluate perceptions associated with menopause in professional and personal settings. We developed a Menopause Perception Score (MPS), composed of five binary items evaluating key dimensions of discomfort, stigma, embarrassment, and judgment. Each affirmative response, indicating a negative perception, was assigned a value of one. The total score was normalized by the number of questions answered, producing a standardized score ranging from 0 to 1, where higher values reflect more negative perceptions of menopause. Cronbach's alpha was used to assess the internal consistency of the questionnaire. Logistic regression analysis was conducted to evaluate the odds of a high MPS by country. **Results:** A total of 7,527 women completed the survey, mean age of 37 ± 8 years. Most participants (48%) were from the United States (US). Among all countries, 15.4% of participants reported feeling uncomfortable discussing menopause at work, compared to only 4.3% who expressed discomfort in personal settings. Nearly half of respondents reported experiencing judgment (48%) and embarrassment (49.7%), while 65% perceived stigma. Internal consistency reliability was deemed acceptable (Cronbach's alpha = 0.7). The MPS varied among countries. Logistic regression showed significant differences in menopause perceptions across countries. Compared to the U.S., participants from Germany (OR = 1.5, $p < 0.01$), the Netherlands (OR = 1.3, $p = 0.01$), and the United Kingdom (OR = 1.1, $p = 0.04$) had significantly higher odds of reporting a higher MPS score, reflecting negative perceptions. Conversely, lower odds were observed among participants from Nigeria (OR = 0.5, $p < 0.01$), South Africa (OR = 0.8, $p < 0.01$), and India (OR = 0.81, $p = 0.01$). No statistical significant differences were found for Canada and Ireland. **Conclusion:** Negative perceptions towards discussing menopause persist. Significant cross-country differences were found, with higher negative perceptions in developed countries like Germany, possible due to greater societal stigma and workplace expectations. Further research is needed to identify the drivers of these perceptions and design culturally sensitive strategies that promote openness in discussing menopause.

Sources of Funding: None



Global MPS Distribution. ***Higher scores (darker shades) indicate greater negative perceptions*.**

P-20.

The Burden of Low Bone Mass in Early and Late Postmenopausal Women

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Objective: To investigate prevalence of low bone mass and osteoporosis in early and late postmenopausal women. **Design:** This cross-sectional study was conducted at Menopause Clinic in King Chulalongkorn Memorial Hospital from May to December 2024. Healthy postmenopausal women, age 50-70 years, were eligible if they had been amenorrhea for 12 months or both ovaries were removed or serum FSH ≥ 30 IU/L. Those who had history of osteoporosis treatment, traumatic vertebral fracture, hip or spine surgery, and bone diseases were excluded. The bone mineral density (BMD) was measured at L1-4 spine and left hip. Demographic data was collected. **Results:** Seven hundred and thirty-five postmenopausal were recruited. The average age, age at menopause and time since menopause were 60.2±5.1, 49.8±4.2 and 10.2±6.4 years, respectively. The average BMI was 23.0±3.8 kg/m^2. Eighty eight percent were natural menopause. The prevalence of osteoporosis at lumbar spine, total hip and femoral neck were 14.2%, 1.37% and 11.48% respectively. The prevalence of low bone mass at lumbar spine, total hip and femoral neck were 43.9%, 26.5% and 55.2%, respectively. The participants were classified into two groups, early postmenopausal women and late postmenopausal women. The prevalence of low bone mass and osteoporosis in both groups was shown in Table 1 and lumabe spine only were shown in figure 1. **Conclusion:** The prevalence of low bone mass at lumbar spine was more than 40% in early postmenopausal women, which is an opportunity to prevent bone loss.

Sources of Funding: Thailand Science Research and Innovation Fund Chulalongkorn University (HEAF67300068)

Table 1 The prevalence of Low bone mass and osteoporosis in early and late postmenopausal women (n=719)

	Normal bone	Low bone mass	Osteoporosis
Early post-menopause (n=316)	107 (33.8%)	162 (51.3%)	47 (14.9%)
Late post-menopause (n=403)	73 (18.1%)	242 (60.1%)	88 (21.8%)

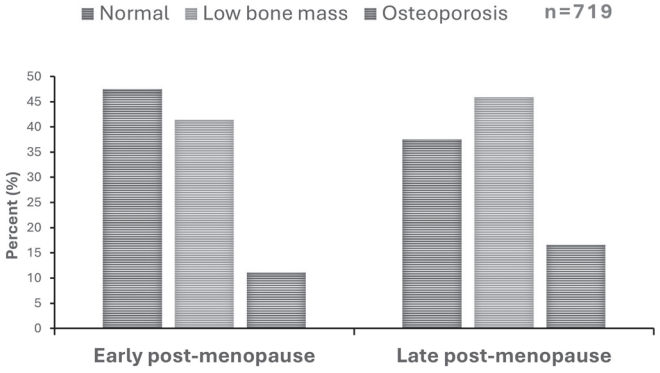

Figure 1 Prevalence of low bone mass and osteoporosis at lumbar spine in early and late postmenopausal women

P-21.

Having Potential Menopause Symptoms at Work is Associated with Poorer Occupational Quality of Life and Greater Disruptions to Productivity among Women in University Workplaces

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Objective: On average, women in academia have shorter careers than men, which includes women at the later stages of their careers leaving the workplace earlier than men. Menopause may be one barrier to women's workplace longevity. Research is needed on the relationship of menopause to occupational quality of life (OQoL) in university workplaces, where the participation of women is critical for the advancement of medicine, research, and education. **Design:** From January 2025 to May 2025, 391 women faculty and staff aged 40-55 at three universities completed a cross-sectional online survey. Menopause stage was measured using self-report. The presence of 12 potential menopause symptoms at work over the last six months was measured using an adapted Menopause Rating Scale. OQoL was measured using the Utian Quality of Life Scale, where higher scores (range = 7 to 35) indicate better OQoL. Disruption to work productivity due to menopause was measured using an item with a range of 0 = no disruptions to 10 = cannot do work due to menopause. Using linear regressions, we assessed the association of school, age, race, ethnicity, and role (faculty vs. staff) and either menopause stage or the presence of potential symptoms of menopause with OQoL and disruptions to productivity due to menopause. A cut-off of $p < 0.05$ was used for statistical significance. **Results:** The mean sample age was 48 (SD = 4.6), and 45% were faculty, 55% were staff, 15% had a job involving patient care, 47% had a job involving teaching, and 17% were Latina. Overall, 29% self-reported being in premenopause, 45% in perimenopause, 22% in postmenopause (i.e., no menstrual period in one year without another known cause), and 3% did not know their menopause stage. The average number of symptoms at work was 3.9 in premenopause, 5.2 in perimenopause, and 4.2 in postmenopause. In a multivariable linear regression, a greater number of symptoms at work was significantly predicted by perimenopause vs. premenopause (b = 1.62), Latina vs. non-Latina ethnicity (b = 0.94) and staff vs. faculty (b = 0.60), all else held constant. Hot flashes, vaginal bleeding, irritability, physical/mental exhaustion, and joint/muscle discomfort at work were significantly more common among women in the menopause transition (i.e., peri or postmenopause) than pre-menopause. About 95% of women in the menopause transition reported symptoms at work: 46% had hot flashes, while other common symptoms were physical/mental exhaustion (68%), fatigue at work due to sleep problems (67%), anxiety (56%), and irritability (54%). Menopause stage was not associated with OQoL. Among women in the menopause transition, having depressive symptoms (b = -1.19), irritability (b = -1.40), or joint/muscle discomfort (b = -1.96) and a higher number of symptoms (b = -0.26) was significantly associated with worse OQoL, all else held constant. Women in the menopause transition reported menopause impacted their productivity at a mean of 3.6 (SD = 2.2). Many symptoms were significantly associated with higher disruption to productivity due to menopause, including hot flashes (b = 1.23), heart discomfort (b = 1.80), fatigue due to poor sleep (b = 1.86), depressive symptoms (b = 1.57), irritability (b = 1.43), anxiety (b = 1.40), physical/mental exhaustion (b = 1.80), joint/muscle discomfort (b = 1.44), headaches/migraines (b = 1.13), and a higher number of symptoms (b = 0.48), all else held constant. **Conclusion:** Among women faculty and staff at mid-life, the greatest number of potential menopause symptoms at work were reported by women in perimenopause, Latinas, and staff. Multiple symptoms during the menopause transition were associated with worse OQoL. There is a need for more effective and accessible treatments for women to manage disruptive menopause symptoms at work.

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P-22.

The Timing of Estrogen Therapy: Perimenopausal Benefits and Postmenopausal Risks

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Objective: This study aims to evaluate the impact of estrogen therapy initiated during perimenopause on the risk of breast cancer, heart attack, and stroke, comparing it to estrogen therapy started after menopause and no estrogen use at all. **Design:** A retrospective cohort analysis was conducted using electronic health record data from the TriNetX Research Network, which includes data from over 120 million patient records. Three cohorts were defined using ICD-10 codes: perimenopausal women who had used estrogen for at least 10 years prior to menopause (Cohort 1), menopausal women currently using estrogen (Cohort 2), and menopausal women not using estrogen (Cohort 3). Propensity score matching was used to reduce selection bias and ensure comparability between cohorts. Health outcomes of interest included breast cancer, heart attack, and stroke, with risk, odds, and hazard ratios calculated for each outcome. **Results:** The findings revealed that Cohort 1 had significantly lower odds of developing breast cancer, heart attack, and stroke compared to both Cohort 2 and Cohort 3 (approximately 60% lower). The odds ratios for Cohort 2 compared to Cohort 1 were 0.398 for breast cancer, 0.403 for heart attack, and 0.358 for stroke. In comparison, the odds ratios for Cohort 3 compared to Cohort 1 were 0.367 for breast cancer, 0.374 for heart attack, and 0.371 for stroke. While Cohort 2 exhibited slightly lower odds of breast cancer (0.864) and heart attack (0.964) compared to Cohort 3, it had a 4.9% higher likelihood of experiencing a stroke (1.049). Overall, the odds ratios for Cohort 1 consistently indicated stronger protective effects of estrogen therapy when initiated during perimenopause. In contrast, estrogen therapy begun after menopause showed only weak protective effects and was associated with a slight increase in stroke risk. **Conclusion:** Estrogen therapy initiated during perimenopause offers substantial protective benefits against breast cancer, heart attack, and stroke, while starting estrogen therapy after menopause provides only limited protection and may increase the risk of stroke. These findings highlight the importance of early initiation of estrogen therapy during perimenopause for optimizing long-term health outcomes. Further clinical research is needed to confirm these results and to explore the long-term effects of estrogen therapy at different stages of menopause.

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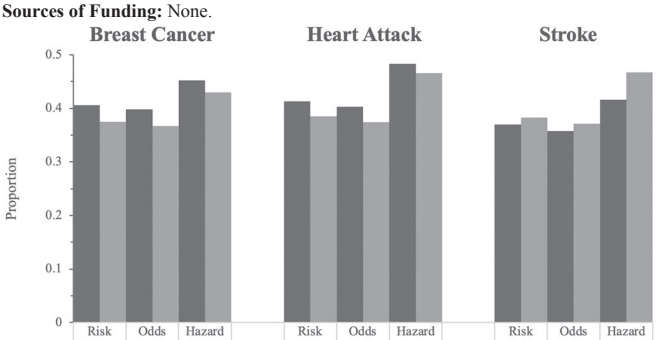

	Breast Cancer			Heart Attack			Stroke		
	Risk Ratio	Odds Ratio	Hazard Ratio	Risk Ratio	Odds Ratio	Hazard Ratio	Risk Ratio	Odds Ratio	Hazard Ratio
Cohort 2	0.406	0.398	0.452	0.413	0.403	0.483	0.37	0.358	0.416
Cohort 3	0.375	0.367	0.43	0.385	0.374	0.466	0.383	0.371	0.467

Figure 1: Risk, odds, and hazard ratios of Cohorts 2 and 3, as compared to Cohort 1.

P-23.

Individual Rates of Transmenopausal Bone Loss

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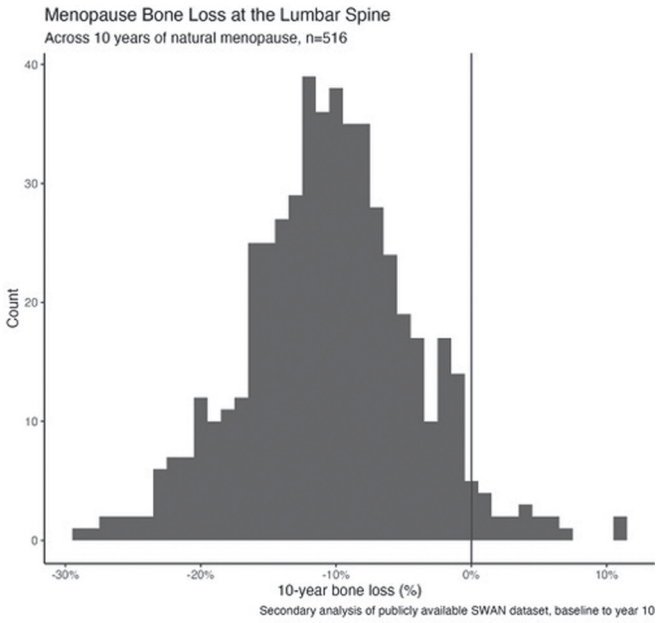
Objective: The relatively rapid bone loss that occurs during the menopausal transition is an important determinant of the subsequent development of postmenopausal osteoporosis. The Study of Women Across the Nation (SWAN) followed more than 3000 women across the menopausal transition. Reports from SWAN have described the average changes in bone mineral density (BMD) with average losses from 5 years before the final menstrual period (FMP) until 5 years after FMP of 10.6% in the lumbar spine and 9.1% at the femoral neck. Identifying and characterizing individual patients at high risk for developing osteoporosis would aid the developement of appropriate strategies to prevent bone loss at the time of menopause in those high risk patients. **Design:** A secondary analysis was conducted using the publically available SWAN dataset, from baseline through 10 years of annual assessments. The analysis was limited to women undergoing natural menopause without exposure to bone-active drugs (estrogens, osteoporosis medications, tamoxifen, and chemotherapy). All subjects who had BMD results at baseline and 10 years were evaluated. Menopause status at each visit was categorized as pre-, early peri-, late peri- or post menopause. Percentage change in lumbar spine (LS) and total hip (TH) BMD from baseline to 10 years was calculated using RStudio, version 2024.12.1. **Results:** 516 women met inclusion criteria. Mean age was 46.2 years; mean years of menopause 4.5; mean BMI 27.6. Average BMD values at baseline corresponded to T-scores of 0.18 at LS and 0.08 at TH. The average % changes in BMD were 10.4% at LS (almost 1 T-score) and 6.1% at TH. Maximum loses exceeded 25% at both the spine and hip. The distribution of individual changes in LS BMD is shown in the Figure. 88% and 72% of women had losses of >3% at LS and TH, respectively, while 83% and 57% had loses of >5%. **Conclusion:** Most women experience a considerable amount of bone loss during peri- and early post-menopause and would benenfit from therapy to prevent bone loss and osteoporosis.

Sources of Funding: None



P-24.

Factors Impacting Rates of Hormone Therapy Prescriptions for Patients with Medicaid Insurance

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Objective: Medicaid covers roughly 16 % of U.S. women aged 45–64, yet their use of menopausal hormone therapy (MHT) remains markedly below already-low national levels post-release of the Women's Health Initiative randomized trial results. Because Medicaid policy is state-driven beyond a federal floor of basic services and coverage criteria, we sought to (1) describe interstate variation in systemic MHT prescribing and MHT route/type mix and (2) test whether variation is explained by the Menopause Society Certified Practitioner (MSCP) supply, the share of mid-life women on Medicaid in the state, or the Medicaid-to-Medicare primary-care fee ratio. **Design:** Systemic MHT prescriptions for year 2024 by quarter were extracted from the Medicaid State Drug Utilization Program and linked by National Drug Code to then classify systemic MHT into five categories: oral conjugated equine/ esterified estrogen (±progestogen), tissue-selective estrogen complex (TSEC), oral 17β-estradiol (±P), transdermal/transmucosal estradiol (±P), and intramuscular estradiol. Only systemic MHT was included in the analysis and vaginal formulations were excluded. Due to changes in federal data availability, these data were temporarily not accessible for analysis to enable submission prior standard abstract submission deadline. State population estimates for women ages 45-64 and state Medicaid coverage rates were obtained from the 2023 American Community Survey (ACS) 1-year estimates. Data on Menopause Society Certified Practitioners (MSCP) were abstracted from the publicly available MSCP database on the Menopause Society website in Fall 2024. Medicaid to Medicare fee schedule ratios were obtained from the Kaiser Family Foundation. Descriptive statistics and multivariate logistic regression analyses were conducted to evaluate associations of interest. All analyses were performed using Stata version 17.0 (StataCorp, College Station, TX). **Results:** Medicaid programs dispensed >150 000 systemic MHT prescriptions in quarter 4 of 2024 and >1.2 million in the entire year. State rates differed fifteen-fold—from 0.9 % among female Medicaid enrollees ages 45-64 in Florida to 15.5 % in Oregon (median 5.3 %; 70 % of states ≤ 6 %). Oral formulations (CEE/esterified or estradiol) accounted for 48 % of prescriptions, transdermal for 42 %, injectable estradiol for 10 %, and TSEC for < 0.1 % in the last quarter of 2024. In multivariable analysis, none of the hypothesized predictors (MSCPs per 10,000, proportion of menopausal women on Medicaid, or Medicaid to Medicare fee schedule) were associated with prescription rates (Table 1). **Conclusion:** Systemic MHT prescribing within Medicaid varies more than fifteen-fold across states, and most states continue to prescribe oral formulations as often as—or more than—lower-risk transdermal estradiol, despite formulary availability. Variation is not explained by MSCP clinician supply, population Medicaid share, or relative reimbursement, indicating other policy or implementation factors drive access. Further work is indicated to understand factors impacting factors impacting variation in prescriptions to patients with Medicaid in order to increase access to evidenced-based menopause care for all patients.

Sources of Funding: None

Predictors of state systemic MHT prescription rate among female Medicaid enrollees aged 45–64 (n = 50)

Predictor	Coefficient (SE)	p-value
MSCPs per 10 000 population	–0.23 (1.55)	0.884
% women 45–64 on Medicaid	13.46 (10.16)	0.192
Medicaid-to-Medicare fee ratio	3.82 (2.64)	0.154

P-25.

Menopause Education for New Nurse Practitioners: A Quality Improvement Project

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Objective: The purpose of this project is to provide education to new nurse practitioners using an evidence-based menopause education workshop to increase their knowledge and comfort in menopause management. **Design:** This project uses a pre and post test design with descriptive statistics. This edicuational workshop used the Jigsaw Method to deliver content. Eight NP Fellows will participate in this workshop. Pre-Workshop participants will receive welcome email and pre-test to complete. Prior to workshop, participants will be divided into 4 "Expert" groups and provided education on those topics. The 4 topics are: Systemic/Vasomotor Symptoms, Genitourinary Syndrome of Menopause, Non-Hormonal Treatments and Osteoporosis/Abnormal Uterine Bleeding. Each fellow will be an "expert" in that topic for the workshop. Educational materials include articles, audio clips and podcasts by Vesco, et al. (2024) Workshop will be conducted using a 90 minute online synchronous Zoom meeting. Fellows will be divided in 2 groups with one "expert" from each topic. They will work together to complete a case-based worksheet. Fellows will go over case studies as a group and provided education using the a powerpoint created from the Menopause Society Menopause A-to-Z Slide Set (2024), and information about The Johns Hopkins Menopause Guide (2023, Shen & Lakdawala) and Menopause Rating Scale (2024, Heinemann, et al.). Following the workshop, post-test evaluations will be given using the same content and comfort questions as the pre-test. **Results:** New nurse practitioners in a transition to practice fellowship lack knowledge and confidence in managing menopause treatment and are not prepared to provide menopause care to aging patients in the community. During an introductory session, fellows were asked to rate their confidence on a scale of 1-10 on various areas of knowledge in healthcare. Regarding menopause care and management the seven of eight fellows present responded with an average confidence level of 2.28/10 with no fellow rating confidence above a 3/10. Results are pending implementation of this project in early September 2025. This project will be evaluated using descriptive statistics from the pre and post test data. **Conclusion:** Menopause education is lacking in healthcare graduate curriculums across the US and is leaving medical providers unprepared to manage patients experiencing menopause (Armeni et al., 2022; Kling et al., 2019; Liss et al., 2024; Macpherson & Quinton, 2022; Mark et al., 2024). Literature shows that providers lack confidence and knowledge in menopause management and, as a result, people experiencing menopause are not receiving evidence-based care (Allen et al., 2023; Kling et al., 2019; Morris et al., 2021; Truong et al., 2019; Vesco et al., 2019a). Evidence-based treatment of menopause with hormone replacement has been showed to reduce all cause mortality in women when started before the age of 60 (Hodis & Mack, 2022). Evidence in the literature suggests that menopause knowledge is lacking and an educational intervention on evidence-based menopause management using case studies, experiential learning, and incorporating point of care decision making tools should be implemented to increase provider knowledge and confidence in menopause management (Armeni et al., 2022; Baier Manwell et al., 2022; Christianson et al., 2016 Davis et al., 2021; Farah et al., 2024; Gleser, 2015; Liss et al., 2024; Low et al., 2024; Macpherson & Quinton, 2022; Mansour et al., 2024; Ng et al., 2020; Reid et al., 2021; Rothmund et al., 2017; Shinnick et al., 2019; Taylor et al., 2016; Vesco et al., 2021; Vesco et al., 2024). The fellowship is a transition to practice program aiming to support new nurse practitioners in their early clinical practice and prepare them for their career ahead. Program directors have noted a knowledge gap in fellows surrounding menopause screening, diagnosis, and treatment. Inadequate treatment negatively affects patient's quality of life and work productivity as well as the relationships between patients and their partners and spouses, coworkers, children, family members, and friends. By providing this education to early career providers, they will be prepared to help their patients thrive in midlife and beyond.

Sources of Funding: None

P-26.

Differences in Menopause-related Prescribing Patterns between Affiliate OB/Gyn Practices

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Objective: The utilization of Menopausal Hormone Therapy (MHT) for management of menopause symptoms has plummeted, falling from 26.9% to 4.7% between 1999-2020, despite a wealth of studies that have demonstrated safety, efficacy, and benefit of MHT in appropriate candidates. Although likely multifactorial, the lack of standardized menopause training during residency may be contributing to decreased comfort with management of symptoms using MHT. In a 2013 survey of OB/Gyn residents, only 21% reported exposure to a formal menopause curriculum, with only 16% reporting participation in a dedicated menopause clinic. A 2023 survey of OB/Gyn Residency Program Directors (PDs) demonstrated that while 92.9% of PDs strongly agreed that residents should have access to a standardized menopause curriculum, only 31.3%

reported having a menopause curriculum embedded in their didactics. This gap in training sets providers up for a lack of confidence in management of menopause symptoms, as well as an absence of knowledgeable colleagues, and may have an effect on long-term practice patterns. The aim of this study is to describe differences in prescribing patterns among OB/Gyn providers at two institutions for patients presenting with menopause-related symptoms. **Design:** We conducted a retrospective cohort study, with demographic and clinical data extracted from the Electronic Health Record (EHR) of two large academic healthcare systems. The two systems, which we will call Institution A (IA) and Institution B (IB), are affiliated and close together (~75 miles apart), however practice independently and have non-overlapping faculty. Women aged 40-55 seeking care for menopause-related symptoms in any outpatient encounter with an OB/Gyn provider were identified by ICD-10 code associated with the encounter. IA data was available for extraction from 1/1/2016 to 12/31/2023, while IB data was available from 7/1/2021 to 12/31/2023. Prescriptions for systemic estrogen, vaginal estrogen, and Selective Serotonin Reuptake Inhibitors (SSRIs) associated in the EHR with the menopause-related ICD-10 diagnoses were extracted. Descriptive statistics were used to summarize patient demographic and clinical characteristics, and two group proportion tests and bivariate logistic regression models were used to compare prescribing patterns. **Results:** A total of 11,441 women were identified with a menopause-related ICD-10 code, 30.9% at IA and 69.1% at IB. Patients at both institutions were most likely to be White race, non-Hispanic ethnicity, and have Managed Care insurance, although significant differences were demonstrated in the demographic makeup of the two groups. Of our cohort, 8.45% received any prescription treatment, 7.1% received systemic estrogen, 4.2% received vaginal estrogen, and 0.9% received SSRIs. Patients who presented to an OB/Gyn provider at IB were significantly less likely to receive any prescription (OR 0.12; 95% CI 0.10, 0.14), systemic estrogen (OR 0.16; 95% CI 0.12, 0.20), vaginal estrogen (OR 0.10; 95% CI 0.08, 0.13), and SSRIs (OR 0.14; 95% CI 0.09, 0.23). There were no significant prescribing differences among race or ethnicity within each institution, although women of all races and of Hispanic ethnicity were less likely to receive all prescription treatments at IB relative to IA. **Conclusion:** Our results demonstrate differential prescribing patterns for menopause related symptoms among OB/Gyn providers at two different institutions, with IB providing significantly fewer prescription treatments than IA despite having a much larger cohort. One potential explanation for our findings may be that providers conform to cultural or institutional practices for managing patients with menopause symptoms given the lack of standardized menopause training during residency. Our study suggests that patients have differential access to prescription medication for menopause management depending on their access to or choice of healthcare provider, and lays the foundation for an educational intervention for providers with potential for high impact on improvement of menopause care.
Sources of Funding: Wake Forest University CTSI Ignition Fund

P-27.
Patient-level Factors Associated with Receipt of Prescription Medication for Menopause Symptoms

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Objective: Menopause Hormone Therapy (MHT) is recommended as the first-line treatment for menopause related symptoms in women with no contraindications to therapy. Following the Women's Health Initiative (WHI), prescriptions for MHT dropped precipitously, falling from 26.9% to 4.7% between 1999-2020. Available evidence suggests that Black and Hispanic women use MHT at rates 2-10 times lower than White women, despite experiencing vasomotor symptoms longer and at more severe rates than White women. This study aims to assess patient-level demographic factors, including race and ethnicity, and the receipt of prescription medication for menopause symptoms in a large academic healthcare environment. **Design:** We conducted a retrospective cohort study, with clinical data extracted from the Electronic Health Record of a large academic healthcare system from 1/1/2016, to 12/31/2023. Women aged 40-55 seeking care for menopause symptoms in any outpatient encounter with Family Medicine, Internal Medicine, Endocrinology, and OB/Gyn were identified by ICD-10 code. Prescriptions for systemic estrogen, vaginal estrogen, and Selective Serotonin Reuptake Inhibitors (SSRIs) associated in the EHR with the menopause ICD-10 diagnoses were extracted. Descriptive statistics were used to summarize patient demographic and clinical characteristics. Bivariate and multivariable logistic regression were used to evaluate the association of patient demographic characteristics and receipt of prescription treatment. Minimally sufficient variables for the association of prescription treatment with insurance status were race and age. There were no minimally sufficient variables identified for the association of prescription treatment and race or ethnicity, so bivariate analysis was performed. **Results:** We identified 5,491 women with an outpatient encounter with an associated ICD-10 code for menopause symptoms. Of these, 66.6% were identified as White race, 22.3% Black race, and 7.2% identified as Hispanic ethnicity. Patients were most likely to have managed care insurance (75.6%), with 6.5% having Medicaid and 7.7% having Medicare. English was the primary language spoken by the majority of the cohort (94.3%) with 4.3% with Spanish listed as the primary language. Relative to White women, Black women were less likely to receive any prescription treatment for menopause symptoms (OR 0.79, 95% CI: 0.67, 0.95), including systemic estrogen (OR 0.64, 95% CI: 0.47, 0.87), however were more likely to receive SSRIs (OR 1.49, 95% CI: 1.04, 2.14). There were no significant differences for receipt of any prescription treatments for Hispanic women when compared with White women, although Spanish as a primary language was associated with increased receipt of vaginal estrogen (OR 1.62, 95% CI: 1.09, 2.42). When compared with patients with Managed Care insurance, patients with Medicaid were less likely to receive any treatment (OR 0.67, 95% CI 0.48, 0.94), and patients with Medicaid and Medicare were less likely to receive systemic estrogen (OR 0.50, 95% CI: 0.26, 0.95; OR 0.46, 95% CI: 0.25, 0.82, respectively). **Conclusion:** Our study demonstrates differential prescription of treatments for menopause-related symptoms with respect to race and insurance status within a large academic healthcare system, which may highlight both implicit and explicit biases in prescribing patterns. While there are likely multiple factors contributing to prescription patterns among menopausal women for management of menopause symptoms, and particularly MHT use, these results highlight differences in prescription patterns that may offer opportunity for specific and actionable targets for educational intervention. Our results underline the need for equitable care for women experiencing menopause symptoms and lay the groundwork for future interventions.
Sources of Funding: Wake Forest University School of Medicine CTSI Ignition Fund Pilot Award

P-28.
Provider-Level Factors Related to Receiving Treatment for Menopause Symptoms

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Objective: Menopause represents a time of significant physiological and psychosocial transition with symptoms that affect up to 80% of women. Menopausal Hormone Therapy (MHT) has demonstrated effectiveness in managing challenging symptoms related to menopause, yet utilization has declined with recent evidence demonstrating MHT use by only 3.8% of women between the ages of 45-59 in 2023. One factor contributing to this decline may be the lack of standardized provider education for menopause management. Here we aimed to describe provider-level factors associated with receipt of pharmacologic management of menopause symptoms among a population seeking menopause care. **Design:** We conducted a retrospective cohort study, with clinical data extracted from the Electronic Health Record of a large academic healthcare system from January 1st, 2016, to December 31st, 2023. Women aged 40-55 seeking care for menopause-related symptoms in any outpatient encounter with Family Medicine (FM), Internal Medicine (IM), Endocrinology, and OB/Gyn were identified by ICD-10 code associated with the encounter, and prescriptions associated with the identified ICD-10 codes were extracted. Descriptive statistics were used to summarize demographic and clinical characteristics. Multivariable logistic regression was used to evaluate the association of provider type and specialty with receipt of prescription treatment. Directed acyclic graphs were used to determine which variables should be included in the multivariable models a priori. Minimally sufficient variables for the association of prescription treatment were Diabetes, hypertension, and insurance status for provider specialty, and insurance and provider specialty for provider type. **Results:** Clinical data from 5,491 women with an outpatient encounter with a menopause-related ICD-10 code were extracted and analyzed. Of this cohort, 64.4% were seen by OB/Gyn, 17.6% by IM, 12.4% by FM, and 4.5% by Endocrinology. Of these, 17.1% received treatment for menopausal symptoms, 34% of whom received systemic estrogen, 47% received vaginal estrogen, and 16% received Selective Serotonin Reuptake Inhibitors (SSRIs). *Provider specialty:* Patients were most likely to receive systemic estrogen if seen by an OB/Gyn provider ($p < 0.01$). When compared with OB/Gyn, patients were less likely to be prescribed systemic estrogen by IM (OR 0.43, 95% CI: 029, 0.64), FM (OR 0.50, 95% CI: 0.33, 0.76), and Endocrinology providers (OR 0.16, 95% CI: 0.05, 0.52). Conversely, patients were more likely to receive SSRIs when seeing IM (OR 1.89, 95% CI: 0.24, 2.87) and FM (OR 2.66, 95% CI: 1.77, 3.99) relative to OB/Gyn. *Provider type:* Patients were more likely to receive systemic estrogen from Midwives (OR 2.32, 95% CI: 1.42, 3.77) and Nurse Practitioners (NPs) (OR 1.88, 95% CI: 1.43, 2.48) than by attending physicians. SSRIs were more likely to be prescribed by PAs (OR 60, 95% CI 1.70, 3.97), NPs (OR 2.99, 95% CI 1.95, 4.60), and Residents (OR 2.10, 95% CI 1.06, 4.20) than attending physicians. **Conclusion:** Provider type and specialty significantly impact receipt of prescription medication treatment among women seeking menopause-related care, with differential prescribing patterns for systemic estrogen, vaginal estrogen, and SSRIs. Patients seen by OB/Gyn providers were more likely to receive systemic or vaginal estrogen, while those seen by IM and FM were more likely to receive SSRIs. Attending physicians were less likely to prescribe systemic estrogen than Midwives and NPs and less likely to prescribe SSRIs than all provider types, which may reflect practice logistics at an academic medical center. Our study highlights the need for standardized education on menopause care for all provider types and specialties to improve the quality of care provided to our patients.
Sources of Funding: Wake Forest University CTSI Ignition Fund

P-29.

Resources to Manage Menopause and Menopause Coping Strategies among Women Faculty and Staff at Three Universities

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Objective: Research is needed to understand and support women's ability to manage menopause symptoms at work, including universities and medical centers, where women's participation is vital to research, education, and medicine. **Design:** From January to May 2025, women faculty and staff aged 40-55 at three universities in the USA completed a cross-sectional survey. For women who worked in-person at least once a week, we used two open-ended questions to elicit participants' thoughts on current policies/resources and recommended policies/resources to manage menopause at work. We used a closed-ended checklist of resources to quantiatively assess resources available at work. For women self-reporting being in perimenopause or postmenopause with at least one potential menopause symptom at work in the last six months, we ascertained actual strategies used to cope with these symptoms at work. Multivariable logistic regressions examined if the odds of having access to each specific resource were predicted by school, age, ethnicity, race, and role (faculty vs. staff), entered into the model simultaneously. **Results:** In total, 391 women were enrolled (mean age = 48, 45% faculty, 17% Latina, 66% White, 91% working in-person at least once a week), with 29% in premenopause, 45% in perimenopause, and 22% in postmenopause (3% unknown). From the open-ended questions, three primary areas emerged as ways universities can support the menopause transition: 1) improving the structure and amenities of the physical workplace (i.e., having the option to work remotely; access to private spaces; clean bathrooms stocked with menstrual products); 2) enhancing the ability to control one's work environment (i.e., temperature, lighting, furniture, and schedule); and 3) reducing stigma and increasing support around the menopause transition (e.g., wellness programs, adequate insurance, sick leave, education, social support, an office culture that normalizes the menopause transition). On the closed-ended questions, the least common menopause management resources reported were the ability to control body temperature by using the main thermostat (22%) and accessing ice/cold packs at work (19%), while the most common were accessing a bathroom (86%) and cold water (79%). School, race, ethnicity, age, and role were associated with access to resources. Compared to faculty, staff had 69% lower odds of access to private space and 54% lower odds of having a location to sit/lie for 10 minutes. Compared to non-Latina women, Latina women had 55% lower odds of access to pads/tampons and 75% lower odds of access to an adequate bathroom. Compared to non-White women, White women had 77% higher odds of being able to open a window. For each additional year of age, the odds of being able to use a fan increased by 8%, while access to pads/tampons decreased by 5%. Among 249 women in the menopause transition who reported at least one potential menopause symptom, the most common coping method (61%) was using tools (e.g., to-do lists, planners, notes) to help with brain fog / difficulty concentrating. The least common methods were using ice/cold packs (3%), ending a meeting or task early (10%), and asking for help (14%). **Conclusion:** Universities have an opportunity to create a supportive environment for women navigating menopause by addressing physical needs, promoting flexibility and autonomy, and fostering cultural change. There is a need to ensure all employees have access to necessary resources for managing menopause symptoms in the workplace across role, location, or other individual/job factors.

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P-30.

Does Stress Matter? Exploring the Impact of Sociocultural Stress on Cardiovascular Health Among Midlife Latinas.

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Objective: Cardiovascular disease (CVD), the leading cause of death in women, affects nearly 40% of Latinas in the U.S. The risk of CVD increases substantially in midlife (age 40-60 years)**,** a critical stage characterized by hormonal changes related to menopause and age-related changes (e.g., blood pressure, triglyceride, body mass index) that can impact women's cardiovascular health. Accumulating evidence suggests that stress is independently associated with CVD risk. The marginalized status of Latinas in the U.S exposes them to various sociocultural stressors, including immigration stress, socioeconomic stress, ethnic discrimination, and familial stress that may contribute to their elevated CVD risk. However, associations between sociocultural stress and CVD risk in midlife Latinas have been underexplored, limiting our understanding of whether CVD prevention strategies in this population should target these stressors. This study's objective was to determine whether sociocultural stress is associated with lower cardiovascular health as measured by Life's Essential 8 (LE8) in midlife Latinas. **Design:** We enrolled 54 midlife Latinas aged 40 to 60 years in a cross-sectional study examining associations between sociocultural stress and CVD risk. Sociocultural stress was assessed using the Hispanic Women Social Stress Scale, which measures the severity of immigration stress, socioeconomic stress, ethnic discrimination stress, familial stress, parental stress, and employment stress in the past year (not all stressful, a little stressful, somewhat stressful, very stressful). We also reported whether participants experienced that stressor in the past year (yes/no), and the total number of stressors reported (0-6). All measures were available in English and Spanish. Health behaviors—including nicotine use, diet quality, physical activity, and sleep duration—were assessed via self-report questionnaires. Participants attended a clinic visit where trained staff collected anthropometric and clinical data, including body mass index (BMI), waist circumference, blood pressure, fasting glucose, and lipid profile. Cardiovascular health was evaluated using the LE8 score, a composite metric ranging from 0 to 100. LE8 includes four health behaviors (nicotine exposure, diet, physical activity, and sleep) and four health factors (BMI, blood pressure, blood lipids, and blood glucose), each scored from 0 (poor) to 100 (ideal) based on standardized criteria. Higher LE8 indicates better cardiovascular health. Linear regression analyses, adjusting for age, the language of consent, and financial strain, were performed to determine the association between sociocultural stress and LE8. **Results:** On average, participants were aged 46.8±3.9 years, 24% had less than a high school education, 56% identified as Mexican, and 41% reported it was somewhat/very difficult to pay for necessities. While the overall social stress score was low (20.0±20.1), 54% of women experienced four or more stressors in the past year, and immigration-related stress was the most frequently reported. The mean LE8 was 62.8±12.3, which corresponds to an intermediate cardiovascular health score. The Hispanic Social Stress score was not independently associated with LE8, but LE8 was lowest for those who experienced 6 stressors in the past year (54.8±11.3). **Conclusion:** We found evidence that sociocultural stress may be related to worse overall cardiovascular health among midlife Latinas. Our findings contribute to the science on stress and CVD risk. Future studies in a larger sample size are needed to confirm these results and identify potential mechanisms.

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P-31.

Impact of Menopause Education Interventions on Knowledge, Symptoms, and Quality of Life: A Systematic Review

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Objective: Each year, approximately 1.3 million women in the United States reach menopause, yet over 60% of them feel unprepared for the physical and psychosocial changes associated with the menopause transition. Adequate knowledge and positive attitudes towards menopause are essential for women to effectively manage these changes. Group education interventions focused on menopause have shown significant improvements in women's knowledge, self-efficacy, and symptom management during midlife. However, there has been limited research synthesizing the state of science on the impact of menopause education interventions to identify the most effective strategies in improving knowledge, attitudes, or symptom management. The purpose of this systematic review was to critically evaluate and synthesize the literature regarding the effects of menopause education among midlife women (aged 35-55 years) on their menopause knowledge, self-efficacy, symptoms, and quality of life. **Design:** We conducted a comprehensive search of the literature in PubMed, Embase, CINAHL, Scopus, PsycINFO, and ProQuest Dissertation and Theses for studies published through December 2024. Articles were eligible for inclusion if: 1) they were available in Spanish or English; 2) were experimental or quasi-experimental studies that included midlife women (aged 35-55 years) who had received a menopause education intervention; and 3) included measures of menopause knowledge, self-efficacy, symptoms, or quality of life. Two reviewers independently screened records for eligibility, performed data extraction, and assessed study quality/risk of bias with the Cochrane Risk of Bias tool for randomized experimental studies (RoB2) and the Risk of Bias in Non-Randomized Studies of Interventions tool (ROBINS-I). Any disagreements were discussed with a third party. **Results:** We retrieved 3,027 titles and abstracts for screening. After applying our inclusion/exclusion criteria, 107 full-text articles were reviewed, and 33 reports were included for data extraction. Most studies were conducted in Iran (n=11), followed by Taiwan (n=5), and Japan (n=4). Twenty-eight (85%) of the included studies were quasi-experimental in design. Sample size ranged from 22 to 310, with a mean age of 47-53 years. Group interventions with between one and eight education sessions were the most common method, followed by the distribution of multimedia tools (video, audio, booklets), and individual coaching/counseling sessions. Most studies reported an improvement in menopause knowledge (97%) and more positive attitudes towards menopause (73%) post-intervention. Six studies (18%) reported a decline in symptom severity post-intervention, and three studies reported an increase in quality of life (9%). Five studies (15%) had a low risk of bias, 15 had some concerns (45%), and 13 had a high risk of bias (39%). The most common risk of bias was selection bias and the lack of validated instruments to assess outcomes. **Conclusion:** Findings from this review suggest that menopause education may improve menopause knowledge and attitudes towards menopause, but there is limited data on its impact on symptoms and quality of life. Studies were limited by selection bias and lack of validated outcome measures. Larger randomized controlled trials are necessary to examine the impact of menopause education interventions on symptoms and quality of life.

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P-32.

Resilience factors and cardiovascular health: A promising link

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Objective: Cardiovascular disease (CVD) is the leading cause of death among women in the United States, and its risk increases during the menopause transition. Notably, midlife Latinas in the U.S have a high burden of CVD risk factors, with over one-third having metabolic syndrome. Emerging research suggests that resilience factors, such as self-compassion and religiosity/spirituality, may be associated with lower CVD risk. However, these studies have not included midlife Latinas or assessed additional resilience factors that may enhance cardiovascular health. The objective of this analysis was to examine associations between resilience factors and cardiovascular health as measured by Life's Essential 8 (LE8) in midlife Latinas. **Design:** A cross-sectional analysis was conducted using baseline data from a pilot study of 54 perimenopausal Latinas aged 40 to 60 years living in Iowa. Resilience factors, including self-compassion, perceived social support, religiosity/spirituality, family cohesion, and positive attitudes towards menopause, were assessed using validated scales in English and Spanish. Health behaviors (nicotine, diet, physical activity, sleep duration) were assessed by self-report. Participants completed a clinic visit to collect data on body mass index, waist circumference, blood pressure, lipid profile, and glucose. LE8, a composite score of overall cardiovascular health (0-100) was calculated based on participants' adherence to 8 health behaviors and indicators (nicotine, diet, physical activity, sleep, body mass index, blood pressure, cholesterol, fasting blood glucose) following the American Heart Association definitions. Higher values of the LE8 indicate better cardiovascular health. Linear regression analyses, adjusting for age, the language of consent, and financial strain, were performed to determine the association between each resilience factor and LE8. **Results:** On average, participants were aged 46.8±3.9 years, 46.3% completed the consent in Spanish, and 40.7% reported it was somewhat/very difficult to pay for necessities. The mean LE8 was 62.8±12.3, which corresponds to an intermediate cardiovascular health score. In unadjusted models, higher self-compassion was associated with a more favorable LE8 score (β[SE]: 5.3[2.4], p=0.03). The association was attenuated when adjusting for financial strain, but was still pronounced (β[SE]: 4.2[2.3], p=0.08). No other resilience factor was associated with LE8 in the unadjusted or adjusted models. **Conclusion:** We found evidence that self-compassion may be related to better overall cardiovascular health among Latinas, though not statistically significant in adjusted models. Our findings extend prior work on self-compassion and subclinical CVD. Future studies are needed to identify resilience factors as potential targets for future interventions to enhance cardiovascular health in midlife Latinas.

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P-33.

Impact of menopause symptoms on the Work Performance and job satisfaction of Brazilian climacteric women

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Objective: To evaluate the impact of climacteric symptoms on the work performance of Brazilian climacteric women. **Design:** A cross-sectional study was conducted among women aged 40-59 years who were employed and received remuneration. The women answered a questionnaire that included sociodemographic data, climacteric symptoms assessed by the Menopause Rating Scale (MRS), and the WRQoL (Work-Related Quality of Life and Overall Job Satisfaction Scale), which included questions related to work performance. The Research Ethics Committee of the State University of Campinas approved the study under number CAAE83030224.7.0000.5404. **Results:** A total of 1047 women were evaluated, with a mean age of 50.49 years (± 5.73). The study population consisted of 53% of women who had been amenorrheic for more than 12 months, with a mean BMI of 26.92 (5.37) and a mean education duration of 16.28 years (4.80). Most (59.38%) were dependent workers and worked as a salaried worker; approximately 32.02% were self-employed professionals, and 8.06% performed only unpaid domestic activities. Only 23.3% were using hormone therapy, and 9.36% had used hormone therapy in the past. When asked about their work performance, 69.53% said they no longer performed as well as before. Menopause affected the work activities of 72.59% of female workers, mainly attributed to symptoms such as fatigue, memory, and concentration problems (60.46%), the symptom that most affected work performance, followed by mood changes such as irritability (44.51%) and anxiety (44.13%), sleep disorders (35.63%) and hot flashes (34.4%)(Table 1). Women with more intense symptoms had absences from work and were more dissatisfied with their work performance. Those with more absences from work due to medical leave were more dissatisfied with their work performance and had a poorer quality of work-life. In the multiple analysis with Stepwise variable selection criteria, it was found that higher scores on the psychological MRS and decreased job performance compared to 10 years ago were significantly associated with lower quality of life at work in the total WRQOL score. The women with the highest risk of lower quality of life were those with psychological MRS '≥4' (risk 1.6 times or 57% higher) and those without job performance the same as 10 years ago (risk 1.3 times or 28% higher) Regarding the Job Satisfaction questionnaire, the multiple analysis with Stepwise variable selection criteria showed that the women with lower job satisfaction were those with decreased job performance compared to 10 years ago (risk 1.9 times or 85% higher) and those with greater intensity of symptoms in the total MRS '≥9' (risk 2.0 times higher). **Conclusion:** The presence of climacteric symptoms affects the quality of life and work performance of women in menopause. Women who took more medical leave from work were more dissatisfied with their work performance and had a poorer quality of work-life balance. These data show the importance of adequate treatment and greater attention to working conditions at this stage of life.

Sources of Funding: none

Table 1. Clinical characteristics and work scales of climacteric women between 40-59 years (N=1047)

Variable	N	%
Postmenopausal	559	53.4
Perimenopausal	488	46.6
TH use		
Yes	244	23.3
No	803	76.7
Alternative therapies	151	14.4
Antidepressives use	268	25.6
Diabetes	91	8.69
Hipertension	238	22.7
High cholesterol	209	19.9
Absense days at work last 12 menses 0 days 1-15 days >15 days	659 331 57	62.94 31.61 5.45
Worse work performance in the last 10 years	319	30.47
Menopausal symptoms affect work performance	760	72.59
MRS scale	mean	SD
Somatic Psychological Urogenital Total	5.16 6.82 4.10 16.08	3.56 4.27 2.93 8.99
Work-Related Quality of Life score total	3.40	0.71
Overall Job Satisfaction Scale total	4.89	1.19

P-34.

Goal-based Care: A Case Study in Menopause Symptom Management

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Objective: Around 25 million women pass through menopause every year with numbers increasing with the rising aging population. Many women suffer symptoms and metabolic consequences of ovarian hormone fluctuation during perimenopause and early menopause that impact daily living. Menopause care continues to be significant gap in healthcare. This is seen by lack of management experience in healthcare providers, inadequate knowledge, and lack of comfort on counseling patients on menopause treatment options. The symptoms and consequences of perimenopause and menopause are so unique to the individual that the commonly used algorithm of problem-based care cannot be successful. Goal-oriented care has been shown to improve patient experiences and could provide a personalized approach to improve quality of life. Here, we present a case study that highlights the effectiveness of goal-oriented care compared to problem-based care. Here, we will also describe a novel clinical process of goal-based healthcare named W*A*I*Pointes, or "Who Am I Pointes" and examine the symptom management outcomes of a menopausal patient in a single clinic. W*A*I*Pointes was developed to be a scalable and repeatable form of healthcare for patients seeking menopause symptom treatment. It immediately engages the individual patient in her own care process and is personalized to her own care goals. Over the course of 17 years, we show how a patient benefitted from W*A*I*Pointes as a form of unique, goal-oriented menopause symptom management. **Design:** Patient is a G1P1 female who originally sought gynecological care in 2008 at the age of 42 with an initial complaint of irregular heavy periods, bloating, acid reflux, and weight gain. She had a family history significant for early cardiovascular disease and type-II diabetes. She was treated with problem-based care including a hysterectomy with no relief of her most bothersome symptom, weight gain, until 2020 at age 54 when she entered the Basic W*A*I*Pointes program. She then was able to address her 3 main concerns: Ability to be Active, Body Composition, and Phase of Ovarian Function. Her goal was defined by a milestone event 15 months out from entry into the program, her son's college graduation. By this date, she wanted to be confident in pictures and active (be able to golf), fit comfortably in her clothes and have more muscle mass, and not have unpredictable menopause symptoms. Her barriers included hip pain with sciatica, impaired glucose tolerance, longstanding central obesity, night sweats, poor sleep, busy work life, and natural early menopause. **Results:** For each of her 3 main concerns, she and the healthcare provider together developed a written plan. Blood work showed elevated lipids and high fasting blood sugar. For Ability to be Active, she entered regular physical therapy to resolve her physical barriers, and within 9 months, was able to walk, golf, and do high intensity workouts. For Body Composition she met with a nutrition coach and learned what foods would spike her blood sugar and began using a continuous glucose monitor and started metformin. For Phase of Ovarian Function, she was counseled on options for her menopause symptoms and chose an estrogen patch while tracking her menopause symptoms using the validated Menopause Transition Scale (MTS). She was seen approximately three times each year with intermittent phone contact. By her milestone event, the patient met all three of her goals. She considered herself to be active and noted the ability to golf comfortably. She lost body fat and gained muscle mass. Finally, she reported good control of her

menopause symptoms. **Conclusion:** While this patient had been seeking out symptom management for 17 years, it was not until she received goal-oriented care through the Basic W*A*I*Pointes program that she was able to see improvement. This case study supports further research into the effectiveness of goal-based care and prioritizing the individual patient's goals over disease-centric goals.
Sources of Funding: none

P-35.

Incidence of endometrial cancer among post-menopausal women using low-dose vaginal estrogen (LDVE) compared to estrogen and progestin combination hormone therapy (EPHT)

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Objective: Background: Unopposed systemic estrogen use is associated with increased risk of endometrial cancer. It is unknown whether vaginal estrogen (VE), administered for vaginal atrophy and irritation, also increases the risk of endometrial cancer. This study estimated the association between LDVE and endometrial cancer compared to EPHT in post-menopausal women from the United States (US) and Sweden. Objective: To estimate the hazard ratio of endometrial cancer in postmenopausal women who use LDVE compared to EPHT (EU PAS: EUPAS45602). **Design:** An observational cohort study was conducted among women who were at least 50 years old initiating LDVE or EPHT between January 1, 2007 and December 31, 2021 in the US Healthcare Integrated Research Database (HIRD) and between January 1, 2007 and December 31, 2019 in the Swedish Registers. All patients had at least one year of continuous health plan enrollment (or two years of Swedish residency) prior to initiating treatment, and no prior use of hormone therapy. They were excluded if they had a hysterectomy or history of endometrial cancer. Patients were followed until they started a different hormone therapy, switched to a higher VE dose, had a hysterectomy, were diagnosed with endometrial cancer, ended their health plan coverage (or emigrated from Sweden), died, or the study period ended. In the HIRD, endometrial cancer was identified by a validated algorithm, defined as two endometrial cancer diagnoses on medical claims at separate visits. In Sweden, endometrial cancer cases were identified using the cancer registry. Incidence rates (IR) per 10,000 patients and hazard ratios (HR) of endometrial cancer with 95% confidence intervals (CI) were estimated using Cox proportional hazards models adjusted for demographics and medical and prescription history using inverse probability weighting to preserve the VE sample size (HIRD) or propensity score matching (Swedish Registers). A quantitative bias analysis (QBA) using hysterectomy prevalences from the US National Health and Nutrition Examination Survey was conducted to adjust HIRD IRs and incidence rate ratio (IRR) estimates for missing data on baseline hysterectomies prior to entering the health plan. **Results:** In the HIRD, there were 175,101 LDVE initiators and 45,323 EPHT initiators. There were 153,171 LDVE initiators and 153,326 EPHT initiators in the weighted pseudo-population. In Sweden, there were 139,717 LDVE initiators and 40,870 EPHT initiators. After matching there were 33,339 LDVE initiators and 34,213 EPHT initiators. In the HIRD, the adjusted HR of endometrial cancer comparing LDVE new users to EPHT new users adjusted for baseline covariates but not missing hysterectomies was 0.74 (0.45—1.22). After excluding the proportion of patients estimated to have had a hysterectomy, the LDVE IR per 10,000 patients increased from 8.74 (7.79—9.78) to 18.52 (12.83—27.22) and the EPHT IR increased from 13.67 (12.42—15.01) to 21.41 (19.25—23.92). The IRR of endometrial cancer was 0.87 (0.58—1.31). In the Swedish Registers, the IR of endometrial cancer in the LDVE cohort was 3.53 (2.56—4.73) and in the EPHT cohort was 2.62 (1.78—3.71). The adjusted HR of endometrial cancer comparing LDVE new users to EPHT new users was 1.34 (0.84—2.13). **Conclusion:** Overall, this study did not find a definitive association between LDVE, and endometrial cancer compared to EPHT. In the HIRD an inverse association was found and in the Swedish Registers a positive association was found. Both were imprecise and consistent with no difference in incidence of endometrial cancer between LDVE and EPHT. Future research should continue to explore the risks of vaginal estrogen in large populations with complete medical history.
Sources of Funding: This study was funded by Pfizer.

P-36.

Menopause and the Gut: Uncovering a Hidden Health Burden

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Objective: Objective This study aimed to explore the prevalence and progression of digestive health issues, including Irritable Bowel Syndrome (IBS), among peri-menopausal and menopausal women. It also sought to understand current management strategies and the impact of symptoms on health-related quality of life (HRQoL). **Design: Methods** A cross-sectional online survey was disseminated via a menopause support platform to a sample of self- or formally diagnosed peri-menopausal and menopausal women. The survey gathered data on digestive symptoms, IBS diagnoses, symptom progression, management strategies, and HRQoL impact. Descriptive statistics and Chi-Square tests were used to analyse responses from 564 participants aged 44–73. **Results: Results** A striking 94% of participants reported experiencing digestive health symptoms, with bloating (77%), constipation (54%), stomach pain (50%) and acid reflux (49%) being most common. Despite the high symptom burden, only 33% had received a formal IBS diagnosis. The majority (82%) reported either the onset or worsening of symptoms at peri-menopause or menopause. Statistically significant associations were found between menopausal groupings and specific symptoms, particularly bloating and stomach pain. While 53% had sought professional support, 58% of them found it inadequate. Most (89%) tried self-management strategies, including dietary changes, stress management, and supplements. Over half experienced daily or weekly symptoms, with 55% reporting a significant or regular impact on their quality of life. **Conclusion: Conclusion** Digestive health issues are highly prevalent among peri-menopausal and menopausal women, with many reporting the onset or exacerbation of symptoms during this life stage. Despite the symptom burden, formal diagnoses and effective professional support remain limited. The findings underscore the need for increased clinical awareness, targeted support strategies, and further research into the intersection between digestive health and menopause. Improving healthcare provider education and broadening research efforts could enhance diagnosis, management, and ultimately, quality of life for women navigating menopause.
Sources of Funding: None

P-37.

A Retrospective, Cross-Sectional Analysis Reporting the Characteristics of Women Receiving Anabolic Osteoporosis Therapy With Abaloparatide By Prescribing Provider Specialty

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Objective: Providers from various specialties are involved in the care of patients with osteoporosis (OP). The aim of this descriptive subgroup analysis was to evaluate differences in patient characteristics and treatment patterns in patients prescribed the anabolic therapy abaloparatide (ABL). **Design:** ICON's Symphony Health Patient Source Integrated Dataverse database provided the subset of anonymized patient claims data utilized for this analysis. Women aged ≥50 years were included if they had at least one prescription claim for ABL from May 1, 2019 to April 30, 2021. Patients were required to have medical or pharmacy records for at least 5 years before the initiation of, and 1 year following the discontinuation of, therapy with ABL. Patients with a history of anabolic treatment in the 5 years prior to the index date (date of the first ABL treatment claim), or those that switched to other anabolics within 1 year after treatment with ABL ended, were excluded. Patients were divided into cohorts based on prescribing physician specialty (endocrinology [END], rheumatology [RHU], family medicine [FM], internal medicine [IM], obstetrics and gynecology [OBG], physician assistant/nurse [PA/N], surgery [SUR; including orthopedic surgery, orthopedic surgery of the spine, neurological surgery, and general surgery], and others [OTH]). **Results:** Overall, 16,301 patients were included in this study, with 6,966 patients aged 50-64, 5,840 patients aged 65-74, and 3,495 patients aged 75+. Prescriptions for ABL were obtained from a variety of providers across specialties (END, 4,717; RHU, 3,202; PA/N, 2,472; FM, 2,342; OTH, 1,383; SUR, 987; IM, 944; OBG, 254). Fracture history in the 5 years prior to the index date demonstrated that patients in the SUR cohort had a greater percentage of any fracture (39%) compared to the other cohorts (<33%). Additionally, in the 5 years prior to the index date, non-vertebral (NVT) fractures were the greatest in the PA/N and SUR cohorts compared to all other cohorts (both 20% vs <18%). The PA/N and SUR cohorts also had more NVT fractures 1 year prior to the index date compared to all other cohorts (both 13% vs <11%). ABL persistence rates were low, with 35% of all patients using ABL for >12 months. Persistence rates were the highest in the END (41%) and RHU (37%) cohorts and lowest in the SUR (27%) and OTH (28%) cohorts. Medical history also demonstrated that many patients did not use any prior antiresorptive (AR) therapy (65%) in the 5 years prior to therapy with ABL. The highest rates of prior AR therapy were found in the OBG (45%) and RHU (42%) cohorts, while the lowest was found in the SUR (27%) cohort. Within one year after discontinuing therapy with ABL, only 28% of all patients used AR therapy, with the highest rate in the OBG (34%) cohort and the lowest in the SUR (24%) cohort. **Conclusion:** Patients received prescriptions for ABL from a variety of providers, highlighting the diverse anabolic OP therapy prescriber landscape. However, this study identified significant gaps in the treatment of OP despite current clinical practice guidelines. Overall, 65% of patients did not have any prior AR therapy, and overall persistence rates with ABL were low, as only 35% of patients used ABL for >12 months. Additionally, only 28% of patients had AR therapy within one year after discontinuation of therapy with ABL. These results highlight the need for further research to understand OP treatment patterns to improve clinical outcomes for patients.
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P-38.

Prior Treatment Patterns and Healthcare Resource Utilization of Individuals Who Received Fezolinetant Treatment: A Claims Database Analysis

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Objective: The occurrence of vasomotor symptoms (VMS) can affect the well-being of individuals who are experiencing menopause and places a considerable burden on global healthcare services. The selective neurokinin 3 receptor antagonist, fezolinetant, is a

first-in-class nonhormonal treatment option for moderate to severe VMS due to menopause. The objective of this analysis was to describe the clinical characteristics, treatment patterns, and healthcare resource utilization of individuals who received treatment with fezolinetant using data from a US administrative claims database. **Design:** The Optum Research Database, a deidentified database including approximately 8% of US commercial and 18% of Medicare Advantage enrollees, was used for this analysis. Individuals were included if they were female adults (≥18 years old); had ≥1 pharmacy claim for fezolinetant between May 12, 2023 (date of US fezolinetant approval) and April 30, 2024; and had 15 and 6 months of pre- and post-index data, respectively. The date of the first claim for fezolinetant was defined as the index date. Descriptive statistics were used to analyze the data. **Results:** Overall, 1,307 individuals were included. The study population had a mean age of 59.15 (standard deviation [SD]: 9.61) years and close to a third were ≥65 years old (386 [29.53%]). The mean (SD) Charlson comorbidity score was low at 1.21 (1.64), and 517 (39.56%) individuals were receiving Medicare. In total, 449 (34.35%) individuals initiated fezolinetant in 2023 and 858 (65.65%) in 2024. The most prevalent comorbid conditions were female genital organ diseases (1064 [81.41%]), other connective tissue disease (756 [57.84%]), and lipid metabolism disorders (751 [57.46%]). Overall, 53 (4.06%) individuals previously had an oophorectomy and 41 (3.14%) had a hysterectomy. Approximately half of the individuals had hyperlipidemia (751 [57.46%]) and hypertension (650 [49.73%]), whereas 510 (39.02%) had cardiovascular disease and 500 (38.26%) had anxiety. During the 12-month pre-index period or at fezolinetant initiation, 838 (64.12%) individuals had a diagnosis of VMS. Among the 547 (41.85%) individuals who had received previous VMS-related treatment, 388 (29.69%) received non-hormone therapy (HT), 82 (6.27%) received both HT and non-HT, and 77 (5.89%) received HT. The mean (SD) duration from the first VMS-related treatment claim to fezolinetant initiation was 187.18 (113.09) days. During the pre-index period, almost all individuals (1305 [99.85%]) had ≥1 ambulatory visit for any medical condition; 351 (26.86%) had ≥1 emergency room visit, and 105 (8.03%) had ≥1 inpatient stay. The mean (SD) number of all-cause ambulatory visits per individual was 30.76 (25.90), with 20.07 (18.10) office visits and 10.74 (14.62) hospital outpatient visits. Additionally, the mean (SD) number of visits was 0.64 (2.02) for emergency room and 0.10 (0.42) for inpatient stays. A limitation of this analysis was that data were only available from outcomes that resulted in billed medical services. **Conclusion:** Fewer than half of individuals who received fezolinetant had previously received other VMS treatments, and there was an average of 31 all-cause ambulatory visits/person in the pre-index period. Almost 30% of the study population was ≥65 years old, suggesting a clear unmet need in these individuals. It is plausible that increasing awareness of available VMS treatments may encourage their use and improve health outcomes in women experiencing VMS.
Sources of Funding: Astellas Pharma Inc.

P-39.
Defining Perimenopause Stages Through Hormone Patterns: A Proof of Concept

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Objective: The limited data on perimenopause leaves many women uncertain about their hormonal health. Perimenopause can span six months to ten years, involving varying phases and symptoms. Yet, the condition is primarily assessed through symptom tracking, without a comprehensive understanding of hormone patterns. This gap in clinical practice and research highlights the need for hormone-based methods to predict perimenopause stages. The STRAW+10 criteria offer a framework to define sub-phases of perimenopause based on symptom patterns. This study leverages daily hormone levels captured via urinary metabolites to assign hormone patterns to each phase, providing a more precise method for predicting a woman's perimenopausal stage. **Design:** Data from 1,745 women using Oova, an FDA-registered at-home hormone monitoring platform, were used to develop a classification algorithm. Oova tracks daily urine levels of LH, PdG (a progesterone metabolite), and E3G (an estrogen metabolite) via disposable test strips scanned using a smartphone. Participants also self-reported bleeding patterns and symptoms. Using the STRAW stages (-3a, -3b, -2, -1, 0, +1, +2), a random forest model was created to assign stages based on symptom data. Predictions were validated through clinical review. Users were clustered, and hormone patterns analyzed to determine relationships between hormone levels and STRAW stages, with significance assessed using the Kruskal-Wallis test and Dunn's test for pairwise comparisons. **Results:** The model's most significant inputs for assigning STRAW stages were the last first day of period (LFDOP), days since LFDOP, the difference between the average cycle length from Oova data and self-reported cycle length, and the overall average cycle length from Oova data. These variables provided strong predictive value, helping the model achieve an 88.25% accuracy when tested on a subset of the dataset. Notably, the model could clearly distinguish the -2, -1,+1, and+2 stages, but struggled to separate -3a and -3b. These stages were merged into a single cluster, indicating that the current symptom data may be insufficient to define these stages distinctly. The -2 stage, however, was the most complex. This stage consisted of four distinct clusters, suggesting a more nuanced hormonal profile within -2 that may warrant additional sub-classifications. Evaluating hormone metrics for each cluster, significant differences were found across LH, PdG, and E3G ($p < 1.47 \times 10\text{-}4$), with pairwise comparisons revealing distinct hormone patterns within -2 clusters ($p < 1.91 \times 10\text{-}2$). These findings indicate that hormone fluctuations within specific perimenopausal stages, particularly -2, reflect the hormonal diversity that exists among women during this transitional phase. Further examination of the clusters revealed that hormone levels in E3G and PdG were most variable in -2, highlighting their potential as key markers in distinguishing nuanced phases of perimenopause. The study also emphasized the importance of using hormonal data in conjunction with traditional symptom tracking to improve diagnostic accuracy and therapeutic targeting. **Conclusion:** This study underscores the potential of hormone-based classification in defining perimenopausal stages and the need to incorporate objective hormone patterns in clinical practice. By combining hormone data with symptom tracking, clinicians can better understand a woman's stage in perimenopause, enhancing diagnostic accuracy and treatment planning. The findings suggest that current symptom-based assessments may be insufficient to accurately identify and differentiate between perimenopausal stages, particularly in more subtle transitions such as -2. The results highlight the need for further refinement of the STRAW staging system, including the integration of additional symptoms and data points. Future studies should focus on expanding the data set, refining model algorithms, and exploring the role of hormone patterns in more granular sub-stages of perimenopause. Ultimately, this research lays the groundwork for a more personalized approach to perimenopause care, offering the potential for tailored treatments based on objective hormonal data that can improve outcomes for women during this complex life stage.
Sources of Funding: None

P-40.
Perimenopause and Menopause in the Workplace

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Objective: Morphus, a company committed to supporting women through perimenopause and menopause, conducted this research to better understand how these life stages affect women's professional lives. The survey explored the impact of symptoms on performance, absenteeism, workplace communication, career decision-making, and the availability of organizational support. It also identified symptoms with the greatest impact on productivity and how women navigate work while managing hormonal changes. **Design:** A 28-question online survey was conducted over two years and is still ongoing. It collected data on work-related challenges associated with perimenopause and menopause, including symptom burden, time off, disclosure behaviors, employer accommodations, and career reflection. Participants were recruited through social media, the Morphus website, and email outreach. Data collection continues, with cuts made at regular intervals for analysis. **Results:** Between April 27, 2023, and June 12, 2025, 660 women, primarily aged 40 to 59, responded to the survey. Most were employed by others (89%), while 10% were self-employed. Nearly all respondents (98%) reported experiencing symptoms, with 80% stating these had negatively affected their work. One-third (33%) had taken time off due to symptoms; 29% wanted to but didn't, and 11% considered it. Stress was a major contributor: 59% identified it as a key trigger or aggravator, 25% reported a moderate impact, and 11% said it may play a role, suggesting importance for 95% of participants. Symptoms with the largest reported impact on work performance and productivity included fatigue (57%), brain fog (55%), poor concentration (52%), memory issues (50%), and difficulty focusing (49.5%). Emotional and psychological symptoms also ranked high, including reduced tolerance for workplace stress (43%), sleep disturbances (41%), anxiety (41%), and lack of patience (40%). This phase also prompted significant career reflection: 68% said it encouraged or somewhat encouraged a professional shift. Twenty percent of women reported turning down—or choosing not to pursue—a promotion or advancement opportunity due to their symptoms; another 8% came close to doing so. Workplace support was notably lacking. Among those employed by others, 79% reported that their organization offered no formal support for menopause. Nearly two-thirds (64%) had not disclosed their symptoms or status to their employer, with lower rates of disclosure among women in menopause (68%) than perimenopause (61%). In contrast, 46% had discussed their experiences with coworkers, and 23% did so occasionally. Only 30% of respondents said their company offered remote or part-time work accommodations; 47% said they had no access to such flexibility, and 14% said it varied. Further, 89% reported that their company did not offer paid leave for menopause-related needs. Educational and mental health programs were also limited, with 76% reporting no such offerings. **Conclusion:** This study highlights the substantial impact of perimenopause and menopause on women's work performance, productivity, and career decisions. Physical, cognitive, and emotional symptoms interfere significantly with professional functioning. Nearly a third of participants took or considered taking time off due to symptoms, and many reevaluated their career paths. One in five women reported turning down or avoiding a promotion because of their symptoms. Despite this widespread impact, workplace support remains minimal. Most women reported no formal accommodations, limited flexibility, and a reluctance to disclose their experiences, especially to bosses. These findings highlight the need for greater awareness, further research, and employer action across sectors. Supportive policies can reduce stigma, boost retention, and help women in perimenopause and menopause maintain well-being and career growth. Creating inclusive environments where midlife women are seen, supported, and empowered requires action in the workplace.
Sources of Funding: Morphus Inc.

P-41.
Understanding Men's Perspectives on Perimenopause and Menopause

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Objective: Morphus, a company supporting women through perimenopause and menopause, conducted this survey to explore men's experiences as partners. This study examines men's awareness, perceptions, and emotional responses to their partner's transition, including knowledge of symptoms, impact of hormone therapy, changes in intimacy, coping strategies, and relationship dynamics. **Design:** This survey includes 37 questions and is ongoing. Participants are recruited through the research page on the Morphus website, social media, and the Morphus newsletter. Data collection is ongoing,

with periodic cuts for analysis. **Results:** Between May 1 and June 20, 2025, 306 men, primarily aged 40–54, were surveyed about how perimenopause and menopause affect their relationships, communication, intimacy, and partner support. The survey assessed men's awareness of symptoms, observed changes before and after hormone therapy, comfort discussing menopause, and confidence in providing support. Most respondents (88%) were in long-term relationships. Of these, 80% have been together 10+ years. Regarding hormone therapy, 60% said their partner never used it, and 26% said their partner was currently using it. For those whose partners were not known to be on hormones, mental and emotional symptoms were most frequently reported, including low libido (92%), fatigue (83%), mood swings (77%), irritability (77%), and emotional detachment (72%). Symptoms that affected intimacy included vaginal dryness (40%), delayed arousal (36%), and less ability to reach orgasm (30%). Less interest in sex was reported by 76%; and 58% said their partner no longer wanted to be touched. Forty-six percent said they haven't tried anything different to improve their sex lives, 33% reported using lubrication, and 28% reported using toys or new techniques. The survey also included partners of those on hormone therapy for three months or more. Before treatment, symptoms included low libido (80%), fatigue (73%), and anxiety (73%), though 48% didn't link them to menopause. After treatment, 79% observed improvements. Fifty percent noted low sexual interest before treatment, while 38% saw increased interest afterward. Many also tried to improve intimacy through toys or new techniques (54%), lubrication (43%), and non-intercourse activities (31%). Only 14% did not try anything different. Overall, 55% said their relationship improved following treatment; 23% said significantly. Among all respondents, 77% reported relationship strain, 53% no longer felt loved, 53% felt they couldn't do anything right, and 48% felt they were walking on eggshells. While 49% wanted to help but didn't know how, 46% still loved their partner but felt drained. A quarter considered separation or divorce. Still, 35% stayed deeply committed, and 28% were hopeful they could get through it. Supportive actions included giving space (64%), acts of kindness (57%), adjusting intimacy expectations (55%), and providing emotional support (50%). Others stayed out of the way (50%), suggested seeing a doctor (44%), or exploring hormone therapy (31%). Still, 42% wanted to help but weren't sure how. Confidence varied: only 17% felt educated and equipped to help, while 73% felt unsure and wanted to learn. The majority of partners (55%) were very or somewhat comfortable talking to their partner about her menopause symptoms and experiences, while 28% were very or somewhat uncomfortable. Before their partner's transition, 70% had no knowledge about it. Afterward, 52% said they'd learned a little, and 31% learned far more than expected. **Conclusion:** Findings reveal that men are not only noticing but also significantly affected by the wide-ranging changes their partners experience during perimenopause and menopause. Many reported emotional strain, loss of intimacy, and relationship challenges, even when they did not initially recognize these as symptoms. While some took active steps to support their partners, many felt unable, overwhelmed, or ineffective. Hormone therapy was associated with improvements in symptoms and relationship dynamics, though experiences varied. Overall, the results highlight a gap in men's knowledge and confidence, demonstrating the need for more inclusive education, resources, and research to help couples navigate this phase of life with greater understanding, connection, and support.
Sources of Funding: Morphus Inc.

P-42.
Women's Sexual Health: Understanding Libido Changes 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 changing libido and ability to orgasm during perimenopause and menopause, who they share their thoughts and concerns with, and how these changes impact their relationships. **Design:** The *Women's Sexual Health: Understanding Libido Changes During Perimenopause and Menopause* survey includes ten questions and is ongoing. Participants are recruited online via the research page on the Morphus website, social media, and the Morphus' newsletter. Data collection continues, with cuts made at regular intervals for analysis. **Results:** Between February 5, 2024, and April 7, 2025, a total of 1,291 women—primarily between the ages 45 to 59—participated in a survey examining the changes in sex drive and libido during perimenopause and menopause. The goal was to explore the extent of which women experience shifts in sexual behavior during this life stage. The majority of participants were married (74.9%). Findings revealed that 91% of participants experienced a notable decrease in libido or sexual desire, and 66% reported a reduction in their ability to achieve orgasm. When stratified by menopausal status, a greater proportion of menopausal women (95%) reported a decrease in libido compared to those in perimenopause (89%). Similarly, diminished orgasmic capacity was more frequently reported among menopausal women (72%) than their perimenopausal counterparts (62%). Notably, 83% of respondents who experienced changes in libido or sexual desire reported discussing their thoughts, feelings, or concerns with someone else. The most frequently cited confidants were healthcare providers (76.6%), partners or spouses (71.8%), friends (44.9%), family members (14.3%), therapists (14.3%), and colleagues (7.2%). Responses were generally consistent across both perimenopausal and menopausal participants. Among women who shared their changing libido/sex drive with someone else, the advice or responses they received varied. A total of 34.2% were advised to use lubrication, while 31.6% were recommended hormone therapy (other than vaginal estrogen). Compassion without specific guidance was reported by 30.7% of respondents. Notably, 22.3% were told to engage in sexual activity regardless of desire—often framed as marital duty. Additionally, 18.3% were prescribed antidepressants, 14.9% were advised to go on dates with their partner or spouse, 13.9% were told to use a vibrator, 13.3% were told to "use it or lose it," 13.1% were encouraged to try supplements to enhance arousal, and 11.8% were advised to lose weight. Advice patterns were generally consistent across both perimenopausal and menopausal participants When asked about the impact of these changes on their relationships, 34.1% described their current dynamic as "living as roommates," while 27.2% reported actively working on fixing the issue(s) together (outside of couples therapy), 21.6% noted not much has changed, and 9.1% said they found other ways to make up for it (other than having intercourse). Response patterns were generally consistent between perimenopausal and menopausal participants. **Conclusion:** Perimenopause and menopause have a significant impact on women's sexual desire and orgasmic function. These findings underscore the urgent need for increased awareness, accessible treatment options, and compassionate, tailored support for women navigating this phase of life. The results also highlight the need for evidence-based sexual health learning directed at healthcare providers, partners, and the public.
Sources of Funding: Moprhus Inc.

P-43.
Beyond Sexual Dysfunction: Dyspareunia as a Diagnostic Indicator of Underlying UTI

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Objective: To emphasize the significance of dyspareunia as a common but frequently overlooked symptom of urinary tract infections (UTIs), and to increase provider awareness that dyspareunia may more often reflect an underlying UTI especially in premenopausal women rather than being solely attributed to female sexual dysfunction (FSD) or other gynecologic or psychosexual etiologies. It is a frequent symptom due to GSM in menopausal women but UTI is the second most frequent reason for dyspareunia in this population. Recognizing this distinction may improve diagnostic accuracy and lead to more timely and effective treatment. **Design:** A 14-year retrospective review was conducted to examine the relationship between dyspareunia and urinary tract infections in women. The analysis focused on the prevalence of dyspareunia at the time of UTI diagnosis, its resolution following antibiotic treatment, and the frequency with which dyspareunia led to the identification of an otherwise unrecognized infection. Both reproductive-aged and postmenopausal women were included, with comparisons made across age groups to explore variations in symptom presentation and underlying cause. **Results:** Dyspareunia was reported in approximately 83% of women presenting with UTIs. Among those, 94% experienced complete symptom resolution following standard antibiotic therapy, suggesting a strong causal relationship between infection and pain with intercourse. Notably, 80% of reproductive-aged women who initially presented with dyspareunia were found to have an undiagnosed UTI, indicating that dyspareunia may serve as a primary or sole presenting symptom in this group. In contrast, among perimenopausal and postmenopausal women, dyspareunia was more frequently associated with genitourinary syndrome of menopause (GSM) than infection, though occasional overlap existed. These findings suggest age-specific diagnostic patterns and underscore the importance of considering UTI in the differential diagnosis of dyspareunia, particularly in younger women. **Conclusion:** Sexologists, sexual health prescribers, gynecologists, urologists, and internal medicine specialists should recognize that dyspareunia is a frequently overlooked yet clinically important symptom of urinary tract infections. Its under-recognition is likely due to limited physician–patient dialogue around sexual health and a tendency to misattribute it solely to psychosexual or hormonal causes. This reflects broader gaps in medical education and training related to sexual symptomatology across specialties. Increasing provider awareness and improving communication around dyspareunia—particularly among sexual medicine clinicians and primary care providers—may enhance diagnostic accuracy, reduce misdiagnosis, and improve outcomes for women.
Sources of Funding: none

P-44.
Sexual Dysfunction in Women with Polycystic Ovary Syndrome: A Multidimensional Perspective

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Objective: To explore the prevalence and underlying factors contributing to sexual dysfunction in women with PCOS, with a focus on hormonal, metabolic, and psychological dimensions. **Design:** This review draws on observational and interventional studies published over the past 20 years that assessed sexual function in women of reproductive age diagnosed with PCOS. Studies were included if they used validated tools like the Female Sexual Function Index (FSFI), along with clinical measures of hormone levels, metabolic status, and psychological well-being. Variables examined included serum androgens, insulin resistance (e.g., HOMA-IR), mental health scales (BDI, GAD-7), and self-perceived body image. These were analyzed in relation to common domains of sexual function: desire, arousal, lubrication, orgasm, satisfaction, and pain. **Results:** Hormonal Factors Women with PCOS frequently experience elevated androgen levels, which can lead to acne, excessive body hair, and hair thinning—features that may negatively impact self-image and self-esteem. These changes often reduce sexual confidence and are linked to lower levels of sexual desire. Estrogen fluctuations

also play a role; inconsistent or low levels can reduce natural vaginal lubrication and tissue elasticity, making arousal more difficult and intercourse uncomfortable or painful. Metabolic Factors Insulin resistance is common in PCOS, affecting even lean individuals. This condition increases androgen production and reduces sex hormone-binding globulin (SHBG), raising free testosterone levels and intensifying symptoms. Obesity, often seen alongside PCOS, worsens insulin resistance and has been independently associated with decreased sexual desire and satisfaction—likely through a combination of hormonal disruption and psychosocial stressors. Psychological Factors Women with PCOS are more likely to experience depression and anxiety, with studies reporting prevalence rates as high as 40% and 34% respectively. These psychological challenges can interfere with desire, arousal, and satisfaction. The emotional toll of infertility, along with physical symptoms like hirsutism and weight gain, can further undermine self-confidence and intimacy. Many women also report negative body image, which correlates strongly with lower sexual function across multiple domains. **Conclusion:** Sexual dysfunction in women with PCOS is a multifactorial condition arising from the intersection of hormonal, metabolic, and psychological influences. These interrelated contributors underscore the need for integrative, patient-centered approaches to assessment and care by multiple specialists. Management strategies should involve hormonal regulation, mental health support, lifestyle modification, and, when appropriate, sexual therapy. Recognizing and addressing sexual health as a vital component of PCOS care is essential to improving quality of life, emotional well-being, and intimate relationships in affected women.

Sources of Funding: None

P-45.

Improving Shared Decision Making in Menopause Care Using The Self Determination Theory

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Objective: Shared decision making (SDM) is a key component of person-centered care, especially when managing the intricacies of menopause care. SDM is a collaborative process between individuals and healthcare providers that empowers individuals to make informed decisions about their care. Despite the benefits of SDM, it is not always implemented in menopause care. The Self Determination Theory (SDT) has a focus on autonomy, competence, and relatedness. The SDT can provide a framework to improve SDM by encouraging intrinsic motivation. The objective is to explore how the SDT can guide health care providers to better integrate SDM into menopause care to improve engagement, satisfaction, and outcomes. **Design:** A conceptual analysis of SDM and SDT in the context of menopause care was conducted. The current review of the literature was conducted utilizing CINAHL, PubMed, PsycInfo, and Google Scholar. The final number of primary research articles reviewed was 40 and a 10% sample was utilized for the purposes of the theory testability and empirical adequacy and evidence table. The SDT was analyzed for scope, context, content, significance, internal consistency, and parsimony. Empirical adequacy of the SDT was assessed through the evaluation of four peer reviewed studies. Additionally SDT was analyzed for pragmatic adequacy. **Results:** Theorists, Deci and Ryan, suggest that the SDT was derived from other motivational theories. Theoretical perspectives that contributed to informing the SDT include cognitive development and psychodynamic approaches by historical authors such as Piaget, Rogers, and Freud. The theory concepts, propositions, and philosophical claims are consistent throughout the SDT. The concepts of autonomy, competence, and relatedness comprise the concept of need in the SDT. Other concepts of the SDT include self, intrinsic and extrinsic motivation. These concepts have semantic clarity and are clearly defined and are used consistently throughout the literature. The review of the results from the four studies indicate that the SDT assertations are congruent with the empirical data a variety of study types including quantitative, mixed methods, and qualitative methods (see Appendix A). The SDT has historically been utilized in the discipline of psychology, but also has applications in religion, education, physical activity. To further test pragmatic adequacy, outcomes of studies framed by the SDT could be compared to outcomes in the same situation when the SDT is not used. **Conclusion:** The studies utilized for this analysis were mainly in the discipline of psychology and education. Future healthcare research should be conducted using this well tested theory and can help to inform practice. More specifically, the SDT can be applied as a framework for future research in pertaining to SDM during menopausal care. The review of the literature indicates how the SDT can be applied to the clinical practice for healthcare providers. The SDT's core principles autonomy, competence and relatedness align with key elements of effective SDM. By incorporating these principles, clinicians can create a more supportive environment for individuals, fostering active participation and adherence to personalized treatment plans. The SDT can be used to guide further research when investigating SDM during all areas of care, and it can be particularly helpful in framing the research of SDM for menopause care.

Sources of Funding: None

P-46.

MNGX-102: A Randomized, Double-Blind, Placebo-Controlled Phase 1b Study to Assess the Safety and Effect of Repeated Administration of granulocyte colony-stimulating factor (G-CSF) on Hot Flashes and Other Vasomotor Symptoms in Postmenopausal Women (NCT03640754)

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Objective: The primary objective of this study was to assess the safety and pharmacodynamic (PD) effect of repeated subcutaneous injection of G-CSF in healthy postmenopausal women. The secondary objective was to assess the efficacy of repeated administration of G-CSF in reducing the frequency and severity of hot flashes. The tertiary objectives were to assess additional measures of hot flash burden and to test the association between G-CSF administration, changes in hot flash frequency and severity, and markers of inflammation and reproductive hormones. **Design:** This was a 12-week, multicenter, randomized, double-blind, placebo-controlled study. Sixty women were randomized (1:1) to receive 3 single injections, 28-days apart, of either 300 mcg G-CSF (n=30) or saline (placebo; n=30). Study participants reported the number of daily mild, moderate and severe hot flashes from day -14 to day 84 and completed QOL questionnaires at days 0, 28, 56 and 84. Women reporting less than an average of 7 moderate to severe hot flashes per day or 49 per week during the two week run-in period were excluded from the study. **Results:** All subjects received all three injections of G-CSF or saline and all participants completed the study. No severe adverse events were reported. Adverse events (AEs) were generally mild to moderate in severity and were generally of short duration (less than 24 hours). The predominant, potentially treatment-related, AEs in the G-CSF vs placebo groups were: body aches (45% vs. 17%); headache (36% vs. 3%); fatigue (23% vs. 10%) and leg/limb pain (16% vs. 13%). At the end of the study (week 12) as shown in the accompanying table and figure, no significant difference between the G-CSF vs placebo groups in net change or percent reduction from baseline in moderate to severe hot flashes was observed for all study participants. However, as also shown below, subset analysis based on self-reported demographic data revealed a statistically significant improvement in moderate to severe hot flash frequency (shown) and severity (not shown) similar to those reported for fezolinetant. **Conclusion:** These preliminary results suggest that G-CSF (filgrastim) could provide an alternative to hormone therapy (MHT), anti-depressants (paroxetine), and neurokinin 3 receptor antagonists (fezolinetant) for the treatment of hot flashes and other vasomotor symptoms of menopause. Unlike MHT, paroxetine and fezolinetant, filgrastim does not have boxed warnings. G-CSF is a neuroprotective and neurotrophic protein with anti-inflammatory and vasodilatory properties that may be acting to counteract pro-inflammatory cytokines and chemokines that are elevated in post-menopausal women.

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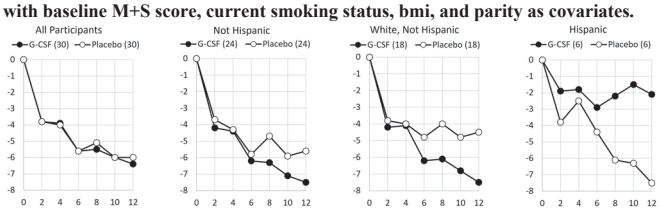
Reduction in Moderate to Severe Hot Flashes and VMS at 12 weeks

				LS Means Change from Baseline M+S Hot Flashes at Week 12				VMS QOL Score	
Sub-Group	Treatment Group	Baseline	n	Estimate	LCL	UCL	G-CSF vs. Placebo (p)	Baseline (BL)	Net Change from BL
All Participants	G-CSF	12.5 ± 1.0	30	-6.4	-8.2	-4.7	0.232	15.7 ± 0.4	-5.7 ± 1.0
	Placebo	12.3 ± 0.9	30	-6.0	-7.7	-4.3		15.6 ± 0.5	-4.8 ± 1.2
Not Hispanic	G-CSF	12.5 ± 1.0	24	-7.5	-9.4	-5.6	0.014	15.5 ± 0.7	-6.0 ± 1.1
	Placebo	12.1 ± 1.0	24	-5.6	-7.4	-3.9		15.6 ± 0.5	-4.2 ± 1.3
Hispanic	G-CSF	12.9 ± 2.8	6	-2.1	-6.0	+1.8	0.064	16.5 ± 0.7	-4.5 ± 2.9
	Placebo	12.9 ± 1.8	6	-7.5	-12.0	-3.1		15.4 ± 1.2	-6.0 ± 2.6

Least squares means (LS Means) from a mixed effects repeated measures model with baseline M+S score, current smoking status, bmi, and parity as covariates.



Least square means change from baseline in moderate to severe hot flashes by study week

P-47.

Bracing for the Change: A Scoping Review of Menopause Curriculum Deficiencies in Graduate Medical Education

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Objective: As the number of menopausal women grows, physicians in internal medicine (IM), family medicine (FM), and obstetrics and gynecology (OB/GYN) are increasingly expected to address menopause-related health concerns. Despite its clinical relevance, menopause education during residency remains inconsistent. Surveys show that many residents across these specialties feel unprepared to care for menopausal patients. There

exists a widespread issue with graduate medical education. This review explores current literature to assess resident confidence and competence in menopause care across IM, FM, and OB/GYN programs, identify curricular shortcomings, and highlight strategies for improving training. **Design:** We conducted a scoping literature review using PubMed and Google Scholar to identify articles from 2000 to 2025. Articles were included if they addressed menopause education in IM, FM, or OB/GYN residency programs. Relevant topics included resident preparedness, perceived knowledge gaps, curricular content, and proposed solutions for improvement. **Results:** Current literature consistently reflects significant gaps in menopause education across all three specialties. Less than 30% of IM and FM residents reported receiving structured teaching on menopause. Among OB/GYN training, only about one-third of surveyed program directors nationwide confirmed having a formal menopause curriculum. However, even when didactic content was included, residents frequently reported low confidence in managing hormone therapy, vasomotor symptoms, and other long-term challenges associated with menopause. Interest in additional training was high. Suggestions for improvement include integrating menopause topics into clinical rotations, using interactive teaching methods, and developing standardized educational tools. **Conclusion:** There is a clear need to strengthen menopause education across IM, FM, and OB/GYN residency training. Residents often feel ill-equipped to manage common midlife health issues despite regularly encountering them in practice. Programs that have incorporated interactive or multimodal teaching approaches show promise. These findings support the development of standardized, practical, and specialty-focused menopause education. These findings prompted a menopause education initiative at our institution and efforts are underway to create a comprehensive training program designed to build resident knowledge and confidence.

Sources of Funding: None

P-48.

Managing Menopause After Endometriosis: Insights from Physicians and Patients

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Objective: Hormone replacement therapy (HRT) is widely used to manage menopausal symptoms, yet its use in menopausal and postmenopausal patients with a history of endometriosis remains controversial. Estrogen-only HRT has been associated with the reactivation of residual endometriotic lesions and increased risk of malignant transformation, including endometrioid and clear cell carcinomas. Despite these risks, there are no standardized clinical guidelines for HRT use in this population, and limited data exist regarding physician prescribing behaviors or patient-reported outcomes. This study aims to address these gaps by assessing both physician and patient perspectives regarding HRT after endometriosis. **Design:** A mixed-methods, cross-sectional survey approach will be employed. Physician participants, including gynecologists, primary care providers, and endocrinologists, will complete an anonymous survey evaluating demographics, knowledge of guidelines, risk perception, prescribing practices, and counseling strategies. Concurrently, postmenopausal patients with a documented history of endometriosis will complete a separate survey capturing prior treatments, HRT use, symptom recurrence, satisfaction with counseling, and menopause symptom management. Surveys have been developed to collect both quantitative and qualitative data and will be analyzed using descriptive statistics and thematic coding. IRB approval is currently pending. **Results:** Preliminary results are not yet available. However, it is anticipated that findings will reveal significant variability in physician practices, identify gaps in patient education, and highlight the need for tailored HRT counseling and risk assessment in this high-risk population. **Conclusion:** By combining provider and patient data, this project seeks to generate actionable insights that can inform future clinical guidelines, enhance shared decision-making, and improve the safety and quality of menopause management for women with a history of endometriosis.

Sources of Funding: None

P-49.

Menopausal Hormone Therapy and Mood: A Retrospective Longitudinal Study in MHT-Naïve Patients

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Objective: Mood symptoms during the menopause transition including depression, irritability, anxiety, and fatigue are frequently reported and are believed to result, in part, from fluctuating serum estradiol levels that impact serotonergic and noradrenergic neural pathways. Epidemiologic studies suggest that 45–68% of women experience mood disturbances during this period, encompassing both clinical and subclinical presentations. While menopausal hormone therapy (MHT) is FDA-approved for treating vasomotor symptoms (VMS) and genitourinary syndrome of menopause and preventing osteoporosis, there is currently no formal guidance regarding its use for mood-related symptoms. Prior research on the mood effects of MHT has yielded mixed results, with some studies demonstrating benefit in perimenopausal but not postmenopausal populations, and others showing neutral outcomes in both. This study aims to build on existing evidence by evaluating the real-world impact of systemic MHT on mood symptoms in a clinical cohort of MHT-naïve individuals. Additionally, it seeks to identify demographic or treatment-related factors that may moderate treatment response, thereby informing more personalized approaches to the management of mood symptoms in menopause. **Design:** A retrospective longitudinal study was conducted in a population of individuals who presented to a menopause center within a large urban academic medical setting and were prescribed systemic MHT. Subjects were naïve to MHT and completed the Menopause Rating Scale (MRS) both prior to initiation and at a follow-up visit during treatment. Changes in MRS scores, specifically within the psychological subdomain – comprising depressive mood, irritability, anxiety, and physical and mental exhaustion – were used to estimate the effect of MHT on mood symptoms. The type and dose of MHT, along with demographic characteristics, were recorded to evaluate potential confounding variables and identify subgroups in which treatment effects may differ. **Results:** A total of 275 patients met inclusion criteria, the majority of whom were prescribed transdermal estrogen (96.7%) at varying doses. The average age was 52.3 years, with a mean follow-up interval of 4.5 months. Among the cohort, 51% had a documented history of anxiety or depression based on ICD coding, and 13% were concurrently prescribed a low-dose SSRI or SNRI at the initial visit. Analysis revealed a statistically significant reduction in psychological subdomain scores on the MRS from baseline to follow-up ($p < 0.001$). Specifically, the proportion of patients categorized as having 'Severe' symptoms (score ≥7) declined from 61.1% at baseline to 25.8% at follow-up, indicating a clinically meaningful reduction in mood symptom severity. ANOVA demonstrated a significant difference in average score change across baseline severity groups ($p < 0.001$), with the Severe group showing the largest improvement (mean change = –3.7, SE = 0.223) compared to the Moderate (–0.88, SE = 0.258) and Low (–0.24, SE = 0.323) groups. No significant differences in treatment response were observed based on history of anxiety or depression or across age groups. **Conclusion:** In a large sample of individuals presenting to an academic medical center for treatment of menopausal symptoms, there was a high burden of severe mood symptomatology at the initial consultation. Following initiation of systemic MHT, patients experienced a statistically significant improvement in mood, as measured by the psychological subdomain of the MRS, with the greatest benefit observed among those with severe baseline symptoms. This effect was independent of a prior diagnosis of anxiety or depression, suggesting that MHT may be effective in improving mood regardless of psychiatric history. Current analysis indicates no significant difference in treatment response by age group; however, further stratification by menopausal stage is needed to better identify which individuals may benefit most from MHT for mood-related symptoms. As data analysis continues, attention will be given to the role of VMS and sleep disturbances as potential confounding or mediating variables. These findings support the potential role of MHT as a therapeutic option for mood symptoms in midlife and highlight the importance of individualized treatment approaches.

Sources of Funding: None

P-50.

Knowledge gaps among women regarding vasomotor symptoms: Results from a patient survey

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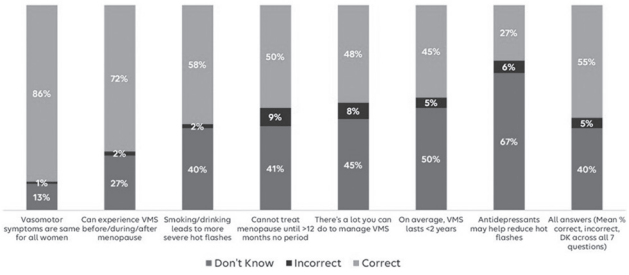
Objective: To explore knowledge related to VMS and menopause among women who have experienced VMS. **Design:** Survey eligible, commercially-insured women, aged 40-65 years, with no pregnancy-related or in vitro fertilization claims 03/01/2023-02/28/2024, were identified from eligibility data and claims in the Healthcare Integrated Research Database. Consenting, qualified women who reported experiencing VMS in the past 12 months completed an internet survey that included a VMS knowledge section consisting of 7 True/False/Don't know questions that assessed aspects of VMS (Figure 1). A VMS Knowledge Assessment (KA) score, ranging from 0-100%, was calculated as the percentage of correct responses to the 7 questions. **Results:** Of 412 women who experienced VMS in the last 12 months, mean age was 54 years, 71% self-reported as white/non-Hispanic, 86% had at least some college, 76% were employed full- or part-time, and 35% were perimenopausal, 54% postmenopausal, and 11% indicated medical menopause. The mean percentage of "correct answers" to the 7 VMS knowledge questions was 55% and 40% of all responses were "Don't Know". Most women knew that VMS symptoms are not the same for all women (86% Correct) and that VMS symptoms can occur before, during or after menopause (72% Correct). However, many women didn't know that smoking/drinking can lead to more frequent/severe hot flashes (40% Don't Know), there's a lot that can be done to manage VMS (45% Don't Know), the average duration of VMS (50% Don't Know), or that antidepressants may help reduce hot flashes (67% Don't Know) (Figure 1). Mean VMS KA scores were significantly different across race/ethnicity groups (p=0.028), ranging from a high of 61% for women self-reporting as Hispanic or Latino to a low of 44% for women self-reporting as Other (including Alaska Indian or Native American). Women who reported seeing a healthcare provider about their VMS also had a significantly higher mean VMS KA score than those who reported not seeing a doctor (59% vs. 51%, p=0.007). No relationship was found between 5-year age categories and mean VMS KA scores (p=0.914). **Conclusion:** The study reveals VMS knowledge gaps in basic knowledge about menopause and VMS among women with VMS including when menopause or its symptoms can be treated, how long VMS can last, and what can be done to manage VMS. There is a need for educational initiatives to enhance VMS and menopause knowledge and treatment management both with patients and their healthcare providers.

Sources of Funding: The study was funded by Bayer Healthcare Pharmaceuticals Inc, Whippany, NJ, USA.

Figure 1. VMS Knowledge Question Frequencies (N=412)



P-51.

Menopause and Hormone Therapy in Minority Groups of South Florida

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Objective: South Florida is one of the most demographically diverse regions in the United States, with significant representation of White Hispanic (55%), White Non-Hispanic (23%), and Black or Afro-American (16%) populations. Menopausal women in minority groups often experience healthcare disparities driven by social, cultural, and economic factors. Our study investigates how these factors influence menopause diagnosis, hormone therapy (HT) usage, and overall health outcomes among minority populations. Our goal is to evaluate the impact of sociocultural and insurance-related barriers, medical misinformation, and healthcare access on menopause diagnosis and HT utilization in minority menopausal women, and to identify actionable strategies to improve care. **Design:** We conducted a retrospective analysis of menopausal patients seen at Hialeah Hospital and HCA Florida Kendall Hospital. These centers predominantly serve Latin American (70%), White American (15%), Afro-American/African/Haitian (10%), and other minority (5%) populations. Data collection encompassed menopause diagnosis rates, hormone therapy usage patterns, and patient-reported reasons for accepting or declining therapy, including the role of medical insurance and decisions to discontinue therapy based on information provided in medication package inserts. Cultural, linguistic, and educational influences on healthcare engagement were also analyzed. **Results:** Minority menopausal women demonstrated higher rates of delayed menopause diagnosis, reduced HT uptake, and greater burden of menopause-related comorbidities. Major barriers included limited health literacy, fear of HT side effects, and the influence of cultural myths about aging, sexuality, and reproductive health. Common misconceptions included the beliefs that hormone therapy inevitably causes weight gain, increases cancer risk, or negatively impacts overall health. Cultural attitudes, such as viewing menopause symptoms as exaggerations or linking sexual activity solely to reproduction, were prevalent among underserved groups. Compliance with HT was strongly associated with higher education levels, proactive health-seeking behaviors, and positive reinforcement from social networks. In contrast, low education, incidental menopause diagnoses during unrelated medical visits, and lack of reliable information contributed to treatment rejection. Preventative strategies identified include improving healthcare access through better insurance coverage and affordability of medications, offering language support services to overcome linguistic barriers, normalizing discussions about postmenopausal symptoms such as vaginal bleeding, and promoting frequent medical follow-up visits. Public health interventions should also target misinformation through mass media campaigns, community education programs, and initiatives supporting mental, physical, and sexual well-being in midlife women. Special emphasis must be placed on culturally sensitive outreach that respects community values while providing scientifically grounded information. The disparities observed highlight the complex interplay between social determinants of health and menopause care outcomes among minority women. Cultural myths, educational gaps, and systemic barriers continue to hinder access to appropriate menopausal care. Healthcare systems must prioritize culturally competent education, address deeply rooted misconceptions, and foster trust with underserved populations. Empowering minority women through accurate information and community-based support is essential to increase HT acceptance and improve health outcomes. **Conclusion:** Reducing health disparities in menopause management for minority women requires multifaceted interventions targeting education, healthcare access, and cultural sensitivity. Future research should focus on implementing and evaluating programs aimed at dismantling misinformation, promoting proactive health behaviors, improving medical insurance coverage for diagnosis and treatment, and tailoring menopause care to the unique needs of diverse communities.

Sources of Funding: None

P-52.

Intravaginal DHEA for the Treatment of Vulvovaginal Atrophy: A Systematic Review and Meta-analysis

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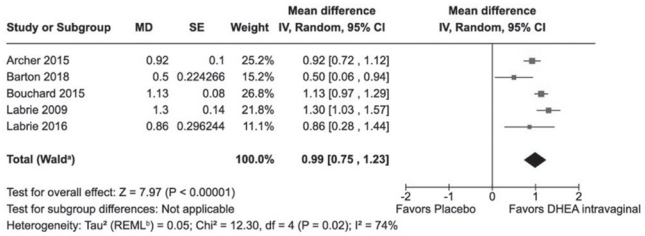
Objective: To assess the therapeutic effects and safety profile of intravaginal DHEA for vulvovaginal atrophy based on current clinical evidence. **Design:** A systematic literature search was conducted using PubMed, Embase, and the Cochrane Library to identify studies published between 2004 and 2025 that investigated the effects of intravaginal dehydroepiandrosterone (DHEA) in postmenopausal women. Search terms included "DHEA," "prasterone," "Intrarosa," and "dehydroepiandrosterone." Studies were screened and selected according to predefined inclusion and exclusion criteria. **Results:** In this systematic review and meta-analysis of five randomized controlled trials, we assessed the efficacy of intravaginal dehydroepiandrosterone (DHEA) compared to placebo in improving genitourinary conditions among postmenopausal women. The main finding was a significantly improvement in vaginal dryness, as demonstrated by the pooled mean difference from five studies (MD = 0.99; 95% CI 0.75 to 1.23; $p < 0.00001$; Figure 1A). These findings indicate that intravaginal DHEA is significantly more effective than placebo in alleviating symptoms of vaginal dryness. Although five studies were included in the overall meta-analysis, only four contributed to the analysis of dyspareunia specifically, as one did not provide sufficient data to calculate the mean difference. The pooled analysis demonstrated a statistically significant improvement with DHEA (MD=1.28; 95% CI 1.06 to 1.51; $p < 0.00001$; Figure 1B), indicating a clinically relevant benefit in dyspareunia symptoms when compared to placebo. **Conclusion:** Intravaginal dehydroepiandrosterone (DHEA) demonstrated both statistically and clinically significant improvements in vaginal dryness and dyspareunia among postmenopausal women. These results underscore the therapeutic efficacy of intravaginal DHEA as a viable intervention for the management of genitourinary symptoms associated with menopause, and highlight its potential role in improving quality of life in this population.

Sources of Funding: None

Figure 1A Intravaginal DHEA was significantly more effective than placebo in improving vaginal dryness in postmenopausal women (p<0.00001)

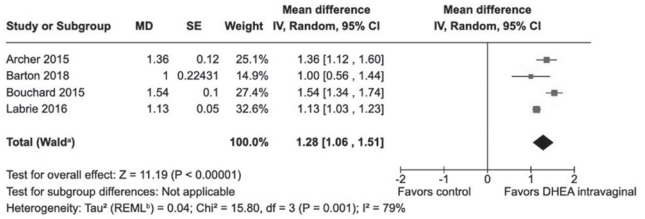


Footnotes

[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

Figure 1B The reduction in dyspareunia was significantly greater in the intravaginal DHEA group compared to placebo (p<0.00001).



Footnotes

[a]CI calculated by Wald-type method.

[b]Tau² calculated by Restricted Maximum-Likelihood method.

P-53.

The Alarming Unmet Educational Needs in Menopause Care for Physician Associates: Revealing the Systemic Gaps in PA Training and the Urgent Call to Integrate Menopause into Clinical Education

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Objective: Physician Associates (PAs) play a vital role in managing and supporting patients through the menopausal transition. The *Provider Experience Survey on Menopause Education* aimed to assess the knowledge, practices, and educational needs of PAs regarding menopause management. The survey explored topics such as clinical confidence, training adequacy, and preferred educational resources to identify gaps and inform targeted interventions. **Design:** An online survey for PAs was created and advertised on LinkedIn and Facebook. The survey comprised 67 questions, including multiple-choice and open-ended responses. The survey covered demographics, practice settings, patient populations, frequency of menopause-related encounters, confidence in managing menopause symptoms, and educational experiences. **Results:** Over a 1-month period, 150 PAs responded to the survey. Most respondents worked in outpatient settings (80%), with suburban (44%) or urban (26%) populations. Primary care was the most common specialty (36%). Overall, 97% of respondents reported inadequate menopause training during their education. 40% said they had received only 1 hour of training, and 19% had received no training. Only 3% of respondents had more than five hours of menopause-related training. Of the 49% who currently manage peri/menopause patients, only 17% felt adequately prepared to personalize care. Respondents expressed low confidence in managing topics such as hormone therapy (HT) (mean score: 2.56/5) and social determinants of health (2.59/5). Key areas to improve educational gaps included HT dosing/monitoring (16%), sexual health (15%), and cognitive changes

(13%). Online CME courses (19%) and clinical guidelines (17%) were identified as the most impactful resources for improving care. Hybrid learning formats were preferred by 50% of respondents. The main barriers for PAs to access menopause-related education were a lack of time for professional development (23%), limited access to menopause-specific resources (20%), and uncertainty about where to find reliable information (20%). **Conclusion:** This PA survey reveals a striking educational gap, with 97% of respondents reporting insufficient menopause training, leaving them underprepared to navigate the medical, psychological, and lifestyle complexities of menopause care. Confidence in managing menopause-related concerns remains notably low, underscoring an urgent call to action. To bridge this gap, innovative educational strategies are essential. Targeted initiatives such as online CME programs, clinical algorithms, and integrated menopause modules will empower PAs to deliver evidence-based, patient-centered care with confidence and compassion. Embedding comprehensive menopause education into PA training curricula is not just a recommendation; it is a necessary evolution to meet the needs of a growing menopausal population and to ensure future providers are equipped to lead the way in the menopause transition.

Sources of Funding: None

P-54.

Efficacy of a Non-Hormonal Dietary Supplement on Vasomotor Symptoms and Quality of Life in Females: A 12-week Experience Trial

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Objective: The primary objective was to evaluate the effects of a non-hormonal, neurokinin 1, 3 antagonist, botanical blend (Thermella®) on vasomotor symptoms (VMS; i.e., night sweats and hot flashes), and quality of life (QOL) in peri- and postmenopausal females. **Design:** This open-label study enrolled females aged 40-70 yrs experiencing ≥ 5 moderate to severe VMS per day. Participants received a proprietary supplement composed of curcumin, decaffeinated green tea extract, and spirulina extract, administered orally as 2 tablets daily for 12 weeks. This formulation is unique due to its known neurokinin 1, 3 receptor (NK1, 3R) antagonist effects and thus a reduction of neurokinin B levels. Researchers assessed effects on VMS and QOL. The primary outcome was the decrease in the number of VMS occurrences per day, collected via daily diaries. Secondary outcomes included QOL, measured via administration of monthly clinical scales such as the Menopause Specific Quality of Life (MENQOL), the Hot Flash Related Daily Interference Scale (HFRDIS), the Greene Climacteric Scale (GCS), and the Menopause Rating Scale (MRS) at baseline and weeks 4, 8, and 12. All analyses were performed using One-way Repeated Measures ANOVA (alpha < 0.05). **Results:** Females (N = 112; n = 55 peri, n = 57 postmenopausal; age = 55.5 ± 6.2 yrs), completed 12 weeks of supplementation. Within 2 weeks, total VMS significantly decreased by 32.5% from baseline (p<0.001). This trend continued throughout the 12 weeks, reaching a significant 61.4% decrease (p<0.001) in VMS by week 12. Additionally, females experienced significant improvements in QOL throughout the intervention. By week 4, MENQOL scores had improved by 28.8%, and by week 12, scores had improved by 36.6% from baseline (p<0.001). There was also a significant improvement from baseline in the HFRDIS, the GCS, and the MRS at all time points throughout the study (all p<0.001). See Tables 1 and 2 for full results. **Conclusion:** This study indicates that Thermella® improves both VMS and QOL in females experiencing menopause. There was a reduction in VMS as early as week 2, and an improvement in QOL by week 4, with sustained results throughout the intervention. Results from this study are comparable with research from other double-blind, placebo-controlled trials examining efficacy of NK 1, 3 antagonists for menopause symptoms.

Sources of Funding: Bonafide Health, LLC

Table 1: Vasomotor Symptoms

Total VMS				
Timepoint	Daily Average	Standard Deviation	Percent Change from Baseline (‰)	Change from Baseline (p-value)
Baseline	13.1	6.6	—	—
Week 2	8.9	7.0	-32.5	p<0.001
Week 4	6.9	6.5	-47.9	p<0.001
Week 8	6.0	6.2	-54.5	p<0.001
Week 12	5.1	5.9	-61.4	p<0.001
Total Hot Flashes				
Baseline	7.4	3.7	—	—
Week 2	4.7	3.7	-35.9	p<0.001
Week 4	3.6	3.4	-50.6	p<0.001
Week 8	3.3	3.4	-55.5	p<0.001
Week 12	2.8	2.9	-62.1	p<0.001
Total Night Sweats				
Baseline	5.8	3.1	—	—
Week 2	4.0	3.3	-31.7	p<0.001
Week 4	3.2	3.2	-45.7	p<0.001
Week 8	2.7	2.9	-54.0	p<0.001
Week 12	2.3	2.7	-60.8	p<0.001

Table 2: Quality of Life

MENQOL Total Score				
Timepoint	Average	Standard Deviation	Percent Change from Baseline (‰)	Change from Baseline (p-value)
Baseline	3.5	1.1	—	—
Week 4	2.5	1.0	-28.8	p<0.001
Week 8	2.3	0.9	-34.2	p<0.001
Week 12	2.2	0.9	-36.6	p<0.001
HFRDIS Total Sum				
Baseline	39.5	22.3	—	—
Week 4	19.5	19.9	-50.5	p<0.001
Week 8	16.0	17.2	-59.4	p<0.001
Week 12	13.2	14.8	-66.5	p<0.001
GCS Total Score				
Baseline	22.2	10.8	—	—
Week 4	12.6	10.5	-43.1	p<0.001
Week 8	11.8	10.1	-46.9	p<0.001
Week 12	9.7	8.9	-56.3	p<0.001
MRS Total Score				
Baseline	16.1	7.5	—	—
Week 4	10.2	6.8	-36.8	p<0.001
Week 8	9.1	6.7	-43.5	p<0.001
Week 12	7.9	6.0	-50.9	p<0.001

P-55.

An Observational Study of Symptom Duration and Diagnostic Accuracy in Women Undergoing Hysterectomy for Suspected Gynecologic Cancer

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Objective: The American Cancer Society estimates that nearly 115,000 women will be diagnosed with a gynecological cancer this year. In women ultimately diagnosed with cancer, 44-72% reported symptoms prior to diagnosis[1,2]. We sought to characterize the timeline and diagnostic journey of women referred to a gynecologist or gynecologic oncologist to identify areas for earlier intervention. **Design:** Observational study of 230 women scheduled for hysterectomy at one of three major hospitals with the intent of exploring biomarkers associated with various gynecologic conditions, including gynecologic cancers. Patients aged 45 and above with benign conditions 18 and above with malignant conditions were invited to participate prior to hysterectomy. Gynecologic history collected included Pap test results, preoperative biopsy results, and self-reported history of abnormal uterine bleeding (AUB) or postmenopausal bleeding (PMB). Clinical signs of cancer included precancerous Pap smear or endometrial biopsy results, and clinical symptoms of cancer included AUB and PMB. **Results:** Among 230 patients, 74.3% (N=171) had a preoperative biopsy and 50.8% (N=117) were ultimately diagnosed after hysterectomy with a gynecological malignancy. Malignancy types including ovarian, endometrial, uterine sarcoma, primary peritoneal, and colon cancer metastatic to the uterus. 6.5% (N=15) were diagnosed with other gynecologic abnormalities including cervical intraepithelial neoplasia grade III/carcinoma in situ, premalignant endometrial hyperplasia, and borderline ovarian tumors. Clinical signs of cancer were identified preoperatively in 23.4% (N=54) of patients. The median time from first abnormal clinical sign to hysterectomy was 75.5 days (range 19-2191). Clinical symptoms of AUB/PMB were self-reported by 68.7% (N=158) of patients with a median time from first symptom to hysterectomy of 418.8 days (range1-7300). In 12.1% (N=28) of cases, preoperative biopsy results were not concordant with final hysterectomy pathology diagnoses. **Conclusion:** In a cohort of women with a planned hysterectomy and ultimately high gynecologic cancer prevalence, patients experienced clinical signs and symptoms for prolonged periods of time prior to diagnosis averaging nearly 14 months for clinical symptoms and 2.5 months for clinical signs. Notably, a sizable proportion had discrepancies between preoperative biopsy and final surgical pathology. These findings underscore the need for improved early recognition of clinical symptoms that may indicate the presence of a gynecological malignancy, streamlined referral processes, and greater diagnostic accuracy to reduce delays in gynecologic cancer care. 1. Low, E., Simon, A., Waller, J. et al. Experience of symptoms indicative of gynaecological cancers in UK women. Br J Cancer 109, 882–887 (2013). https://doi.org/10.1038/bjc.2013.412 2. Goff BA, Mandel LS, Melancon CH, Muntz HG. Frequency of symptoms of ovarian cancer in women presenting to primary care clinics. JAMA. 2004 Jun 9;291(22):2705-12. doi: 10.1001/jama.291.22.2705. PMID: 15187051.

Sources of Funding: Private funding from PinkDx

P-56.

Menopausal Hormone Therapy and Risk of Eczema in Postmenopausal Women: A Case-Control Study

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Objective: Eczema is a chronic inflammatory skin disease that disproportionately affects women and may be influenced by hormonal changes across the lifespan. Emerging evidence suggests that estrogen may modulate immune responses and skin barrier function, yet the association between Menopausal hormone therapy (MHT) and the risk of developing eczema later in life remains unclear. This study was conducted to investigate whether MHT use is associated with a reduced risk of developing eczema in

postmenopausal women. **Design:** We conducted an age-matched case-control study using retrospective data from a single institution between June 1, 2014, and May 31, 2025. A total of 155 women aged 45–70 years with a clinical diagnosis of eczema or atopic dermatitis were identified as cases. From a pool of 139,988 women without eczema within the same age and time range, 155 were selected as control using propensity score matching based on age. Baseline characteristics were compared between groups across 11 variables, including age, age at menopause, ethnicity, body mass index (BMI), tobacco use, alcohol use, menopausal status, vasomotor symptoms, MHT use, MHT type (systemic vs. vaginal), and family history of autoimmune disease. Variables with a p-value <0.1 in univariate analysis were included as covariates, along with Systemic HT use prior to eczema, in a binary logistic regression model to assess their predictive value for the risk of developing eczema later in life. **Results:** There were no significant differences between cases and controls in mean age (60.8 ± 9.2 vs. 59.9 ± 9.5 years, respectively) or age at menopause (49.1 ± 5.2 years in both groups). Variables with a p-value <0.1 on univariate analysis, including BMI, ethnicity, alcohol use, and prior use of systemic MHT, were included in the multivariable logistic regression model. Hispanic/Latino ethnicity was significantly associated with a reduced risk of developing eczema (OR = 0.22, 95% CI: 0.056–0.89, p = 0.034), as was prior use of systemic MHT (OR = 0.21, 95% CI: 0.056–0.76, p = 0.018). **Conclusion:** In this age-matched case-control study, systemic menopausal hormone therapy (MHT) and Hispanic/Latino ethnicity were independently associated with a reduced risk of developing eczema later in life. Further prospective studies are warranted to confirm this association and explore underlying mechanisms.

Sources of Funding: None

Table 1. Comparison of baseline characteristics between case and control cohorts

		Case (n=155)	Control (n=155)	P value
Age (years)	Mean (SD)	60.8(9.2)	59.9(9.5)	0.21
Age at menopause (years)	Mean (SD)	49.1(5.2)	49.1(5.2)	0.48
BMI (kg/m^2)	Mean (SD)	31.9 (9.1)	30.4 (7.5)	0.07$^+$
Ethnicity (n [%])	Hisp/Lat	6 (3.9)	20 (12.9)	0.003$^+$
	Not Hisp/Lat	138 (89)	116 (74.8)	
	Unknown	11 (7.1)	19 (12.3)	
Tobacco exposure (n [%])	Yes	65 (41.9)	57 (36.8)	0.19
	No	89 (57.4)	93 (60)	
	Unknown	1 (0.6)	5 (3.2)	
Alcohol use (n [%])	Yes	93 (60)	77 (49.7)	0.095$^+$
	No	59 (38.1)	70 (45.2)	
	Unknown	3 (1.9)	8 (5.2)	
Postmenopausal (n [%])	Yes	119 (76.8)	112 (72.3)	0.31
	No	34 (21.9)	37 (23.9)	
	Unknown	2 (1.3)	6 (3.9)	
Vasomotor symptoms (n [%])	Yes	35 (22.6)	29 (18.7)	0.58
	No	118 (77.4)	125 (81.3)	
HT (n [%])	Yes	33 (21.3)	32 (20.6)	0.83
	No	122 (78.7)	123 (79.4)	
HT type (n [%])	Systemic	13 (39.4)	12 (37.5)	0.93
	Vaginal	20 (60.6)	20 (62.5)	
AD other than Eczema (n [%])	Yes	39 (25.2)	41(26.5)	0.80
	No	116 (74.8)	114 (73.5)	
Systemic HT duration prior to Eczema diagnosis (months)$^\$$	Median (Range)	60.5 (71)	24 (145)	0.89*
Systemic HT prior to Eczema diagnosis (n [%])$^\#$	Yes	3 (1.9)	11 (7.1)	0.052$^+$
	No	152 (98.1)	144 (92.9)	
Family history of AD	Yes	33 (21.3)	17 (11)	0.47
	No	122 (78.7)	138 (99)	

$^\$$ Value reflects systemic HT duration in the control cohort due to the absence of eczema outcome.

*Not normally distributed, nonparametric independent sample Mann-Whitney U test was applied

For the control cohort, this represents documented HT duration, which may extend to the end of the study if HT remained active.

$^+$BMI, Ethnicity, Alcohol use, and Systemic HT prior to Eczema were entered to Binary Logistic Regression to calculate the odds ratios (OR) for developing Eczema

AD: Autoimmune diseases

P-57.

Association between Menopausal Hormone Therapy and Benign Bowel Conditions

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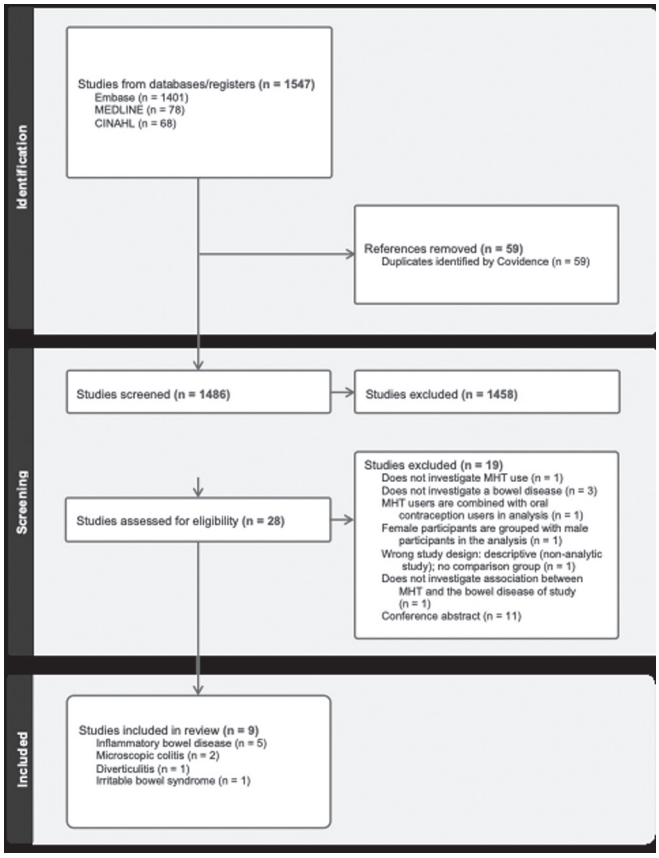
Objective: To synthesize the available evidence on the effects of menopausal hormone therapy on benign bowel conditions in menopausal women. **Design:** A scoping review was conducted by searching three databases to identify studies examining associations between MHT and benign bowel conditions. Studies were screened based on inclusion/exclusion criteria. Data were synthesized. Studies were critically appraised. **Results:** Nine studies met inclusion criteria. The most frequently studied condition in relation to MHT was inflammatory bowel disease (IBD). Three studies evaluated effects of MHT on IBD activity, and all reported either a neutral or protective effect. Two studies examined the risk of developing IBD among MHT users, and reported contrasting results. Two studies that investigated the risk of microscopic colitis with MHT also found opposite results. Another study found that both current and past MHT use was associated with an increased risk of diverticulitis. A final study reported an increased risk of irritable bowel syndrome with MHT use. **Conclusion:** MHT use in menopausal women with IBD is unlikely to exacerbate disease activity and may even confer beneficial effects by reducing severity and flares. With use of MHT, there may be an increased risk of developing other benign bowel conditions, e.g. IBS and diverticulitis, however this is based on limited data. Given the absence of prior reviews on this topic, these findings address an important knowledge gap, and highlight the need for further research in order to better guide clinical decision-making and patient counseling.

Sources of Funding: None

Main Findings

Bowel Disease	Effect of MHT Use	Quality of Study
IBD - activity (n = 3 studies)	↓ severity, ↓ flares, or no change	Moderate
IBD - development (n = 2 studies)	↑ ulcerative colitis (1 study), ↑ Crohn	Moderate to high
Microscopic colitis (n = 2 studies)	↑ risk (1 study), ↓ risk (1 study)	Moderate
Diverticulitis (n = 1 study)	↑ risk	Moderate
IBS (n = 1 study)	↑ risk	High

IBD = inflammatory bowel disease; IBS = irritable bowel syndrome
Quality of Study is based on critical appraisal of included studies using Critical Appraisal Skills Programme checklists



PRISMA Diagram

P-58.

Patient Experience from an AI-First Asynchronous Menopause Practice

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Objective: To evaluate the feasibility, engagement patterns, and patient perceptions during the early access launch of a novel digital menopause care app delivering asynchronous, AI-first consults reviewed by licensed clinicians. This early access program (EAP) marks one of the first real-world deployments of an AI-led, clinician-reviewed model for menopause care at scale. **Design:** This observational study synthesized data from user surveys (n=14), in-app feedback (n=8), support email audit (n=24 threads), and AI consult dashboard review (n=10 patients). These insights were gathered over a four-week early access period of the platform where users could perform symptom tracking, and complete asynchronous consultations which generated consult transcripts reviewed by licensed clinicians for prescriptions and treatment plans. **Results:** Patient adoption was strong: 77% of users completed a menopause consultation, with 80% satisfaction and multiple users describing the experience as seamless. AI chat saw 100% satisfaction among users, highlighting its potential as a scalable intake mechanism. The clinician handoff model - AI gathering history, MD finalizing care - proved both efficient

and satisfying to users. Trust and perceived value were high: 71% of users agreed the platform is a credible, valuable resource for menopause care. Importantly, 65% said they plan to continue using the app. Even amid beta-level bugs, consult-to-prescription conversion rates were high, and AI-generated interviews were consistently relevant and on-topic without hallucinations. System limitations included onboarding friction (ZIP validation, device layout bugs), feature discoverability issues, and inconsistent daily use of symptom logging and insights. These gaps, not clinical quality, were the primary drivers of dissatisfaction. Educational impact was moderate, with 35% reporting feeling more informed and 42% more confident in managing symptoms. **Conclusion:** This AI-first menopause clinic model demonstrates clear early promise: high satisfaction with consults, strong trust signals, and a working proof-of-concept for asynchronous care delivery led by AI and backed by human clinicians. Technical and user experience refinement is a limiting factor for scale. With improved onboarding and more engaging daily-use features, this model offers a credible path to solving the access gap in midlife women's health.

Sources of Funding: None

Trust of the platform

Strongly Agree	Somewhat Agree	Neither Agree nor Disagree	Somewhat Disagree	Strongly Disagree
6 (43%)	4 (29%)	3 (21%)	0	1 (7%)

Clinical credibility is high even despite some technical challenges.

P-59.

Characterizing Ovulation and Menstrual Cycle Changes Across the Adult Female Lifespan, Including the Perimenopausal Period

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Objective: Previous studies on the perimenopausal transition have identified irregular menstrual cycles, including progressive shortening of cycles. However, these studies were limited by small sample sizes and lacked reliable ovulation data. The objective of this study was to address these limitations and more accurately characterize menstrual changes across the reproductive lifespan, incldluing the perimenopausal period. **Design:** The analysis included users of a digital contraception application who logged data for at least 70% of days across a minimum of two cycles. Users of hormonal birth control, who had recently given birth, or were diagnosed with PCOS were excluded. Temperature data, period logs, and optional urinary LH test results were analyzed using algorithms to detect ovulation and characterize menstrual cycle phases. **Results:** The study included 143,953 women in over 140 countries (86% of whom were based in the US, UK, Sweden, and Canada) and showed that menstrual cycles shortened through the reproductive years, beginning in the early 20s (Figure 1). The proportion of cycles shorter than 21 days starts to increase non-linearly beginning in the early 40s. However, the vast majority of these short cycles are ovulatory, in contrast to the 20s, when a substantial proportion of short cycles are anovulatory (Figure 2). **Conclusion:** Cycle shortening across the reproductive years may suggest clinically significant changes in estrogen production and follicular development throughout this period. However, despite increasing irregularity in perimenopause, a high percentage of short and irregular cycles remain ovulatory. This finding highlights the importance of contraception throughout perimenopause and the value of monitoring ovulatory patterns—not only to guide personalized reproductive health management but also to help detect signs of underlying health conditions related to ovarian function.

Sources of Funding: Natural Cycles

Figure 1

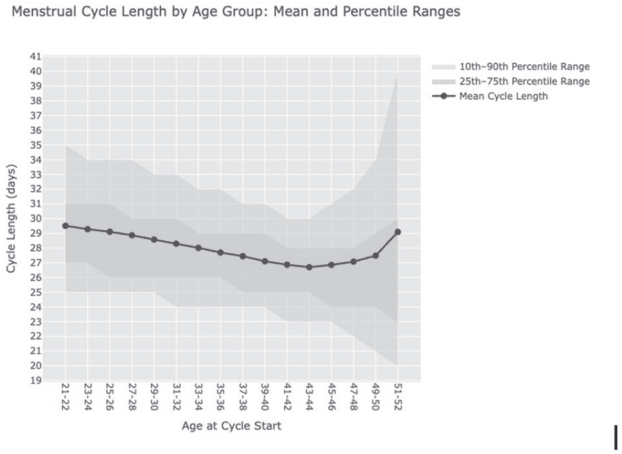
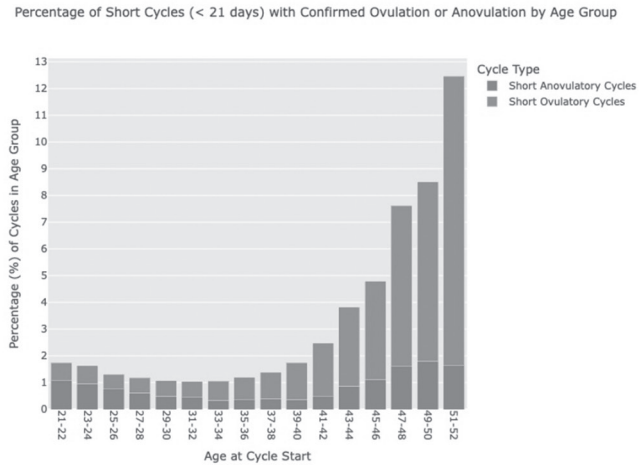


Figure 2



P-60.

Development of a Telehealth Mind-Body Menopause Program

Mary K. Good, PhD[1], Carolyn J. Gibson, PhD, MPH, MSCP[1,2], Niah Johnson[1,2], Caitlin Haas[1,2], Brittany Anderson[1], Nicole Johnson[1], Francesca Nicosia[1,2]. [1]ORH VRHRC-IC, VA Iowa City Healthcare System, Iowa City, IA; [2]San Francisco VA Health Care System, San Francisco, CA

Objective: Barriers to health care for women veterans during midlife include limited clinical resources to support the menopause transition and related health concerns, especially in rural areas. Nonpharmacologic modalities such as yoga, acupressure, and mindfulness may be effective for supporting the management of a broad range of menopause-related symptoms. The goal of this study is to engage women Veterans in co-design of a nonpharmacologic, evidence-based mind-body program that will support physical and mental health during the menopause transition, foster community, and promote healthy aging. **Design:** We used co-design methods with women veterans to inform intervention development. Co-design draws on Human Centered Design principles and includes potential beneficiaries of a program in the development process. The group held 3 virtual meetings to brainstorm, revise, and approve elements of the program topics and structure. **Results:** DG members (n=8, age range=30s-60s) were drawn from four rural and urban VA settings nationwide, reflecting varied military branches, service eras, and health status. Their collaborative input shaped the following **intervention components**: (1) **Weekly Themes:** Introduction to Menopause; Menstruation and Cycle Changes; Body Changes and Acceptance; Hot Flashes; Fatigue, Insomnia, and Sleep; Genitourinary Concerns; Emotions and Mood; Stress and Anxiety; Bone Health; Heart Health; Sexual Health; and Well-being and Healthy Aging. DG participants also gave input on sequential ordering of topics, additional topics to include (e.g. chronic pain, considerations for cancer survivors), and activities for each session. (2) **Program Structure**: Participants determined that one 90-minute small group session per week for 12 weeks would allow for knowledge and skills building as well as social connection while accommodating participants' busy lives. Each session would include education, mind-body modality instruction, and discussion. (3) **Recommended Supplementary Resources:** Web links, podcasts, and written information about symptom management as well as information about additional local resources for menopause care were

suggested as means of complementing program instruction, along with resources to pass on to family members or others interested in learning about the menopause transition. The co-design process was facilitated by DG participants' interest in the topic and their desires to help other women veterans navigate the menopause transition. A barrier to the co-design process was scheduling meetings that were convenient for all participants given differences in work status, time zones, and other demands. **Conclusion:** Engaging women veterans in a collaborative co-design process was feasible and gave additional insights into the need for high-quality, detailed menopause educational content as well as evidence-based mind-body practices. Extra consideration should be given to scheduling Development Group meeting times and maintaining engagement in the Co-Design process given participants' multiple competing responsibilities. Using co-design methods in developing a mind-body menopause intervention may ensure that the program is responsive to the unique needs of women veterans. Given the substantial interest in complementary and integrative health care and symptom self-management, the MBM program has the potential to increase healthcare engagement and provide access to an evidence-informed intervention that addresses whole person health throughout the menopause transition.

Sources of Funding: VA Office of Rural Health, Veterans Rural Health Resource Center-Iowa City (VRHRC-IC), Iowa City Veterans Affairs Health Care System

P-61.

Reproductive Mood Episode History Predicts Treatment Response to Estradiol in Perimenopausal-Onset Depressive Symptoms

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Objective: Ovarian hormone transitions are associated with an increased risk for the development of depressive symptoms in some but not all women, likely due in part to a differential sensitivity to hormonal fluctuations (i.e., hormone sensitivity). Correlational studies suggest that the occurrence of one RME is significantly associated with the likelihood of developing another RME across the lifespan. Women who experience prior reproductive mood episodes (RMEs) may also be more likely to develop perimenopausal-onset depressive symptoms (PMDS). PMDS can be alleviated by estradiol (E2) administration. We examined whether RME history predicts treatment response to E2 administration. **Design:** Twenty-eight women (n=28) with PMDS and twenty-three euthymic control women (n=23) were administered three weeks of E2 to evaluate the effects of E2 on mood. Prevalence of lifetime reproductive mood episodes (RMEs) was assessed via the Structured Clinical Interview for DSM-IV and DSM-V across two independent samples. Changes in depressive symptoms were measured weekly during E2 administration using the Inventory for Depression and Anxiety (IDAS-II). Analyses examined how lifetime prevalence of RMEs predicted treatment response to E2 measured by the IDAS. Results were Bonferroni corrected to account for multiple comparisons. **Results:** Across the whole sample (N=51), lifetime prevalence of RMEs significantly predicted a reduction in anhedonia following E2 administration ($F=11.81$, $p<0.001$). Lifetime prevalence of RMEs also predicted reduced dysphoria and suicidality with E2 administration, however these results did not survive correction for multiple comparisons ($p>0.05$). **Conclusion:** Individuals with a RME history may have a greater treatment response to E2 administration, indicating that RME history may be a potential candidate for treatment response. Notably, the strongest prediction was for anhedonia reductions, and anhedonia has been identified as a common yet pernicious symptom of depression associated with poor treatment outcomes. Future research should replicate these findings in a larger sample.

Sources of Funding: This research was supported by NIMH (R01 MH128238 to GSD and CES; K23 MH105569 to CES).

P-62.

Integrating Free Bilingual Menopause Care into a Mobile Primary Care Clinic: A Quality Improvement Initiative

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Objective: To assess the feasibility, quality of care, and health outcomes of integrating a bilingual menopause specialty service into a mobile free clinic. **Design: Background:** Menopause is a biological process that remains under-treated and under-reported. Barriers to care include stigma, limited clinical knowledge, and socioeconomic status (SES)—such as insurance status, language, and income—especially among underserved populations where access to menopause care is scarce. While free mobile clinics offer equitable healthcare access, menopause services are often excluded. Menopause hormone therapy (MHT) has been shown to be cost-effective; however, treatments are not equally accessed across different SES and races. Studies show MHT is used more frequently and for longer periods in White women with higher education level and SES. Offering free or low-cost, culturally competent menopause care can help bridge the gap by providing direct access to a menopause specialist, building capacity in the primary care team, and educating students in menopause care. The Mobile Outreach Clinic (MOC) is a grant-funded, free primary clinic in North Central Florida. Operating in a retrofitted bus, MOC provides health screenings, primary and prenatal care, gynecologic ultrasounds, contraception, LARC, referrals, and other specialty services to local neighborhoods. In 2024, MOC had 3,029 visits, with 53% of patients identifying as a racial/ethnic minority. Many are uninsured, have household incomes below 200% of the Federal Poverty Line, and are non-native speakers. Despite a wide scope of women's health services, MOC has not yet offered menopausal care. **Methods:** The team, consisting of a bilingual menopause specialist, premedical interns, and MOC providers, conducted a literature review to better understand access to menopause care, patient and provider education, free clinic workflows, and low cost MHT. Using these findings, along with the workflows adapted from a private menopause clinic and the existing MOC system, the team created a plan for implementing free menopause care at the MOC. Community stakeholders were central to project planning. The menopause specialist collaborated with MOC's primary care team to develop a feasible timeline and clinical structure. MOC uses a patient-centered approach to scheduling, accepting a hybrid of walk-ins and scheduled appointments. Due to high demand, however, the team requires menopause visits to be scheduled by appointment only, prioritizing uninsured and established primary care patients. The specialty clinic was advertised among MOC's networks. New intake forms were developed in both English and Spanish to track quality of life and demographics, informing both immediate care and future quality improvement efforts. Clinical templates were adapted to fit time and resource constraints and accommodate patients with limited health literacy or language barriers. The specialty clinic will occur once monthly, leveraging premedical and PA students with care coordinators to optimize workflow. A secondary objective is to educate allied health care professionals and future providers and will be accomplished as education plans are developed. The team will also develop a low-cost MHT formulary and use intake forms to quantify the impact of accessible menopause care. After a 6 month period, the team will assess feasibility, quality of care, and health outcomes to guide clinical adjustments. **Results:** The study is ongoing, but preliminary data shows high feasibility of the plan. Initial team meetings informed trial implementation in the first two months. Trial clinic days allowed the team to adjust to the bus environment and test intake and workflow systems. As a result, intake forms, templates, and referral criteria were refined to improve access to menopause care. **Conclusion:** Integrating a bilingual menopause specialty service into an existing mobile free clinic can address critical gaps in women's health, especially among underserved populations. While data collection is ongoing, this quality improvement project introduces a novel, replicable model that can be adapted to support vulnerable populations seeking menopause-seeking healthcare services in other communities.

Sources of Funding: None

P-63.

Association between Depression and Cognitive Symptoms and Menopausal Hormone Therapy in Women Over 60: A Cross-Sectional Analysis.

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Objective: Although depressive and cognitive symptoms are primarily reported during perimenopause and the early postmenopausal years, about one-third of women experience persistent mood and memory issues in the later menopausal years, particularly after stopping menopausal hormone therapy (MHT). Recent guidelines have emphasized the need for a more individualized approach to MHT, allowing women over 60 to continue this therapy for bothersome symptoms. While MHT is widely regarded as the most effective treatment for vasomotor symptoms, its impact on mood and cognition in the later stages of menopause is less well understood. This study intends to compare cognitive and depression scores among women aged 60 and above who are using systemic MHT versus those who are not at a specialized menopause clinic in Canada. **Design:** Data was available for 96 women aged 60 and older (n=34 using systemic MHT, N=62 controls) from the St. Joseph's Healthcare Menopause Clinic in Hamilton, Ontario. A detailed self-report questionnaire was completed and included details about medical history and validated tools for bothersome symptoms, the Menopause Rating Scale (MRS) and the Centre for Epidemiological Studies Depression Scale Revised (CESD-R-10). We analysed the impact of MHT usage on cognition (assessed through MRS) and depressive symptoms while controlling for relevant demographic variables, including age, socioeconomic factors, smoking habits, and antidepressant usage. **Results:** The prevalence of depressive symptoms among women aged 60 and older was 45.8%. Additionally, 61.4% of women in this age group reported moderate to severe cognitive symptoms. Factors such as unemployment, lower household income, smoking, and recreational drug use were associated with higher levels of depression and poorer cognitive performance. Married women had better scores for both cognitive function and mood. There was a significant correlation between depression and cognitive symptoms, suggesting a bidirectional association. Current users of menopausal hormone therapy (MHT) had a 40% lower likelihood of experiencing moderate to severe cognitive symptoms compared to non-users, representing a 20% relative risk reduction. However, these results were not statistically significant. Additionally, the use of MHT was not linked to improved CESD scores in this cross-sectional analysis. **Conclusion:** In postmenopausal women aged 60 and older, current depressive symptoms were linked to significant cognitive issues. While MHT did not seem to offer protection against depressive symptoms and had a non-significant impact on cognitive problems, more extensive studies are needed to evaluate whether MHT could serve as a long-term protective factor.

Sources of Funding: Canadian Menopause Society and Canadian Institutes of Health Research (CIHR) Grant

P-64.

Breaking the age barrier: A qualitative study exploring continued Menopausal Hormonal Therapy (MHT) use beyond 65

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Objective: Many women experience persistent menopause symptoms after age 65. However, both patients and healthcare providers often resist continuing hormone therapy beyond this age due to perceived risks. The Menopause Society's 2022 guidelines provided new recommendations and flexibility for the prescription of hormone therapy after age 65, with an emphasis on a personalized approach. This update allows women over 60 or 65, with proper counseling, regular risk-benefit assessments, and no absolute contraindications, to continue treatment through shared decision-making. This qualitative study explores the characteristics and motivations of women aged 65 and older who use MHT. **Design:** This study was part of a larger companion study aimed at evaluating the health benefits and risks of prolonged hormone therapy in women aged 65 and older. It was conducted at the Menopause and Mature Women's Health Clinic at Mount Sinai Hospital in Toronto. We conducted semi-structured interviews with 20 women aged 65 and older who continued using systemic MHT beyond this age. The interviews were transcribed and analyzed thematically to explore motivations, experiences, and perceived barriers related to MHT use in this age group. **Results:** Seven major themes emerged: 1. **Quality of Life as a Primary Motivator**: Women overwhelmingly cited MHT's role in relieving debilitating symptoms such as hot flashes, night sweats, insomnia, and mood instability. One participant said, "I went from wanting to be dead to having my life back. My interest, emotions, and ability to get along with people came back." 2. **Negative Consequences of Discontinuation**: Attempts to taper or stop MHT often resulted in the immediate return of symptoms, reinforcing continued use. Another participant remarked, "I tried reducing the dose, and I was shaking, having hot flashes all the time. I told my doctor—Don't let me go off this again." 3. **Critique of Age-Based Guidelines**: Participants viewed the 65-year cutoff as arbitrary, preferring personalized decision-making based on individual risk-benefit profiles. One participant noted, "These age limits are ridiculous. I know my body. I'll stop when I feel I can—right now, I can't." 4. **Inconsistent or Inadequate Healthcare Provider Support**: While menopause specialists were praised, many family physicians either refused to prescribe or lacked sufficient knowledge, leaving women to advocate for themselves. A participant stated, "My family doctor refused to prescribe it. I had to fight to get referred to someone who understood menopause." 5. **Stigma and Silence**: Fear of judgment led some women to hide their MHT use from peers; others expressed gratitude for spaces where menopause was discussed openly. Another user said, "I never talked about it with my friends. Women screamed at me that I shouldn't be on it. It became a secret between me and my doctor." 6. **Informed Yet Resolved Risk Acceptance**: Although most were aware of long-term risks, personal experience of benefit outweighed theoretical harms. A participant mentioned, "I know there are risks. But life is full of risks. HRT gives me a life worth living." 7. **Demand for Patient-Centered Care**: Participants called for guidelines that reflect individual needs, experiences, and autonomy, rather than a uniform cutoff. Another remarked, "All women shouldn't be lumped in one category. This needs to be between the woman and her doctor." **Conclusion:** Women using MHT beyond the age of 65 report sustained benefits that significantly enhance their quality of life. Rigid age-based guidelines may not accurately reflect patient needs. Our findings support a shift toward an individualized, informed, and collaborative approach to the possibility of continued MHT prescription in women over age 65.

Sources of Funding: Canadian Menopause Society

P-65.

Musculoskeletal Symptoms in Women Over 60: Evaluating the Role of Menopausal Hormone Therapy

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Objective: The estimated prevalence of musculoskeletal syndrome among mid-life women experiencing menopause is approximately 70%. Therefore, it is increasingly important to recognize this condition and to implement appropriate preventive measures in a timely manner. While menopausal hormone therapy (MHT) is the most effective treatment for vasomotor symptoms, its effectiveness in managing musculoskeletal symptoms in older postmenopausal women remains unclear. This study aimed to evaluate whether women aged 60 and above who are using systemic MHT report different levels of musculoskeletal symptoms compared to non-users, within a specialized menopause clinic in Canada. **Design:** Data were collected from 96 women aged 60 and older who attended the St. Joseph's Healthcare Menopause Clinic in Hamilton, Ontario, Canada. Among these participants, 34 were using systemic MHT, while 62 served as controls. Each woman completed a detailed self-report questionnaire that included information about their medical history and utilized validated tools to assess bothersome symptoms, specifically the Menopause Rating Scale (MRS). We analyzed the impact of MHT usage on musculoskeletal symptoms, as quantified by the MRS, while controlling for relevant demographic variables such as age, socioeconomic factors, smoking habits, and exercise. Additionally, three women who were diagnosed with osteoporosis and were receiving bisphosphonate treatment were excluded from the sub-analysis. **Results:** In this cross-sectional analysis, more than 60% of women aged 60 and older reported experiencing moderate to severe musculoskeletal symptoms. Factors such as age, lower household income, marital status, smoking, and alcohol consumption were not linked to increased severity of these symptoms. Neither using supplemental calcium and/ or vitamin D nor engaging in exercise was associated with better musculoskeletal scores. However, unemployed individuals reported significantly more joint and muscle aches. MHT was not associated with lower musculoskeletal scores compared to non-users, nor did it result in lower odds of experiencing more severe symptoms. No significant effect or interaction was identified between exercise and MHT usage (ANOVA $\{F(1,56) = 1.588, P = 0.21\}$. **Conclusion:** Musculoskeletal (MSK) symptoms were prevalent among the sample of postmenopausal women aged 60 and older. However, the severity of these symptoms did not show a significant association with the use of MHT, nor with lifestyle factors such as exercise or nutritional supplementation with calcium or vitamin D. Further research is needed to clarify the role of MHT in the long-term management of MSK symptoms associated with menopause.

Sources of Funding: Canadian Menopause Society and Canadian Institutes of Health Research (CIHR) Grant

P-66.

EB613 (Oral PTH[1-34] Tablets) Increases BMD Over 6 Months in Early Postmenopausal Women with Low Bone Mass or Osteoporosis: A Phase 2 Randomized Trial

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Objective: Despite the superior benefits of bone-building (anabolic) agents and guidelines supporting their use, these medications are used in a minority of patients for whom they are appropriate. Current patient acceptance of anabolic agents is limited by the requirement for daily or monthly injections and their cost. An oral anabolic tablet has the potential to address this substantial treatment gap. EB613 is being developed by Entera Bio Ltd. as a first-in-class oral PTH(1-34) (teriparatide) tablet treatment for postmenopausal women with osteoporosis at increased risk for fracture. EB613 was evaluated in a 6-month Phase 2 study (NCT04003467) in 161 postmenopausal women aged 50 to 74, presenting with low bone mass or osteoporosis. Phase 2 data showed EB613 increased BMD at the lumbar spine (LS), total hip (TH), and femoral neck (FN) in a dose dependent manner, with a dual mechanism of increased bone formation (PINP) and decreased bone resorption (CTx). Here, we further characterize the treatment effects of EB613 by evaluating BMD outcomes as a function of time from menopause. **Design:** In this post-hoc analysis, we evaluated all Phase 2 study subjects from the EB613 2.5 mg dose group (n = 21), which is selected as the Phase 3 dose, and placebo group (n = 38) by time since last menstrual period (LMP, ≤10 years and >10 years). Percent changes in BMD from baseline to Month 6 at the LS, TH, and FN were evaluated. **Results:** As shown in the Table, at 6 months, in subjects with LMP ≤10 years, on EB613 (n = 8) vs placebo (n = 19), BMD increased at the LS 3.1% (p = 0.05), at the TH 2.3% (p = 0.03) and at the FN 2.0% (NS). In subjects with LMP >10 years, on EB613 (n = 13) vs placebo (n = 19), BMD increased 3.2% at the FN (p = 0.02), 2.5% at the LS (p=0.08) and 1.5% at the TH (NS). **Conclusion:** 6-months treatment with EB613 in early postmenopausal women consistently increased BMD at spine and total hip, and increments are similar to those in women >10 years from their LMP and generally in line to the overall population. Safety and efficacy of EB613 will be further evaluated in the planned Phase 3 trial. EB613 may be the first potential oral anabolic tablet option for postmenopausal women with osteoporosis at high risk for fracture.

Sources of Funding: Entera Bio Ltd.

Table: Percent Change BMD from Baseline to Month 6

	Mean % Change (SD)		Placebo adjusted mean % change	Group difference p-value
	EB613	Placebo		
Parameter				
Overall	(n = 21)	(n = 38)		
Lumbar spine	2.6 (4.2)	-0.2 (3.4)	2.7	<0.01
Total hip	1.3 (2.8)	-0.5 (2.8)	1.8	0.02
Femoral neck	2.0 (2.5)	-0.8 (3.8)	2.8	<0.01
≤10 years LMP	(n = 8)	(n = 19)		
Lumbar spine	3.0 (4.9)	-0.1 (2.9)	3.1	0.05
Total hip	1.7 (2.0)	-0.6 (2.4)	2.3	0.03
Femoral neck	1.4 (3.3)	-0.7 (3.4)	2.0	0.17
>10 years LMP	(n = 13)	(n = 19)		
Lumbar spine	2.3 (3.9)	-0.2 (3.9)	2.5	0.08
Total hip	1.1 (3.2)	-0.4 (3.2)	1.5	0.19
Femoral neck	2.4 (1.8)	-0.9 (4.3)	3.2	0.02

P-67.

Performance of a multi-cancer early detection (MCED) blood test for breast and gynecologic cancers in a prospectively-collected cohort

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Objective: It is estimated that more than 427,000 women in the U.S. will be diagnosed and almost 75,000 will die from breast, ovarian, uterine, cervical, and vulvar cancers in 2025. American College of Obstetricians and Gynecologists (ACOG) recommended screening for breast and cervical cancers has reduced disease mortality; however, approximately one in four screening-eligible women are not up to date with screening. In addition,

screening programs are not available for ovarian, uterine, and vulvar cancers. Sensitive, blood-based multicancer early detection (MCED) tests detect tumor-derived biomarkers from multiple types of cancers simultaneously. MCED tests, which are intended to be used in conjunction with recommended screening, have the potential to detect a broad range of cancer types and stages. Using a subset of female participant samples from a large, multi-center, prospectively collected study, we assessed the performance of two biomarker classes (cfDNA plus select proteins), focusing on breast, ovarian, uterine, cervical, and vulvar cancers. **Design:** The Ascertaining Serial Cancer patients to Enable New Diagnostic 2 (ASCEND 2) study enrolled participants from 157 sites within the U.S. and Europe. The study population included subjects ≥50 years old with known cancer, suspicion of cancer, and controls without suspicion of cancer. All subjects provided informed consent and were assessed for study participation eligibility. The ASCEND-2 subset we describe herein included 3,478 (742 cancer and 2,736 non-cancer) female participant samples with breast, ovarian, uterine, cervical, and vulvar cancers of all stages, divided approximately equally between a training/validation set (n=1,698) and a test set (n=1,780). Sensitivity of a combined DNA methylation and protein biomarker classifier was determined at a combined specificity of ≥98.5%. For detailed methods see *Cancer Res*,2024;84(7Supp):LB100. **Results:** The test set participant mean age was 65.3±8.0 (range 50-84) years old. Test set participants were broadly representative of the U.S. population, with 83.1%, 13.1%, 11.8%, and 2.5%, identifying as White, Hispanic/Latino, Black/African American, and Asian, respectively. Non-cancer and cancer participants were similar for age, sex, and race/ethnicity distributions. At 98.5% specificity, overall sensitivities were 33.3% (95% CI: 20.6-49), 34.1% (95% CI: 25-44.5), 38.5% (95% CI: 17.7-64.5), 71.4% (95% CI: 45.4-88.3), and 76.9% (95% CI: 49.7-91.8) for uterine (n=39), breast (n=88), vulvar (n=13), ovarian (n=14), and cervical cancers (n=13), respectively. **Conclusion:** MCED testing has the potential to extend cancer screening to women's cancers that are not screened for currently and complement standard of care cancer screening as part of a comprehensive cancer risk management strategy.
Sources of Funding: Exact Sciences Corporation

P-68.
Examining symptom profiles during the menopause transition: a preliminary analysis

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Objective: During the menopause transition (MT), women experience a range of burdensome symptoms. Risk for symptoms varies across racial groups, with Black women experiencing more affective symptoms during the MT compared with white women. However, Black women are less likely to receive formal diagnoses or treatment for menopausal onset affective symptoms. This preliminary analysis characterized affective symptoms across women of different racial backgrounds during the MT. **Design:** Three hundred seventy-three (*n*=373) women ages 40-60 in early to late perimenopause (STRAW –2 or –1) or early post-menopause (STRAW +1), with no current bipolar disorder, primary psychotic disorder, or active substance use disorder, were enrolled in a self-report survey study. The Inventory of Depression and Anxiety Symptoms (IDAS) measured ill-temper, dysphoria, lassitude, insomnia, suicidality, appetite loss, appetite gain, well-being, social anxiety, panic, traumatic intrusions, and general depression, and Greene Climacteric Scale (GCS) measured vasomotor and somatic symptoms. One-way ANOVAs assessed differences between racial averages on each scale of the IDAS-I, with a Tukey's test applied post-hoc. **Results:** Of the 344 participants included in preliminary analyses, 81.1% (*n*=279) were white or European, 13.7% (*n*=47) were Black or African American, and 5.2% (*n*=18) were multiracial, and they were 51.16 years old, on average (SD= 4.15). There were differences between racial groups on IDAS traumatic intrusions ($F(2,324)=5.94$, $p<.01$), suicidality ($F(2,325)=31.86$, $p<.001$), appetite loss ($F(2,324)=5.74$, $p<.01$), panic ($F(2,325)=17.68$, $p<.01$), and social anxiety ($F(2,323)=5.064$, $p<.01$) and on the GCS somatic scale ($F(7,358)=2.64$, $p<.05$). Black participants scored significantly higher than white participants across each of these scales (all $p<.05$). Black participants also scored higher than multiracial participants on IDAS suicidality and panic (both $p<.05$). **Conclusion:** Findings suggest Black women may experience more severe affective symptoms during the MT compared with other racial groups. Importantly, results highlight that Black women may present with more trauma symptoms, suicidal ideation, appetite changes, panic symptoms, and social anxiety than white women, and underscore the importance of screening for these symptoms. Differences in symptom presentation may contribute to disparities in diagnosis identification and treatment. Future analyses will examine risk factors for higher symptom burden, including exposure to trauma and racism.
Sources of Funding: The Menopause Society Pilot Grant

P-69.
The Potential Role of Hormone Replacement Therapy with Estrogen in Mitigating and Preventing Diseases Across Body Systems and Autoimmune Disorders in Perimenopause and Menopause

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Objective: This study aims to explore estrogen's influence on immune function, particularly its impact on macrophage activity, cytokine production, and inflammation regulation. Additionally, it examines the potential therapeutic role of HRT in modulating immune responses and addressing chronic inflammatory conditions. **Design:** A comprehensive literature review was conducted, analyzing research on estrogen receptors, biosynthesis, and molecular mechanisms. Studies on estrogen's interaction with immune cells, particularly macrophages, were examined to determine its effects on innate immunity. The influence of HRT on immune modulation and its potential clinical applications were also evaluated. **Results:** Findings indicate that estrogen enhances macrophage phagocytosis, modulates cytokine secretion, and influences immune balance by promoting the M2 macrophage phenotype, which is associated with tissue repair and anti-inflammatory responses. Estrogen also regulates gene transcription through its receptors, affecting immune activation and inflammation. HRT may offer therapeutic benefits in autoimmune and chronic inflammatory diseases by restoring immune homeostasis. However, the effectiveness of estrogen-based therapies varies based on receptor expression, hormonal concentration, and individual patient characteristics. **Conclusion:** Estrogen-based HRT offers transformative potential for mitigating disease burden across body systems and addressing autoimmune pathologies in menopausal and perimenopausal women. However, its use requires careful consideration of individual risk factors and timing to maximize benefits while minimizing risks. Future research should focus on refining delivery methods and expanding knowledge on estrogen's systemic effects. Evidence surrounding estrogen's function not only in female development, but also across other organ systems and immune modulation is continuously emerging. Our research helps us understand the composition and mechanisms of estrogen as a steroid hormone. We are now aware of how estrogen receptors can be located throughout the body and can serve as targets for future therapeutic indications in immune and autoimmune disorders.
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P-70.
Mind-Body Interventions for Menopause Symptoms: Results from a Scoping Review

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Objective: The menopause transition is characterized by hormonal changes, increasing cardiometabolic and bone health risks, and often bothersome symptoms. Hormonal and pharmacological treatments for symptom management are not appropriate or desirable for all women. Nonpharmacologic modalities may be effective for a range of menopause symptoms affecting mood, sleep, vasomotor symptoms (VMS), and genitourinary concerns. The Veterans Health Administration mandates the provision of Complementary and Integrative Health (CIH) modalities (e.g., yoga, meditation, acupuncture) as part of standard medical benefits, which presents an opportunity for growth in women's health services. To understand the growing evidence base for nonpharmacologic and CIH interventions for menopause-related symptoms, we conducted a scoping review. **Design:** Relevant articles (n=5,898) were identified based on inclusion/exclusion criteria including peer-reviewed publication of randomized controlled trials (RCTs) of nonpharmacological and CIH interventions specifically targeting menopause-related symptoms published between 2010 and 2024. We used an online platform (Covidence) to manage the scoping review. After review by two team members, 367 abstracts were selected for full text review. Of those, 225 were selected for extraction. Two reviewers extracted data from each paper, and consensus was established by one analyst following team discussion of discrepancies. Once data extraction was complete, five analysts summarized: 1) types of interventions tested to address each symptom category (e.g., quality of life, depression and anxiety, VMS, genitourinary problems, sleep problems) and 2) trends in outcomes. Efficacy was defined as reporting statistically significant positive change in outcomes. **Results:** Our analysis included RCTs addressing the following symptoms: VMS (n=64), sleep disturbances (n=73), general menopause symptoms (n=69), genitourinary symptoms (n=35), and psychological changes (quality of life (n=101), depression

(n=58), anxiety (n=45), and other emotional health (n=48)). Most (55%) interventions targeted more than one symptom. Of the 64 RCTs addressing VMS, more than half of the interventions featuring acupuncture/acupressure (n=16), cognitive behavioral therapy (CBT) (n=15), and exercise (n=10) had promising results. Of note, only three of six yoga interventions were found to be effective for alleviating VMS. Of the interventions designed to address sleep disturbances and/or general menopause symptoms (n=142), exercise (n=41), CBT (n=22), and acupressure/acupuncture (n=28) were the most common, and overwhelmingly improved both sets of symptoms. For studies addressing genitourinary concerns (e.g., incontinence, sexual health), interventions using pelvic floor physical therapy (n=16), exercise (n=7), and CBT (n=6) improved symptoms. While many interventions improved quality of life, exercise (n=41), CBT (n=12), and yoga (n=12) were consistently successful. Interventions addressing depression included exercise (n=13), CBT (n=15), and acupuncture (n=9). Nearly 70% of these studies were successful in improving depression. The majority of interventions demonstrated no improvement on menopause-related anxiety symptoms, although there was some support for CBT and mindfulness/meditation. Interventions addressing other emotional health included exercise (n=14), mindfulness/meditation (n=10), and yoga (n=6). Of these, 74% improved symptoms (e.g., perceived stress, overall mood, fatigue). **Conclusion:** This review provides a growing evidence base for nonpharmacologic and CIH interventions supporting midlife women's health and well-being. A range of interventions have been tested and found to efficaciously address menopause symptoms. Further research must address ways to increase accessibility of these types of interventions as part of integrated healthcare options for midlife women.

Sources of Funding: Iowa City VRHRC

P-71.

Effects of of Extract from the Herbal Mixture *Cynanchum wilfordii* Hemsley, *Phlomis umbrosa* Turczaninow, and *Angelica gigas* Nakai on Physical Fatigue and Oxidative Stress: *In Vivo* and *In Vitro* Investigations

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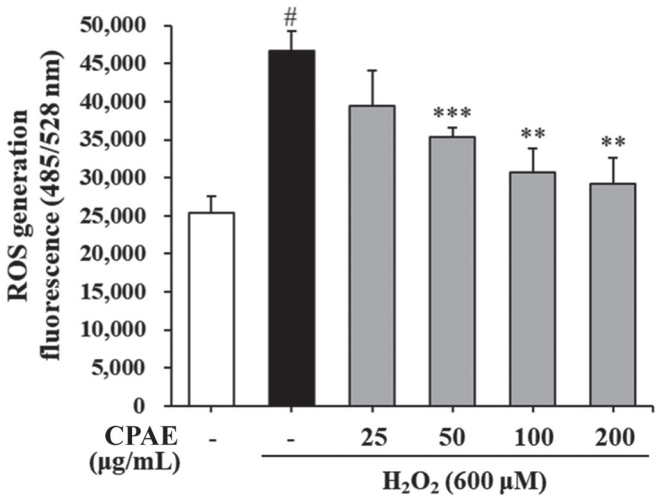
Objective: To evaluate the anti-fatigue effects of CPAE and elucidate its underlying mechanisms related to oxidative stress and energy metabolism. **Design:** *In vitro* studies used C2C12 myoblasts under H_2O_2-induced oxidative stress to assess cell viability, ATP production, and reactive oxygen species (ROS) generation after CPAE treatment. *In vivo*, ICR mice were orally administered CPAE 50 or 200 mg/kg for 14 days and subjected to a forced swim test (FST). Serum lactate, lactate dehydrogenase (LDH) activity, intramuscular glycogen content, hepatic antioxidant enzyme activities such as CAT, SOD, GST, glutathione (GSH), and malondialdehyde (MDA) levels were measured. mRNA expression of muscle energy metabolism genes was analyzed by qPCR. **Results:** Menopausal fatigue is a common symptom that affects the quality of life and ability to work for mid-aged women. CPAE, a standardized extract of *Cynanchum wilfordii* Helmsley, *Phlomis umbrosa* Turczaninow, and *Angelica gigas* Nakai, has shown clinical benefits for menopausal symptoms, but its mechanism for alleviating fatigue has remained unclear. CPAE significantly improved cell viability, increased ATP levels, and reduced ROS generation in C2C12 cells exposed to oxidative stress. In mice, CPAE showed a tendency to prolong swimming endurance, significantly reduced serum LDH activity, preserved muscle glycogen, and upregulated PPAR-δ and UCP3 expression. Hepatic antioxidant enzyme activities such as CAT, SOD, GST and GSH levels were significantly increased, while MDA levels were reduced, indicating protection against oxidative damage. In addition, CPAE has demonstrated significant efficacy in improving menopausal symptoms in multiple clinical trials. The ingredient showed remarkable improvements in hot flashes, insomnia, fatigue, vaginal dryness, and mood disturbances, addressing up to 10 individual symptoms without affecting serum estradiol, FSH, or endometrial thickness, thereby confirming its non-hormonal mode of action. The findings that CPAE reduces physical fatigue and oxidative stress provide mechanistic support for the clinical results of improving menopausal fatigue symptoms without hormonal effects. **Conclusion:** CPAE alleviates physical fatigue by enhancing antioxidant defenses mechanisms and improving muscle energy metabolism. These findings, combined with its clinically proven non-hormonal efficacy in menopausal management, suggest that CPAE may serve as a promising natural alternative for managing menopausal fatigue.

Sources of Funding: Naturalendo Tech. Co., Ltd



P-72.

International insights on psychological symptoms during perimenopause: A global perspective from the Flo app

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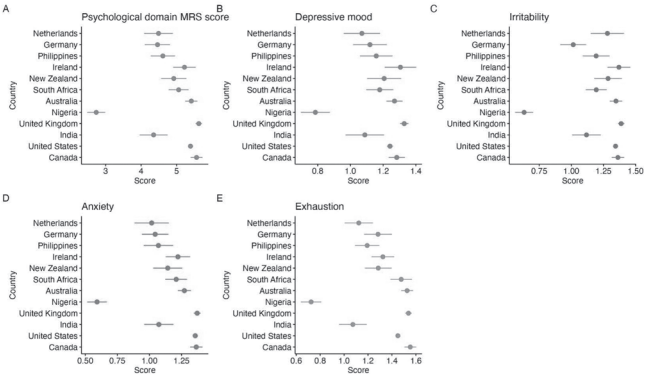
Objective: Perimenopause is the time leading up to and including the first 12 months after the final menstrual period. There are known psychological health impacts during this time. Using international survey data from the Flo app, we sought to evaluate differences in the psychological domain of the Menopause Rating Scale (MRS) by respondent country location. **Design:** This study included English-speaking users of the Flo app, age 35 and over. The validated instrument, MRS, was used to evaluate symptom severity. Individuals on hormonal contraception were excluded. To assess psychological symptoms, scores from the psychological domain of the MRS as well as each symptom within this domain (depressive mood, irritability, anxiety, and fatigue/exhaustion) were included. Higher scores represented greater severity of symptoms. Statistical analysis was performed using ANOVA, with p values <0.05 considered significant. **Results:** A total of 7,640 Flo app users (mean age 41.3 years, SD 5.0 yrs), completed the survey. Symptoms were grouped by respondents' country to evaluate for significant international variability. Data from 5,004 respondents representing 12 countries and 5 continents were included, with significant differences between locations (p values <0.001). Nigeria had the lowest MRS psychological symptom domain scores (mean 2.7), and India the second lowest (mean 4.6). Countries with scores at or above the global mean were Australia (mean 5.5), Canada (mean 5.5), United Kingdom (mean 5.6), and United States (mean 5.4). **Conclusion:** This global survey revealed differences in psychological symptom scores during perimenopause across countries and continents, with lower MRS psychological symptom domain scores observed in Africa and Asia compared with North America, Europe, and Oceania. The reasons for these differences are unclear. Potential contributors include cultural perceptions, health literacy, and social determinants of health. Leveraging digital applications offers a unique opportunity to gather global insights on perimenopause.

Sources of Funding: None

Figure

A) MRS psychological domain symptom score and B-E) individual symptom scores, by Country.



A) Psychological domain MRS score includes the individual symptoms of Anxiety, Depressive mood, Exhaustion, irritability, B) Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings), C) Irritability (feeling nervous, inner tension, feeling aggressive), D) Anxiety (inner restlessness, feeling panicky), E) Exhaustion (physical and mental exhaustion, general decrease in performance, impaired memory, decrease in concentration, forgetfulness).

P-73.

The productivity toll of perimenopause: Quantifying how symptom severity affects workplace productivity

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Objective: Perimenopausal women make up a significant portion of the workforce. They are often in the prime of their careers, yet menopause-related symptoms remain a stigmatized and under-recognized driver of productivity loss. While studies increasingly acknowledge the economic toll of menopause symptoms, most have focused on postmenopausal women and their vasomotor symptoms. Far fewer have examined the impact of symptoms during perimenopause, or disentangled which symptom domains — somatic, psychological, or urogenital — are most predictive of absenteeism and presenteeism. This study examines work impairment across menopausal status and symptom severity, identifies symptom domains most predictive of work impairment, and estimates the productivity loss associated with perimenopause. **Design:** We conducted a cross-sectional survey via the Prolific platform between February and March 2025. Participants were U.S.-based women aged 35–59 (n=1,466). Those with certain medical conditions or not in paid employment were excluded from the analysis, resulting in a final analytical sample of 945, with a mean age of 45.5 (SD = 5.3). We measured symptom severity with the Menopause Rating Scale (MRS) and work impairment with the Work Productivity and Activity Impairment (WPAI) scale. We compared work impairment by self-reported menopause status and symptom severity and used multivariable linear regression to assess which symptom domains are most influential. We also estimated individual- and society-level productivity losses attributable to perimenopause using the human capital approach. **Results:** Perimenopausal women reported the highest work impairment (Figure 1, panel A) with a mean work impairment of 22.5%, compared with premenopausal (12.7%), and postmenopausal (16.9%) women. Work impairment also increased with symptom severity (Figure 1, panel B): women with minimal symptom burden reported an average impairment of 3.4%, compared with mild (9.7%), moderate (16.7%), and severe symptoms (33.4%). From the regression analysis, we found somatic symptoms to be the strongest predictor of work impairment ($\beta = 2.44$, 95% CI: 1.81–3.07, $p < 0.001$), followed by psychological symptoms ($\beta = 1.28$, 95% CI: 0.80–1.76, $p < 0.001$), adjusted for age, BMI, education, and ethnicity. The effects of urogenital symptoms on work impairment appeared to be non-significant ($\beta = 0.36$, $p = 0.27$). The annual productivity loss for a typical woman in perimenopause (aged 44–54, earning the median salary) was estimated at $6,080, amounting to a societal burden of $49.2 billion per year. **Conclusion:** These findings indicate that women's work productivity takes a toll due to symptom burden during perimenopause — particularly those symptoms in the somatic and psychological domains. Employer-led support could be one way to address this, bolstering workforce resilience and productivity while reducing symptom burden—with the potential to reduce billions in productivity losses.

Sources of Funding: Flo Health

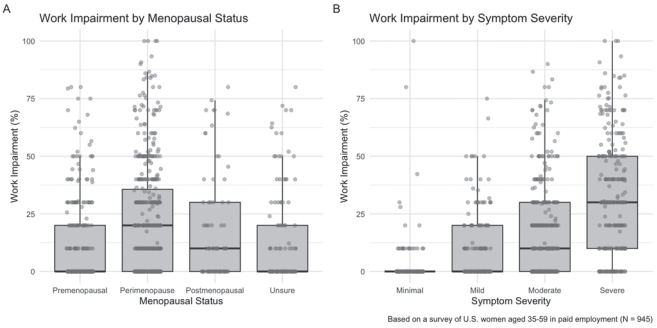

Figure 1 - Work impairment by menopausal status and symptom severity

P-74.

Provider Experiences of AI-Led Menopause Consultations. Is it too good to be true?

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Objective: We report on the operational performance, workflow integrity, and user satisfaction of a novel asynchronous care model for menopause: an AI-first clinical interview that hands off to a licensed clinician for treatment planning. This model aims to rapidly scale access to menopause care while maintaining trust, accuracy, and continuity of care. **Design:** We analyzed patient activity and operational outcomes from the early access launch of a digital menopause platform. We developed a custom-trained large language model (LLM), which conducts structured health interviews and generates consult transcripts, which are reviewed by physicians for prescription and plan approval. Mixed-method data sources included survey responses (n=14), user feedback forms (n=8), support email threads (n=24), and live user sessions. **Results:** 77% of early access users completed a consult, and of these, 80% reported satisfaction with the full process. The platform handed AI-led intakes independently in most cases, generating clear, relevant documentation of patient history, HRT goals, and symptom severity. All chat users reported satisfaction, and 71% of total users rated the app as "trustworthy" and "valuable." Clinician handoff was operationally successful: licensed providers reviewed the AI's output and finalized prescriptions in most cases without requiring follow-up clarification. Time-to-plan averaged 5-10 minutes. No safety issues or inappropriate treatment recommendations were identified in audit. Operational friction emerged primarily at the edges of the workflow: for example, 33% of support emails were related to prescription logistics (insurance coverage, prior auth, pharmacy access). Overall, the model proved durable and consult conversion was high, AI accuracy acceptable, and clinician oversight well-integrated. The division of labor of a system where the AI gathers data, and then the MD approves creates a scalable system that minimizes redundancy. **Conclusion:** An AI-led, clinician-reviewed consult model can effectively deliver high-quality, trusted menopause care at scale. Operational data from this early access launch show strong consult completion, high patient satisfaction with minimal physician burden, and successful integration of AI intake into clinical workflows. This model offers a viable template for redesigning chronic care delivery in and beyond menopause.

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Overall Satisfaction

Extremely Satisfied	Somewhat Satisfied	Neither dissatisfied nor satisfied	Somewhat Dissatisfied	Extremely Dissatisfied
6 (46%)	2 (15%)	1 (8%)	0	1 (8%)

80% satisfied, with six "Extremely satisfied.

P-75.

The Effect of Acute Exercise and Physical Activity on Awakenings in Perimenopausal Women.

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Objective: Sleep disruptions and hot flashes (HF) are common symptoms of menopause that have a substantial impact on quality of life. Waking after sleep onset (WASO) increases during perimenopause and can be associated with HF, although the degree to which HF leads to awakenings is equivocal. Physical activity (PA) has known benefits to sleep but it is unclear how it may influence this specific population. The objectives of this analysis were to use actigraphy and sternal skin conductance to 1) determine whether an acute bout of exercise influences awakenings and 2) investigate whether the difference in awakenings between an exercise and no-exercise condition was associated with habitual PA in healthy perimenopausal women. **Design:** 35 healthy, perimenopausal people aged 43-54 were included in this analysis. Perimenopause was determined using STRAW+10 criteria. Participants had not been taking hormone therapy or any other medications that influence HF for at least six months. Participants underwent two 24 hour monitoring periods of concurrent wrist-worn actigraphy and a HF monitoring. During the first condition, participants were instructed not to engage in any structured physical activity (NE). Prior to the second condition, participants exercised for 30 minutes at 64-76% of their HR max on a treadmill in the lab (EX). Monitoring periods that included at least one objective HF during either sleep period were included for analysis. Objective HFs were assessed via sternal skin conductance. HFs were defined by a ≥2umho increase in skin conductance over 30s and/or a distinctive HF pattern. Participants underwent a separate 7-day monitoring period of wrist-worn actigraphy to assess habitual PA. Activity and awakenings were assessed using GGIR, an R package designed to process raw accelerometer data (GGIR version 3.2-6, R version 4.5.1 (2025-06-13)). Activity was classified into average minutes of light, moderate, and vigorous activity using standard GGIR thresholds for activity. Objective sleep time was calculated using GGIR's HDCZA algorithm. An objective awakening was classified according to the Van Hees 2015 algorithm as a change in z angle that is 5% different from mean z angle during the sleep window for longer than 30 seconds. A HF was considered to be associated with an awakening if it occurred in the 10 minutes before or after the awakening. A Wilcoxon-Pratt Signed-Rank Test was used to test for differences between types of awakenings and exercise condition. Spearman and Pearson correlations were used to test for linear correlation between levels of activity and awakenings. **Results:** Participants were 49.4±2.6 years old, with a mean BMI of 25.4±4.4 kg/m2. Participants had normal blood pressure (111.6±11.2/ 70.6±7.5 mmHg) and total cholesterol (186.1±25 mg/dl). The average WASO was 1.05±0.80 hours. There were 1014 total awakenings and 149 total hot flashes across all monitoring periods. In the NE condition, participants experienced an average of 14.34±5.9 (513 total) awakenings with 1.9±2.0 (65 total, 14.5%) awakenings associated with a HF. In the EX condition, participants experienced an average of 14.6±4.2 (501 total, 9.8%) awakenings, with 1.3±1.9 (45 total) awakenings associated with a HF. There was no significant difference between total awakenings or those associated with a HF between the NE and EX condition ($p=0.14$). The difference in total awakenings between the two conditions was significantly correlated with minutes of moderate PA ($R=0.35$, $p=0.042$) and a trend for significance was found between the difference in total awakenings between the conditions and minutes of light PA ($R=0.3$, $p=0.078$). There were no relationships between changes in awakenings associated with HF between NE and EX condition and physical activity. **Conclusion:** Hot flashes were associated with awakening to a lesser extent than others have reported. While acute physical activity did not influence awakenings, there may be interactions between acute exercise and habitual physical activity on nocturnal awakening in perimenopausal women.

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P-76.

Associations Between Vasomotor Symptoms and Cardiovascular Autonomic Activity across a Stress Provocation Paradigm in Midlife Women

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Objective: Vasomotor symptoms (VMS) affect up to 85% of women and persist for 7- 9 years on average. Evidence indicates a link between VMS and increased cardiovascular disease (CVD) risk, but the underlying mechanisms remain incompletely understood. This study aimed to investigate cardiovascular autonomic mechanisms potentially linking VMS to CVD risk, by examining associations between indices of cardiovascular autonomic activity and VMS in healthy midlife women. **Design:** Healthy peri- and postmenopausal women (n=86; mean age ± SD = 55.3 ± 4.6 years; n=66 with VMS; n=20 without VMS) completed daily VMS diaries for two weeks prior to a completing a stress provocation paradigm. The provocation paradigm used to elicit stress responses was comprised of a combined standardized social-evaluative and autonomic stressor [combined Montreal Imaging Stress Task (MIST) and Maastricht Acute Stress Test (MAST)]. Perceived stress on a Visual Analogue Scale (VAS; 0-100, higher scores indicating more perceived stress) and cardiovascular autonomic function via heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP) were measured before (pre-stressor) and after (post-stressor) the MIST-MAST. Group differences in stress responses and cardiovascular autonomic activity (pre-, post-, and change across the stress provocation paradigm) between women with and without VMS were evaluated using Student's *t*-tests for parametric data and Wilcoxon rank-sum tests for non-parametric data. **Results:** A significant increase in VAS scores from pre- (mean ± SD: 30.9 ± 24.0) to post-stressor provocation (56.3 ± 29.8; z = -7.8, $p<0.001$) was observed, indicating that the task was perceived as acutely stressful in the group overall. There was no difference between VMS groups in the VAS response ($p=0.36$). Compared to women without VMS, those reporting VMS demonstrated significantly higher pre-stressor DBP (VMS+: 70.4 ± 9.3 mmHg vs. VMS-: 65.2. ± 7.7 mmHg; t (83) = -2.24, $p=0.03$). There was a trend toward higher pre-stressor HR in those with VMS relative to those without (VMS+: 74.6 ± 11.7 bpm vs. VMS-: 68.9 ± 13.6 bpm; t (83) = -1.8, $p=0.08$). Post-stressor HR was significantly elevated in women with compared to without VMS (VMS+: 71.1± 10.5 bpm vs. VMS-: 64.1 ± 9.0 bpm; t (82) = -2.7, $p=0.01$), a difference that remained statistically significant after adjusting for pre-stress HR (t (81) = 1.9, $p= 0.049$). There was no significant VMS group difference in DBP post-stressor, nor in SBP at either time point, or within-person change values. **Conclusion:** Our findings indicate that women with VMS have greater cardiovascular autonomic activation after an acute stress provocation paradigm in which perceived stress increased significantly in response to a robust stress provocation challenge in both those with and without VMS. We observed a higher post-stressor HR in those with versus without VMS, a finding which may reflect higher levels of sympathetic nervous system activity. This between-group HR difference occurred after a statistically significant higher pre-stressor DBP and a statistical trend in pre-stressor heart rate elevation, possibly reflecting greater sympathetic activation in anticipation of the provocation paradigm among the VMS group. Analyses of other stress biomarkers are ongoing. Altered cardiovascular autonomic activity may represent a potential mechanism linking VMS to increased CVD risk in midlife women.

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P-77.

Impact of semaglutide 2.4 mg and oral semaglutide 25 mg on QoL in women with obesity: A *post hoc* analysis of the STEP and OASIS programs by menopausal status

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Objective: In the pivotal phase 3 STEP and OASIS 4 trials, once-weekly (OW) subcutaneous (s.c.) semaglutide (sema) 2.4 mg and once-daily (OD) oral sema 25 mg led to clinically meaningful weight loss in individuals with overweight/obesity. This *post hoc* analysis investigated the impact of sema on quality of life (QoL) by menopausal status among women in the STEP and OASIS 4 trials. **Design:** Female participants (pts) with body mass index ≥30 kg/m^2, or ≥27 kg/m^2 with ≥1 obesity-related complications, excluding diabetes, who received OW s.c. sema 2.4 mg for 68 weeks (wk) in STEP 1, 3, 4, and 9, or OD oral sema 25 mg for 64 wk in OASIS 4, were stratified by menopausal status based on response to "Has the participant gone through menopause?", medical history, and age. Pts in the pre-menopause group responded "No", had no medical history of menopause, and were aged <45 years (yr); those in the peri-menopause group responded "No", had no medical history of menopause, and were aged 45–54 yr; those in the post-menopause group responded "Yes", had documented history of menopause, or were aged ≥55 yr. Changes from baseline (BL) to treatment end were assessed for Impact of Weight on Quality of Life-Lite Clinical Trials Version (IWQOL-Lite-CT; STEP 1, OASIS 4), Short Form-36v2 Health Survey acute version (SF-36v2; STEP 1, 3, 4), International Consultation of Incontinence Questionnaire Urinary Incontinence Short Form (ICIQ-UI SF; STEP 1), and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC; STEP 9). Safety was also assessed. Analyses used an intention-to-treat approach; data are summarized descriptively. **Results:** The analysis included 1926 pts from the STEP trials (pre-menopause, n=785; peri-menopause, n=373; post-menopause, n=768) and 151 from OASIS 4 (n=68; n=33; and n=50, respectively). The proportions of pts with pre-, peri-, and post-menopause using menopause hormone therapy and/or contraceptives at BL were 45.4%, 33.2%, and 13.3% in the STEP trials, and 48.5%, 48.5%, and 8.0% in OASIS 4, respectively. In STEP 1, mean IWQOL-Lite-CT Physical Function composite scores improved from BL across all groups (pre- +15.6 [BL 68.1], peri- +15.9 [63.5], post- +15.8 [61.5]). Improvements from BL were also reported in OASIS 4 (pre- +16.0 [BL 58.2], peri- +21.8 [54.2], post- +17.6 [55.7]). The proportions of pts achieving a clinically meaningful within-participant change (MWPC) in Physical Function score (≥14.6 points from BL) were 54.5%, 49.1%, and 52.6% in STEP 1 and 57.1%, 60.7%, and 54.2% in OASIS 4, respectively. For Psychosocial score (MWPC ≥16.3 points from BL), the proportions were 55.8%, 53.9%, and 52.9% in STEP 1 and 63.5%, 67.9%, and 70.8% in OASIS 4, respectively. In STEP 1, 3, and 4, improvements from BL were seen in SF-36v2 Physical Component Summary scores (pre- +3.0 [BL 52.3]; peri- +2.5 [51.6]; post- +2.6 [50.4]), but not Mental Component Summary scores (pre- −1.4 [BL 54.8]; peri- −1.4 [55.7]; post- −1.6 [57.0]). In STEP 1, the proportion of pts reporting ≤1 urinary incontinence episode/wk on the ICIQ-UI SF at wk 68 in those with ≥1 episode/day at BL was lowest in the post-menopause group (35.6% vs pre- 41.5%, peri- 40.9%). In STEP 9, more pts in the post-menopause group achieved a MWPC (≤−37.3 from BL) in WOMAC pain score (69.5%) vs the other groups (pre- 50.0%; peri- 53.6%). For all trials, the safety of sema was consistent across the 3 groups; most adverse events were gastrointestinal. **Conclusion:** Sema was associated with substantial, clinically meaningful improvements in weight-related QoL, regardless of menopausal status, in women with overweight/obesity in the STEP and OASIS 4 trials.

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P-78.

Persistent Burden of Sleep Disturbances and Vasomotor Symptoms in Women Experiencing Menopause: Associations with Health-Related Quality of Life

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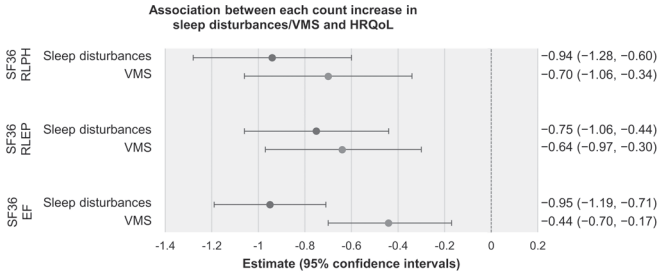
Objective: To determine associations between persistent sleep disturbances and vasomotor symptoms (VMS) with health-related quality of life (HRQoL) in women experiencing menopause. **Design:** We used data from the first 11 annual follow-up visits (1999–2008) in the Study of Women's Health Across the Nation from the United States (SWAN). For two separate analyses, we included women who provided information on self-reported sleep disturbances (waking up several times a night/trouble falling asleep/ waking up earlier than planned on ≥3–4 nights/week in the past 2 weeks [yes/no]) at every study visit (N=1176), or hot flashes/night sweats on ≥1–5 days in the past 2 weeks (yes/no) at every study visit (N=1159). HRQoL for each woman was based on mean scores across visits on each of three Short-Form Health Survey (SF-36) subscales: role limitations due to physical health (RLPH), role limitations due to emotional problems (RLEP), energy/fatigue (EF), where scores range from 0–100 with higher scores equating to better HRQoL. We counted the number of visits at which each woman self-reported experiencing VMS/sleep disturbances, and evaluated (i) correlations with HRQoL quantified using Spearmann's coefficient, rho (ρ) ii) associations with HRQoL using linear regression models adjusted for confounders, including socio-demographics, mental health, and lifestyle factors. **Results:** Women reported sleep disturbances at a mean 6.8 (SD±3.6) visits and VMS at a mean 5.8 (SD±3.4) visits. Both VMS and sleep disturbances were negatively correlated with HRQoL (sleep disturbances, (ρ) −0.34 [EF], −0.26 [RLEP], and −0.26 [RLPH]; for VMS, (ρ) −0.20 [EF], −0.23 [RLEP], and −0.23 [RLPH]. As shown in the **Figure**, in the regression model for sleep disturbances, for every one count increase in the number of visits with sleep disturbances, HRQoL scores decreased (by a mean 0.94 points [RLPH], mean 0.75 points [RLEP], and mean 0.95 points [EF]). For VMS, for every one count increase in the number of visits with VMS, HRQoL scores decreased (by a mean 0.70 points [RLPH], mean 0.64 points [RLEP], and mean 0.44 points [EF]). Among covariates, high anxiety and low income had the strongest associations with worse HRQoL across SF36 subscales in both models; for high anxiety the strongest associations were seen for RLEP, and for low income the strongest associations were seen for RLPH. **Conclusion:** Our results suggest that among women in menopause transition, persistence of either sleep disturbances/VMS is associated with worse outcomes related to HRQoL. Continual monitoring and clear communication between women experiencing menopausal symptoms and healthcare practitioners is needed for effective symptom management to mitigate reductions in HRQoL.

Sources of Funding: Bayer AG



*Adjusted for age at the final menstrual period, body mass index, race/ethnicity, college level of education, anxiety, scores on the CESD scale, smoking, annual family income, comorbidity status, and use of testosterone.

Note: Estimates show decrease in HRQoL

CESD, Center for Epidemiologic Studies Depression; HRQoL, health-related quality of life; SF, short form; VMS, vasomotor symptoms

Figure. Association between number of visits with self-reported sleep disturbances/vasomotor symptoms and health-related quality of life in the Study of Women's Health Across the Nation.

P-79.

The Experiences of Mid-Life Active Duty Service Women Accessing Treatment for Menopausal Symptoms: A Pilot Study

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Objective: The transition into menopause can be a difficult phase of life for many women. During this time, women may experience menopausal symptoms, which vary in severity and duration, while still balancing their career and family obligations. Approximately 13,000 active duty-service women (ADSW) in midlife face the challenge of needing to meet high demand physical and mental requirements, however menopausal symptoms due to hormonal changes may make sustaining high-level performance difficult. Hormone therapy has been shown to relieve menopausal symptoms, but the prevalence of hormone therapy among ADSW is only 9.5% among eligible ADSW. This is the first study to explore the experiences of mid-life ADSW during the menopausal transition and postmenopausal periods, aiming to better understand their lived experiences and the barriers they face in accessing care for menopausal symptoms. **Design:** We conducted qualitative key informant interviews with mid-life ADSW in the Army, Air Force, Navy, Marine Corps, and Space Force between ages 40-60. Interviews were conducted between January-March 2025, until thematic saturation was reached. One researcher conducted the interview, and another recorded responses. We utilized a semi-structured key informant interview guide adapted from the literature. We modified this tool to specifically investigate the experiences of ADSW. The interview guide included open-ended questions aimed at eliciting detailed narratives about participants' symptoms, efforts to obtain treatment, and barriers encountered within the Military Health System. Inductive thematic analysis was conducted using NVivo. **Results:** We conducted 38 virtual interviews. Participants reported feeling ignored and dismissed by providers and felt that providers were unfamiliar with menopausal symptoms and treatment and unable to provide adequate guidance. They expressed a need to advocate for themselves to receive care and being inappropriately referred to behavioral health for menopausal symptoms. Participants identified barriers to care including difficulty getting an appointment, lack of continuity of care due to duty station changes, and difficulties getting their preferred treatment covered, which led some to seek care outside of the Military Health System. Participants also described experiencing detrimental impacts to both their personal and professional lives due to their menopausal symptoms, such as decreased self-esteem and challenges coping with symptoms at work. Four overarching recommendations were made by participants: provide menopause-specific healthcare, increase provider education, add menopause content to the Periodic Health Assessment, and implement weight standard considerations for menopausal ADSW. **Conclusion:** This is the first study of the lived experience of ADSW in midlife and the impact of menopausal symptoms on career, family, and operational readiness. Our results indicate a lack of information and resources regarding menopause for both ADSW and their clinicians and underscores a need for access to menopause-specific care to optimize operational readiness and wellbeing of ADSW.

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P-80.

Better Sleep for women experiencing menopause: Early and Sustained Effects of Elinzanetant

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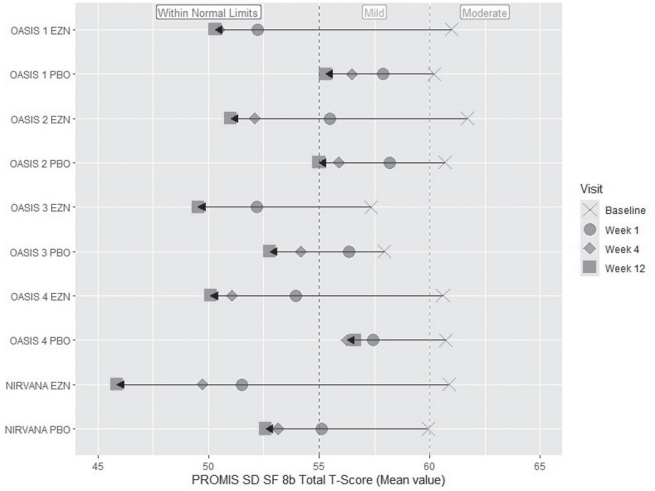
Objective: To evaluate the onset of action, clinical relevance, and consistency across five clinical trials of elinzanetant (EZN) 120mg in addressing sleep disturbances in women with vasomotor symptoms (VMS) **Design:** Sleep-related outcomes were assessed using PROMIS Sleep Disturbance Short Form 8b (PROMIS SD SF 8b) total T-scores at baseline and week 1 from OASIS-1 (n=396), OASIS-2 (n=400 women), OASIS-3 (n=628), OASIS-4 (n=474), and NIRVANA (n=110). OASIS-1, -2 and -3 enrolled naturally or surgically postmenopausal women, aged 40–65 years, with moderate-to-severe VMS. OASIS-1 and -2 required a VMS frequency of ≥50 per week. OASIS 3 did not require a minimum VMS frequency. OASIS 4 included women aged 18–70 years receiving endocrine therapy for HR+ breast cancer with ≥35 moderate-to-severe VMS per week. NIRVANA included women with menopause-related sleep disturbances and ≥20 moderate-to-severe VMS per week. In all studies, participants were randomized to receive EZN or placebo (PCB). A T-score of 50 (SD=10) represents the average value in a mixed general population and clinical sample, scores <55 are considered within normal limits. Scores from 55–60 reflect mild sleep disturbances, and scores >60 reflect moderate sleep disturbances, based on established cut-points. **Results:** Baseline PROMIS SD SF 8b T-scores across studies ranged from 57.4 to 61.7, indicating moderate sleep disturbances (Fig 1). By week 1, EZN-treated women showed consistent and greater numerical reductions in sleep disturbances compared to PCB across all studies, with all patients moving to mild or normal range. EZN-treated women had mean PROMIS SD SF 8b T-scores ranging from 51.5 to 55.5 at week 1, while PCB-treated women had mean scores ranging from 55.1 to 58.2. By week 2, EZN reduced mean PROMIS SD SF 8b T-scores to values ≤55 in all trials. Numerical improvements were sustained through week 12, while PCB-treated women showed smaller numerical reductions and did not reach normal limits at weeks 1 and 2. **Conclusion:** EZN led to rapid and consistent numerical improvements in sleep disturbances, with benefits observed within one week across five trials. There was a higher T-score improvement (change in scores) with EZN treatment compared to PCB. These consistent findings highlight EZN's potential to effectively and quickly address menopause-related sleep disturbances.

Sources of Funding: Bayer



P-81.

Evaluating patient-reported sleep outcomes in the NIRVANA study of elinzanetant

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Objective: The pilot phase 2 NIRVANA trial explored the effects of elinzanetant, a dual neurokinin-targeted therapy that blocks both NK-1 and NK-3 receptors, on sleep disturbances and vasomotor symptoms (VMS) in postmenopausal women, using clinical outcome assessments, including patient-reported outcomes (PROs) to assess treatment-related changes. **Design:** A total of 110 postmenopausal women (mean age 55 years) experiencing ≥20 moderate-to-severe VMS and sleep disturbances (defined as self-reported symptoms and wakefulness after sleep onset [WASO] ≥30 minutes as measured

by polysomnography) were randomized to receive elinzanetant 120 mg (n=55) or placebo (n=55) once daily for 12 weeks. PROMIS Sleep Disturbance Short Form 8b (PROMIS SD SF 8b) and Insomnia Severity Index (ISI) were collected as secondary endpoints to assess sleep disturbance, with higher scores indicating greater sleep disturbances. Data from a daily sleep diary (SD) tracking nighttime awakenings was also collected as an exploratory endpoint. All measures were assessed at baseline, weeks 4, and 12, and data were analyzed descriptively. **Results:** Baseline mean (SD) PROMIS SD SF 8b total T-scores were 60.88 (5.44) in the elinzanetant group and 59.93 (5.54) in the placebo group, indicating moderate sleep disturbances according to the PROMIS SD SF 8b total T score classification established in a reference population. Mean (SD) change differences from baseline in PROMIS SD SF 8b total T-scores were greater in the elinzanetant group compared with placebo at both Week 4 (-11.17 [8.04] vs. -6.59 [6.76]) and Week 12 (-14.66 [9.36] vs. -6.65 [8.29]). Baseline ISI scores indicated moderate insomnia severity (mean [SD]: 17.2 [4.8] for elinzanetant; 16.1 [4.3] for placebo). Mean (SD) reductions from baseline in ISI scores were observed at Week 4 (-7.8 [6.0] in the elinzanetant group versus -4.7 [4.8] in the placebo group) and Week 12 (-9.8 [6.4] versus -6.9 [5.6]). At Week 12, mean (SD) ISI total scores were 7.6 (5.9) in the elinzanetant group and 8.8 (5.6) in the placebo group, corresponding to mild insomnia severity. Sleep diary data showed a reduction in mean daily wakefulness after sleep onset (WASO) from baseline to Week 12 with elinzanetant (42.41 [25.66] to 23.47 [22.79] minutes) and with placebo (45.47 [25.60] to 28.99 [23.44] minutes). **Conclusion:** In this pilot study, elinzanetant was associated with consistent improvements in sleep disturbances across multiple PRO measures in postmenopausal women with VMS. The magnitude of improvement at Week 12 in PROMIS and ISI scores in NIRVANA was comparable to or exceeded that observed in the OASIS phase 3 studies. These findings support the potential of elinzanetant in improving symptoms of sleep disturbance in menopausal women.
Sources of Funding: Bayer CC AG, Basel, Switzerland

P-82.
Accuracy of Patient Self-Reported Menopause Stage: A Cross-Sectional Study

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Objective: To evaluate the accuracy of patient self-reported menopause stage among midlife U.S. women. **Design:** This cross-sectional analysis from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS) included women aged 40-65 years who presented to women's health clinics at one of three Mayo Clinic sites from December 2016 to September 2019. Patients self-reported their menopause stage (pre-, peri-, postmenopausal or unsure) while clinician-determined stage (pre-, peri-, postmenopausal, or unknown) was assessed by menopause-trained specialists using a standardized form. Only women with both self- and clinician-reported menopause stage were included in the analysis. **Results:** A total of 3,204 women with a mean age 53.5 ± 6.2 years were included, with the majority being white (91%), educated (94%, with at least some college education) and married/partnered (84%) (Table). Overall, 323 (10%), 643 (20%), 1,181 (37%), and 1,057 (33%) women self-reported being pre-, peri-, postmenopausal, or unsure, respectively. The patient-reported and clinician-determined menopause stage classifications aligned in only about half of cases (54%). Notably, one in three women (n=1,057, 33%) reported being unsure of their menopause stage, while just 175 (6%) were classified as unknown by their clinicians. Of the women who self-reported being unsure of their menopause stage, 964 (91%) were classified as postmenopausal by their clinicians. In a subset of women aged 45–55 years (n=1,672), the agreement between clinician and self-report was 53% (n=891), with the highest concordance for postmenopausal stage (47%). **Conclusion:** These findings highlight significant discrepancies between patient-reported and clinician-determined menopause stages, underscoring a lack of awareness among women regarding their menopause status. This gap may result in missed opportunities for timely and appropriate interventions for care.
Sources of Funding: None

Agreement between patient self-reported and clinician-reported menopause stage classifications

		Patient self-reported menopause stage				Total
		Pre-	Peri-	Post-	Not Sure	
Clinician-reported menopause stage	Premenopausal	166	43	2	28	239
	Perimenopausal	108	462	16	65	651
	Postmenopausal	8	79	1088	964	2139
	Unknown stage	41	59	75	0	175
Total		323	643	1181	1057	3204

P-83.
Documentation of Menopause-Related International Classification of Diseases Codes in the Electronic Health Record in Midlife Women with Menopause Symptoms

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Objective: To assess the documentation of menopause-related International Classification of Diseases-10 (ICD-10) codes in the electronic health records (EHR) of midlife women with moderate or greater menopause symptoms and to determine the association of ICD-10 coding and menopause treatment utilization. **Design:** This cross-sectional study used data from the Hormones and Experiences of Aging (HERA) cohort. Women aged 45–60 years receiving primary care at one of four Mayo Clinic sites were invited to complete a survey between March 1 and June 30, 2021. The survey captured demographic information, menopause symptoms using the Menopause Rating Scale (MRS), healthcare utilization, and menopause treatment. Women with an MRS total score ≥12 were classified as having moderate or greater symptom burden and included in the analysis. The primary outcome was documentation of a menopause-related ICD-10 diagnosis code in the EHR within 12 months prior to survey completion. Statistical analyses were conducted using descriptive statistics, t-tests, Wilcoxon rank sum tests, and Chi-square tests ($p<0.05$ was statistically significant). **Results:** Of 32,469 surveys sent, 4,914 (15%) were completed, and of those, 2,414 (49%) women had an MRS score ≥12. Among those, 1,519 (63%) sought care for menopause-related symptoms in the prior 12 months, but only 345 (23%) had a menopause-related ICD-10 code documented in the EHR. Women with a menopause-related ICD-10 code had significantly higher total MRS scores (18 [IQR: 14–22] vs. 17 [IQR: 14–20]; p=0.002) and were more likely to use systemic hormone therapy (HT) (26% vs. 9%; p<0.001), vaginal HT (20% vs. 6%; p<0.001), and compounded bioidentical HT (3.4% vs. 1.5%; p=0.007) compared to those without a code. Non-hormone treatments such as antidepressants (20% vs. 11%; p<0.001), gabapentin (5.4% vs. 1.6%; p<0.001), and over-the-counter remedies (7.6% vs. 4.2%; p=0.004) were also more commonly used among women with an ICD-10 code. Women with an ICD-10 code were more likely to rate their mental (81% vs. 76%, p=0.02) and physical health (73% vs. 68%, p=0.04) as "good" or better compared to those without a code. **Conclusion:** Women with an ICD-10 code were more likely to report use of a menopause treatment and perceived their physical and mental health as better, suggesting that the presence of a diagnostic code may reflect whether symptoms were addressed during clinical encounters. These findings highlight a critical gap between symptom burden and diagnosis coding in the EHR, underscoring the need to improve identification and management of menopause symptoms in clinical care.
Sources of Funding: None

P-84.
Impact of Social Determinants of Health on Perimenopause Symptom Burden: Insights from the Flo Menstrual Tracking Application

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Objective: Perimenopause is the time leading up to and including the first 12 months after the final menstrual period. It is marked by hormonal changes that can lead to a range of physical and psychological symptoms, often affecting quality of life. This study aimed to examine how social determinants of health (SDOH) including ethnicity, income, education, and healthcare access impact perimenopause symptom burden using data from the Flo menstrual tracking application (app). **Design:** A survey was distributed to English-speaking users of the Flo app in the United States. Women aged 35 and over who self-identified as experiencing perimenopause completed the Menopause Rating Scale (MRS) questionnaire, a validated instrument measuring symptom severity across somatic, urogenital, and psychological domains. Additional questions captured key SDOH including self-reported race/ethnicity, perceived income sufficiency, highest level of education, and access to healthcare. Associations between SDOH and MRS scores were examined using multivariable linear regression models. **Results:** A total of 2,729 women aged 35 and older completed the full survey, with a mean age of 41.3 ± 5.0 years. All examined SDOH were significantly associated with total and domain (somatic, urogenital, and psychological) scores of the MRS. Significant differences in MRS scores were observed by race/ethnicity ($p < 0.001$), with white women reporting the highest MRS scores (11.42 ± 6.59) and Asian women the lowest (8.07 ± 5.76). Income levels were also significantly associated with MRS scores ($p < 0.001$), with women reporting insufficient income having the highest MRS scores (12.54 ± 6.44). Educational level was inversely related to symptom severity, with those holding a doctorate degree reporting the lowest MRS scores (6.95 ± 5.03). Additionally, women without access to healthcare reported higher MRS scores (12.86 ± 6.21) compared to those with access (10.36 ± 6.21, $p < 0.001$). Multiple regression analysis revealed that lack of healthcare access had the strongest association with higher MRS scores ($b = 2.18$, $p < 0.001$), followed by insufficient income ($b = -0.55$, $p < 0.001$). **Conclusion:** SDOH, particularly access

to healthcare and income, strongly influenced perimenopause symptom burden. Women facing socioeconomic challenges or barriers to healthcare access reported more severe symptoms. These findings highlight the need to understand and address SDOH to improve perimenopause care and reduce symptom burden.
Sources of Funding: None

P-85.

Association between Plasma Biomarkers of Alzheimer's Disease and Cognitive Changes over 5 years in Postmenopausal Women

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Objective: Plasma biomarkers of Alzheimer's Disease (AD) are emerging as a promising tool for predicting neuropathological changes, AD, and AD associated dementia. Women have a greater risk for developing dementia and AD compared to men. Little is known if plasma AD biomarkers can predict cognitive changes in postmenopausal women. **Design:** We conducted a logitudinal post hoc analysis in 596 cognitively healthy postmenopausal women participating in the Early versus Late Intervention Trial with Estradiol (ELITE). Three cognitive composite scores (global cognition, executive functions, and verbal memory) were generated from a 14-item neuropsychologic test battery administered at baseline, 3 year, and end of study visit. Primary results of ELITE did not show any benefit of menopausal hormone therapy on cognition. Concentration of AD biomarkers including AB40, AB42, pTau181, Glial fibrillary acidic protein (GFAP), and Neurofilament light (NfL) were measured in plasma samples stored at baseline using Simoa technology. The associations between plasma AD biomarker levels and cognitive scores were tested using linear mixed effects models. Stratified analysis was performed by ApoE4 genotype status (no ApoE4/ any ApoE4). **Results:** Adjusted for age, race, smoking, BMI, and ApoE4 genotype, higher baseline GFAP levels were significantly associated with reduction in executive memory (β (SE) = -0.0003 (0.0001); p-value = 0.02; Table 1). NfL was inversely associated with executive memory with borderline significance. p-Tau181 was inversely associated with global cognition with borderline significance. Stratified analysis showed significant inverse association between baseline GFAP and NfL levels with global memory among ApoE4 positive women only (interaction p-value 0.01, 0.03 for GFAP and NfL, respectively). pTau, and GFAP were significantly associated with executive function among ApoE4 positive women (interaction p-values <0.03). No AD biomarker was significantly associated with verbal memory. **Conclusion:** Plasma levels of GFAP, NfL, and pTau can predict cognitive decline over 5 years in cognitively healthy women, particularly, those biomarkers are even stronger in ApoE4 positive women. Plasma biomarkers of AD can be considered for screening cognitive decline in cognitively healthy people, particularly, ApoE4 positive women. Further research is warranted to validate these results in larger population.
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Table 1.

		Global memory					Executive function			
Plasma biomarkers of AD (pg/ml)	No E4 (n=379)		Single/Double E4 (n=171)			No E4 (n=379)		Single/Double E4 (n=171)		
	β (SE)	p-value*	β (SE)	p-value*	p-value**					
pTau181	-0.013(0.01)		0.02(0.02)			-0.005(0.008)		0.006 (0.01)		
pTau181*years	0.003(0.002)	0.07	-0.002(0.003)	0.53		0.0007(0.001)	0.48	-0.005(0.002)	0.01	
pTau181*years*ApoE4					0.15					0.02
GFAP	-0.001(0.001)		-0.002(0.003)			0.0006(0.001)		-0.002(0.002)		
GFAP*years	-0.00001(0.0002)	0.97	-0.002(0.001)	0.007		-0.0002(0.0001)	0.10	-0.001(0.0004)	0.006	
GFAP*years*ApoE4			0.01		0.01					0.007
Aβ40	0.006(0.005)		0.0002(0.008)			0.008(0.004)		-0.002(0.005)		
Years*Aβ40	0.0002(0.001)	0.86	-0.0007(0.001)	0.63		-0.0004(0.0005)	0.38	-0.0003(0.002)	0.72	
Years*Aβ40*ApoE4					0.72					0.76
Aβ42	0.05(0.06)		-0.053(0.10)			0.07(0.04)		-0.04(0.07)		
Years*Aβ42	-0.012(0.01)	0.13	0.005(0.02)	0.77		-0.006(0.006)	0.3	0.01 (0.01)	0.29	
Years*Aβ42*ApoE4					0.25					0.10
NfL	-0.004(0.008)		-0.002(0.03)			-0.004(0.006)		-0.014(0.02)		
Years*NfL	-0.00003(0.001)	0.98	-0.009(0.004)	0.03		-0.001(0.001)	0.19	-0.006(0.003)	0.03	
Years*NfL*ApoE4					0.03					0.056
Aβ42/40	-1.63(6.1)		-13.05(10.1)			-0.52(4.55)		-1.26(7.14)		
Years*Aβ42/40	-0.39(1.03)	0.71	2.63(1.69)	0.12		0.35(0.60)	0.57	1.74(1.09)	0.11	
Years*Aβ42/40*ApoE4					0.14					0.25

Note: all models adjusted for age, race, smoking status, BMI, and ApoE4
***p-value for ApoE4 stratum specific association**
****p-value for interaction**

P-86.

Associations Between Nocturnal Vasomotor Symptoms, Sleep Outcomes, and Cardiometabolic Biomarkers in Midlife Women

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Objective: Nocturnal vasomotor symptoms are associated with worse sleep quality in midlife women during the menopausal transition. The risk of adverse cardiometabolic health also increases as women traverse this reproductive stage, with emerging evidence suggesting that poor sleep contributes to cardiometabolic disease. This study aimed to examine the relationships among nocturnal vasomotor symptoms (nVMS), nightly sleep disruption, and cardiometabolic health biomarkers in midlife women. **Design:** We utilized cross-sectional screening data (n=89, mean [±SD] age=54.1±4.6 yrs) from an ongoing clinical trial of peri/postmenopausal women investigating the therapeutic effect of orexin antagonism on insomnia symptom severity and metabolic health in midlife women. Our sample consists of women who completed sleep and hot flash diaries for 5-7 nights followed by a fasting serum sample for clinical cardiometabolic biomarkers of lipid metabolism (total cholesterol, LDL) and glucoregulation (HbA1c, insulin). Bothersomeness associated with nVMS was rated nightly on a scale from 1 (not at all) to 4 (a lot). Sleep outcomes included self-reported sleep quality (rated from 1 = very poor to 10 = excellent), total sleep duration (minutes), and sleep efficiency calculated as total sleep duration as a proportion of time in bed trying to sleep (expressed as percentage). Univariate linear regression and mediation models were used to examine associations among nVMS bothersomeness, sleep parameters, and cardiometabolic biomarkers. **Results:** Greater (nVMS) bothersomeness was significantly associated with poorer average nightly sleep quality, shorter total sleep duration and lower sleep efficiency (all $p<0.03$). Poorer average nightly sleep quality was associated with an adverse lipid profile, including higher total cholesterol ($p=0.03$) and higher LDL ($p=0.01$), corresponding to a 7.8 mg/dL and 5.6 mg/dL increase in total cholesterol and LDL, respectively, per 10% decrease in sleep quality. No significant associations with cholesterol measures were observed for sleep efficiency or total sleep duration. Lower average nightly sleep duration was significantly associated with higher levels of HbA1c and fasting insulin (both $p=0.02$), corresponding to a 0.07% increase in HbA1c and a 1.3 μU/mL increase in fasting insulin for each one-hour reduction in total sleep duration. Poorer sleep efficiency was associated with elevated fasting insulin ($p=0.01$), corresponding to a 15 μU/mL increase in fasting insulin with a 10% decrease in sleep efficiency. No significant associations were observed between sleep quality and glucoregulation measures. Although nVMS bothersomeness was not associated with cardiometabolic biomarkers in univariate analyses, preliminary mediation analyses suggested that sleep quality may mediate the relationship between nVMS bothersomeness and lipid levels. **Conclusion:** Nocturnal vasomotor symptoms (nVMS), sleep disturbances, and adverse cardiometabolic health frequently co-occur in midlife women. Our findings reinforce the established association between nocturnal nVMS bothersomeness and sleep disruption, while providing new evidence that sleep quality, duration, and efficiency are closely linked to adverse cardiometabolic biomarkers in this population. Preliminary mediation analyses suggest that sleep disturbance may serve as a key pathway through which nVMS bothersomeness contributes to cardiometabolic dysregulation. These insights may inform targeted therapeutic strategies focused on improving sleep as a mechanism to enhance cardiometabolic health in midlife women experiencing nVMS.
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P-87.

An interim menopause sub-analysis of the POMPOM study evaluating the efficacy of the Milli Expanding Dilator as a treatment for achieving intercourse

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Objective: The primary objective is to evaluate the effectiveness of the Milli Vaginal Dilator in achieving full vaginal penetration with intercourse as reported on the Penetration Efficiency Questionnaire (PEQ Score of ≥2 on PEQ Question #1). **Design:** The Milli vaginal dilator is a novel, FDA-cleared, expandable all-in-one tool that allows the user to increase the diameter in small increments before or once the device is inserted. The dilator also incorporates a vibration feature and provides an interface for tracking dilation progress. Women who made an online purchase of the Milli vaginal dilator were invited to join an innovative, prospective, single-arm, longitudinal, web-based study. Inclusion criteria required subjects to meet the DSM-5 criteria for genito-pelvic pain/ penetration disorder (GPPPD), specifically vaginismus, and a score of ≤1 (attempted but unsuccessful) on the Primary Endpoint Questionnaire (PEQ). Demographic data included age, symptoms associated with dyspareunia, previous treatments, including experience with dilators. Enrolled qualified subjects (n=74) followed the Milli expanding vaginal dilator "instructions for use" dilating at home on a self-directed schedule (i.e., there was no healthcare professional guidance or intervention). After 3 months, subjects were prompted to report progress using validated measures: FSFI, PEQ, and Visual

Analog Scale (VAS) Pain with Intercourse. **Results:** For this 3 months sub-analysis, 68 participants (74 ITT -6 lost to follow-up) completed interim surveys. Participants were divided into two groups by age, 50+ (n=43) and <50 (n=25), for comparison. The 50+ cohort began with slightly lower PEQ, FSFI, and VAS Pain scores at baseline vs <50. All subjects improved on total FSFI and PEQ scores, VAS pain with intercourse, and reported making progress toward the primary goal of successful intercourse. Both groups reached similar maximum dilation diameters. Notable differences were seen in the 50+ cohort in the degree of improvement on 4 out of 6 FSFI sub-domains. The 50+ (vs. <50) improved more on Arousal (25.9% vs. 16.9%), Lubrication (29.7% vs. 19.8%), Satisfaction (64.7% vs. 36.6%), and Pain (161.8% vs. 154.2%). No significant changes were reported in sub-domains of Desire and Orgasm in either group. **Conclusion:** After 3 months of self-directed Milli expanding vaginal dilator home use, participants demonstrated progress toward the primary goal of intercourse suggesting efficacy in the treatment of vaginismus using a self-guided intervention. Future studies can examine how expert clinician guidance might enhance improvements in the same time frame. Both groups reported reaching maximum dilation diameters that fall between static dilator sizes 6 and 7 (out of 8). Furthermore, the 50+ cohort showed greater improvements on 4 of 6 FSFI sub-domains vs the <50 cohort. Further investigation is warranted to better understand the potential reasons for this difference, such as higher treatment adherence or differing underlying causes of vaginismus (e.g., genitourinary syndrome of menopause) between age groups.

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POMPOM 3-mo Interim Menopause Analysis (n=68)

% improvement from baseline	Age <50 (n=25)	Age 50+ (n=43)
Primary Endpoint Questionnaire (PEQ)	48.0% (p=0.0560)	53.5% (p=0.1014)
Pain with Intercourse	72.0% (p=0.0015)	65.1% (p=0.0002)
Making progress toward/ returning to intercourse (goal)	40.0%	32.6%
Reported Maximum Diameters Reached (Average)	32.9mm	32.2mm
Overall Female Sexual Function Index (FSFI)	72.0% (p=0.0043)	65.1% (p=0.0111)
FSFI Sub-Domain 1-Desire	-3.5% (p=0.5935)	-2.7% (p=0.6750)
FSFI Sub-Domain 2-Arousal	16.9% (p=0.0890)	25.9% (p=0.1010)
FSFI Sub-Domain 3-Lubrication	19.8% (p=0.0226)	29.7% (p=0.0783)
FSFI Sub-Domain 4-Orgasm	25.3% (p=0.0567)	23.3% (p=0.1573)
FSFI Sub-Domain 5-Satisfaction	36.6% (p=0.0032)	64.7% (p=0.0006)
FSFI Sub-Domain 6-Pain	154.2% (p=0.0003)	161.8% (p<0.0001)

P-88.

Profile of Postmenopausal Women Seeking Telehealth Treatment with Bremelanotide Injection for Hypoactive Sexual Desire Disorder

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Objective: Bremelanotide is a non-hormonal, melanocortin receptor agonist approved by the FDA as an as-needed treatment for acquired, generalized hypoactive sexual desire disorder (HSDD) in premenopausal women. In phase 3 clinical trials, bremelanotide treatment resulted in a statistically significant increase in the mean sexual desire domain score of the Female Sexual Function Index (FSFI) compared to placebo, along with a significant reduction in distress related to low sexual desire. As a non-hormonal agent, bremelanotide has no known mechanism suggesting differential efficacy or safety between premenopausal and postmenopausal women—similar to how age, beyond the exclusion of pediatric populations, is not a distinguishing factor in the use of other non-hormonal sexual dysfunction treatments such as PDE5 inhibitors for erectile dysfunction in men. Despite its current indication, real-world dispensing data suggest that bremelanotide is increasingly prescribed off-label to postmenopausal women experiencing symptoms of HSDD. However, the demographic and clinical characteristics of this population have not been well described. The objective of this study ist to describe the demographic and clinical characteristics of postmenopausal women self-referring through a telehealth platform for evaluation and potential use of bremelanotide for the treatment of HSDD. **Design:** This retrospective, cross-sectional study analyzed de-identified data from postmenopausal women who self-referred to a nationwide direct-to-consumer telehealth platform between January 2023 and December 2023. Eligibility criteria included self-reported postmenopausal status and a complaint consistent with acquired, generalized low sexual desire causing distress. Women completed a comprehensive intake questionnaire, and descriptive statistics were used to summarize demographic and clinical characteristics. **Results:** A total of 2,814 postmenopausal women sought telehealth evaluation for low sexual desire during the study period. 27% (653) of these patients had tried other interventions for HSDD without success. The most common concomitant medications were antidepressants, anxiety drugs and hormone therapy and the most common reasons they attributed their lack of desire to were stress or fatigue (32%) and other sexual issues (32%). 532 unique postmenopausal patients received a prescription for bremelanotide injection (Vyleesi®). **Conclusion:** Findings suggest that despite its current FDA approval for only premenopausal women, postmenopausal women are actively pursuing bremelanotide as a therapeutic option. These results underscore the need for future prospective studies evaluating the efficacy and safety of bremelanotide in postmenopausal women.

Sources of Funding: Cosette Pharmaceuticals

P-89.

S-Equol Supplement Improves Subjective Finger Discomfort in Postmenopausal Women: A Randomized, Double-Blind, Placebo-Controlled Pilot Study

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Objective: Equol, a metabolite of soy isoflavones produced by intestinal bacteria, has a structure similar to estrogen. It has demonstrated efficacy in alleviating menopausal symptoms (hot flashes, stiff shoulders), improving postmenopausal bone metabolism, preventing metabolic syndrome, and ameliorating skin aging. However, equol production capacity varies among individuals, with approximately 70-80% of Westerns and 50% of the Asian population being non-producers. Finger disorders like Heberden's and Bouchard's nodes are prevalent in women over 40 and are associated with declining estrogen levels after menopause. While case reports have shown that 98% of female hand surgery outpatients with finger discomfort were equol non-producers and that 60% of Bouchard's node patients without joint deformities experienced pain reduction with *S*-equol containing supplements, equol's effect on subjective finger joint discomfort in postmenopausal women remains unexplored. This randomized, double-blind, placebo-controlled pilot study investigated the efficacy of *S*-equol containing supplement on subjective finger discomfort in postmenopausal women. **Design:** Healthy postmenopausal women (45-65 years old) with mild finger pain or stiffness not requiring treatment and who were equol non-producers were enrolled. A hand surgeon confirmed mild finger deformities through physical examination and plain radiography. Participants were randomized based on age to receive either *S*-equol containing supplement (EQL group, 10mg *S*-equol/day) or placebo (P group, 0 mg *S*-equol/day) for 12 weeks. Efficacy assessments for finger symptoms included VAS scores for pain and stiffness at rest and during activity, upper limb function evaluation (Quick DASH, Hand20), and the number of finger joints with pain or discomfort. **Results:** 84 participants (EQL group: n=44, P group: n=40) were analyzed. No significant differences were observed between groups in age, years since menopause, or BMI. Baseline values for all efficacy assessments were comparable between groups. The change in VAS score for stiffness during activity was significantly greater in the EQL group (-19.5mm) compared to the P group (-10.2mm) ($P<0.05$, Student's t-test). A similar trend was observed for stiffness at rest (EQL group: -17.9mm, P group: -10.3mm, $P=0.070$, Student's t-test). The change in the number of painful or uncomfortable joints was significantly greater in the EQL group (-2.7 joints) compared to the P group (0.3 joints) ($P<0.05$, Welch test). While no significant differences were found in the overall upper limb function assessments, subgroup analysis of individuals with a Quick DASH score greater than the median (22.7) revealed a significant difference in score change between the EQL group (-18.2) and the P group (-10.8) ($P<0.05$, Student's t-test). Similarly, subgroup analysis of individuals with a Hand20 score greater than the median (26.5) showed a trend toward significance (EQL group: -18.0, P group: -9.6, $P=0.053$, Student's t-test). As this study included healthy individuals with mild symptoms not requiring treatment, the findings suggest that *S*-equol containing supplement may be beneficial in preventing the development of osteoarthritis in the fingers. **Conclusion:** This study suggests that *S*-equol containing supplement alleviates subjective finger joint discomfort in healthy postmenopausal women without deformities, potentially contributing to the prevention of finger osteoarthritis.

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P-90.

Hormone Therapy post WHI: Evolving Perceptions, Understanding, and Use in a Contemporary US Sample

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Objective: Hormone therapy (HT) remains the most effective treatment for vasomotor and genitourinary symptoms of menopause, with a favorable benefit-risk profile for individuals under age 60 or within 10 years of menopause onset. However, public and clinical perceptions of HT shifted dramatically following the early results of the Women's Health Initiative (WHI), which were widely interpreted as showing increased risks of coronary heart disease and breast cancer (Writing Group for the WHI Investigators, 2002). These findings, often communicated without appropriate context, contributed to a substantial decline in HT prescribing and usage. More recent analyses have clarified that for younger, symptomatic individuals, the benefits of HT typically outweigh the risks (Cagnacci and Venier, 2019). Despite this, HT use remains low estimated at just 4.7% of postmenopausal women as of 2020 (Yang, 2024). Our prior work estimated this figure to be 8% in 2021. In parallel, we have seen renewed cultural and clinical interest in menopause care, including more nuanced discussions around HT. This large, perception-based dataset offers a uniquely timely perspective in a landscape where most post-WHI analyses remain outdated or claims-based. Our study objective was to evaluate changes in women's perceptions, understanding, and use of HT between 2021 and 2025 in a large, nationally representative sample, and to assess whether recent cultural momentum around menopause care is translating into increased awareness and utilization of HT. **Design:** The Attitudes and Usage (A&U) study was conducted among 6,796 female participants aged 25-65 years (Mean=44.6, SD=11.9) in the US. Participants completed the online survey over a 21-day period, with an average completion time of 25 minutes per person. The study enrolled Caucasian (n=4,288), African American (n=868), Asian (n=142), Native American (n=123), Native Hawaiian or Pacific Islander (n=112), Hispanic (n=982) women and other ethnicities (n=241). The 2021 study for comparison was similarly diverse, enrolling Caucasian (n=2,936), African American (n=665), Asian (n=147), Native American (n=41), Hispanic (n=665) women and other ethnicities (n=124). The study included a 111-item questionnaire on health perceptions,

treatment history, understanding of HT, and treatment decision making. The current study focuses on women's perceptions, understanding, and usage of HT between 2021 and 2025. **Results:** Among women aged 40-55, the proportion identifying as peri- or menopausal rose from 42% 2021 to 65% in 2025. Self-identification as premenopausal in the 40-55 subgroup dropped from 38% in 2021 to 21%. HT awareness also increased: 36% claimed to know "something" or "a lot" about it in 2025 compared to 28% in 2021. Still, the largest group, at 48%, reported minimal understanding. Perceptions of HT have shifted significantly more positively: 49% of women 40-55 in 2025 believe the benefits outweigh the risks (vs. 38% in 2021), and 53% would be happy to take HT to help them manage symptoms (vs. 40%). Usage among women 40-60 rose from 8% in 2021 to 13% in 2025. While women making >$150,000 make up most HT users, HT use rose notably in Black, Hispanic, and women of other ethnicities. Topical modes of HT delivery-- creams, gels, and sprays—show the most growth. While more women are using HT, satisfaction remains stable: 85% report being "Quite Satisfied" or "Very Satisfied," similar to 87% in 2021. **Conclusion:** Between 2021 and 2025, there has been a clear shift in women's perceptions, understanding and use of HT—highlighting meaningful cultural momentum around menopause care and increasing clarity around the risks and benefits of HT. Although usage remains modest, these findings suggest a growing willingness to consider HT, especially among historically underrepresented groups. Satisfaction remains high, but flat, underscoring the importance of setting accurate expectations and offering individualized care. These timely, perception-based data provide a needed update to the post-WHI narrative and complement older claims-based analyses. As awareness and demand grow, these findings underscore the urgent need for clinician education and expanded access to menopause-trained providers to ensure patients receive evidence-based, personalized care.

Sources of Funding: Kenvue

P-91.

Menopause symptoms and treatment in sexual minority women

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Objective: Past research indicates that sexual minority women (SMW) have worse mental and physical health outcomes compared to heterosexual women. Healthcare disparities, including limited access to culturally competent care, can lead to underreporting and possibly poorer management of menopausal symptoms in SMW. Limited research has explored menopause in SMW, and further study is greatly needed to fully understand their unique experiences. This study compared menopause symptoms in cisgender SMW and heterosexual women. **Design:** This cross-sectional analysis examined questionnaire data from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS) for women aged 40 to 65 seen at Mayo Clinic women's health clinics in Scottsdale, Arizona, Jacksonville, Florida, and Rochester, Minnesota, between December 2016 and February 2023. Menopause symptoms were evaluated using the Menopause Rating Scale (MRS), with an MRS ≥ 12 indicating consistent moderate or greater symptoms. Multivariable logistic regression was used to compare MRS scores between cisgender SMW and heterosexual women after adjusting for age, race/ethnicity, body mass index, partner status, menopause status, medications (Selective Serotonin Reuptake Inhibitors (SSRI)/ Serotonin-Norepinephrine Reuptake Inhibitors (SNRI), Hormonal Therapy (HT), Oral Contraceptive Pills (OCP), quality of life, depression and anxiety symptoms, past year history of abuse, adverse childhood experiences, sleep, and relationship quality using the relationship assessment scale. **Results:** Data from 2,273 women were included, with 69 SMW. The mean age was 53.2 (SD 6.1), BMI 25.7 kg/m2, and a majority were white (91.9%). SMW were more likely to be single (17.4% vs. 7.2%, $p < 0.001$) and perimenopausal (36.4% vs. 20.4%, $p = 0.015$) compared to heterosexual women. The likelihood of being on HT or SSRI or SNRI was similar between groups. In both univariate (OR 0.85, 95% CI 0.52-1.40, $p = 0.53$) and multivariable (0.66, 95% CI 0.32-1.37, $p = 0.25$) analysis, no significant differences were found in moderate or greater symptom burden by sexual orientation. **Conclusion:** Menopause symptoms were similar for cisgender SMW and heterosexual women and, importantly, so was the likelihood of receiving treatment. The study cohort's lack of racial and ethnic diversity limits the generalizability of the findings to all populations. Intersectional factors may contribute to the persistent disparities observed among SMW, and further examination of these factors in relation to menopause is essential. Nevertheless, menopause practitioners should aim to provide culturally agile care.

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P-92.

A randomized trial on the effectiveness of sensate water-based and silicone-based personal lubricants in premenopausal and postmenopausal women

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Objective: Vaginal dryness can affect women of all ages, and in particular post-menopausal women. Personal lubricants are recommended as first-line interventions for alleviation of related symptoms. Beyond addressing vaginal dryness, lubricants with sensorial ingredients may also enhance and augment sexual pleasure and satisfaction. Many healthcare professionals in the USA do not routinely recommend sensate lubricants to their patients due a lack of clinical data available to support their safety and efficacy. To assess the effectiveness and safety of two sensate personal lubricants in premenopausal and postmenopausal women with self-reported vaginal dryness. **Design:** A two-arm, parallel design study was conducted in heterosexual women in monogamous relationships and aged 18–65 years. The study population (n=66) included an approximate 1:1 ratio of premenopausal to postmenopausal women. Participants were randomized 1:1 to use one of two sensate personal lubricants: water-based (tingling) or silicone-based (warming). Following a 4-week run-in phase, participants were instructed to use their allocated lubricant during vaginal intercourse at least once a week over a 4-week period. The Female Sexual Function Index (FSFI) measured/assessed sexual functioning after 4 weeks of use as an indicator of lubricant performance. The total FSFI comprises six domains: desire, arousal, lubrication, orgasm, satisfaction and pain reduction. A ≥4-point increase in total FSFI is considered a minimal clinically important difference (MCID). These results were compared based on menopause status. All adverse events were monitored and recorded. Additionally, in a randomly selected subset of subjects, a comprehensive testing of oral and vaginal tolerance was undertaken prior to entering the main treatment phase of the study. **Results:** A statistically significant increase in the mean FSFI score was observed for both personal lubricants. The increase in the FSFI total score was greater than the cut-off for an MCID for both lubricants (tingling: +4.14; warming: +5.95). An ANOVA test, using menopause status as a class variable, demonstrated that there was no statistically significant difference between menopause status for the total FSFI difference from baseline to 4-week product use respectively. Considering the individual domains of the FSFI, menopause status did not have a significant impact on the change from baseline to 4-week post use for both study lubricants. For both groups of women, no serious adverse events were reported. In the tolerance phase of the study, a board certified (1) gynecologist and (2) dermatologist, confirmed tolerance of both study sensate lubricants. **Conclusion:** Both sensate personal lubricants enhanced overall sexual experience and sexual function, in pre- and post-menopausal women. Efficacy, safety and tolerance were demonstrated in all women. This suggests that the choice of sensate lubricant can be guided by personal preference rather than hormonal status or age. The FSFI includes a domain related to pain and the overall FSFI results infer a potential benefit on dyspareunia which could be further investigated.

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P-93.

The Role of Visceral Adipose Tissue and Lipid-Associated Macrophages in Postmenopausal Obesity-Associated Breast Cancer Growth

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Objective: Obesity increases the risk of developing hormone-dependent breast cancer by up to 40% relative to healthy BMI in postmenopausal, but not premenopausal women. The menopausal transition is associated with declining levels of estrogens. This hormonal shift contributes to weight gain and increased adiposity, with increased deposition of visceral (abdominal) adipose tissue. Additionally, obesity promotes inflammation and the accumulation of macrophages in adipose tissue, including the breasts. Estrogens have been shown to protect against macrophage accumulation in adipose tissue, suggesting that interactions between macrophages and breast cancer cells may be a potential link between obesity and postmenopausal breast cancer. Using a rat model of menopause (ovariectomy), we have previously shown that preventing menopausal weight gain and associated visceral adipose tissue accumulation significantly decreased the development and growth of hormone-dependent (ER+/PR+) tumors. The goal of the current study was to directly assess the role of visceral adipose tissue on the growth of obesity-associated, hormone-dependent tumors, as well as macrophage accumulation in the mammary gland in a mouse model of menopause (ovariectomy). We hypothesized that signaling from visceral adipose tissue promotes the accumulation of lipid-associated macrophages in the mammary gland, which in turn drives tumor growth. **Design:** 9-week-old C57BL/6 mice were fed a 40% high-fat, high-sucrose diet and housed under thermoneutral conditions to induce obesity. At 45 weeks of age, obese mice were randomized to ovariectomy (OVX) or ovariectomy+visceral (gonadal) adipose lipectomy (OVX+LIPO). One week post-surgery, hormone-dependent mammary tumors were initiated by injection of Py230 cells, and mammary tumor volumes were measured twice weekly. Mice were terminated when tumor volume reached 2 cm^3 or 17 weeks post-surgery. In parallel, we explored the role of macrophages on hormone-dependent breast cancer growth *in vitro*. A panel of breast cancer cells were co-cultured with conditioned media derived from

lipid-associated macrophages, and cell growth was assessed over a 3-day period. **Results:** Removal of visceral adipose tissue at the time of menopause (OVX) had beneficial effects on tumor outcomes, with a reduction in tumor mass at the end of the study period compared to OVX alone. *In vitro*, we found that conditioned media from lipid-associated macrophages increased the proliferation of breast cancer cells. **Conclusion:** Together, these data suggest that visceral adipose tissue plays a role in increasing postmenopausal, obesity-associated breast cancer, potentially through the modulation of lipid-associated macrophages in the mammary gland. Further studies to quantify macrophages in the mammary glands of OVX and OVX/LIPO mice and define the mechanisms linking lipid-associated macrophages and hormone-dependent breast cancer are ongoing.
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P-94.

MenoTime: Predicting Time-to-Menopause And Estimating Ovarian Age Using Serum Biomarker-Informed Machine Learning

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Objective: The age of menopause onset varies widely and cannot currently be predicted, despite its critical implications for fertility, timely menopausal care, and chronic disease prevention. Furthermore, there is no established method to assess whether interventions can slow ovarian aging, a key driver of female healthspan. **Design:** We developed a machine learning (ML) model to estimate individual time-to-menopause. We used individual cohort data from over 3000 midlife women (age 42–55 at study entry) followed yearly for up to 15 years (40,167 visits). Inputs included yearly readings of serum biomarkers such as follicle-stimulating hormone (FSH), anti-Müllerian hormone (AMH), and estradiol (E2), along with self-reported features (menopausal symptoms, BMI, smoking, cycle length, race, etc.). Derived hormonal ratios such as FSH:E2 and APOA:cholesterol were also tested. Performance was assessed via concordance index (c-index), time-dependent AUC, mean absolute error (MAE), and root mean squared error (RMSE). **Results:** The model achieved a C-index of 0.967 (training) and 0.963 (validation), with MAE under 1 year (345 days) within a 7-year window and 1.35 years (494 days) for long-range predictions (12.5 years). Time-dependent AUC remained high (0.990 at 5 years, 0.969 at 12.5 years), indicating excellent discriminatory power. SHAP analyses on patients identified novel predictors such as recent UTI, typical night's sleep, quick sense of hunger, and thermoregulatory sensitivity. Apolipoprotein values (ApoA and ApoB) also appear to have a strong impact. ApoB showed a stronger predictive value for women further away from menopause, suggesting distinct biological pathways across the menopausal transition. Bleeding pattern changes emerged as the strongest predictors when combined with hormonal markers (FSH, AMH, estradiol). These values substantially exceed typical clinical prediction benchmarks and suggest the model can reliably rank women by menopause timing for clinical decision support. **Conclusion:** MenoTime is a high-performing, interpretable ML model that predicts menopause timing with near-optimal accuracy from a single blood test. It enables proactive, personalized care for women approaching midlife and can support evaluation of ovarian aging interventions. This tool paves the way for integrating menopause prediction into routine clinical practice and longevity planning, ultimately improving long-term health outcomes for millions of women.
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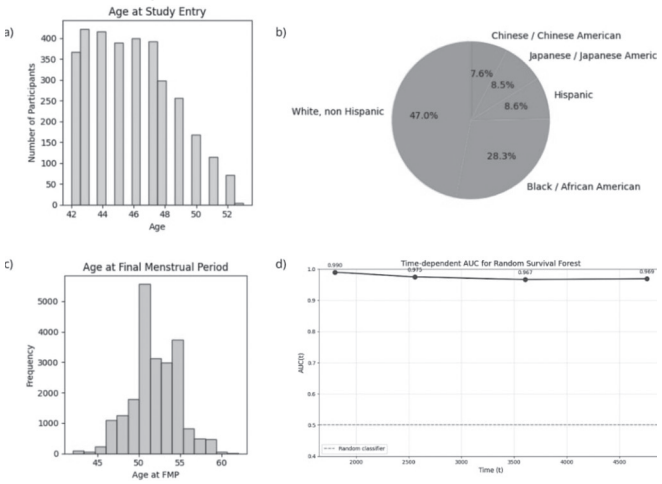

P-95.

Efficacy of a Non-Hormonal Dietary Supplement on Joint Pain, Quality of Life, and Social Activities in Peri- and Postmenopausal Females

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Objective: To evaluate the efficacy of Thermella®—a novel non-hormonal neurokinin 1 and 3 receptor antagonist—on reducing joint pain, improving quality of life (QOL), and reducing interference with social activities in healthy peri- and postmenopausal females. **Design:** This open-label study assessed the efficacy of Thermella® in reducing overall vasomotor symptoms (VMS) among females ages 40-70 years old (N = 112) who reported experiencing moderate to severe VMS. Participants consumed two tablets of Thermella®, a proprietary blend consisting of curcumin, decaffeinated green tea extract, and spirulina, once daily for 12 weeks. Joint pain, the impact of joint pain on QOL, and impact of joint pain on social activities during menopause was measured at baseline, and weeks 4, 8, and 12. A 0-100mm visual analog scale (VAS) was used to quantify joint pain. Impact of joint pain on QOL was assessed via a 0-4 scale (0 = no impact; 4 = severe impact), and interference of joint pain on social activities was assessed via a 0-4 scale (0 = not at all interfering; 4 = extremely interfering). A one-way repeated measures ANOVA was used to evaluate the data over time, with significance set at $\alpha < 0.05$. **Results:** Of the total study population, 96 females reported joint pain at baseline ($n = 47$ perimenopause, $n = 49$ postmenopausal; mean age = 56.0 ± 6.0 yrs). A 38.4% improvement in VAS joint pain was observed in all participants after 4 weeks of supplementation ($p<0.001$); with increased improvement to 45.1% by week 12 ($p<0.001$). Joint pain in perimenopausal females improved by 35.2% at week 4 ($p<0.001$) and by 39.7% at week 12 ($p<0.001$). Joint pain improved in postmenopausal females by 41.7% at week 4 ($p<0.001$) and by 51.0% by week 12 (all $p<0.001$). See Table 1 for joint pain data. The impact of joint pain on QOL, as well as the extent to which joint pain interfered with social activities, significantly decreased across all time points ($p<0.001$), with no differences observed in these outcomes between peri- and postmenopausal females at any time (all $p>0.05$). At baseline, the average impact of joint pain on QOL was 1.6±1.1; decreasing by 38% to 1.0±1.1 at week 12 ($p<0.001$). Similarly, the average interference of joint pain on social activities declined by 47% from 1.5±1.6 at baseline to 0.8±0.9 at week 12 ($p<0.001$)The proportion of females reporting no impact of joint pain on QOL increased from 14.6% at baseline ($n = 14$) to 39.6% at week 4 ($n = 38$) and remained elevated at 37.5% by week 12 ($n = 36$). At baseline, $n = 21$ (21.9%) of women reported no interference from joint pain on their social activities. By week 4, this increased to $n = 43$ (44.8%), and by week 12, this increased to $n = 47$ (49.0%). **Conclusion:** Findings from this secondary analysis indicate that Thermella® may significantly reduce joint pain, the impact of joint pain on QOL, and the impact of joint pain on social activities for perimenopausal and postmenopausal women. These improvements were observed within just four weeks of starting supplementation, with sustained improvements after 12 weeks. These findings support further investigation into the broader therapeutic potential of Thermella® as an effective treatment for a variety of peri- and postmenopausal symptoms, including joint pain.
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Joint Pain Visual Analog Scale

Overall Study Population (n=96)				
	Daily Average (mm)	Standard Deviation (mm)	Percent Change from Baseline (%)	Significance from Baseline
Baseline	60.7	24.6		
Week 4	37.4	29.9	38.4	p<0.001
Week 8	33.0	28.5	45.6	p<0.001
Week 12	33.3	31.1	45.1	p<0.001
Perimenopause (n=47)				
Baseline	65.2	22.2		
Week 4	42.2	27.6	35.2	p<0.001
Week 8	36.6	28.1	43.9	p<0.001
Week 12	39.3	30.1	39.7	p<0.001
Postmenopause (n=49)				
Baseline	56.3	26.2		
Week 4	32.8	31.6	41.7	p<0.001
Week 8	29.6	28.7	47.4	p<0.001
Week 12	27.6	31.4	51.0	p<0.001

P-96.

The Burden of Step Therapy and Prior Authorization on Patients, Clinicians and Payers in Menopause and Chronic Diseases

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Objective: According to the American Medical Association (AMA) annual prior authorization (PA) survey, PAs imposed by US health plans present an intense burden for healthcare staff leading to delays in effective treatment. Step therapy (ST; a form of PA) requires patients to trial older therapies before newer, innovative options. STs are often imposed for chronic conditions (e.g., menopause) and may be based on outdated or ambiguous guidelines. Fezolinetant, the first neurokinin-targeted (NKT) therapy FDA-approved for moderate to severe vasomotor symptoms (VMS) in menopause, is subject to ST. Efficacy and robustness of data differs between non-hormonal VMS drugs, yet

the guideline does not differentiate between these treatments. Serotonin-norepinephrine reuptake inhibitors are a VMS ST reflected in the guideline, despite not being FDA approved for the indication. For women with VMS who cannot or will not take hormonal therapy, STs are a barrier to effective, evidence-based medicines, while causing potential exposure to off-label drugs with limited efficacy and poor tolerability. **Design:** Our study uniquely captures real-world impacts of PA/ST on patients, clinicians and payers across treatment areas. We conducted analogue research within chronic conditions where STs are common (rheumatoid arthritis, plaque psoriasis, migraine and insomnia). Social listening isolated online stakeholder mentions of PA/ST in analogue treatment areas with the addition of menopause, using search queries in PULSE™ powered by Bandwatch (e.g., VMS+step edit); excluding shares, reposts and news. 17,351 mentions were identified between October 1st 2021-2024. A subset of unique mentions (n=176) were analysed further. **Results:** 82% of ST/PA mentions with identifiable sentiment / emotion (n=5,967) were negative. The main patient and clinician concern was delayed effective treatment use due to ST / PA. 46% of analysed mentions (n=176) described "delays to effective treatment" or "quality of life worsening"; 17% captured patient difficulty in affording out-of-pocket costs; 31% illustrated a patient administrative burden in the pursuit of effective treatment. Mentions indicated that clinicians do not appeal PA denials due to the amount of time required despite low success rates, suggesting prescribing based on the likelihood of approval, rather than the best treatment according to evidence. Contrary to payer beliefs, evidence shows that effective first-line treatments can reduce costs in chronic conditions compared to ST. All stakeholders recognized the burden of processing PA requests and appeals, believing that STs are not always aligned with evidence. **Conclusion:** Menopausal women expressed desperation for symptom relief. Unlike analogue conditions, there were no clear mentions of women giving up on ST/PA, indicating a drive for effective menopause symptom treatment. This drive increases medical resource use in pursuit of desired therapies, offsetting ST financial benefits. 50% of menopause mentions included fezolinetant with a subset describing self-funding the drug to bypass ST, highlighting a healthcare inequality. The intense emotion experienced by women with poorly managed VMS is worsened by ST/PA delays; potentially worsening health, quality of life, and work productivity. PA/ST barriers must be addressed to create a sustainable system for menopausal women, clinicians and health plans. **We propose that health plans:** - Collaborate with clinicians early and consider operational revisions that streamline PA processes - Implement ST cautiously, utilizing computational tools to determine optimal patient solutions and overall treatment cost - Develop a solution-oriented approach via stakeholder collaboration, balancing treatment efficacy, access and financial risks - Align ST with VMS treatment guidelines and prioritize FDA-approved therapies, enabling clinicians to fulfil their duty of care

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P-97.

Reasons for discontinuation of non-hormonal treatments in women experiencing vasomotor symptoms associated with menopause

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Objective: To ascertain reasons for discontinuation of non-hormonal therapies (NHT) prescribed for the management of vasomotor symptoms (VMS) associated with menopause, also known as hot flashes, as reported by postmenopausal women. **Design:** Cross-sectional, online survey of US postmenopausal women who had been prescribed an NHT to treat menopause-related VMS and had discontinued the NHT within the last 6 months. NHTs in this study included antidepressants [selective serotonin reuptake inhibitors (SSRIs) and serotonin and norepinephrine reuptake inhibitors (SNRIs)], anticonvulsants (gabapentin), and α2A-adrenergic receptor agonists (clonidine). Data were collected from February-April 2025. The survey included questions on severity and duration of VMS symptoms, duration of NHT treatment, and reasons for discontinuation of the NHT. **Results:** A total of 2089 women entered screening to participate of whom 183 were eligible to be included in the study. Main reasons for study ineligibility leading to screen-out were not being postmenopausal, not having been prescribed the types of NHT included in this study, and not having discontinued an NHT in the last 6 months. The mean age of women in the study was 50.2 years (SD: 5.28). Among 182 women reporting racial identity, 80% (n=147) respondents were white, 12% (n=22) Black/ African American, 5% (n=9) Asian, 2% (n=3) American Indian/Alaska native, and 1% (n=1) Native Hawaiian/Pacific Islander. Of those who could recall (n=126, 69%), the mean age of VMS onset was 45.6 years (SD: 4.43). 97% of women (n=177) reported hot flashes in the daytime with 64% (n=113) experiencing multiple episodes (mean 4.2) per day. 99% of women (n=182) reported nighttime VMS with 69% (n=126) experiencing multiple episodes (mean 3.5) per night. Of those surveyed 49% (n=90) had discontinued an SSRI for treatment of VMS within the last 6 months, 44% (n=80) had discontinued an SNRI, 19% (n=34) had discontinued gabapentin, and 14% (n=26) had discontinued clonidine. Median treatment duration for discontinued NHT ranged from 1.4 months (n=33, Q1-Q3 0.3-5.5) for paroxetine (SSRI) to 5.5 months (Q1-Q3 3.0–12.0) for sertraline (SSRI). The most common reason for discontinuation was adverse events, as reported by 57% (n=51) of women who had discontinued an SSRI, 73% (n=58) who had discontinued an SNRI, 88% (n= 30) of those who had discontinued gabapentin, and 77% (n=20) of women who had discontinued clonidine. Lack of efficacy was reported as a reason for discontinuation of SSRIs by 32% (n=29) of women, 36% (n=29) of SNRIs, 24% (n=8) of gabapentin, and 31% (n=8) of clonidine. The burden of clinical follow-up required was reported as a reason for discontinuation in 26% (n=23) of women who had discontinued SSRIs, 32% (n=26) SNRIs, 44% (n=15) gabapentin, and 46% (n=12) clonidine. Difficulty with health insurance/co-pay documentation was also reported as a reason for discontinuation in 21% (n=19) of women who had discontinued SSRIs, 36% (n=29) SNRIs, 53% (n=18) gabapentin, and 50% (n=13) clonidine. **Conclusion:** Postmenopausal women who discontinued an SSRI, SNRI, gabapentin, or clonidine frequently report discontinuation after a short treatment duration. This suggests a considerable degree of dissatisfaction soon after treatment initiation in the women who discontinued these types of NHT for the treatment of VMS associated with menopause. Though the main reasons for discontinuation of NHTs vary according to drug class, the most common reasons observed were adverse events, lack of efficacy, difficulties with health insurance, and the burden of clinical follow-up. These findings suggest a need for additional, effective treatment options to be made available to women in menopause experiencing VMS.

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P-98.

Effect of Hormone Replacement Therapy on the Periodontal Status of Postmenopausal Women: A Systematic Review and Meta-Analysis

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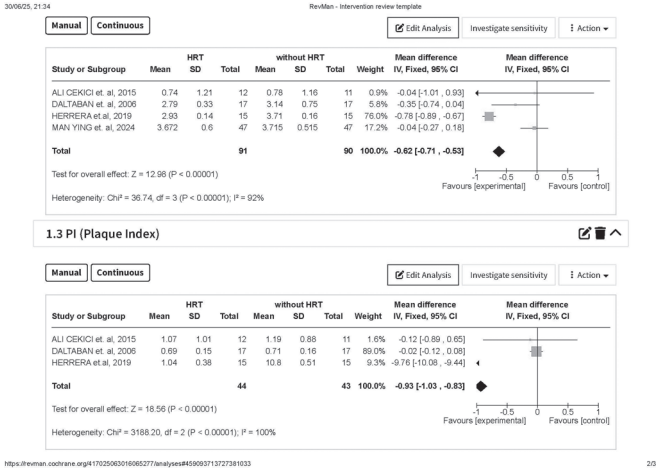
Objective: Hormone replacement therapy (HRT) is a widely adopted and effective strategy for alleviating menopausal symptoms. Beyond its systemic effects, HRT may impact the periodontal environment by modulating bone metabolism and inflammatory pathways. Given the known influence of hormonal changes on oral health, particularly in postmenopausal women, this study presents an updated meta-analysis assessing the efficacy of HRT in periodontal health outcomes. This study aimed to compare the progression of clinical parameters of periodontitis in postmenopausal women who use HRT with those who do not. The clinical parameters evaluated included probing pocket depth (PPD), clinical attachment level (CAL), and plaque index (PI). **Design:** We conducted a systematic review and meta-analysis of observational studies assessing the periodontal response to HRT in postmenopausal women compared to non-users. A comprehensive search was performed in PubMed, Embase, and Cochrane Library using the following terms: ("hormone replacement therapy" OR "hormone replacement" OR "estrogen replacement therapy" OR "estrogen therapy") AND ("periodontal disease" OR "periodontitis") AND ("menopause" OR "climacteric"). Statistical analyses were conducted using Review Manager 5.1.7 (Cochrane Collaboration). **Results:** A total of four studies comprising 181 patients were included, of whom 91 (50.27%) received HRT. The mean values of all clinical parameters (PPD, CAL, and PI) were significantly lower in the HRT group compared to the control group (mean difference [95% CI]: PPD: -0.62 mm; CAL: -0.40 mm; PI: -0.93; $p < 0.05$). On average, postmenopausal women receiving HRT showed a 0.40 mm lower CAL compared to those without HRT (95% CI: [–0.56; –0.24]). This indicates less clinical attachment loss, suggesting a positive periodontal response associated with HRT. Women receiving HRT had an average 0.62 mm shallower pocket depth compared to the non-HRT group (95% CI: [–0.71; –0.53]). This supports the finding that HRT may benefit periodontal tissue condition. The plaque index shows a clear reduction in plaque accumulation among women using HRT(95% CI: [–1.03; –0.83]). **Conclusion:** The findings suggest that estrogen status may play a significant role in modulating the progression of periodontitis. Hormone replacement therapy appears to have a potentially beneficial effect on periodontal health in postmenopausal women.

Sources of Funding: "None"



P-99.

Menopause and Gender Diversity: Clinical Insights for Transgender and Nonbinary Care

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Objective: This review aims to explore the existing knowledge on menopause in transgender individuals, highlighting the long-term clinical aspects and identifying opportunities to improve healthcare delivery. **Design:** A systematic search was conducted across four electronic databases—PubMed, MEDLINE, Embase, and the Cochrane Library—to identify relevant studies published between 2015 and 2025. Search terms included combinations of keywords such as "transgender," "menopause," "sex assigned at birth," "gender-affirming therapy," "cardiovascular disease," and "bone health." Studies were screened based on predefined inclusion criteria related to the effects of hormone therapy in aging transgender populations. **Results:** Cardiovascular disease remains the leading cause of mortality among women, with risk increasing after menopause due to estrogen deficiency. Estradiol exerts vascular protective effects by promoting vasodilation, reducing oxidative stress, and improving lipid profiles. Hormone replacement therapy (HRT), especially when initiated near menopause onset, can mitigate cardiovascular risks. However, applying these benefits to transgender populations undergoing gender-affirming hormone therapy (GAHT) requires caution. Observational data suggest increased cardiovascular risk among transgender men using testosterone, highlighting the need for longitudinal studies to clarify interactions between GAHT, aging, and cardiovascular morbidity. Cognitive changes like memory impairment and "brain fog" are recognized in cisgender women but underexplored in transgender and non-binary (TGNB) individuals. Emerging evidence shows these symptoms can exacerbate gender dysphoria and distress, while invisibility in menopause research delays diagnosis and care. Concerns also exist about the long-term neurocognitive effects of GAHT, suggesting a potential rise in neurodegenerative disease risk. Bone health, closely tied to sex hormone status, is another concern. Testosterone appears to preserve bone mineral density (BMD) in trans men, while trans women often have low BMD before GAHT, with improvement observed when estradiol levels are adequate. Fracture risks in transgender populations are comparable to cisgender women but warrant monitoring. Addressing cardiovascular, cognitive, and skeletal health with gender-sensitive strategies is critical to advancing equitable care. **Conclusion:** Menopause in transgender individuals is complex, requiring nuanced understanding beyond physiological changes. Literature remains scarce, and lack of clinical experience can lead to inadequate care. Based on available expertise, gender-affirming hormone therapy appears safe in long-term aspects in menopause when individualized and risk factors are managed. Further research, gender-sensitive training, and inclusive policies are essential to improve outcomes for this population.

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P-100.

Psychosexual Repercussions of Anti-Estrogen Therapy in Postmenopausal Women After Breast Cancer

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Objective: This study aims to evaluate the psychosexual repercussions of anti-estrogen therapy in women who have undergone treatment for breast cancer, with particular attention to alterations in sexual function, emotional well-being and overall quality of life. **Design:** A systematic search was PubMed, MEDLINE, Embase, and the Cochrane Library to identify studies published between 2015 and 2025 examining the psychosexual effects of anti-estrogen therapy in women following breast cancer treatment. Search terms included "anti-estrogen therapy," "breast cancer survivors," "sexual function," "psychosexual health" and "quality of life." Studies were selected based on predefined inclusion and exclusion criteria. **Results:** Current literature reports high rates of sexual dissatisfaction and psychological distress among women with breast cancer receiving hormonal therapy, with reduced sexual activity compared to non-cancer populations. Many women report compromised sexual functioning accompanied by challenges in emotional regulation, often characterized by alexithymia and a propensity for externally oriented cognitive processing. The lack of systematic attention to sexual health and emotional well-being during routine clinical evaluations results in unmet needs that can profoundly impact both psychological resilience and overall quality of life. Despite significant advances in the overall quality of life for breast cancer survivors over the past decade, women undergoing hormonal therapy continue to report persistent and distressing forms of sexual dissatisfaction. This is largely attributable to the fact that the majority of these patients are experiencing natural menopause, and are simultaneously subjected to a therapeutic regimen that exacerbates these symptoms. Anti-estrogen therapies intensify common menopausal manifestations—such as vaginal dryness, hot flashes, and loss of libido—thereby compounding the physical and emotional burden on patients. The convergence of these physiological changes with the psychological impact of cancer survivorship presents a complex clinical scenario that remains insufficiently addressed in standard care practices. These multifaceted concerns remain insufficiently addressed by healthcare professionals and are often underreported by patients themselves. A patient-centered approach that emphasizes open communication and individualized care strategies is fundamental to providing holistic and comprehensive support during the post-treatment phase of breast cancer management. This includes ensuring consistent gynecological follow-up, as a considerable proportion of survivors experience delays or avoidance of routine examinations, such as Pap smears and pelvic ultrasonography, due to pronounced vaginal dryness and procedural discomfort. These barriers underscore the importance of incorporating symptom-sensitive protocols within survivorship care plans. **Conclusion:** Anti-estrogen therapy remains a cornerstone in managing hormone receptor-positive breast cancer due to its efficacy in reducing recurrence. However, it is associated with significant psychosexual effects that go beyond its physiological impact. Many survivors, either naturally menopausal or experiencing treatment-induced menopause, face worsened symptoms—such as vasomotor instability, vaginal atrophy, decreased libido, and mood disturbances—without access to hormone replacement therapy for relief. This clinical paradox presents a complex challenge, as healthcare providers must manage intensified menopausal symptoms in a population for whom hormonal treatment is contraindicated. As a result, the psychological and sexual aspects of survivorship demand sustained and focused attention. Implementing multidisciplinary care models that integrate oncology, gynecology, mental health, and sexual medicine is essential. This approach fosters long-term psychosocial resilience, enhances emotional well-being, supports adherence to therapy and promotes a more autonomous, empowered recovery for menopausal women after breast cancer.

Sources of Funding: None

P-101.

A Systematic Literature Review of Clinical Practice Guidelines for Treating Menopausal Vasomotor Symptoms

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Objective: Up to 80% of menopausal women experience vasomotor symptoms (VMS) that affect quality of life and propel clinical visits. While hormone therapy (HT) is highly effective for VMS, many non-hormone therapies (NHT) offer options when HT is contraindicated or unwanted. Numerous clinical practice guidelines (CPGs) have been published to guide the use of HT and NHT in managing VMS but vary in recommendations and evidence quality. The objective was to assess consistency and evidence quality in current US-focused menopause treatment guidelines for VMS, including HT and emerging NHT options. **Design:** A systematic literature review (SLR) was conducted using PubMed and EMBASE to identify English-language menopause treatment guidelines published between Jan 2014 and Sep 2024. Inclusion criteria were US-focused CPGs or consensus statements on menopausal symptom treatment. Guidelines for surgically induced menopause or conditions where menopause-related symptoms were secondary were excluded. For organizations sponsoring multiple guideline versions, only the most recent report was included. The Population/Problem, Intervention, Comparison, Outcome, Recommendation (PICOR) framework was used to integrate CPGs and systematic reviews to provide a comprehensive and updated framework of the available evidence. The AGREE II tool—a validated instrument evaluating methodologic rigor and transparency for CPGs—was used to assess quality. Guidelines were classified by how many domains scored ≥60%: high quality (5-6), moderate (4), low-moderate (3), and low (≤2). **Results:** Of 655 screened references, 540 were title/abstract screened, 48 full text screen, and 13 guidelines were included. Of the 13 included guidelines that addressed managing menopausal symptoms, 8 evaluated and provided recommendations for VMS. Guidelines sponsors included AACE/ACE, TMS (formerly NAMS), and Endocrine Society. All 8 guidelines evaluated NHT and 6 addressed HT. HT was consistently recommended as the most effective initial treatment for VMS in the absence of contraindications. Common HT contraindications were breast cancer, CVD risk, established CVD, VTE, liver disease, and vaginal/uterine bleeding of unknown origin, with varied strength of recommendations. NHT options frequently noted were SSRIs/SNRIs, gabapentin, and neurokinin-targeted therapy (NKT) fezolinetant, with moderate to high evidence quality. Most guidelines did not support using OTC NHTs for VMS (e.g. herbal products and supplements) citing low to moderate quality evidence on safety and efficacy. Support for lifestyle modification, nutrition, and CBT for VMS varied; CBT was most consistently recommended, with guidelines rating the strength of evidence as moderate quality. No guideline provided ranking systems, decision support algorithms, or sequencing recommendations for NHT treatment options. Among the 8 guidelines, 4 were moderate quality on AGREE II, 3 low-moderate, and 1 low. None were high quality due to low scores (<60%) on stakeholder involvement and applicability (e.g. implementation barriers, uptake, and resource implications) domains. **Conclusion:** This SLR highlights important differences and limitations across recent US guidelines for VMS treatment. Based on our findings, future guidelines should aim to provide clearer decision-making frameworks including evidence-based decision support algorithms and sequencing recommendations that include HT, NHT, and NKT options and account for contraindications, comorbidities, and personal preference to optimize care for menopause patients.

Sources of Funding: Bayer US LLC, Whippany, NJ

P-102.

Preparing for a hurricane: Perspectives of midlife Latinas in Texas on the menopausal transition

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Objective: Approximately 21% of Latinas/Hispanic women report menopausal symptoms that negatively impact work outcomes compared to 13.1% of White women. While symptoms may vary by Latina subgroup, in general, they experience higher rates of genitourinary symptoms, depressive symptoms, and a longer duration of vasomotor symptoms than non-Hispanic White women. Yet, Latinas are less likely to manage symptoms with hormone therapy or complementary alternative medicine. While menopause education may enhance knowledge and self-management, no menopause education interventions specific to Latinas/Hispanic women have been identified, and minimal research has been conducted, none in Texas, to understand Latinas' experience of menopause. The purpose of this study was to determine the knowledge, attitudes, and expectations of the menopausal transition as experienced by midlife Latinas in Southeast Texas. **Design:** A qualitative descriptive study was conducted with 6 focus groups, 5 in English (2 in-person, 3 virtual) and 1 in Spanish (virtual) with 22 Latinas. Women had to identify as Hispanic or Latina, speak and read in English or Spanish, and be between 40-60 years old. Focus groups were audio recorded and transcribed in English. Four reviewers independently reviewed transcripts and emergent thematic analysis was conducted. Participants completed an adapted version of The Menopause Society's Menopause Health Questionnaire in English or Spanish. **Results:** Latinas were on average age 47.7±4.6 years, 23% (n=5) reported they were premenopausal, 50% (n=11 perimenopausal), and 36% (n= 8) post-menopausal. Most participants were born in the U.S. (*n*=15), 7 in Mexico, and 2 in Puerto Rico and all participants were employed. Eight themes emerged from the data: 1) Feeling dismissed by health care providers ("you try to tell 'em, they're like, no, it's not that"); 2) experiencing societal stigmatization and minimization of menopause ("it's almost taboo or like a joke"); 3) uninformed/ misinformed and using non-evidence-based treatments ("ashwagandha is what I take"); 4) symptoms interfering with intimacy and relationships ("it's put a strain on my relationship with my husband"); 5) menopause means the demise of youth ("you've made it up to the top of the mountain, now you're descending down, doomsday in a way"); 6) desperate for early information, for self and family, to increase preparedness and symptom management to improve wellbeing ("it's like preparing for a hurricane;" "explaining the symptoms to [family] so they don't judge us"); 7) frustration managing menopause with the demands of societal expectations of women ("it's hard as a mother to get your time"); and 8) cultural norms inhibit healthy lifestyles ("Latinos/Latinas diet is not the greatest"). **Conclusion:** Women voiced their desire for more menopausal knowledge and overall negative attitudes about the menopausal transition. Findings on misinformation and centrality of family are consistent with prior focus groups among Latinas, but the findings related to managing symptoms with the demands of societal expectations is unique. Findings may contribute to the development of culturally-appropriate education interventions to improve menopause knowledge, understanding of current evidence-based options for symptom management, and menopause-related self-efficacy and social support. An intervention component to educate family members about menopause should also be included. This small sample of Latinas, mostly English-speaking, Mexican-American, in Southeast Texas limits the generalizability of findings, and future research should be conducted with groups of Latinas from various backgrounds.

Sources of Funding: National Institutes of Health

P-103.

Barriers and Facilitators to Implementing Group Cognitive Behavioral Therapy for Vasomotor Symptoms in Black Women: A Preliminary Qualitative Analysis

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Objective: It is well established that Black women are disproportionately burdened by vasomotor symptoms (VMS) during perimenopause and experience persistent depressive symptoms during this life stage. Despite this increased burden, Black women are less likely to receive treatment and report a preference for non-hormonal interventions to manage VMS. Group cognitive behavioral therapy (GCBT) is an evidence-based, brief intervention shown to reduce VMS-related distress and interference. The intervention has also been shown to reduce depressive symptoms. Yet, GCBT is typically not integrated into menopausal care. Several barriers hinder the uptake of GCBT for VMS, including limited provider awareness and a lack of clarity regarding the appropriateness of GCBT. Broader barriers to mental health care (e.g., insurance, cost) may also contribute to disparities in accessing treatments during perimenopause. To understand factors that influence the uptake of GCBT, the current study aims to explore barriers and facilitators to GCBT implementation, as well as perceptions of GCBT in Black women and community partners. **Design:** Data collection is ongoing, with a target sample of 20 participants (n = 10 Black women, n = 10 community partners). To date, semi-structured 60-minute interviews have been conducted with nine Black women. To be eligible, participants endorsed experiencing distressing VMS, as indicated by scores ≥4 on the Hot Flash Related Daily Interference Scale, and mild to moderate depressive symptoms, as measured by the Patient Health Questionnaire (PHQ-9 = 5-15). Eligibility for community partners included self-identified personnel in community-based organizations recruited through snowball sampling. We conducted a thematic qualitative analysis using a hybrid inductive-deductive approach, guided by the Consolidated Framework for Implementation Research (CFIR), with particular attention to individual and intervention characteristics. **Results:** Preliminary qualitative findings highlight several barriers and facilitators to GCBT implementation. Barriers to GCBT implementation included cultural silence around menopause, medical mistrust, delivery format (e.g., less likely to attend in-person), and prior negative experiences with providers. Facilitators to GCBT implementation included participants' comfort with discussing symptoms with others experiencing VMS and depression, recognition of the intervention's relative advantage to their care compared to their current coping strategies, and a virtual format. Participants also endorsed a bidirectional relationship between VMS and depression, and that the group-based format would be a useful strategy to address the cultural silence they experience around their symptoms. They also endorsed various consequences of VMS (e.g., work performance, withdrawal from social activities, sleep disruptions), further underscoring the potential benefit of GCBT for this population. Participants overall expressed that the GCBT for VMS would be valuable and expressed interest in its potential to address their concerns. **Conclusion:** Initial findings suggest that Black women experiencing distressing VMS and depressive symptoms may view GCBT as a valuable and acceptable intervention. Continued data collection, including with community partners, will inform implementation strategies to address barriers to care. Importantly, while several qualitative studies have investigated the experience of perimenopause in Black women, few have directly examined their perceptions of GCBT. This preliminary study thus offers a novel emerging contribution to the field by exploring GCBT acceptability in an underserved population.

Sources of Funding: Kaplen Fellowship on Depression, Harvard Medical School Livingston Award, Harvard Medical School

P-104.

Empowering Patients Through Digital Education; A Pilot Study of a Menopause Module

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Objective: Efficient and accessible electronic modules have shown to improve patient knowledge in various clinical settings. Despite the prevalence and impact of menopause, many patients feel unprepared for this transition. To address this issue, we developed an online module to educate patients about menopause, ignite purposeful provider-patient conversations and enhance engagement with treatment options. This before and after pilot study aims to test the evaluated knowledge and perception of this educational module. **Design:** In this IRB-approved study, we created an online module covering the physiology of menopause, common symptoms and possible treatments are available. The module was shown to 30 women aged 43-58 in outpatient clinics and their feedback was surveyed. Participants rated their knowledge at baseline and after viewing the module using a six-point ordinal scale ranging from 0 = "no knowledge" to 5 = "full knowledge". We used an exact Wilcxon signed rank test to test for improvement in menopause knowledge using SAS version 9.4 (Cary, NC). Participants also indicated the usefulness of the module on the same six-point ordinal scale and with qualitative short answer questions. **Results:** The sample included N = 30 women with an average age of 51.9 (SD = 3.6) years. On the six-point ordinal scale score, the median knowledge score was 3 (IQR: 3-4) before viewing the education module. This improved by about 1-point following exposure to the education module (Mdn = 4, IQR: 4-4; $p < 0.001$). Participants (N = 30) also overall found the education module to be very useful (Mdn = 5, IQR: 4-5 on a 5-point ordinal scale). 23% (7 of 30 participants) indicated they learned new information about menopause symptoms and 30% (9 of 30 participants) described that they learned new information about treatment options. **Conclusion:** These initial findings suggest an online menopause module can significantly improve patient knowledge and may be highly relevant for clinical use. These findings support further development and refinement of the module for a broader implementation in outpatient clinics. Future studies may explore whether improving knowledge leads to better symptom management and improved clinical outcomes.

Sources of Funding: Loyola University Chicago Stritch School of Medicine Student Training in Approaches to Research Education Program

P-105.

Habitual Physical Activity and the Odds of Objectively Measured Hot Flashes

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Objective: Hot flashes (HFs) are a major symptom of those undergoing the menopausal transition. The capacity for habitual physical activity (PA) and acute changes in free-living PA to influence HFs is equivocal. Objective measures of PA and HFs may improve understanding of these relationships. Our objective was to test the hypothesis

that changes in free-living PA are associated with the odds of having a HF, and this association is impacted by a participant's habitual physical activity. **Design:** Participants were excluded if taking hormone therapy. In total, 177 participants aged 43-57 across all menopausal groups, according to STRAW+10 criteria were analyzed. Only waking HFs were analyzed. Participants were sorted into higher and lower PA levels according to the International Physical Activity Questionnaire (IPAQ). The lower PA level contained participants who had less than 150 minutes per week of moderate PA or less than 75 minutes per week of vigorous PA. The higher level PA group contained participants that habitually participated in at least 3 days per week of vigorous activity (at least 1500 MET min/wk) or greater than six days per week of any PA (at least 3000 MET min/week). Wrist-worn actigraphy (Actigraph GT3X+ PA, Pensacola, FL) was used to assess changes in free-living PA throughout the day. Objective HFs were assessed using sternal skin conductance (Biolog, UFI, Morrow Bay, CA). HFs were defined by a ≥2umho increase in skin conductance over 30s and/or a distinctive HF pattern (rapid rise followed by a slow descent) when accompanied by a self-reported HF. Monitored activity was segmented into 10-minute windows, with windows preceding a HF labeled as "HF windows," and all other windows labeled as "control windows." The physical activity signal (mean vector magnitude) from the actigraphy signal was calculated for each window. All analyses were completed using R (version 4.4.3). Multilevel binomial generalized linear regression models with a logit link function were employed to compare PA during the 10-minute period preceding a HF to PA during control windows. This multilevel structure accounted for multiple observations per participant. Activity level (low/high), body mass index (BMI), age, mean vector magnitude, and the combined effects of activity level and mean vector magnitude were included in the model. Differences in proportions were assessed using Chi-Square Tests for Equality of Proportions and z-tests. **Results:** Participants had a mean age of 50.9 ± 2.9 years old and a mean BMI of 27.7 ± 6.4 with 894 waking HFs recorded; 83 participants were in the lower PA group, and 94 were in the higher PA level. Mean vector magnitude was a significant predictor of the log-odds of experiencing a HF ($\beta = 1.22$, $p < 0.01$). Additionally, activity level and mean vector magnitude combined were significant predictors ($\beta = 1.16$, $p = 0.04$). BMI and age were included in the model, but not significant. In the higher PA group, 60% of participants had a mean vector magnitude of windows preceding HFs exceeding the mean of their control windows, compared to 74.1% among lower PA group participants. This proportion was statistically significant in the lower PA group participants ($p < 0.01$) but not in the higher PA group participants ($p = 0.06$). However, no significant difference was observed between the two groups ($p = 0.08$). **Conclusion:** Our data suggest that the relationship between increases in free-living activity and the odds of experiencing a HF may differ based on habitual activity level.

Sources of Funding: NHLBI R151R15HL145650-01A1 (Witkowski), NSF Grant BCS-1848330 (Sievert).

P-106.

Associations between Sleep Disturbances and/or Vasomotor Symptoms and Health-Related Quality of Life Across the Menopausal Transition and Early Postmenopause

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Objective: To determine associations between self-reported sleep disturbances and/or vasomotor symptoms (VMS), and health-related quality of life (HRQoL) in women across the menopausal transition and early postmenopause. **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. Among 2066 participants who had reached natural menopause, we reassigned the visit closest to women's final menstrual period (FMP) as visit 0; visits 5 years either side were relabelled as FMP –5 to FMP+5. Sleep disturbances (waking up several times a night/trouble falling asleep/waking up earlier than planned on ≥3–4 nights/week in the past 2 weeks), VMS (hot flashes/night sweats on ≥1–5 days in the past 2 weeks), and HRQoL were assessed at each visit. HRQoL was determined from mean scores at each visit on each of three Short-Form Health Survey (SF-36) subscales: role limitations due to physical health (RLPH), role limitations due to emotional problems (RLEP), and energy/fatigue (EF), where scores range from 0–100 (higher scores equating to better HRQoL). We used mixed models for repeated measures to evaluate associations between sleep disturbances and/or VMS and HRQoL over time adjusted for confounders, including sociodemographics and lifestyle factors. **Results:** Mean age at FMP 0 was 51 years (SD±2.6). As shown in the **Figure**, across SF-36 subscales, presence of sleep disturbances was associated with lower HRQoL compared with absence of both symptoms (reference group). This was most notable when sleep disturbances co-occurred with VMS for the RLPH and EF subscales. **Conclusion:** Our results suggest a need for effective measures to manage sleep disturbances and VMS in menopausal women to potentially help improve their HRQoL.

Sources of Funding: Bayer AG

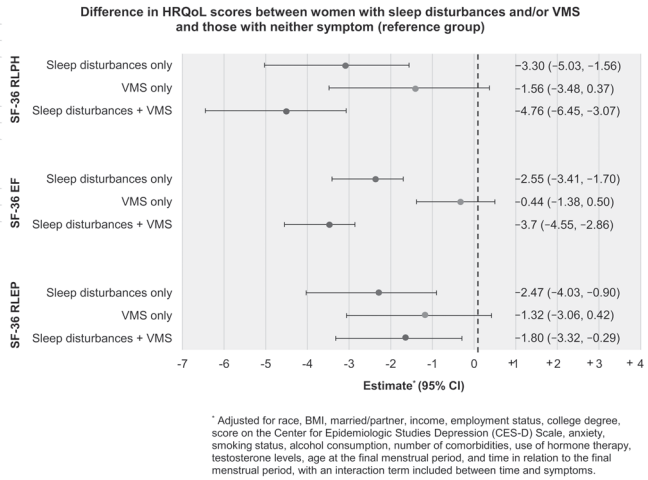

Figure: Associations between sleep disturbances and/or VMS and HRQoL across the menopausal transition and into postmenopause (from FMP –5 to FMP+5).

P-107.

Health-Related Quality of Life in Women with Sleep Disturbances and Vasomotor Symptoms Across the Menopausal Transition and Early Postmenopause

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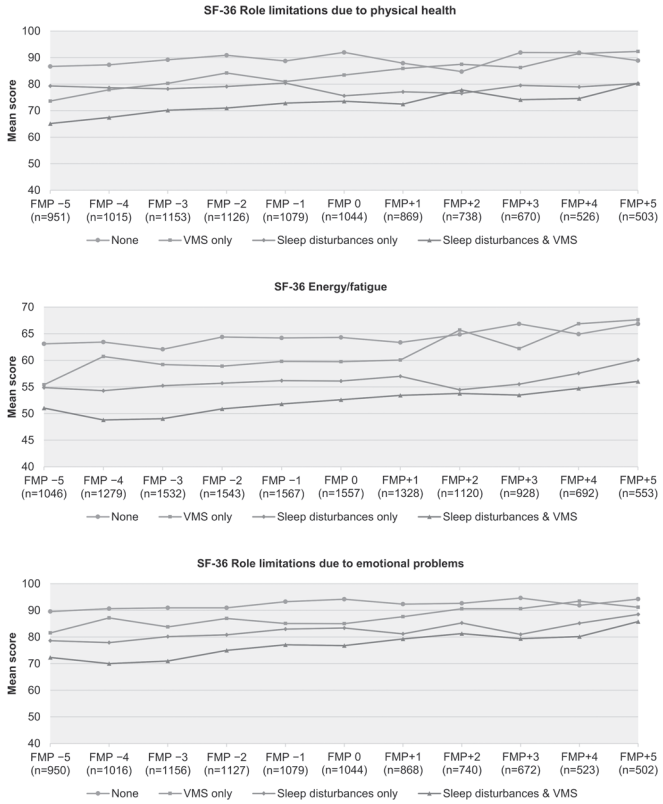
Objective: To describe health-related quality of life (HRQoL) in women across the menopausal transition and early postmenopause by the presence of self-reported sleep disturbances and vasomotor symptoms (VMS), either alone or concurrently. **Design:** We used data from the first 10 annual follow-up visits (1999–2008) of the Study of Women's Health Across the Nation (SWAN). Data from 2066 participants who reached natural menopause were included. The visit closest to women's final menstrual period (FMP) was re-assigned as visit 0; visits 5 years either side were re-labelled as FMP–5 to FMP+5. Sleep disturbances (waking up several times a night/trouble falling asleep/waking up earlier than planned on ≥3–4 nights/week in the past 2 weeks), VMS (hot flashes/night sweats on ≥1–5 days in the past 2 weeks), and HRQoL were assessed at each visit. HRQoL was based on mean scores at each study visit on each of three Short-Form Health Survey (SF-36) subscales: role limitations due to physical health (RLPH), role limitations due to emotional problems (RLEP), and energy/fatigue (EF), where scores range from 0–100 with higher scores equating to better HRQoL. **Results:** Mean age at FMP 0 was 51.2 years (SD±2.6). HRQoL according to symptom presence is shown in the **Figure**. Across SF-36 subscales and visits, HRQoL was lowest in women with both VMS and sleep disturbances, followed by those with sleep disturbances only, then VMS only, and was highest in women with neither symptom. Among women with either/both symptoms, HRQoL improved at FMP+4 and FMP+5. Irrespective of symptoms, HRQoL was lower for EF than RLPH/RLEP. **Conclusion:** Our findings underscore the importance of identifying, monitoring and addressing sleep disturbances and VMS in menopausal women to address symptoms and potentially improve HRQoL.

Sources of Funding: Bayer AG



Health-related QoL across the menopausal transition and into postmenopause (FMP −5 to FMP+5).

P-108.

Preliminary Analysis of Work Productivity Outcomes in OPTION-VMS: A Phase IV Observational, Real-World Study of Non-hormonal Treatment for Bothersome Menopause-Associated Vasomotor Symptoms

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Objective: To evaluate the change in vasomotor symptom (VMS)-related work productivity in women initiating non-hormonal therapy (non-HT) for the treatment of VMS in a real-world setting. **Design:** OPTION-VMS is an ongoing Phase IV, observational, non-comparative, real-world study of non-HT for bothersome menopause-associated VMS. Primary objective: to evaluate change in VMS bother, via mean change from baseline to week 12 in the MENQoL VMS domain in women aged 40-75 years who have a confirmed diagnosis of menopausal VMS and who initiated a non-HT treatment for VMS as prescribed by their healthcare provider. Secondary objectives: impacts on sleep characteristics/quality, menopause-related quality of life, sexual health, mood symptoms, and work productivity. Non-HTs include fezolinetant (an NK3R antagonist, approved for treatment of moderate to severe VMS due to menopause); SSRIs/SNRIs; and other non-HT treatments (e.g., gabapentin, oxybutynin). Here, we present a preliminary analysis of non-HT effect on work productivity measured with the 6-item patient-reported outcome, Work Productivity and Activity Impairment questionnaire specific to Vasomotor Symptoms (WPAI-VMS). WPAI-VMS subscales include activity impairment (all participants) and overall work productivity loss, presenteeism, and absenteeism (employed participants only). Subscales are scored as percentages; negative changes indicate improvement. **Results:** This study enrolled 761 non-HT users, with 656 meeting full analysis set criteria (completing MENQOL at baseline and at ≥1 post-baseline visit). Mean age was 54.6 years, with 58% White, 34% Black/African American, and 29% Hispanic/Latina; 79% postmenopausal and 21% in menopausal transition. At baseline the WPAI-VMS activity impairment question was completed by 654 women; among those who reported working, the overall work productivity loss, presenteeism and absenteeism subscales were completed by 354, 355, and 356 women, respectively. The fezolinetant group had statistically significant improvements (P<0.001) from baseline in WPAI-VMS domains (activity impairment, overall work productivity loss and presenteeism) at weeks 4, 8, and 12 (Table). Baseline absenteeism was low (<8% in all treatment groups), but there were numerical improvements in absenteeism in fezolinetant users at weeks 4, 8 and 12. Statistically significant improvements (P<0.001) from baseline were also seen for SSRIs/SNRIs and other non-HT treatments at weeks 4, 8 and 12: activity impairment (week 12 LSM –17.5 and –16.8, respectively), overall work productivity loss (week 12 –19.8 for SSRIs/SNRIs, –18.6 for other non-HT treatments), presenteeism (week 12 LSM –19.5 and –19.3, respectively). **Conclusion:** Treatment of VMS with non-HT led to statistically significant improvements in activity impairment, overall work productivity loss, and presenteeism. Findings in this real-world setting align with a pooled analysis from the phase 3 SKYLIGHT 1 and 2 trials that demonstrated greater improvements with fezolinetant 45 mg vs placebo in activity impairment, overall work productivity loss, presenteeism, and absenteeism on the WPAI-VMS. Treatment of VMS with non-HT demonstrates improved activity impairment in midlife women, and workplace functioning in working midlife women specifically. These results demonstrate that treatment of menopause symptoms is crucial for limiting the economic burdens associated with leaving them untreated.

Sources of Funding: Astellas Pharma Inc.

Mean change from baseline in WPAI-VMS domains in the fezolinetant group

	Baseline		Week 4				Week 8				Week 12			
	n	Mean	n	LSM change	95% CI	P-value	n	LSM change	95% CI	P-value	n	LSM change	95% CI	P-value
Activity impairment	201	45.9	182	-17.7	-26.2, -9.1	<0.001	184	-19.2	-27.7, -10.7	<0.001	176	-19.6	-28.1, -11.0	<0.001
Overall work productivity loss	114	44.4	102	-25.9	-35.3, -16.6	<0.001	104	-29.9	-39.1, -20.6	<0.001	106	-25.5	-35.0, -16.1	<0.001
Presenteeism	115	42.2	102	-25.7	-34.6, -16.8	<0.001	104	-29.1	-38.0, -20.3	<0.001	106	-26.2	-35.2, -17.2	<0.001
Absenteeism	115	5.7	102	-2.1	-7.7, 3.4	0.454	105	-2.0	-7.6, 3.7	0.495	106	-1.3	-7.0, 4.4	0.654

CI, confidence interval; LSM, least squares mean; WPAI-VMS, Work Productivity and Activity Impairment questionnaire specific to Vasomotor Symptoms.

P-109.

Pharmacokinetic Analysis of 25 mg Estradiol Bioabsorbable Implant in Climacteric Women (CLARA STUDY)

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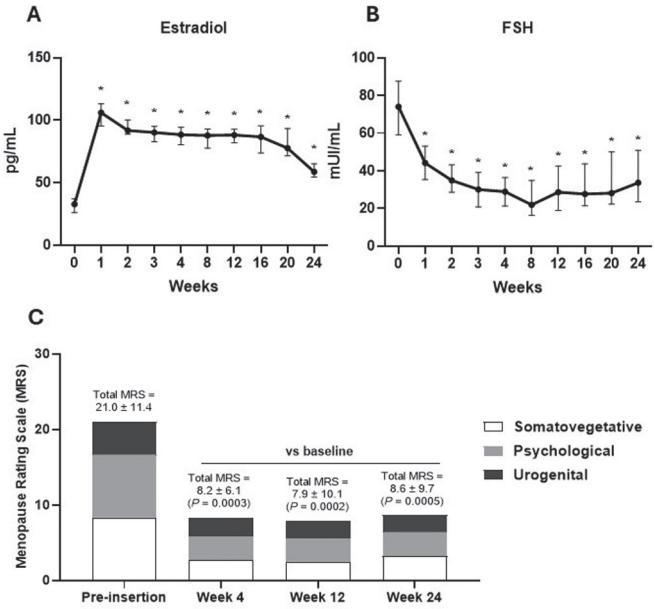
Objective: This study aimed to assess the pharmacokinetic profile and clinical outcomes of a 25 mg subcutaneous bioabsorbable estradiol implant in hysterectomized hypoestrogenic women with climacteric symptoms. **Design:** This was a prospective, open-label, single-arm study conducted at a single center with 20 participants who received a 25 mg subcutaneous estradiol implant and were followed-up at Weeks 4, 12, and 24 for clinical assessments, symptom evaluation, and safety monitoring. Hormone levels were measured using LC-MS/MS and immunoassays. Climacteric symptoms were assessed using the Menopause Rating Scale (MRS). Study registry: NCT06136208. **Results:** Serum estradiol levels increased significantly from pre-insertion to Week 1, stabilizing around ~80 pg/mL through Week 20 and above pre-insertion levels until Week 24. Estrone levels had a similar profile. FSH and LH declined, while SHBG, testosterone, and prolactin showed minimal variation throughout the study. Subcutaneous estradiol delivery resulted in a sustained pharmacokinetic profile characterized by a Tmax of 75.6 hours and a 6438.7 hours notably extended half-life (T1/2). Vasomotor and psychological symptoms decreased significantly. No serious adverse event was reported. **Conclusion:** The 25 mg estradiol implant demonstrated sustained pharmacokinetics, effective symptom relief, and high tolerability in hysterectomized women, thereby offering a novel therapeutic option for hormonal therapy.

Sources of Funding: This is investigator-initiated research supported by Biòs Farmacêutica.



P-110.

Effects of a Synbiotic Greens Drink Mix on GI symptoms and Mood in Perimenopausal Women: An Exploratory Analysis of a Randomized, Double-Blind, Placebo-Controlled Trial

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Objective: To evaluate the efficacy of a powdered dietary supplement drink mix containing pre and probiotics on gastrointestinal (GI) and related mood measures compared to a placebo as an exploratory analysis of perimenopausal women who participated in a clinical trial. **Design:** An exploratory analysis of data from a randomized, double-blind, placebo-controlled clinical study conducted virtually with no in person visits in 410 healthy women. Participants consumed the test product, a synbiotic greens powdered drink mix (containing 2 g prebiotic inulin fiber, 2.5 g greens blend [algae, vegetable, and fruit powder], and 5 billion CFU *Bacillus subtilis* DE111) or a placebo drink mix (maltodextrin) daily for 6 weeks. Exploratory outcomes assessed included diarrhea, constipation, feelings of anxiety, and mood (i.e., subclinical feelings of depression), evaluated by PROMIS validated questionnaires (PROMIS GI Diarrhea 6a, PROMIS GI Constipation 9a, PROMIS Anxiety 4a, and PROMIS Depression 4a). A mixed-effects linear regression model was used to evaluate the change in PROMIS scores over 6 weeks, adjusting for age, BMI, baseline symptoms, and the interaction between baseline and study week. Analyses were stratified by self-reported menstrual status. **Results:** The synbiotic greens test product demonstrated reductions in diarrhea in both perimenopausal and postmenopausal participants (slopes = -1.26 95% CI:[-1.67, -0.86] and -0.60 95% CI: [-0.93, -0.27], respectively. Diarrhea improvement was only significantly superior compared to placebo in the perimenopause group (contrast = -0.81, $p<0.05$). No significant differences were found for constipation for either group. Mood scores improved in the synbiotic greens perimenopausal group (slope = -0.18, 95% CI: [-0.30, -0.05]), though no significant treatment effects were observed. Feelings of anxiety also improved in the synbiotic greens perimenopausal group (slope = -0.34, 95% CI: [-0.51, -0.17]) and were statistically significant compared to placebo (contrast -0.26, $p<0.05$). **Conclusion:** The pre- and probiotic drink mix significantly outperformed placebo for improvement of diarrhea and feelings of anxiety in perimenopausal women. There was significant within group improvement in mood for perimenopausal women and diarrhea in postmenopausal women. The results suggest a gut-brain effect of the pre- and probiotic that warrants further research, particularly among females in a life stage that is associated with greater prevalence of mood disturbances and anxiety.

Sources of Funding: Perelel Health

P-111.

Exploring associations between acculturation and menopause-associated symptoms among midlife Latinas in the U.S

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Objective: In the United States, a growing proportion of women approaching menopause are Latina, constituting nearly 20% of women aged 45-54 years. Higher levels of acculturation, the process by which individuals adapt to and adopt aspects of a new culture (e.g., language, values, behaviors), have been inconsistently associated with greater menopause symptom reporting. However, few studies have focused on Latinas in the U.S or incorporated multiple proxy measures of acculturation. A better understanding of the relationship between acculturation and menopause-associated symptoms is essential for developing culturally tailored interventions that can enhance symptom management. The purpose of this analysis was to examine associations between acculturation and menopause-associated symptom reporting in midlife Latinas. **Design:** A cross-sectional analysis was conducted using data from two cohorts of midlife Latinas living in Iowa and North Carolina. The sample included 104 perimenopausal and early postmenopausal Latinas between the ages of 40 and 60 years. Participants completed questionnaires in English or Spanish to gather data on demographics, sociocultural factors, menopause-associated symptoms, health behaviors, and reproductive history. Acculturation was assessed using two variables: language (mostly/exclusively Spanish; Spanish and English equally; mostly/exclusively English) and length of time in the U.S (foreign-born and in the U.S<10 years; foreign-born and in the U.S ≥10 years; U.S-born). The frequency of 15 menopause-associated symptoms was assessed by self-report in the past two weeks (any versus none). We evaluated stress using the Perceived Stress Scale (PSS-4). Separate logistic regression models adjusting for age, education, and perceived stress were used to explore associations between each acculturation variable and menopause-related symptoms. **Results:** On average, participants were aged 47.0±4.1 years, 67.3% spoke and read mostly/exclusively Spanish, and 15.5% were U.S-born. The most frequently reported menopause-associated symptoms were forgetfulness (72%), joint pain/stiffness (71%), feeling tense/nervous (68%), and vasomotor symptoms (64%). The mean PSS-4 was 6.7±3.0. Speaking and reading mostly/exclusively Spanish was associated with lower perceived stress (β[SE]: -1.61[0.81], p=0.04) in adjusted models. The odds of vasomotor symptoms were higher for those who spoke and read mostly/exclusively Spanish (AOR: 3.84; 1.09-13.5) or English (AOR: 8.40; 1.34-52.67) compared to those who reported speaking and reading both languages equally. Length of time in the U.S was not significantly related to menopause-associated symptoms in adjusted models. **Conclusion:** In this sample of midlife Latinas from Iowa and North Carolina, we found that mostly/exclusively preferring Spanish or English was associated with higher vasomotor symptom reporting compared to speaking both languages equally. Sociocultural background often intersects with socioeconomic status and access to healthcare, which influence symptom perception and management. Thus, further research is needed to evaluate sociocultural factors related to menopause-associated symptoms in midlife Latinas.

Sources of Funding: This study was funded by the National Institutes of Health and the National Institute of Minority Health and Health Disparities (K23MD014767, PI: Cortés) and the National Heart, Lung, and Blood Institute (R56HL167745, PI: Cortés).

P-112.

Labia Fusion

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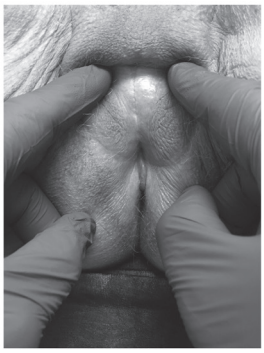
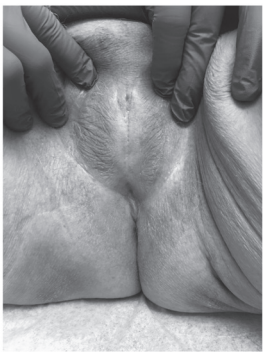
Objective: Vulvo-vaginal obliteration (Labia Fusion) is a rare condition, with fewer than 25 cases reported in the literature. This study presents 12 cases of vulvovaginal obliteration, with 3 cases of complete and 9 cases of partial obliteration. A shared characteristic among these patients was a prolonged period (10-35 years) without sexual activity and the absence of hormone therapy. This study aims to examine the presentation, treatment, and outcomes in patients with vulvovaginal obliteration, with a focus on the role of dilator and hormone therapy in post-operative management and potential enhancements in sexual function and prevention of the genitourinary syndrome of menopause consequences. **Design:** This retrospective analysis included 12 cases of vulvovaginal obliteration. **Results:** In the two most severe cases, patients presented with symptoms including total urinary retention, urocolpos, bladder distention, bilateral megaloureters, and hydronephrosis with abnormal renal function tests. Emergency procedures included opening the inter-labial fusion for urine drainage, followed by treatment with vaginal estradiol and gradual introduction of vaginal dilators. Immediate relief of symptoms was achieved upon opening the inter-labial fusion, with continuous urine drainage lasting up to 45 minutes. While vaginal estradiol alone was insufficient for maintaining the vaginal opening, the introduction of vaginal dilators proved effective. Over time, the required frequency of dilator use decreased. Notably, one patient (92 years old) reported experiencing orgasm for the first time following the use of dilators as a pelvic physical therapy. **Conclusion:** Early recognition and intervention are essential for managing vulvovaginal obliteration, with vaginal dilators playing a crucial role in post- operative care. But we would like to emphasize the importance of sexual activity (with or without a partner, and in this case, with the use of dilators) and local hormone replacement therapy in the prevention of this kind of severe manifestations of the genitourinary syndrome of menopause. The findings suggest that dilator use may offer therapeutic benefits beyond maintaining patency, potentially enhancing sexual function. Further research is needed to evaluate management options for vulvovaginal obliteration and similar conditions, including those resulting from Stevens-Johnson syndrome, radiation, and chemotherapy.

Sources of Funding: none





~by Dr. A. Domingaze-Bali

P-113.

Exploring the bidirectional relationship of menopause symptom burden and comorbidity burden during perimenopause

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Objective: Using cross-lagged modeling, this study investigates if a reciprocal relationship exists between Non-AIDS Comorbidity (NACM) burden and menopause symptom burden across time among women living with or without HIV (WLH; WwoH). **Design:** This retrospective analysis included women in perimenopause (24-58 yrs) enrolled in the Women's Interagency HIV Study who attended ≥2 study visits (2007-2019); current pregnancy, seroconversion and bilateral oophorectomy were exclusion criteria. We identified women in perimenopause using the 1st visit where they met STRAW+10 criteria for late perimenopause (index visit), then selected the visits 2 years before (wave 1) and after (wave 2) the index visit. We calculated descriptive statistics and conducted an autoregressive cross-lagged panel analysis to examine the bidirectional association of menopause symptom burden [reflecting the frequency of 9 symptoms (0-40), with higher scores indicating more frequent symptoms]; and NACM burden [total number of aging-associated conditions (0-10), with higher scores indicating higher burden] at 2 waves. We also examined the influence of HIV serostatus and hormonal birth control use (yes/no) on these relationships. Analyses were conducted using Stata v.18.5. **Results:** A total of 603 women (428 WLH, 175 WwoH) were identified at wave 1; median age was 46 (IQR=7) and 8.1% (n=47) reported hormonal birth control use. At waves 1 and 2, median menopause symptom burden was 7 (IQR=10) and 8 (IQR=10), respectively; at both waves, median NACM burden was 3 (IQR=3). After adjusting for select demographics and covariates (HIV serostatus, hormonal birth control), only menopause symptom burden significantly predicted later NACM burden **(Figure 1).** HIV serostatus was a small, but significant negative predictor of later NACM burden, and the use of hormonal birth control did not significantly predict menopause symptom burden. **Conclusion:** In our adjusted models, menopause symptom burden predicted later NACM burden, indicating a temporal association of menopause symptoms on later NACM burden.

Sources of Funding: 5K01DA053985 to Bender

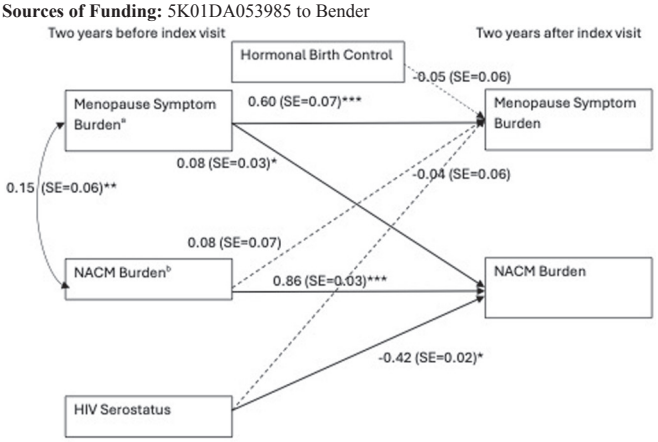

Figure 1. Standardized path coefficients for the adjusted two-wave cross-lag model.
Model controlled for age, race, income, education, and HIV serostatus at baseline. Double headed arrows represent covariance between Menopause Symptom Burden and NACM burden at Baseline
[a]includes: hot flashes, cold sweats, night sweats, musculoskeletal stiffness/soreness, tense/nervousness, irritability, trouble falling asleep, nighttime wakening, waking too early
[b]Non-AIDS Comorbidity (NACM) Burden includes hypertension, hyperlipidemia, cardiovascular disease, diabetes, chronic kidney disease, liver, bone and lung disease, psychiatric illness, non-AIDS-associated cancer
***p<.001 **p<.01 *p<.05

P-114.

The Effects of Estrogen-Based Menopause Hormone Therapy on Depression Symptoms in Perimenopausal and Early Postmenopausal Women: A Systematic Review and Meta-Analysis

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Objective: To systematically review and analyze the methodological characteristics and findings of studies examining the effects of estrogen hormone therapy (HT) on depression in perimenopausal and postmenopausal women. **Design:** Systematic review conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta Analyses. Our protocol was registered International Prospective Register of Systematic Reviews: CRD42025637268. Databases searched: Ovid MEDLINE, Ovid EMBASE, Pubmed (non-MEDLINE records only), Cochrane Central Register of Control Trials and Cochrane Database of Systematic Reviews. Search strategy was conducted by an information specialist (BL) using MeSH terms and keywords for HT, estrogen and depression. **Results:** Twenty-three studies meeting predetermined inclusion criteria (randomized controlled trials, controlled clinical trials, prospective/retrospective cohort studies, case-control studies, or cross-sectional studies with comparator groups) were identified and analyzed. Studies were published between 2001-2024 and represented diverse methodological approaches to investigating the effect of HT on depression and mood during the menopausal transition. Sample sizes varied, from small clinical trials (30-50 participants) to large population-based studies (>800,000 women), with most intervention studies including 40-200 participants, with the largest RCT (KEEPS-Cog) including 693 women followed for up to 4 years. This heterogeneity in sample size impacts the statistical power and generalizability of findings across studies. Intervention approaches demonstrated considerable diversity. Transdermal estradiol (50-100 μg/day) was utilized in 9 studies, while oral formulations including conjugated equine estrogens (0.45-0.625 mg/day) and estradiol valerate (1-2 mg/day) appeared in 8 studies. Eleven studies incorporated progestogens (micronized progesterone, norethindrone acetate, medroxyprogesterone acetate) with estrogen, while newer compounds like tibolone, bazedoxifene, and raloxifene were tested in 4 studies. Treatment durations ranged from 8 weeks to 4 years, with most studies employing 8–24-week protocols. Fourteen studies reported positive effects of HT on depressive symptoms, particularly in perimenopausal women and those with pre-existing depression history. However, 6 studies found no benefit or negative associations, and 3 large observational studies suggesting potential increased risk of depression with systemic HT in some populations. Several factors emerged as potentially influencing treatment effectiveness. Menopausal stage appears critical, with perimenopausal women showing more consistent benefits than postmenopausal women. The presence of vasomotor symptoms (VMS) influenced outcomes in some studies, though several demonstrated mood benefits independent of VMS reduction. Route of administration showed mixed results, with some studies finding advantages for oral preparations while others demonstrated benefits with transdermal delivery. The most compelling evidence supports estrogen's role in preventing depression onset during perimenopause and in treating depression in women with history of perimenopausal depression. Notably, estrogen withdrawal precipitated depression recurrence in susceptible women. However, the evidence for treating established depression in postmenopausal women remains less convincing. **Conclusion:** Depression is a common concern during menopause, and HT has been investigated as a potential intervention. However, the relationship between estrogen-based treatments and mood outcomes in menopausal and perimenopausal women remains complex. Our findings suggest that estrogen therapy for menopausal depression should be approached with careful consideration of individual patient factors including menopausal stage, depression history, and symptom profile, rather than as a one-size-fits-all treatment. The predominance of randomized controlled trials indicates a strong evidence base, while the inclusion of observational studies with comparator groups offers valuable real-world data.

Sources of Funding: None

P-115.

The use of Conjugated Estrogens and Bazedoxifene for the management of vasomotor symptoms in premenopausal and menopausal patients with endometriosis, a systematic review.

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Objective: To investigate the impacts of Conjugated Estrogens and Bazedoxifene (CE/B) for the treatment of perimenopausal and menopause in patients with a history of endometriosis. **Design:** This systematic review was developed in accordance with the Preferred Reporting Items forSystematic Reviews and Meta-Analyses (PRISMA) guideline. The protocol was prospectively registered withthe International Prospective Register of Systematic Reviews (PROSPERO; Registration ID: CRD42024617174). The search strategy was completed by one information specialist in June 2025 using relevant databases including Ovid MEDLINE, PubMed, Ovid EMBASE, and Web of Science. The search strategy included a combination of controlled vocabularies and keywords related to dysmenorrhea, dyspareunia, Endometriosis, perimenopausal, postmenopausal, systemic menopause hormone therapy, Duavive, Conjugated Estrogens and Bazedoxifene. Eligible studies included randomized controlled trials (RCTs), cohort studies, case reports and case-control studies that evaluated the use of Conjugated Estrogens and Bazedoxifene

for the management of vasomotor symptoms in premenopausal and menopausal patients with endometriosis. **Results:** A total of 1540 studies were retrieved based on our initial search strategy. Two coauthors (JMG, ES) independently review the results of the search strategy. After reviewing titles and abstracts, twenty studies were selected for full text review. Of those studies, two met the inclusion criteria. No RCTs, cohort, or case-control studies directly address CE/B in endometriosis patients. **Conclusion:** In pre-clinical models of endometriosis, CE/B have been successful in preventing endometriosis lesions and preliminarily improve endometriosis-related symptoms (i.e., pain) in patients. However, the impact of CE/B treatment on the vasculature in premenopausal and menopausal patients with endometriosis has not been investigated sufficiently. Bazedoxifene antagonizes estrogen receptors, and since endometriosis is estrogen-dependent, the combined effect of estrogen receptor agonism and conjugated estrogen delivery may alter systemic inflammation and/or directly impair endothelial function. Current evidence in humans is limited to two 2018 case-based reports (Flores and Hill), both suggesting symptom relief with CE/B (± leuprolide). No RCTs, cohort, or case-control studies directly address CE/B in endometriosis patients. Despite these knowledge gaps, available publications on the use of CE/B for treating endometriosis demonstrate that this treatment combination is effective for managing endometriosis-related symptoms while avoiding some of the side effects associated with traditional therapies. Well conducted clinical trials are needed to establish efficacy, safety, and vascular impacts in this population.

Sources of Funding: None

Author	Journal	Year	Study Design	Treatment duration	Sample Size	Key Findings
Flores	Obstetrics & Gynecology	2018	Case Report	>6 months	1 patient	Complete resolution of pelvic pain with no abnormal effects on hormonal, uterine, or ovarian parameters. Menses duration decreased from 7 days (requiring narcotics) to 3 days (light flow, no narcotics).
Hill	Clinical Case Reports	2018	Case Series	6 months to >2 years	3 detailed cases	Excellent pain relief in all cases without unwanted stimulation of breasts, CNS, or endometrium. Case 1: Pain relief within 1 month. Case 2: Complete symptom resolution for >2 years. Case 3: Complete pain relief and bleeding cessation for >5 months.

P-116.

The Use of Hormone Therapy in Borderline Ovarian Tumor Survivors, a Systematic Review

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Objective: To evaluate the following outcomes in women with Borderline Ovarian Tumors (BOT): the risk of developing BOT while using Hormone Therapy (HT), risk of recurrence of BOT tumors in women who use HT after diagnosis of BOT, and impact of HT on BOT survivorship **Design:** Systematic review conducted in accordance with Preferred Reporting Items for Systematic Reviews and MetaAnalyses. Our protocol was registered International Prospective Register of Systematic Reviews: CRD42021278341 The following databases were searched: Ovid MEDLINE, Ovid EMBASE, Pubmed (non-MEDLINE records only), Cochrane Central Register of Control Trials and Cochrane Database of Systematic Reviews. Search strategy was conducted by two information specialists using MeSH terms and keywords for HT and BOT, serous, mucinous, endometroid, Brenner and clear cell borderline ovarian tumors. Search was re-run in May 2025, and no new studies were identified **Results:** 469 studies were identified. 11 studies met the inclusion criteria. 4 studies found HT to be a risk factor for BOT development. 5 studies did not identify an association between use of HT and risk of BOT development. Nulliparity, lack of lactation, infertility, smoking and high BMI were reported as risk factors for BOT development. No studies addressed the use of HT on BOT survivorship or on BOT recurrence. Most of the studies focused on risk of BOT development rather than recurrence or survival post-diagnosis. Analyses of HT formulations and regimens (e.g., estrogen-only versus combined therapies) were lacking, with limited stratification by histological subtype. Three international guidelines were found that demonstrated a consensus on acceptability of HT for most BOT survivors, with consideration for individual patient factors. Quality of life outcomes, as well as hormone type/duration were poorly reported. No randomized controlled trials that assess HT use in BOT survivors. One study found no negative impact of HT use in BOT survival. There are currently no North American guidelines that address the use of HT in BOT survivors for symptomatic women. **Conclusion:** The available evidence does not indicate that post-operative HT adversely affects survival or increases disease recurrence in women who underwent surgical treatment for the management of BOT. The most comprehensive study found no association between post-diagnosis HT use and negative outcomes. Our review shows a trend toward increased risk of serous BOT associated with use of HT, especially with prolonged use but no increased risk for mucinous BOT. Major risk factors for recurrence due to surgical approach (conservative vs. radical treatment) and stage at diagnosis. Insufficient data that the risk differs significantly between estrogen alone and estrogen-progestin therapies. Future research including further evaluation of large population studies and databases is needed for the development of North American guidelines on the use of HT in BOT survivors.

Sources of Funding: None

Studies included

Author	BOT (N)	Age years	Surgery	Histology	HT use post surgery / Formulations used	Study type	Country	Outcomes
Mascarenhas	150	50-74	NS	Included EOC subtypes. Study did not provide breakdowns for BOT-specific histological classifications	51% EA or EP	Prospective cohort	Sweden	HT use did not impact survival when used before or after diagnosis. BOT recurrence after HT use was not assessed.
Sangnier	493	Mean: 48.8 (15-92)	USO and CC 3% USO 32% BSO 63% BC 2%	Serous 51.9% Mucinous 48.1%	1.6% – Formulation NS in BOT patients	Retrospective multicenter	France	Overall recurrence rate was 7.5%; recurrences included BOT type (5.7%) and invasive cancer type (1.4%). Risk factors for recurrence included conservative surgery (OR 7.07) and advanced FIGO stage (OR 5.86). Median time to recurrence for BOT was 44.1 months. Study does not provide specific information regarding use of HT after treatment for BOT in relation to recurrence or mortality. Short median follow up (~30 months)
Rasmussen	885	NS	Specific surgeries for BOT not specified	Serous 100%	22.7% /NS	Population-based case-control	Denmark	HT use increased the serous BOT risk (OR=1.32; 95% CI: 1.02–1.72), whereas OC use decreased the risk (OR = 0.40; 95% CI: 0.26–0.62). No correlation with the duration of use. BOT recurrence was not assessed.
Mills	74	Mean 50.2	NS	Serous 74.3% Mucinous 25.7%	35.1% for > 1 year /NS	Population-based case–control	USA	HT was linked to a modest elevation in risk of borderline tumors that did not achieve statistical significance. The odds ratio for HT use in BOT cases was 1.66 (95% CI: 0.91–3.02), specifically 1.71 in serous, and 1.44 in mucinous. Did not assess HT use link to post-treatment recurrence or survival outcomes. Limited sample size (74 cases), which underpowered the detection of HT effects
Morch	703	50-79	NS	NS	30.5% E or EP	Population-based cohort	Denmark	HT use for more than four years was associated with a 40–49% increase in BOT risk. Combined HT for >4 years significantly increased BOT risk, whereas estrogen-alone therapy showed a trend of increased risk that did not reach statistical significance. Both cyclic and continuous progestin HT regimens carried similar risk (no significant difference). HT use for 4 years or less did not increase risk (RR ~1.0). BOT recurrence and mortality after HT use was not assessed.
Riman	193	50-74	TL 1.6% Hysterectomy 7.8% USO 3.1%	Serous 57% Mucinous 42 % Endometrioid 1%	21.2% : HT 17.7% : Low potency estrogen EA EP	Population-based case-control	Sweden	Elevated risk of serous tumors and use of unopposed estrogen OR 2.07 (95% CI 1.08-3.95). No risk increase was seen in either serous or mucinous tumors, when progestins were added to the estrogens. High BMI was strongly associated with serous BOT risk (OR ~6).
Harlow	116	20-79	NS	Serous Mucinous	EA	Population-based case-control	USA	No association between the use of HT and the risk of borderline ovarian tumors irrespective of duration of use
Harris	327	Mean 44 ± 14.6	Hysterectomy 10% TL 7%	NS	Among HT users, 71.2% used EA therapy	Analysis of 9 US Case-Control Studies	USA	No association was seen between risk for BOT and use of EA HT (at least 3 months duration starting after age 40 years), nor was there any trend of increased risk with increased duration of EA use. No large effect of unopposed estrogen on borderline tumor risk.
Risch	83	Mean 52.3	Hysterectomy 14.5% TL 28.9%	Serous, Mucinous	8.4% EA	Case-control	Canada	HT did not cause a statistical significant increase in the risk of BOT
Modugno	151	Mean age 44.7	Hysterectomy 6.62% TL 19.21%	Serous 52% Mucinous 40% Endometrioid 2% Other 6%	NS	Population based case-control	USA	Estrogen only HT did not increase the risk of BOT
Kartaschew	207	Mean age 45	Bilateral Salpingo-oopherectomy in premenopausal patients 49.8%	Serous 23.7% Mucinous 26.6% Other 49.8%	32-41% dispensed HRT in the first five years. Mainly oral or transdermal estrogen.	Nationwide Population-Based Cohort Study	Sweden	53% of women were prescribed with HT at 0.5 to 1 year after surgery. Younger age and BOT histology were significant factors for HT dispensing. Significantly higher HT use in patients with BOT vs invasive cancer.

EA: Estrogen alone, EP: Estrogen + Progestin, OS: Overall Survival, USO: Unilateral Salpingo-oopherectomy

P-117.

Urinary incontinence trajectories among middle-aged and older women in the United States (2010-2018)

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Objective: Age is a significant risk factor for urinary incontinence (UI), defined as the unintentional loss of urine. Through its impact on physical and mental health, UI negatively impacts quality of life. UI has been noted to naturally improve/worsen throughout a woman's lifetime. However, trajectories of UI among middle-aged and older women are not well understood. Our objective was to describe trajectories and correlates of UI among women aged 50 and older in the US. **Design:** We used data from the Health and Retirement Study (2010-2018), a nationally representative study of older adults in the United States. Participants were asked if they lost any amount of urine beyond their control during the last 12 months, providing the basis of our UI variable. We included participants with complete information on baseline variables of interest as well as UI at the first follow-up (2012). We used latent class mixture models to calculate trajectories of UI as a function of years since baseline. We incorporated age, educational attainment,

race/ethnicity, parity, body mass index, and prior hysterectomy into the model as risk factors for group membership. We also conducted a sensitivity analysis including age of menopause as a risk factor for group membership in a smaller sample of women. We compared models with two to five trajectories, tested significance of functional forms, and compared Bayesian information criterion (BIC) posterior probabilities of group membership between models. **Results:** We identified three trajectories (n=9,814). First, the low-stable trajectory (47.8%) included participants with a consistently low prevalence of UI, ranging from 0.01-1.2% across waves. Second, the moderate-increasing group (26.7%) showed a rising trend, with UI prevalence ranging from 29.9%-53.9% across waves. Last, the high-stable group (25.5%), maintained a consistently high prevalence, with UI prevalence ranging from 87.1%-94.3%. At each wave, average days of UI in the past month ranged from 2.3 to 5.2 for those in the moderate-increasing group and 11.0 to 15.4 for those in the high-stable group. Older age, having a BMI>25, and having a hysterectomy was associated with higher odds of membership in both the low-increasing and high-stable group. Having 12 or more years of education and giving birth to four or more children was associated with higher odds of membership in the high-stable group. Identifying as non-Hispanic Black was associated with lower odds of membership in the low-increasing and high-stable group while Hispanic ethnicity was associated with lower odds of membership in the high-increasing group. Lastly, age of menopause was not associated with membership in any of the groups. **Conclusion:** Future work will incorporate time-varying characteristics, type of urinary incontinence (stress vs. urge), and address missing data. In our sample, over half of women experienced either moderate-increasing or high-stable UI over an eight-year period, highlighting a need to understand and more adequately address risk factors UI to improve quality of life of populations experiencing this health condition.
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P-118.
Exploring the Experiences of Genetic Testing and Early Menopause in Latinas with BRCA Mutations: An Interpretive Description Study

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Objective: Genetic testing for hereditary cancer risk has become a critical tool in cancer prevention; however, access remains unequal, contributing to significant healthcare disparities among historically marginalized groups. Latinas, in particular, continue to be underrepresented in hereditary cancer research, with evidence showing disparities not only in genetic testing uptake but also in subsequent cancer risk management and menopause care following risk-reducing interventions. This study used Thorne's Interpretive Description methodology to explore the lived experiences of Latinas with BRCA1/2 mutations, focusing on how menopause concerns influence decision-making and highlighting cultural, emotional, and familial dynamics shaping survivorship. **Design:** Following IRB approval, fifteen semi-structured interviews were conducted with self-identified Latinas residing in the United States who tested positive for a BRCA1/2 mutation but had not been diagnosed with cancer. Recruitment was conducted through FORCE (Facing Hereditary Cancer EMPOWERED). Interviews were conducted via Microsoft Teams after obtaining informed consent. Interpretive Description was chosen for its pragmatic, clinically applied approach, allowing for an exploration of participant experiences in a manner focused on generating actionable insights rather than building theoretical models. Data collection and analysis were concurrent and iterative, with interpretive themes developed to inform real-world healthcare practices. **Results:** Three major interpretive domains emerged: **Acceptance**: Participants' motivation for pursuing genetic testing was rooted in a proactive acceptance of personal and familial cancer risk. Many described a desire for empowerment, knowledge, and control over their health future, even while grappling with emotional fears. **Adaptation**: Participants navigated complex processes of self-identification after learning their genetic status. Cultural and religious beliefs, family dynamics, and motherhood deeply influenced their responses. Many described their health choices as expressions of cultural values emphasizing strength, sacrifice, and protection of future generations. **Emotional Resiliency**: Facing surgical decisions—particularly regarding risk-reducing salpingo-oophorectomy (RRSO)—required significant emotional resilience. Concerns about early menopause and its mental health impacts were central to deliberations. Participants often found empowerment through surgical decision-making, supported by peer connection, spiritual grounding, and a deep desire to create a healthier legacy for their families. Using Interpretive Description, this study moves beyond surface narratives to illuminate how Latinas integrate cultural identity, emotional resilience, and familial obligation into healthcare decision-making. It challenges traditional clinical frameworks by offering a nuanced, clinically actionable model for providers supporting diverse patients facing genetic risk and early menopause. **Conclusion:** Findings highlight that genetic testing disparities extend beyond access — they affect the quality of survivorship care, menopause management, and mental health support for at-risk populations. Addressing menopause concerns during genetic counseling, providing culturally tailored psychosocial interventions, and acknowledging the broader social and familial contexts in which decisions are made can improve cancer prevention outcomes and quality of life. Future interventions must be culturally responsive and integrative, bridging genetics, menopause education, mental health support, and community connection to close existing gaps in care. Latinas navigating BRCA-related cancer risk face a layered experience of acceptance, adaptation, and emotional resilience, shaped by cultural narratives, motherhood, and the drive to protect future generations. Understanding the intersection of genetic risk, early menopause, cultural values, and emotional health is essential for transforming healthcare models to achieve truly patient-centered, equitable care. Future efforts must bridge these realities to advance equity in cancer prevention, menopause management, and survivorship outcomes.
Sources of Funding: None

P-119.
Young adult blood pressure trajectories and midlife uterine fibroid prevalence

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Objective: Uterine fibroids are common non-cancerous tumors that can cause menorrhagia and pain. Some evidence suggests that hypertension may increase fibroid risk. We evaluated associations between young adult blood pressure (BP) trajectories and midlife fibroid prevalence, using gold-standard ascertainment of BP and fibroids. **Design:** We used data from female participants in the Coronary Artery Risk Development in Young Adults (CARDIA) Study, which recruited Black and White adults aged 18-30 in 1985-1986 with demographic and clinical measurements at years (Y) 0, 2, 5, 7, 10, and 15. At each visit, study staff measured BP 3 times and recorded the average of the last two. Participants' fibroids were ascertained by transvaginal ultrasonography at Y16. Among participants with an ultrasound and at least 3 longitudinal BP measurements (n=1160), we used group-based trajectory modeling to create systolic and diastolic BP trajectories. We used modified Poisson regression with robust standard errors to estimate associations between BP trajectory groups and any fibroid presence, adjusted for age (Y0), race, education (Y15), body mass index (Y0, change Y0-Y15), waist circumference (Y0, change Y0-Y15), parity (year 0, change Y0-Y15), cumulative pack-years smoking, menopause status (Y15), diabetes (Y15), and antihypertensive medication use and oral contraceptive use at each visit. **Results:** Approximately 54% of participants had visualized fibroids. For systolic and diastolic BP, the models with the best fit identified three trajectory groups, which roughly corresponded to low-steady, moderate-increasing, and high-increasing BPs (Figure). In unadjusted models, participants in the moderate-increasing and high-increasing trajectory groups had significantly greater prevalence of fibroids compared to the low-steady group (systolic risk ratios (RR): 1.31 (95% confidence interval (CI): 1.17, 1.48) and 1.34 (95% CI: 1.09, 1.66), respectively; diastolic RRs: 1.19 (95% CI: 1.04, 1.35) and 1.35 (95% CI: 1.12, 1.63), respectively). After adjustment, the prevalence of fibroids in the moderate-increasing trajectory group for systolic BP was still higher than in the low-steady group but attenuated (age and race adjusted RR: 1.14 (95% CI: 1.01, 1.28); fully adjusted RR: 1.12 (95% CI: 0.99, 1.27)). The high-increasing trajectory group did not have higher prevalence of fibroids in adjusted models. Diastolic BP trajectories were not associated with fibroid prevalence in adjusted models. **Conclusion:** Findings suggest that moderate-increasing versus low and steady young adult systolic BP trajectory may be associated with greater fibroid prevalence at midlife.
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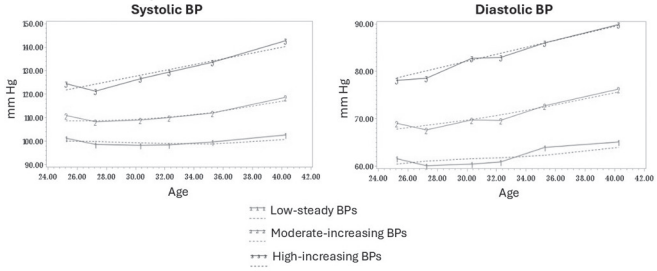

P-120.
Prevalence and Risk Factors of Metabolic Syndrome in Women with Natural Menopause

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Objective: The prevalence of metabolic syndrome increases as women transition through menopause. Metabolic syndrome is a cluster of cardiometabolic conditions—including dyslipidemia—that significantly elevate the risk of heart disease, stroke, and type 2 diabetes. Key lipid abnormalities associated with this syndrome include elevated triglycerides, reduced high-density lipoprotein, and increased low-density lipoprotein. Early identification of these biomarkers is critical for reducing the risk of comorbidities such as insulin resistance, type 2 diabetes, and cardiovascular disease. The objective of this study was to first identify the prevalence of metabolic syndrome among our cohort and then determine the association of metabolic syndrome with the age of natural menopause. Following this, we compared the relative risk of early and late age of natural menopause with metabolic syndrome. **Design:** In this study, we leveraged longitudinal electronic health record data from the All of Us Research Program, which included over 234,000 individuals assigned female at birth. We selected women who experienced natural menopause between 30 to 60 years of age, excluding those with menopause induced by hysterectomy, bilateral oophorectomy, radiation, chemotherapy, or who were on hormone replacement therapy. We extracted longitudinal data pre and post natural menopause age on lipid profiles, glucose biomarkers and body mass index. Rigorous quality control procedures were implemented, including the exclusion of missing data and harmonization of laboratory values to ensure consistency and reliability. We identified participants as having metabolic syndrome if they either had metabolic syndrome listed in their medical conditions or presented with abnormal lipid

and glucose biomarkers (triglyceride ≥ 150 mg/dl, high-density lipoprotein ≤ 50 mg/dl, and glucose ≥ 110 mg/dl) in accordance with the National Cholesterol Education Program criteria. Then we calculated the prevalence of the metabolic syndrome in our cohort. Following this, we ran six logistic regression analysis to determine the association of metabolic syndrome with age of natural menopause while iteratively adding covariates which included race, body mass index, and cardiovascular and diabetes medications. Lastly, we also calculated the relative risk of metabolic syndrome for women with early (≤40 years) and late (≥50 years) age of natural menopause. **Results:** The prevalence of metabolic syndrome in our cohort was 11.7% overall, 13.5% for early menopause and 10.8% for late menopause as shown in Table 1. Early age of natural menopause was found to be significantly associated with metabolic syndrome. From the six logistic models that we examined, model 6 performed the best with an estimated beta coefficient of–3.236 (95% Cl: -3.9224 to –2.5496), which included covariates for medications, race and body mass index (Figure1). The relative risk for developing metabolic syndrome was found to be 1.27 (95% CI: 1.05-1.53, Fisher exact t-test p-value = 0.014) when comparing early and late age of menopause. **Conclusion:** This study demonstrates that women who experience early natural menopause have a significantly higher risk of developing metabolic syndrome compared to those with later menopause. With a prevalence of 13.5% in the early menopause group versus 10.8% in the late menopause group, our findings revealed a 27% increased relative risk (RR=1.27, 95% CI: 1.05-1.53, p=0.014) of metabolic syndrome among women with early menopause. These associations remained significant even after comprehensive adjustment for potential confounding factors including medications, race, and body mass index, as evidenced by our most robust statistical model (β=-3.236, 95% CI: -3.9224 to -2.5496). These results suggest that age at natural menopause may serve as an important clinical indicator for metabolic risk stratification in postmenopausal women. Findings from this study underscore the importance of earlier and more vigilant screening for metabolic syndrome components in women who experience early menopause, potentially enabling timely preventive interventions to reduce cardiometabolic risk in this vulnerable population.

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P-121.

The High Undiagnosed Lethal Frequency of UTI in Late Menopause

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Objective: Urinary tract infection (UTI) is one of the most common bacterial infections in women, especially elderly women. The urethra of women is short compared to men this makes it easy for bacteria to travel through the urethra to the bladder and into the kidneys and bloodstream causing urosepsis. Menopausal conditions and symptoms sometimes make UTI unrecognizable, and some patients don't put significance to their symptoms as they are unaware and or their physicians don't recognize the subtle symptoms at these ages, and that can be fatal. As women age into menopause, the GSM severity increases, facilitating the recurrence of the UTI despite appropriate antibiotic therapy, especially when hormone therapy hasn't been given. Recurrent UTI is defined as 2 UTIs within 6 months or 3 or more symptomatic and medically diagnosed UTIs within 12 months, with the demonstration of complete resolution before diagnosis of a subsequent infection. Historically, antibiotics have been used to prevent recurrent UTIs but seeing the increasing adverse effects associated with long term antibiotic use, researchers have been studying the use of non-antibiotics such as D-mannose and the use of local and systemic hormone therapy. D-mannose works by binding to type 1 Pili and saturating the adhesins preventing adhesion of bacteria like E. coli to the urothelium. **Design:** Data was collected from systematic literature studies conducted over a 10-year period, investigating the management of UTI in postmenopausal women and the analysis of our own patients in the same period of time. The research also differentiated the women in categories based on age: one group of premenopausal women, another of healthy postmenopausal women aged 50-70 who are neither institutionalized or catheterized and finally a group of postmenopausal institutionalized women. Comparitebyl, very few patients were found to be on hormone replacement therapy (less than 5%) at those pages (more than 70 years old) in their home care institution. **Results:** In patients with concomitant disease or risk factors like diabetes mellitus, institutionalization in nursing homes, incontinence, advanced age and bacteriuria, there was a high association with increased mortality, due to undiagnosed recurrent UTI due to the poor symptomatology and lab results. No use of antibiotics, no hormone therapy and the secondary development of sepsis, pneumonia with clear respiratory symptoms. The diagnosis of pneumonia was done and that was the cause of the death in the death certification. The meta-Analysis showed a protective effect of D-Mannose compared to the placebo. But, a clear protection was observed in the few patients that, in geriatric ages (between octogenarians, nonagenarian, and centenarians) were receiving hormone replacement therapy. Some studies have discovered bacteriuria in association with increased mortality in the elderly. **Conclusion:** UTI is one of the most common bacterial infections in women with an increased risk of recurrence in postmenopausal women, E. coli being the most common bacteria with specific virulence for urothelial cells. Healthcare professionals should increase testing and diagnosing acute UTI in postmenopausal women and treat them appropriately, including the use atleast of local vaginal estrogen. Preventive measures such as the use of vaginal estrogen and D-Mannose have been proven to be protective against UTI. Risk factors include but are not limited to advance age, diabetes mellitus, urinary incontinence, poor hygiene and pelvic organ prolapse. Further research needs to be done to determine the effects of combining vaginal estrogen and D-mannose in postmenopausal women with relation to recurrent UTIs. Long term use of antibiotics can lead to drug resistance. Asymptomatic bacteriuria in elderly women should not be treated with antibiotics. Physicians taking care of this kind of population should be aware of the easy and frequent way in which undiagnosed recurrent uTI can progress to sepsis, pneumonia, and death. And understand that almost every woman at this age should regularly use local vaginal estrogen.

Sources of Funding: None

P-122.

Brain fog in menopause, a new symptom and its relationship with traditional menopausal manifestations. Evaluation of Colombian women workers

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Objective: The term "brain fog in menopause" is a recently introduced clinical consideration and corresponds to a constellation of cognitive manifestations reported by women in the climacteric stage, especially difficulty in memory, concentration and attention. Globally, there is recent interest in exploring brain fog in menopause and evaluating climacteric women who work regularly. Apparently, aspects that are part of the brain fog in menopause have not been evaluated in Latin American women linked to productive activity. The objective is to identify the frequency of brain fog in menopause and estimate its association with eleven of the menopausal symptoms traditionally studied, in women who fulfill an employment contract. **Design:** This cross-sectional study is part of the CAVIMEC [Quality of Life in Menopause and Colombian Ethnicities] research project. Sample size estimated with Data on the Participation of Colombian Women in the Labor Market [DANE]. Women were surveyed in their workplaces in public or private companies, aged between 40-59 years, with a contract of 8 hours/day of activity and residents in Colombian urban areas. Pregnant women or women with children under five years of age were excluded. Between February 1 and May 30, 2025, women were surveyed with a format to obtain personal information and apply two scales. First, the Brain Fog Scale (BFS), a tool with 23 questions to answer never, rarely, occasionally, many times or almost all the time. The items are grouped into three domains: mental fatigue, cognitive acuity impairment, and confusion. The overall score identifies brain fog. Second, the Menopause Rating Scale (MRS) identifies eleven traditional symptoms of menopause. On both scales, the higher the score, the greater the severity of the manifestations. Adjusted logistic regression was performed between brain fog (dependent variable) and eleven menopausal symptoms (independent variables), the covariates were: age, type of company, occupation and previous diagnosis of Covid-19. Anonymous study, with informed consent and approved by the ethics committee of the University of Cartagena, Colombia. **Results:** A total of 726 women were evaluated, mean age 50.2±5.8; BMI 25.4±4.1; mestizos 86.7%, Afro-descendants 11.6% and indigenous 1.7%. Premenopausal 29.0%, menopausal transition 14.5% and postmenopausal 56.5%. Mental fatigue was found in 45.7%, cognitive acuity impairment in 48.6%, confusion in 38.2%, and brain fog in 47.5%. Postmenopausal women vs. those who were still menstruating had a higher frequency of cognitive acuity impairment, confusion and brain fog ($p<0.01$), while no difference was observed in the frequency of mental fatigue ($p=0.29$). They had a history of diagnosed Covid-19, 3.4% of women with brain fog and 2.8% without brain fog ($p=0.64$). Between 15-17% reported many times or almost all the time: forgetting words or names, being distracted, upset, fatigued, sleepy, or mentally exhausted. Hot flashes OR: 2.10 [95%CI: 1.55-2.86]; palpitations OR: 2.86 [95%CI: 2.07-3.88]; sleep problems OR: 2.44 [95%CI: 1.80-3.30]; depressed mood OR: 2.61 [95%CI: 1.92-3.54]; irritability OR: 3.41 [95%CI: 2.50-4.65]; anxiety OR: 3.71 [95%CI: 2.72-5.08]; physical/mental fatigue OR: 3.39 [95%CI: 2.43-4.71]; sexual problems OR: 3.53 [95%CI: 2.58-4.82]; discomfort when urinating OR: 2.84 [95%CI: 2.04-3.93]; vaginal dryness OR:2.76 [95%CI:2.03-3.75] and muscle/joint pain OR:3.31 [95%CI:2.36-4.63] were related to brain fog ($p<0.05$). **Conclusion:** In a group of middle-aged Colombian women with regular work activity: four out of ten presented brain fog, and the eleven traditional symptoms of menopause identified by MRS were significantly associated with a higher chance of brain fog. It is suggested that BFS be used more widely, as it seems to be an interesting tool for identifying brain fog in menopause.

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P-123.

Religiosity is a factor associated with resilience in postmenopausal Colombian women who survived breast cancer

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Objective: Resilience is the ability of people to modulate and adapt to adverse life situations. Resilience is one of the tools that must be solidified in women who survive breast cancer to help cope with biopsychosocial situations related to the disease. There are strategies to increase resilience: support networks, lifestyles, and psychosocial support. Few studies explore the power of religiosity to strengthen the resilience of Latin American women survivors of neoplastic diseases. The objective is to establish the association between religiosity with resilience in postmenopausal women, breast cancer survivors and residents of the Colombian Caribbean. **Design:** This is a cross-sectional study, which is part of the Quality of Life in Women Breast Cancer Survivors [CAVICSEN] project, approved by the ethics committee of the University of Cartagena, Colombia. Women who survived breast cancer, were more than a year old from diagnosis, and were in postmenopausal condition (one year or more without menstruation) were surveyed. The women were invited to take part during home visits or when attending recreational

activities between January 2021 and April 2025. All signed informed consent. Those who did not wish to take part or had reading and writing difficulties were excluded. A form was applied that included sociodemographic and clinical questions and the items of two international scales, validated in Hispanic American populations. First, the Age Universal I-E Scale, a 12-question tool with five answer options that include three subscales: Intrinsic religiosity (items 1-6), personal extrinsic religiosity (items 7-9) and social extrinsic religiosity (items 10-12). The lower the score, the greater the attachment to intrinsic or extrinsic religiosity, both personal and social. To establish the adequate attachment to religiosity, the average score obtained in each subscale among the participants was used. Secondly, the Wagnild and Young Resilience Scale, a tool made up of twenty-five items that are answered Likert type assigning between 1-7 points. The scores are summed, and the higher results indicate greater resilience. The overall score varies between 25-175 points and <121 suggests low resilience capacity. Adjusted logistic regression was performed: resilience (dependent variable), religiosity (independent variable) and age, menarche, age at first pregnancy, body mass index, ethnicity, regular church attendance, family history of breast cancer, self-examination habit, lactation, metastasis, positive nodes, chemotherapy, radiotherapy, mastectomy and reconstructive surgery (covariates). **Results:** 520 women participated. Mean age: 51.7±7.2 years. Breast cancer survival time: 5.2±4.8 years. Postmenopausal time: 10.3±9.2 years. Among the participants, inadequate attachment to intrinsic, personal, extrinsic, and social religiosity was observed in 36.0%, 37.3%, and 65.6%, respectively. In addition, 9.8% had low resilience capacity. 2.7% did not profess any religion and 67.9% the Christian religion. 82.0% had a history of breastfeeding, 91.3% had mastectomy, and 15.9% had reconstructive surgery. No differences were found in the sociodemographic variables between those with low resilience vs. high/moderate resilience (p>0.05). Inadequate attachment to intrinsic religiosity and inadequate attachment to personal extrinsic religiosity were related to a higher possibility of having low resilience capacity, OR:1.87[95%CI:1.00-3.49], p=0.04 and OR:2.67[95%CI:1.42-5.00], p=0.002, respectively. The same occurred with inadequate attachment to extrinsic social religiosity, but without statistical significance, OR:1.14[95%CI:0.59-2.22], p=0.68. **Conclusion:** In a group of postmenopausal breast cancer survivors living in a Colombian Caribbean city, inadequate attachment to religiosity was associated with a higher chance of low resilience. Fostering an adequate attachment to religiosity could be a strategy of interest in the comprehensive care of postmenopausal women survivors of breast cancer.
Sources of Funding: None

P-124.
PH80 Nasal Spray: In Vitro Receptor Binding, Effects on Reproductive Organs in Mice, and Pharmacokinetic Profile in Humans—A Potential, Novel, Nonhormonal Treatment for Vasomotor Symptoms Associated with Menopause

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Objective: PH80 belongs to the novel pherine class of potential new intranasally administered therapies. Pherines are odorless, tasteless, nonhormonal, chemosensory receptor agonists that selectively bind peripheral receptors in human nasal chemosensory neurons (NCNs). Activated NCNs in turn trigger olfactory bulb-to-brain neurocircuits without requiring systemic absorption or uptake into the brain to achieve desired therapeutic benefits and differentiated safety. PH80 is hypothesized to treat vasomotor symptoms (VMS) as an agonist on receptors in NCNs that activate subgroups of microcircuits (glomeruli) in the olfactory bulbs connected to the limbic amygdala and hypothalamus, both of which are involved in regulating autonomic nervous system function and thermoregulation. In a phase 2a study of menopausal women experiencing moderate to severe hot flushes, low microgram doses of PH80 administered intranasally reduced the frequency and severity of hot flushes, with a placebo-like tolerability profile. To better understand PH80's mechanism of action, we characterized its in vitro binding profile on neurotransmitter and hormone receptors; in vivo effects on the uterus and seminal vesicles of mice; and plasma levels after multiple intranasal doses in healthy volunteers. **Design:** Standard receptor binding assays with PH80 were conducted in vitro. Agonist/antagonistic effects of PH80 were compared with those of estrogens and androgens in vivo using mice euthanized 24 hours after the last of 5 doses/day. Female mice received PH80, vehicle, estradiol benzoate, or tamoxifen, and uterine weights were recorded. Male mice were administered PH80, vehicle, testosterone propionate, or cyproterone, and seminal vesicle weights were recorded. In a pharmacokinetic study, 6 clinically healthy women of reproductive age were administered 1.6 μg of PH80 intranasally (0.8 μg/100 μL in each nostril); 7 additional doses of 0.8 μg/nostril were administered over time at 4, 5, 6, 8, 10, 12, and 14 hours after the initial dose. Every volunteer received a total quantity of 12.8 μg PH80, and blood samples were drawn at 0 hour (pre-dose control), and at 0.084, 0.25, 0.50, 1, 2, 4, 8, 12, and 24 hours post initial baseline dose. Plasma levels of PH80 were measured at each timepoint by liquid chromatography-tandem mass spectrometry. **Results:** PH80 lacked in vitro agonist activity with multiple neurotransmitter, transporters, and steroid receptors, including those for $GABA_A$, dopamine, serotonin, glutamate, opiate, estrogen, progesterone, and testosterone. In vivo, PH80 did not change uterine weight in female mice (n=30), while estrogen increased and tamoxifen decreased uterine weight. In male mice (n=30), PH80 did not change seminal vesicle weight, while testosterone increased and cyproterone decreased seminal vesicle weight. In the pharmacokinetic study, PH80 was not detected in any human female plasma sample at any time, and no adverse events were reported. **Conclusion:** The lack of effects of PH80 on steroid receptors supports a nonhormonal mechanism of action. Results also suggest that it is unlikely to have any abuse liability or withdrawal symptoms due to its lack of *in vitro* binding to abuse-related neurotransmitter receptors. The absence of PH80 in plasma after intranasal administration is consistent with the proposed nose-to-brain neurocircuit regulation, where PH80 acts locally as an agonist via receptors of NCNs rather than systemic absorption, which may reduce any potential drug-drug interactions. These data, in conjunction with phase 2a results showing reduced frequency and severity of VMS and a reasonable safety profile, support further evaluation of the efficacy and safety of PH80 for treating women with menopause-associated VMS in phase 2/3 clinical trials.
Sources of Funding: Vistagen Therapeutics, Inc

P-125.
Navigating the Margins of Menopause: Qualitative Experiences of Menopause Among Younger Women with Bilateral Salpingo-Oophorectomy

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Objective: Many women with a breast cancer genetic mutation (BRCA1/2) elect to have bilateral salpingo-oophorectomy (BSO; surgical removal of the ovaries and fallopian tubes) to mitigate their cancer risk. In addition to cancer risk reduction, however, BSO terminates the production of ovarian hormones. This has cascading effects throughout the body, including the immediate induction of menopausal symptoms. This form of menopause occurs at a younger age, more abruptly, and in a vastly different context than spontaneous (i.e., natural) menopause. The current study sought to understand the unique, subjective experience of menopause among younger women with BSO. **Design:** Semi-structured interviews of women with BSO (ages 36 – 48) underwent interpretative phenomenological analysis. The interviews, initially intended to focus on cognition, were replete with rich and varied experiences of menopause, which indicated the profound salience of menopause for this population. **Results:** Analyses revealed that for women with BSO, surgical menopause conferred a tension between the biological, psychological, and social selves. Participants grappled with living in a body that felt older than their chronological age and reconciling biological infertility during their childbearing years. They also experienced a degree of marginalization; they neither identified with older, post-menopausal women nor their pre-menopausal peers. Still, menopause was conceived of as a small sacrifice for a cancer-free life. Emergent themes were: *1) Not my Mother's Menopause; 2) Embodied Identity; 3) Liminal Social Spaces; and 4) Small Sacrifice for Life.* **Conclusion:** BSO-induced menopause is qualitatively distinct from spontaneous menopause. Participants' imaginary of menopause — that of a "60-year-old white-haired old woman" — precluded their lived experience. The disharmony between the condition they were told they were in and the condition they were experiencing created a sense of social exclusion and shifting identity.
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P-126.
Effectiveness of a Non-Hormonal Vaginal Gel on Vaginal and Vulvar Health in Postmenopausal Women with Breast Cancer: A Randomized Clinical Trial

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Objective: Vaginal moisturizers, used independently of sexual activity, are a therapeutic option for all women experiencing vaginal dryness, especially those who are unwilling or unable to use estrogen therapy. This study aimed to evaluate the effectiveness of a non-hormonal vaginal moisturizing gel in improving vaginal and vulvar health in postmenopausal women with breast cancer. **Design:** This single-center, open-label, randomized controlled trial included postmenopausal women aged 45–65 years with stage I–III breast cancer who had completed primary cancer treatment (surgery, chemotherapy, and/or radiotherapy), were sexually active (at least one heterosexual intercourse in the past month), and reported symptoms of vaginal dryness and/or dyspareunia. Women on adjuvant endocrine therapy were eligible. Participants were randomized into two groups: an intervention group receiving a vaginal moisturizing gel (containing sodium hyaluronate and polycarbophil, applied three times per week at night, n=50), and a control group using a water-based vaginal lubricant during sexual intercourse (n=50). The intervention lasted 16 weeks, with assessments at baseline, 8 weeks, and 16 weeks. Vaginal and vulvar health were assessed through the Vaginal Assessment Scale (VAS) and the Vulvar Assessment Scale (VuAS)—self-reported measures of dryness, soreness, irritation, and dyspareunia—as well as the Vaginal Health Index (VHI; clinician-assessed), vaginal pH, and the Vaginal Maturation Index (VMI; cytological analysis). The primary outcome was improvement in vaginal health as measured by the VHI. Ethical approval was obtained from the institutional Research Ethics Committee (Approval No. 6.057.155). The study was registered with the Brazilian Clinical Trials Registry (number RBR-5cf7vzj). Data analysis followed the intention-to-treat principle, using Student's t-test, Chi-square test, Poisson regression, and Wald's multiple comparison test. **Results:** Of the 100 randomized participants, 88 completed the 16-week intervention. Twelve participants discontinued: four in the moisturizer group (three lost to follow-up, one due to increased vaginal discharge) and eight in the control group (seven lost to follow-up, one due to disease progression). No serious adverse events were reported in either group. Adherence among those completing the study in the moisturizer group was high (85.9%). The mean age was 53.9 ± 5.2 years in the moisturizer group and 54.7 ± 5.4 years in

the control group (p=0.425). Among those who completed the study, 65.1% (28/43) of the moisturizer group and 60.5% (23/38) of the control group were on aromatase inhibitors, while 34.9% (15/43) and 39.5% (15/38), respectively, were on tamoxifen, with no difference between the groups (p=0.669). Baseline characteristics, including VAS, VuAS, VHI, pH, and VMI, were similar between groups (p>0.05). At 8 and 16 weeks, the moisturizer group demonstrated significant improvements in VAS (p=0.014) and VuAS (p=0.003) scores compared to the control. There was also a marked increase in VHI scores, indicating improvements in elasticity, fluid volume, epithelial integrity, pH, and moisture (p<0.0001). Vaginal pH decreased significantly in the moisturizer group by week 16 relative to controls (p=0.016). No significant between-group differences were found in VMI at the end of the study (p=0.213). **Conclusion:** The non-hormonal vaginal moisturizer was effective in improving vaginal and vulvar health parameters in postmenopausal women with breast cancer compared to a water-based lubricant. These findings underscore the importance of addressing vulvovaginal health in this population and support the use of a hyaluronic acid and polycarbophil-based moisturizer as a safe, effective, and well-tolerated non-hormonal treatment option for managing genitourinary syndrome of menopause (GSM) in breast cancer survivors.

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P-127.

OPTION-VMS: Preliminary Analysis of a Phase IV Observational, Real-World Study of Non-hormonal Pharmacotherapies for Bothersome Menopause-Associated Vasomotor Symptoms

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Objective: To evaluate the change in vasomotor symptom (VMS) bother in women initiating non-hormonal therapy (non-HT) for the treatment of VMS in a real-world setting. Additional outcomes include sleep quality, menopause-related quality of life, sexual health, mood, and work productivity. **Design:** OPTION-VMS is an ongoing Phase IV, longitudinal, observational, non-comparative study of female participants aged 40-75 years with confirmed menopausal VMS who were prescribed a non-HT for the treatment of VMS by their healthcare provider in a real-world setting. Non-HT treatments include fezolinetant (an NK3R antagonist, approved for treatment of moderate to severe VMS due to menopause); SSRIs/SNRIs; and other non-HT treatments (e.g., gabapentin, oxybutynin). This preliminary analysis assessed changes from baseline to week 12 in VMS bother via the MENQOL VMS domain score (primary outcome). Objective and subjective sleep characteristics were assessed via wearable medical grade actigraphy (ActiGraph LEAP®) and PROMIS SD SF 8b, respectively. Menopause-related quality of life, sexual health, and mood were assessed via MENQOL total scores and MENQOL sexual, psychosocial, and physical domain scores. Data were collected via electronic patient-reported outcome measures and a wearable device. Safety was assessed via collection of adverse events (AEs). **Results:** This study enrolled 761 women initiating non-HT for VMS, with 656 meeting full analysis set criteria (completing MENQOL at baseline and at ≥1 post-baseline visit). Women prescribed fezolinetant (n=201) demonstrated statistically significant improvements in VMS bother (Table), as indicated by reductions in MENQOL VMS domain scores at week 12 (primary outcome), and at weeks 4 and 8 (secondary outcomes). Fezolinetant treatment was associated with statistically significant improvements in actigraphy endpoints: wakefulness after sleep onset (WASO) and sleep efficiency at weeks 4, 8 and 12. Statistically significant reductions for the fezolinetant group were observed at weeks 4, 8, 12 in PROMIS SD SF 8b Total T scores and in total and additional MENQOL domain (sexual, psychosocial, physical) scores. Statistically significant improvements in PROMIS SD SF 8b and MENQOL total/domains were seen with SSRIs/SNRIs and other non-HT treatments, and in WASO only with other non-HT treatments. Incidence of fezolinetant-related treatment-emergent AEs was low. No safety concerns were identified. **Conclusion:** OPTION-VMS provides the first real-world data on the use of fezolinetant in women aged 40-75 years experiencing VMS and associated symptoms due to menopause. In addition to significant reductions in VMS bother, improvements in both objective and subjective sleep indices and menopause-related quality of life were observed with fezolinetant use. Improvements were also observed with SSRIs/SNRIs and other non-HT treatments. This study reinforces the efficacy, safety, and tolerability of fezolinetant in the real-world setting, consistent with existing evidence from fezolinetant clinical trials and adding to network meta-analyses findings, providing healthcare professionals with valuable data to make informed treatment decisions.

Sources of Funding: Astellas Pharma Inc.

Effect of fezolinetant on outcomes

	Baseline		Week 4				Week 8				Week 12			
	n	Mean	n	LSM change	95% CI	P-value	n	LSM change	95% CI	P-value	n	LSM change	95% CI	P-value
MENQOL VMS domain score	201	6.6	187	-2.4	-3.1, -1.8	<0.001	188	-2.6	-3.3, -1.9	<0.001	178	-2.9	-3.5, -2.2	<0.001
MENQOL Total score	201	4.4	187	-1.4	-1.8, -1.0	<0.001	188	-1.5	-1.9, -1.0	<0.001	178	-1.6	-2.0, -1.2	<0.001
MENQOL sexual domain score	201	3.8	187	-0.9	-1.6, -0.3	0.004	188	-1.1	-1.7, 0.4	0.001	178	-1.1	-1.7, -0.4	0.001
MENQOL psychosocial domain score	201	3.5	187	-1.0	-1.4, -0.4	<0.001	188	-1.0	-1.5, -0.5	<0.001	178	-1.0	-1.5, -0.5	<0.001
MENQOL physical domain score	201	3.9	187	-1.1	-1.6, -0.7	<0.001	188	-1.2	-1.6, -0.7	<0.001	178	-1.3	-1.8, -0.9	<0.001
PROMIS SD SF 8b Total T scores	201	59.1	183	-8.7	-11.4, -5.9	<0.001	186	-8.5	-11.3, -5.7	<0.001	178	-8.9	-11.6, -6.1	<0.001
Actigraphy														
Nighttime awakenings	194	27.7	149	-2.3	-5.3, 0.8	0.145	138	-2.3	-5.4, 0.9	0.161	121	-1.9	-5.0, 1.2	0.231
WASO	194	69.4	149	-14.1	-24.2, -3.9	0.007	138	-12.8	-23.3, -2.4	0.017	121	-15.2	-25.6, -4.8	0.004
Sleep efficiency	194	83.0	149	2.6	0.4, 4.7	0.019	138	2.3	0.07, 4.6	0.044	121	3.45	1.23, 5.7	0.002

CI, confidence interval; LSM, least squares mean; MENQOL, Menopause-Specific Quality of Life Domain; PROMIS SD SF 8b, Patient-Reported Outcomes Measurement Information System Sleep Disturbance – Short Form 8b; WASO, Wakefulness after sleep onset.

P-128.

Vasomotor Symptoms Due to Menopause after Treatment Discontinuation in Phase 3 Fezolinetant SKYLIGHT Studies

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Objective: Vasomotor symptoms (VMS) due to menopause can often recur after discontinuation of hormone therapy. The objective of this analysis was to characterize frequency and severity of VMS due to menopause after discontinuation of fezolinetant in the phase 3 placebo-controlled SKYLIGHT studies. **Design:** Fezolinetant is approved as a treatment option for moderate to severe VMS in many regions, including North America, Europe, Asia, and Australia at a dose of 45 mg once daily. SKYLIGHT 1 (NCT04003155) and 2 (NCT04003142) were identical 12-week, randomized, double-blind, placebo-controlled, phase 3 studies, followed by 40-week active treatment extension, in menopausal women. Participants were women aged ≥40 to ≤65 years with moderate to severe VMS initially randomized 1:1:1 to placebo, fezolinetant 30 mg, or fezolinetant 45 mg once daily; following the 12-week placebo controlled period, those on placebo were re-randomized to either fezolinetant 30 or 45 mg and those already on fezolinetant continued treatment. Data are presented here for participants who remained on placebo, fezolinetant 30 mg, or fezolinetant 45 mg over 52 weeks. The four coprimary endpoints for SKYLIGHT 1 and 2 were mean change in frequency and severity of moderate to severe VMS from baseline to weeks 4 and 12. **Results:** In SKYLIGHT 1 and 2, 1022 participants received ≥1 dose of study drug (SKYLIGHT 1: n=522, SKYLIGHT 2: n=500). SKYLIGHT 1 and 2 successfully met their primary endpoints; fezolinetant significantly reduced the frequency and severity of VMS compared to placebo. In SKYLIGHT 1, mean (SD) daily VMS frequency was 10.44 (3.92), 3.28 (3.56), and 3.82 (4.03) at baseline, week 52, and week 55, respectively, for the fezolinetant 45 mg group. Mean (SD) daily VMS severity was 2.40 (0.35), 1.62 (0.91), and 1.72 (0.77) at baseline, week 52, and week 55, respectively, for the fezolinetant 45 mg group. In SKYLIGHT 2, mean (SD) daily VMS frequency was 11.79 (8.26), 2.44 (3.56), and 3.41 (3.74) at baseline, week 52, and week 55, respectively, for the fezolinetant 45 mg group. Mean (SD) daily VMS severity was 2.41 (0.34), 1.41 (0.87), and 1.63 (0.78) at baseline, week 52, and week 55, respectively, for the fezolinetant 45 mg group. Trends in VMS frequency and severity were generally similar for the fezolinetant 30 mg group in both SKYLIGHT studies. Changes from baseline in VMS frequency and severity to week 52 (end of treatment) and week 55 (3 weeks post treatment discontinuation) are shown in the Table. **Conclusion:** SKYLIGHT results show that improvement from baseline in VMS frequency and severity was maintained, but there was a trend toward a decrease in improvement following treatment discontinuation.

Sources of Funding: This study was funded by Astellas Pharma Inc.

Table. Change from baseline in VMS frequency and severity after treatment discontinuation

SKYLIGHT 1			
-		Fezolinetant 30 mg (N = 173)	Fezolinetant 45 mg (N = 174)
VMS frequency	Week 52 mean (SD) change from baseline, n	-8.16 (7.54), 50	-7.17 (3.71), 49
	Week 55 mean (SD) change from baseline, n	-6.54 (5.59), 99	-6.79 (4.59), 104
VMS severity	Week 52 mean (SD) change from baseline, n	-0.74 (0.95), 50	-0.84 (0.99), 49
	Week 55 mean (SD) change from baseline, n	-0.65 (0.87), 99	-0.68 (0.84), 104
SKYLIGHT 2			
-		Fezolinetant 30 mg (N = 166)	Fezolinetant 45 mg (N = 167)
VMS frequency	Week 52 mean (SD) change from baseline, n	-8.03 (4.53), 53	-8.48 (3.98), 55
	Week 55 mean (SD) change from baseline, n	-7.08 (5.73), 103	-7.72 (4.37), 97
VMS severity	Week 52 mean (SD) change from baseline, n	-0.83 (0.82), 53	-0.95 (0.78), 55
	Week 55 mean (SD) change from baseline, n	-0.66 (0.73), 103	-0.76 (0.79), 97

P-129.

Top Reported Goals for Women Seeking Care with a Telehealth-Based Menopause Health Practice

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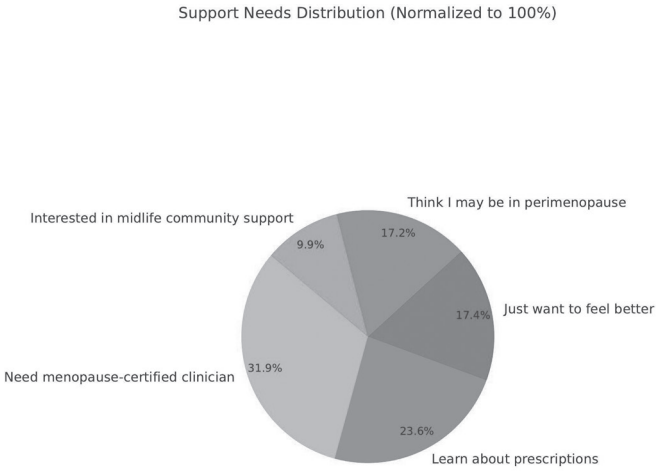
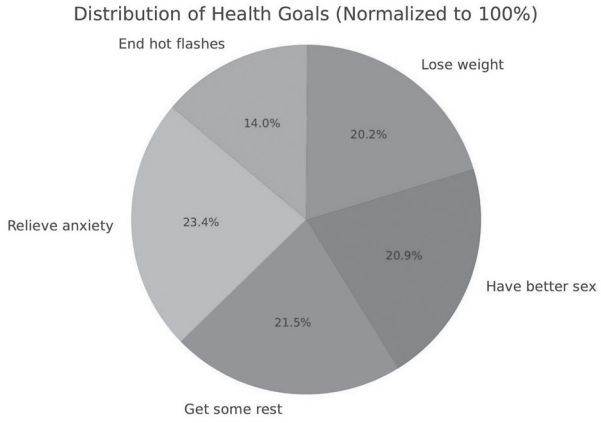
Objective: With the increasing adoption of telemedicine in midlife health care, understanding patient motivations is critical to optimizing access, services, and outcomes. Our menopause-focused telehealth practice systematically collects intake data from prospective patients via a digital questionnaire, capturing self-identified support needs and health goals. **Design:** Data were collected from 445 individuals who completed the intake questionnaire when exploring our telemedicine practice. Participants were allowed to select multiple concerns from predefined categories. We analyzed two key dimensions: (1) desired types of support and (2) primary health goals. Results were normalized based on total selections to account for multiple responses per participant. **Results:** Across 445 responders, 856 selections were made for **support needs**. The most frequently selected category was the need for **care from a certified menopause clinician** (31.9%), followed by **interest in learning about prescriptions** (23.6%). Additional priorities included a general desire to **"just feel better"** (17.4%), concern about **perimenopause symptoms and finding expert clinicians** (17.2%), and **community or peer support** (9.9%). For **health goals**, the same 445 responders entered 1,180 selections, which revealed that the most common objectives were to **relieve anxiety** (23.4%) and **get better rest** (21.5%). Close behind were desires to **improve sexual function** (20.9%) and **lose weight** (20.2%). Surprisingly, only 14.0% prioritized **ending hot flashes**, suggesting a broader spectrum of health concerns beyond vasomotor symptoms. **Conclusion:** These findings highlight a nuanced picture of midlife women's health concerns: emotional wellness, sleep, sexual health, and body image frequently outrank classic menopausal symptoms like hot flashes and night sweats in priority. Furthermore, there is a strong preference for expert-led, personalized care. Understanding these drivers can guide clinical care, digital outreach, and telehealth program development to align with patient-identified goals.

Sources of Funding: None





P-130.

Relationship Satisfaction and Social Support as Protective Factors Against Menopausal Symptom Burden: A Correlational Analysis

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Objective: The menopausal transition is marked by a wide range of physical, psychological, and cognitive changes that can substantially impact a woman's quality of life. While hormonal changes are central to the onset of these changes, emerging research highlights the importance of psychosocial factors in shaping the severity and experience of menopausal symptoms. In particular, the quality of interpersonal relationships and the availability of emotional and practical support may serve as critical buffers against symptom burden. Relationship satisfaction, especially within intimate partnerships, has been associated with better mental health outcomes and greater resilience during periods of physiological change. Similarly, perceived social support from family, friends, and significant others has been shown to mitigate stress and enhance coping capacity. However, few studies have systematically examined how these psychosocial resources relate to specific domains of menopausal symptoms. This study aims to explore the relationships between menopausal symptom domains and two key psychosocial variables: relationship satisfaction and perceived social support. By identifying which aspects of support are most strongly associated with symptom reduction, this research seeks to inform menopause care extending beyond biomedical interventions to promote well-being among midlife women navigating the menopausal transition. **Design:** Participants completed the Women's Health Questionnaire (WHQ), which assesses symptom domains including depression, anxiety, somatic complaints, sexual concerns, attention, and overall symptom burden. Relationship satisfaction was measured using the Couples Satisfaction Index (CSI), and perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS), which includes subscales for support from a significant other, family, and friends. A Kendall's tau-b correlation with a significance level of 0.05 was executed to examine associations between WHQ domains and psychosocial variables. **Results:** Higher relationship satisfaction was

significantly associated with lower levels of depressive symptoms (τb = -0.201, p = .014), somatic complaints (τb = -0.170, p = .036), anxiety (τb = -0.203, p = .013), attention-related symptoms (τb = -0.232, p = .023), and total symptom burden (τb = -0.292, p < .001). Perceived support from a significant other was negatively correlated with anxiety (τb = -0.212, p = .010), sexual concerns (τb = -0.169, p = .045), attention symptoms (τb = -0.243, p = .020), and total symptoms (τb = -0.287, p < .001). Family support showed the strongest associations, including with depression (τb = -0.254, p = .001), anxiety (τb = -0.265, p = .001), attention (τb = -0.281, p = .005), and total symptoms (τb = -0.303, p < .001). Friend support and total MSPSS scores also demonstrated significant negative correlations with several WHQ domains, particularly anxiety, attention, and overall symptom burden. **Conclusion:** This study highlights the important role of psychosocial factors—particularly relationship satisfaction and perceived social support—in shaping the menopausal experience. Higher levels of couple satisfaction and support were consistently linked to lower symptom burden across multiple domains of the Women's Health Questionnaire, especially in psychological and cognitive areas such as depression, anxiety, and attention. Family support emerged as the strongest protective factor, with the most robust association observed for overall symptom reduction. Support from significant others and friends also contributed meaningfully, reinforcing the value of diverse support networks. These findings emphasize that psychosocial well-being is a critical, yet often underrecognized, component of menopause care. Integrating relational and social dimensions into clinical practice may enhance support for women navigating this life stage.

Sources of Funding: None

P-131.

Prevalence and Predictors of Sexual Dysfunction in the Postmenopausal Years: A Cross-Sectional Study in Southern Brazil

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Objective: In the context of postmenopausal women, sexual dysfunction (SD) is a significant concern, affecting 50% to 70% of this population. Addressing sexual health in postmenopausal women requires a comprehensive and individualized approach. The use of simple tools can help to address SD. The objectives of this study were verifying the prevalence and the associated variables with SD among postmenopausal women. **Design:** Cross-sectional study with random sequential observational sampling of 108 postmenopausal women seen at the Gynecology Outpatient Clinic of Hospital São Vicente de Paulo (HSVP), Passo Fundo, Rio Grande do Sul, Brazil, from August 2023 to January 2025. Women with premature ovarian failure were excluded. Sexual function was assessed using the validated Female Sexual Function Index 6-item questionnaire (FSFI-6), with the cut-off point for sexual dysfunction being scores less than or equal to 20. The variables checked were age, whether they worked, parity, pregnancies, fixed partnerships, time since menopause, use of systemic (estrogen or estrogen plus progestogen) and/or vaginal hormone therapy (estriol, estradiol or promestriene) for local effects (HT), type of menopause (natural or non-natural (surgery or chemotherapy), medication and comorbidities such as hypertension, diabetes mellitus and thyroid disease. The sample size calculation, considering a prevalence of DS of 71% and a confidence interval of 95%, was 80 participants with a variation of 20%. Statistical analysis included a T-test for independent samples, Mann-Whitney U-test, Fisher's exact test and Pearson's correlation. Data analysis was performed using SPSS (version 24.0). The research was approved by the local ethics committee CAAE: 69779223.5.0000.5342. The women who agreed to participate voluntarily in the study signed an informed consent form. **Results:** The study included 108 postmenopausal women. The average age of the group was 60.0 ± 7.3 years, 77.8% had a steady sexual partner, 42.6% worked, 27.8% used HT and 89.7% had comorbidities. The average time since menopause was 11.2 ± 7.4 years, and 52.7% had been menopausal for less than 10 years. The median parity was 2.0 (2.0-3.0) births, and the median number of pregnancies was 3 (2.0-4.0). Of the sample, 76.8% had natural menopause and 23.1% had unnatural menopause, including bilateral oophorectomy or chemotherapy/radiotherapy. The prevalence of SD among the 108 patients was 77.8% (n=84). DS was more prevalent as women's age increased (r=0.21; p=0.026). Among the women with DS, 72.6% had no fixed sexual partner, while among the women without DS, 95.8% had a fixed sexual partner (p=0.013). Women who used vaginal HT had less DS than those who did not use vaginal HT (p=0.045). There was no significant difference between SD and parity, type of menopause (natural or surgical), length of menopause, comorbidities and whether they were working. **Conclusion:** The results of this study indicate that the risk profile for DS is older age, not having a fixed sexual partnership and not using vaginal HT.

Sources of Funding: None

P-132.

Impact of Reproductive Factors on Bone Mineral Density Among Thai Postmenopausal Women

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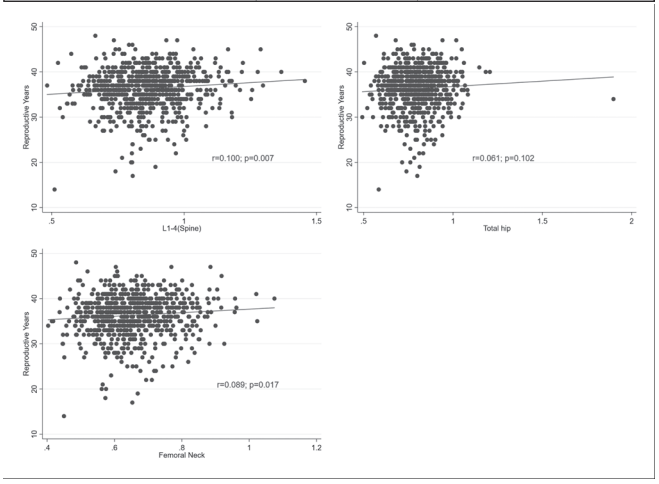
Objective: To describe the reproductive factors among postmenopausal women with normal BMD and those with osteopenia/osteoporosis, and to explore the relationship between reproductive factors and BMD. **Design:** This cross-sectional study was conducted among postmenopausal women aged 50–70 years without history of osteoporosis. Data collection was between May-December 2024 at King Chulalongkorn Memorial Hospital, Thailand. BMD was assessed using dual-energy X-ray absorptiometry. Reproductive factors were obtained by structured interview. Relationship between reproductive factors and BMD were analyzed using Spearman's rank correlation and chi-square tests. **Results:** A total of 735 postmenopausal women were included (mean age 60.2±5.1 years). The mean age at menopause was 49.8 ± 4.2 years, menarche 13.5±1.8 years, and reproductive years 36.3 ± 4.6. Of all participants, 52% had given birth, and 87% of those had breastfed. Based on BMD measurements, 25.1% had normal BMD, 56.2% had osteopenia, and 18.7% had osteoporosis. No associations were observed between parity or breastfeeding and bone mass status. However, reproductive years showed positive correlation with BMD at the spine and femoral neck, but not at the total hip. Age at menarche and menopause showed no significant correlation with BMD. **Conclusion:** In this study, no associations were observed between reproductive factors such as childbearing and breastfeeding and bone mineral density (BMD). A positive correlation between reproductive years and BMD at the spine and femoral neck suggests a potential protective role of prolonged estrogen exposure, highlighting the clinical relevance of reproductive lifespan in osteoporosis risk assessment.

Sources of Funding: Thailand Science Research and Innovation Fund Chulalongkorn University (HEAF67300068)

Reproductive risk profiles among normal BMD group VS Osteopenia/Osteoporosis group, (N=732)

	Normal BMD (n=184)	Osteopenia/Osteoporosis (n=548)
Childbirth, N(%) : No	87 (24.9)	263 (75.1)
Childbirth, N(%) : Yes	97 (25.4)	285 (74.6)
Breastfeeding, N(%) : No	9 (19.6)	37 (80.4)
Breastfeeding, N(%) : Yes	88 (26.2)	248 (73.8)
Type of menopause, N(%) : Natural	162 (25)	486 (75)
Type of menopause, N(%) : Others	22 (26.2)	62 (73.8)



P-133.

Associations between Objective and Subjective Sleep and Sexual Function in Midlife Women

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Objective: Sleep disturbances and sexual dysfunction are prevalent issues among midlife women, particularly during the menopause transition. Prior research has demonstrated that sexual function declines for many women during perimenopause, due in part to biological, psychological, and behavioral changes. However, limited work has examined the relationship between sleep, particularly using objective measures, and sexual function. We tested whether objectively- and subjectively-assessed sleep were associated with worse sexual function among midlife women after adjusting for potential confounding variables. **Design:** Participants included 274 midlife women (99% postmenopausal) not taking hormone therapy or selective serotonin or serotonin norepinephrine reuptake inhibitors. Women completed a 3-day actigraphy protocol (sleep onset latency [SOL, min], wake after sleep onset [WASO, min], total sleep time [TST, hours], and sleep

efficiency [SE, %]); provided self-report measures of sleep quality (Pittsburgh Sleep Quality Index; PSQI) and symptoms of insomnia (Insomnia Severity Index; ISI), sleep apnea (Berlin Questionnaire), and depression (Center for Epidemiological Studies-Depression); past-month sexual function (6-item Female Sexual Function Index; queries desire, arousal, lubrication, orgasm, satisfaction, pain), and medical history interview. Per FSFI scoring, analyses were restricted to women reporting past-month sexual activity (N=121 women). Associations between sleep variables and sexual function were tested via linear regression models adjusted for age, race, education, partner status, depressive symptoms, vaginal estrogen use, sleep medication use, night shift work, and sleep apnea. **Results:** Women were 45-66 years old [*M(SD)*=58.3(4.3)] and identified as Asian or Pacific Islander (2%), Black (16%), Multiracial (1%), or White (81%). Sexual function was found to be in the normal range [FSFI: *M*(*SD*)=20.5 (5.1)]. Longer actigraphy-assessed total sleep time [B(SE)= -1.21 (.432), p=.006; Figure 1] and more insomnia symptoms [B(SE)= -.194 (.089), p=.031] were associated with worse sexual function. **Conclusion:** Midlife women with longer objective sleep time and more subjective insomnia had worse sexual function, even after considering confounding factors, including depressive symptoms. Poorer sleep at midlife may have negative implications for sexual function. Results suggest potential utility in addressing poor sleep to in midlife women to improve sexual function.

Sources of Funding: NIH grants R01AG053504, R01HL105647, 2K24HL123565, K23HL159293

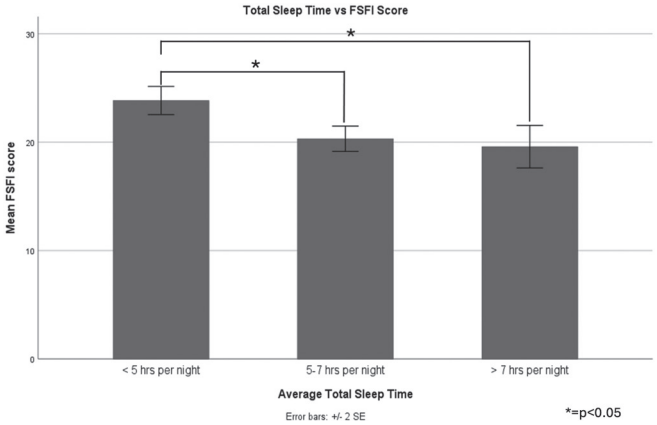

Figure 1: Total sleep time (TST) in hours and female sexual function index (FSFI) total score (TST displayed as tertiles for illustrative purposes)

P-134.

Comparative Analysis on Endometrial Effect of Hormone Therapy in Patients with Breast Cancer

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Objective: This study evaluated factors that can predict and facilitate the follow-up of endometrial lesions using ultrasound in breast cancer patients treated with commonly used antihormone therapies. **Design:** This retrospective multicenter cohort study analyzed 225 endometrial biopsies from women who received tamoxifen(Group 1), tamoxifen+GnRH agonist(Group 2), aromase inhibitors (Group 3) for breast cancer. The ultrasound parameters measured and recorded included endometrial thickness and abnormal ultrasonographic findings. Clinical characteristics were compared according to the presence of endometrial pathology (atypical hyperplasia and cancer). **Results:** Among 225 biopsies, atypical endometrial hyperplasia and cancer were diagnosed in 12 women(5.3%). Endometrial polyps are the most frequent endometrial pathologies associated with tamoxifen, associated with the response to estrogenic stimulation. When comparing women with endometrial polyps and those with endometrial hyperplasia or cancer, the presence of abnormal uterine bleeding was more common in patients with endometrial hyperplasia or cancer ($p<0.001$). Duration of tamoxifen use and endometrial thickness (≥8mm) were associated with endometrial polyps, hyperplasia, cancer. **Conclusion:** Endometrial thickness, and the presence of abnormal vaginal bleeding, but not body mass index, and adjuvant chemotherapy, may be associated with endometrial pathology during tamoxifen use in women with breast cancer. This finding might provide useful information for gynecological surveillance and counseling during tamoxifen treatment.

Sources of Funding: None

[Table 1] Endometrial Assessments for Endometrial Hyperplasia or Endometrial Cancer

	No treatment (n = 29)	Tamoxifen (n = 123)	Tamoxifen + GnRH agonist (n = 42)	Aromatase inhibitor (n = 31)	P value
Criteria 1					<0.001
Endometrial thickness < 8mm	23 (79.3%)	37 (30.1%)	24 (57.1%)	27 (87.1%)	
Endometrial thickness ≥ 8mm	6 (20.7%)	86 (69.9%)	18 (42.9%)	4 (12.9%)	
Criteria 2					<0.001
Endometrial thickness < 10mm	26 (89.6%)	50 (40.6%)	29 (69.0%)	27 (87.1%)	
Endometrial thickness ≥ 10mm	3 (10.4%)	73 (59.4%)	13 (31.0%)	4 (12.9%)	
Criteria 3					<0.001
Endometrial thickness < 12mm	28 (96.5%)	67 (54.5%)	36 (85.7%)	29 (93.5%)	
Endometrial thickness ≥ 12mm	1 (3.5%)	56 (45.5%)	6 (14.3%)	2 (6.5%)	

[Table 2] Comparisons of Characteristics between Women with Endometrial Pathology (Hyperplasia or Cancer) vs. Normal Endometrium in Tamoxifen users

Characteristics	Normal (n=54)	Hyperplasia or cancer (n=9)	p value	Cancer (n=3)	p value
Age at biopsy (yr)	47±4.9	50	0.047	41	0.007
Body mass index (kg/m2)	21.77±4.4	24.96	0.039	25.45	0.891
Tamoxifen duration (days)	957.2±652.7	1025.1±743.8	0.782	1237±902.0	0.062
Abnormal uterine bleeding	13(24.1%)	6(66.7%)	0.022	2(66.7%)	**<0.001**
Endometrial thickness (mm)	**11.0**	**15.9**	**<0.001**	**17.5**	**<0.001**
Abnormal ultrasonographic findings					
Severe echogenicity	**8**	**3**	**N.S**	**3**	**N.S**
Cystic change	**21**	**5**			
Fluid collection	**4**	**1**			

P-135.

Participation in a self-guided online exercise program improves leg strength and endurance: Chair stand test results

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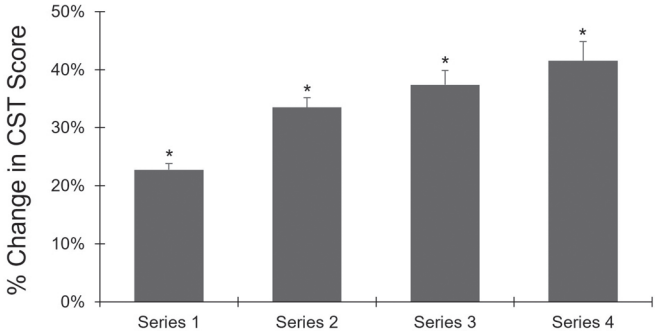
Objective: To evaluate the effect of a self-guided online exercise program on a metric of leg strength and endurance that is correlated with fall risk (30-second chair stand test, CST). **Design:** Over 25% of older adults fall at least once per year, and falls are a key cause of head injury and hip fractures.[1] Exercises that increase lower body muscle strength and endurance are critical for improving balance and reducing fall risk.[1] We developed a self-guided, online exercise program (Osteoboost Fit) designed for women in midlife and older to improve muscle strength (legs and arms) and balance. The program has 30-minute resistance training sessions, each comprised of 12-16 exercises. The sessions get more challenging over time. Users are instructed to complete 3 sessions/week. To evaluate progress, users are prompted to self-report the result for a CST assessment before the first session (Baseline) and then after completing every 18 sessions (called a workout series) thereafter. The CST assessment measures the number of times an individual can stand up ("repetitions") from a chair without using their arms over 30 seconds. We analyzed CST results for commercial users (age range: 40-89 years old) of the program. Valid CST scores for a workout series were scores entered 17-63 days after the previous series' score to ensure users had completed at least 2 sessions/week and at most 1 session/day. The program allows CST score entries in the range of 1-20. CST scores of 1 were excluded, as they often reflected a learning curve and were followed by a repeat assessment. Users with a Baseline CST score of 20 were excluded from the analysis since they could not show improvement. **Results:** Compared to Baseline, CST scores increased by 22.8% (=+2.5 repetitions) after one workout series ($p<0.001$, n=680 participants) and 41.5% (=+4.6 repetitions) after four series ($p<0.001$, n=109) (Fig. 1). Importantly, 66.9% of users achieved a clinically meaningful improvement of ≥2.0 repetitions[2] after one workout series. Among the 138 users who began at increased fall risk (indicated by a below average CST score[3]), 79.7% achieved an average or above CST score after one workout series. **Conclusion:** Use of a self-guided exercise program provided rapid, statistically significant, and clinically meaningful improvements in lower body strength and endurance for an older female population. Improvements were seen after users completed only one series of 18 workout sessions, and further benefits were achieved with additional sessions. Accordingly, a convenient, home-based exercise program can be an important tool for reducing fall risk in older women. **References:** [1]https://www.cdc.gov/falls/data-research/facts-stats/index.html [2]Wright et al., 2011, J Orthop Sports Phys Ther 41:319 [3]Rikli et al., 1999, J Aging Phys Activity 7:129

Sources of Funding: Wellen Inc.



% change in CST score vs Baseline. Each CST score was recorded after completing the given workout series. *p<0.001 vs. Baseline (paired t-test), error bars = SEM.

P-136.

Cross-sectional Associations between Hormonal Therapy and Migraine among 3,052 Menopausal Women in the ELSA-Brasil study

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Objective: To evaluate the relationship between Hormonal Therapy (HT) and migraine disorders in menopausal women from the Brazilian Longitudinal Study of Adult Health (ELSA-Brasil) **Design:** This is a cross-sectional study. We included 3,052 menopausal women (> 12 months from last menstruation) from the six centers of the ELSA-Brasil study at wave 1 (2008-2010). Assessment of women's health, including current HT (oral and transdermal), was conducted using a standardized questionnaire, and migraine diagnosis (confirmed or probable migraine) was based on ICHD-3 criteria following in-person interviews. The odds ratio (OR) with a 95 % confidence interval (CI) was reported for the associations between HT and migraine. All models were adjusted for age, education, income, physical activity, smoking, alcohol consumption, ultra-processed foods intake, use of migraine prophylactic drugs, and time under HT. **Results:** Of 3,052 participants (mean age: 58.8, SD±6.4 years), migraine was identified in 32.5 % (994/3,052) of participants. Use of any HT was identified in 3,3 % (103/3,052) of the sample. Of these, 41.7 % (43/103) presented with any migraine disorder. The most common HT used were oral estradiol + norethisterone acetate (52.4 %; 54/103), oral estradiol + drospirenone (26.2 %; 27/103), and transdermal estradiol + norethisterone acetate (15.5 %; 16/103). Compared to no migraine, the use of any HT was associated with higher odds for migraine, albeit not significant [OR: 1.40 (0.90, 2.17), p = 0.133], after adjustments for sociodemographic, clinical, and lifestyle factors. However, after excluding the use of transdermal HT (n = 17), oral HT was significantly associated with migraine [OR: 1.61 (1.01, 2.56), p = 0.045]. **Conclusion:** HT, especially orally administered, was associated with higher migraine prevalence in menopausal women in the ELSA-Brasil study. Given these findings, the choice of administration route can be a crucial factor when managing migraine in menopausal women.

Sources of Funding: The ELSA-Brasil baseline study was funded by the Brazilian Ministry of Health (Science and Technology Department) and the Brazilian Ministry of Science and Technology (Brazilian Funding Authority for Studies and Projects – FINEP, and the Brazilian National Research Council – CNPq). Grants of baseline: Rio Grande do Sul State (01 06 0010.00), Bahia State (01 06 0212.00), Espírito Santos State (01 06 0300.00), Minas Gerais State (01 06 0278.00), São Paulo State (01 06 0115.00), and Rio de Janeiro State (01 06 0071.00); Arão B Oliveira is receipt of post-doctoral scholarship from FAPESP (Grant no. 2023/03011-5).

P-137.

Health and Nutrition Attitudes Among Perimenopausal and Menopausal Women: A Cross-Sectional Survey

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Objective: The menopause transition is marked by physiological adaptations known to influence metabolic health. Although lifestyle interventions are gaining attention, how women perceive and manage their health through nutrition at this stage remains underexplored. This study aimed to assess attitudes, behaviors, and knowledge related to nutrition among perimenopausal and menopausal women. **Design:** A cross-sectional online survey was conducted using SurveyMonkey. Links were shared on social media and distributed within the researcher's personal network. Data collection was anonymous. A total of 287 women aged 35 years and older, self-identified as perimenopausal or menopausal, completed a 13-item questionnaire. The survey assessed hormone therapy use, dietary practices, supplement intake, resistance training frequency, confidence in nutrition knowledge, and information sources. Descriptive statistics were used to analyze responses. **Results:** Respondents were primarily aged 46–55 (62.2%), followed by 35–45 (25.5%). Most were not on hormone replacement therapy (61.4%) or testosterone (75.8%). While 74.6% believed their nutritional needs had changed during menopause, only 31.4% had discussed metabolic changes with a provider. A majority (90.2%) reported that their body had changed even if dietary patterns had not. Confidence in nutrition knowledge varied; 19.2% were not confident at all, while only 7.7% felt very confident. Primary sources of health information included doctors (49.8%), internet searches (49.5%), and social media (43.2%). The most common diets followed were high-protein (28.7%) and low-carbohydrate (19.1%), though 39.9% did not know their daily protein intake. Supplements used included vitamin D3 (64.1%), magnesium (51.6%), and collagen (42.5%). Nearly half (47.2%) engaged in resistance training 3–4 times per week. About 20.8% reported using weight loss medications, most commonly semaglutide. **Conclusion:** Although most women perceived changes in their body and nutritional needs during menopause, provider engagement was limited, and confidence in nutrition knowledge was low. These results emphasize the importance of proactive, evidence-based support from healthcare providers to help midlife women optimize their nutritional and metabolic health.

Sources of Funding: None

P-138.

Hypersexuality With the Use of Serotonin Receptor Inhibitors in Menopausal Women

Amarilys Perera[1,2], Alberto Dominguez Bali[3], Catherine Dominguez-Bali[3], Armita Zarrinidarban, MD[1,2], Carolina Dos Santos[1,2], Shweta Verma, M.D.[1,2]. [1]American University of Antigua, Coolidge, Antigua and Barbuda; [2]Florida International University, Miami, FL; [3]Miami Center of Obstetrics, Gynecology, and Human sexuality, Miami Center of Obstetrics, Gynecology, and Human sexuality, MIAMI, FL

Objective: This report presents two cases of hypersexuality in postmenopausal women who were using Bupropion and Fluoxetine for their menopausal depression, a phenomenon rarely documented in medical literature, with only one prior case reported. To explore a potential link between the use of SSRI medications (specifically Bupropion and Fluoxetine) and the onset of hypersexual behavior in menopausal women. **Design:** An analysis was conducted on two cases involving a newly described sexual dysfunction potentially related to SSRI use. Patients were prescribed Bupropion (150: mg orally, twice daily) and Fluoxetine (125 mg orally, once daily). **Results:** In the first case, a 56 year old woman, one week after initiating Fluoxetine, while already on Bupropion for months, the patient developed a heightened and uncontrollable need for sexual activity, engaging with multiple partners, including participating in sexual activities with her husband and others. Despite her efforts to maintain her marriage, her compulsive behavior eventually led to marital separation. The second patient, a 58 year old woman, also on Bupropion and Fluoxetine, exhibited hypersexual behavior shortly after starting Fluoxetine, engaging in multiple extramarital relationships. Both cases displayed a temporal link between Fluoxetine initiation and hypersexuality onset. **Conclusion:** Discontinuation of both medications led to the cessation of compulsive sexual behaviors in both patients, suggesting a possible association between these SSRIs and hypersexuality in perimenopausal women.

Sources of Funding: N/A

P-139.

Title: A Novel Negative Pressure Treatment for the Genitourinary Syndrome of Menopause: A Pilot Study

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Objective: Objective: To determine the feasibility of using a novel negative pressure device, the VITA AV Clinical System, for the treatment of genitourinary syndrome of menopause and assess potential indicators of safety and effectiveness. **Design:** Design: A pilot, prospective, unblinded interventional study of the VITA AV Clinical system was performed in 12 healthy postmenopausal women with genitourinary syndrome of menopause, all of whom reported their most bothersome symptom as "vaginal dryness" of moderate to severe intensity. The system consists of a disposable intravaginal tip having a circumferential array of orifices connected to a vacuum pump, that provides adjustable negative pressure therapy to the vaginal epithelium, drawing the epithelium into the orifices, resulting in vaginal epithelium microtrauma to initiate a regenerative physiological response. Initial familiarization sessions consisted of a graduated trial of increasing negative vaginal pressure from 260 mmHg to 460 mmHg for a 3-minute duration. Treatment consisted of three therapeutic sessions at 4-week intervals using a negative pressure of 460 mmHg. The treatment duration for these sessions was 3, 4 and 5 minutes respectively. Efficacy in the trial was assessed on the change in the score of most bothersome symptom at 1 month and 12 months after completed treatment. Vaginal health scores and vaginal maturation index were evaluated at baseline and 1 month after treatment completion. Tolerability was determined by pain scores during three points of each treatment (insertion and withdrawal of the probe and during negative pressure application), and safety data was collected throughout the study. **Results:** Results: All 12 women completed the study and tolerated the maximum negative pressure of 460 mmHg. All women reported pain as mild to none during treatment. Ten of the 12 women reported an improvement in their most bothersome symptom (scale 1 - 4) compared to baseline at 1 month with 3 of these reporting complete resolution of symptoms. Nine (9) of the twelve (12) subjects were still improved at 12-months following treatment compared to baseline. All women had improvement in the vaginal maturation index, with the most improvement seen in the superficial cells at 1 month and in the intermediate

cells at 12 months. The vaginal health index score was improved in 58% or unchanged in 17% of women at 1 month. At 12 months, all women with an improvement from baseline in VHI maintained improvement as did those women whose score remained unchanged. At 12 months no vaginal scarring or strictures were observed. At both 1 and 12 months, all women rated their satisfaction with the device as good to very good. There were no adverse or device related events. **Conclusion:** Conclusion: This novel unblinded treatment was well tolerated by subjects affected by GSM and there were no safety concerns. The findings suggest a positive effect on subject reported symptoms and objective clinical assessments. Further randomized-controlled studies are warranted with larger sample sizes and increased frequency of follow-up to assess the time-course of improvements.

Sources of Funding: *AVeta Medical Limited, Galway, H91, TK33, Ireland*

P-140.

Efficacy of Elinzanetant for the treatment of Vasomotor Symptoms Associated with Menopause From the US Population: Pooled Data From Two Phase 3 Studies

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Objective: Additional hormone-free treatment options are needed to address moderate-to-severe (M/S) vasomotor symptoms (VMS), also known as hot flashes, which impact up to 80% of women going through menopause. In both the OASIS-1 and OASIS-2 global Phase 3 trials, the dual neurokinin-1 and -3 receptor antagonist, elinzanetant (EZN), significantly reduced VMS frequency and severity compared with placebo (PL); improved sleep disturbances and menopause-related quality of life (QOL); and had a favorable safety profile in women with M/S VMS. This exploratory pooled analysis provides combined data for women from the United States included in the OASIS-1 and OASIS-2 studies with M/S VMS due to menopause. **Design:** Postmenopausal women who experienced ≥50 M/S VMS per week (wk) were randomly assigned in a 1:1 ratio to receive either EZN 120 mg for 26 wks or PL for 12 wks followed by EZN for 14 wks. The pooled analysis endpoints included the mean change in the daily frequency of M/S VMS from baseline to wks 1, 4, and 12; the mean change in severity of M/S VMS from baseline to wks 4 and 12; the mean change in Patient-Reported Outcomes Measurement Information System (PROMIS) Sleep Disturbance Short Form 8b (PROMIS SD SF 8b) total T-score from baseline to wk 12; and mean change in the Menopause-Specific Quality of Life questionnaire (MENQOL) total score from baseline to wk 12. Reductions in scores for both the sleep disturbance and QOL questionnaires represent symptom improvement. Differences between EZN vs PL from baseline are presented as least square (LS) mean change with 95% confidence intervals (CIs). A post-hoc analysis was performed using mixed model for repeated measures; all statistical tests including one-sided p-values are exploratory rather than confirmatory. **Results:** In total, 410 women in the United States were randomized across both studies (EZN [n=205] and PL [n=205]). Reductions from baseline in M/S VMS daily frequency (LS mean change [95% CI]) were greater with EZN vs PL at wk 1 (-2.13 [-3.24, -1.01]), wk 4 (-3.39 [-4.93, -1.85]) and wk 12 (-3.59 [-5.36, -1.82]) (**Table**). Differences between EZN and PL were statistically significant ($p<0.0001$) as early as wk 1, and at wks 4 and 12. Reductions from baseline in M/S VMS severity (LS mean change [95% CI]) were greater with EZN vs PL at wk 4 (-0.24 [-0.35, -0.14]) and wk 12 (-0.35 [-0.49, -0.20]). Differences between EZN and PL were statistically significant at wks 4 and 12 ($p<0.0001$). Reductions from baseline to wk 12 in both sleep disturbance and QOL questionnaires (LS mean change [95% CI]) were greater with EZN vs PL (PROMIS SD SF 8b total T-score: -4.21 [-5.73, -2.68]); MENQOL: -0.36 [-0.59, -0.14]). Reductions with EZN were statistically significant vs PL for sleep disturbances and QOL. In those who switched from PL to EZN after wk 12, further numerical improvements were observed across VMS, PROMIS SD SF 8b and MENQOL measures up to wk 26. **Conclusion:** EZN is an efficacious novel hormone-free dual neurokinin-targeted therapy that significantly improves VMS frequency and severity, sleep disturbances and menopause-related QOL in postmenopausal women with M/S VMS. In this pooled analysis, the efficacy of EZN in the US population was comparable to the overall global population.

Sources of Funding: Bayer US, Whippany, NJ

Mixed model for repeated measures analysis

Endpoint / Visit	LS Mean Difference	95% CI	p-value (one-sided)*
LS Mean change in the daily frequency of M/S VMS			
Wk 1	-2.13	-3.24, -1.01	p<0.0001
Wk 4	-3.39	-4.93, -1.85	p<0.0001
Wk 12	-3.59	-5.36, -1.82	p<0.0001
LS Mean change in severity of M/S VMS			
Wk 4	-0.24	-0.35, -0.14	p<0.0001
Wk 12	-0.35	-0.49, -0.20	p<0.0001
PROMIS Sleep Disturbance total T-score			
Wk 12	-4.21	-5.73, -2.68	p<0.0001
MENQOL Total score			
Wk 12	-0.36	-0.59, -0.14	0.0007

*** p-values are exploratory rather than confirmatory**

P-141.

Effects of elinzanetant on VMS associated with natural, surgical, or endocrine therapy-induced menopausal symptoms

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Objective: Vasomotor symptoms (VMS) are common, disruptive, and sometimes long-lasting (10+ years) menopausal symptoms. VMS may be caused by declining estrogen levels due to natural menopause, surgery, or medical treatments with anti-estrogen effects such as endocrine therapy for breast cancer. Here we explore the effects of elinzanetant, a dual neurokinin-targeted therapy, for treatment of VMS in women with natural, surgical, or endocrine therapy-induced menopausal symptoms. **Design:** Efficacy of elinzanetant was evaluated in women with naturally or surgically induced menopause in the OASIS-1 and -2 trials, and in women with endocrine therapy-induced menopausal symptoms in the OASIS-4 trial. OASIS-1 and -2 data was pooled; these trials enrolled naturally or surgically induced (i.e., history of bilateral oophorectomy) postmenopausal women aged 40–65 experiencing ≥50 moderate-to-severe VMS per week. OASIS-4 enrolled women aged 18–70 years with or at risk of hormone receptor positive breast cancer, receiving endocrine therapy (tamoxifen or aromatase inhibitors) and experiencing ≥35 moderate-to-severe VMS per week associated with this. OASIS-1 and -2 participants were randomized 1:1, and OASIS-4 participants 2:1, to receive elinzanetant 120 mg or matching placebo in the first 12 weeks of these trials. This post hoc analysis descriptively assessed change from baseline to week 12 in daily moderate-to-severe VMS frequency and severity in women with natural or surgical menopause (OASIS-1 and -2) or endocrine therapy-induced menopausal symptoms (OASIS-4). OASIS-4 participants with prior bilateral oophorectomy were excluded from the analysis. **Results:** This analysis included 731 women with natural menopause and 64 with surgical menopause from OASIS -1 and -2, and 433 with endocrine therapy-induced menopausal symptoms from OASIS-4. OASIS-1 and -2 participants with natural or surgical menopause had a greater mean baseline daily moderate-to-severe VMS frequency than OASIS-4 participants with endocrine therapy-induced menopausal symptoms (Table 1). Mean reductions in average daily moderate-to-severe VMS frequency from baseline to week 12 were numerically larger for participants with natural or surgical menopause in comparison with participants with endocrine therapy-induced menopausal symptoms (Table 1). With regards to daily moderate-to-severe VMS severity, mean baseline values and mean reductions from baseline to week 12 were numerically similar for participants with natural, surgical, or endocrine-therapy induced menopausal symptoms (Table 2). When participants taking elinzanetant were compared with those taking placebo, mean reductions in average daily moderate-to-severe VMS frequency and severity from baseline to week 12 were numerically greater regardless of whether women had natural, surgical, or endocrine therapy-induced menopausal symptoms (Tables 1 and 2). **Conclusion:** Elinzanetant improved daily moderate-to-severe VMS frequency and severity to a greater extent than placebo irrespective of whether women were experiencing natural, surgical or endocrine therapy-induced menopausal symptoms. These results indicate that elinzanetant may be suitable for a broad population of women with menopausal symptoms, including those with breast cancer.

Sources of Funding: Bayer

Average daily moderate-to-severe VMS frequency in women with natural, surgical, or endocrine therapy-induced menopausal symptoms

	Elinzanetant 120 mg				Placebo			
Type of menopausal symptoms	N	Baseline mean (SD)	Week 12 mean (SD)	Mean change from baseline to week 12 (SD)	N	Baseline mean (SD)	Week 12 mean (SD)	Mean change from baseline to week 12 (SD)
Natural	360	13.70 (8.47)	4.38 (5.32)	-9.29 (7.86)	371	15.21 (12.90)	8.93 (12.93)	-6.48 (9.59)
Surgical	38	17.04 (13.60)	6.39 (7.14)	-9.86 (13.96)	26	15.31 (8.00)	9.12 (9.17)	-5.49 (5.27)
Induced by endocrine therapy	286	11.21 (6.92)	3.44 (4.11)	-7.81 (6.38)	147	11.64 (6.60)	7.50 (5.71)	-4.27 (6.12)

Average daily moderate-to-severe VMS severity in women with natural, surgical, or endocrine therapy-induced menopausal symptoms

	Elinzanetant 120 mg				Placebo			
Type of menopausal symptoms	N	Baseline mean (SD)	Week 12 mean (SD)	Mean change from baseline to week 12 (SD)	N	Baseline mean (SD)	Week 12 mean (SD)	Mean change from baseline to week 12 (SD)
Natural	360	2.55 (0.23)	1.55 (0.84)	-0.99 (0.79)	371	2.54 (0.24)	1.92 (0.69)	-0.61 (0.65)
Surgical	38	2.53 (0.26)	1.82 (0.67)	-0.71 (0.64)	26	2.46 (0.16)	1.95 (0.49)	-0.50 (0.42)
Induced by endocrine therapy	286	2.48 (0.24)	1.50 (0.74)	-0.99 (0.72)	147	2.49 (0.22)	1.97 (0.64)	-0.52 (0.61)

P-142.

Impact of Hormone Therapy on Sexual Function in Menopausal Women: A Cross-Sectional Analysis of Cosmos Data

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Objective: This study examined the relationship between various hormone therapy regimens and sexual function disorders among menopausal women using data from the Cosmos database. **Design:** A retrospective analysis was conducted using medical records from Cosmos, a comprehensive clinical database that integrates electronic health

records from multiple healthcare systems nationwide. The time period extracted was 1/1/23 – 4/10/25. Menopausal women were identified by ICD-10 codes (N95.0, N95.1, N95.8, or N95.9). Hormone therapy exposure was categorized as vaginal estrogen, systemic progesterone, systemic estrogen, estrogen-progesterone combination, or no hormone therapy. Sexual function disorders examined included female orgasmic disorder (F52.31), hypoactive sexual desire disorder (F52.0), female sexual arousal disorder (F52.22), and dyspareunia. Chi-square tests were performed to assess associations between hormone therapy types and sexual function disorders. **Results:** Among women with female orgasmic disorder (n=7,111), 41.1% were using vaginal estrogen, 15.7% estrogen-progesterone combination therapy, 23.0% estrogen alone, and 45.8% received no hormonal treatment (p<0.001). For hypoactive sexual desire disorder (n=23,369), 29.0% were using vaginal estrogen, 19.6% estrogen-progesterone combination, 28.6% estrogens alone, and 52.3% no treatment (p<0.001). In the female sexual arousal disorder group (n=2,631), 31.9% used vaginal estrogen, 14.6% estrogen-progesterone combination, 20.3% estrogens alone, and 53.2% received no treatment (p<0.001). Dyspareunia was the most prevalent condition (n=263,766), with 54.6% of affected women prescribed vaginal estrogen, 7.5% on estrogen-progesterone combination, 13.9% on estrogens alone, and 39.3% receiving no hormonal treatment (p<0.001). **Conclusion:** This analysis of Cosmos data reveals substantial variation in hormone therapy association among menopausal women with sexual function disorders. The statistically significantly higher number of women with any type of sexual dysfunction without hormone therapy represents potential gaps in therapeutic management. Notably, vaginal estrogen was the most frequently prescribed therapy for dyspareunia. The Cosmos database, by providing access to diverse clinical populations, enables robust examination of real-world treatment patterns that can inform clinical practice guidelines for managing sexual dysfunction in menopausal women. Future studies looking at timing of onset of sexual dysfunction in the presence or absence of hormone therapy would be useful to establish causal effects.
Sources of Funding: None

Types of Hormones and Sexual Dysfunction

	Vaginal Estrogen	Systemic Estrogen & Progesterone	Systemic Estrogen Only	No MHT	P value
Diagnosis					
Female orgasmic disorder (ICD-10-CM: F52.31)	2925	1114	1635	3255	0.001
Hypoactive sexual desire disorder (ICD-10-CM: F52.0)	6777	4577	6691	12216	0.001
Female sexual arousal disorder (ICD-10-CM: F52.22)	838	384	534	1399	0.001
Dyspareunia	144098	19770	36768	103667	0.001

P-143.
Beyond Fatigue: How Poor Sleep Quality Shapes Emotional and Menopausal Health in Northern Mexican Women

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Objective: This study aimed to evaluate the relationship between sleep quality and symptoms of anxiety and depression in postmenopausal Mexican women. With the goal of gaining deeper insight into this population and identifying patients who may benefit from targeted treatments based on recent scientific evidence. **Design:** A cross-sectional study was conducted between February and May 2025, including 140 postmenopausal women who were not undergoing hormone replacement therapy and were not taking antidepressants, sedatives, or hypnotic medications. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), with scores above 5 indicating poor sleep quality. Anxiety and depression were evaluated using the Hospital Anxiety and Depression Scale (HADS), where scores above 4 indicated the presence of anxiety or depression, respectively. Menopausal symptoms were measured using the Greene Climacteric Scale. Statistical analyses were performed using Fisher's exact test and Mann-Whitney U. A p-value of < 0.05 was considered statistically significant. **Results:** Regarding the general characteristics of the participants, the mean age was 53.09 ± 7.2 years, the mean BMI was 29.68 ± 4.7 kg/m and 3 (IQR 2-8) years of menopause. The study found that 75% of the women reported poor sleep quality. A significant association was observed between poor sleep quality, as measured by the PSQI, and the presence of anxiety ($p = 0.0022$). Similarly, poor sleep quality was associated with depression ($p < 0.0001$). Compared to women with good sleep quality, those with poor sleep exhibited significantly higher scores on the Greene Climacteric Scale ($p < 0.0001$), especially in the domains of anxiety ($p < 0.0001$), depression ($p < 0.0001$), somatic symptoms ($p = 0.0003$), and vasomotor symptoms ($p = 0.0025$). No significant changes were observed in the sexuality domain. **Conclusion:** This study highlights that poor sleep quality is highly prevalent among the studied population of middle-aged women and is significantly associated with increased anxiety, depression, and climacteric symptoms. These findings emphasize the critical role of sleep quality in the emotional and menopausal health of women, suggesting that interventions aimed at improving sleep may have beneficial effects on psychological well-being and symptom management during menopause.
Sources of Funding: None

P-144.
Effects of Vitamin C Supplementation on Symptoms and Bone Mineral Density: A Randomized Controlled Trial

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Objective: To evaluate whether daily vitamin C supplementation improves bone mineral density (BMD) and menopausal symptoms compared to placebo in menopausal women. **Design:** A double-blind randomized controlled trial, was conducted at the Dr. José Eleuterio González University Hospital in Monterrey Mexico, between 2023 and 2025. A total of 72 menopausal women were enrolled and divided into two main groups. Group A included patients not receiving hormone therapy and without vitamin supplementation; Group C included patients not receiving hormone therapy but supplemented with vitamin D and calcium. Each participant was randomly assigned to one of two subgroups receiving either 500 mg of vitamin C or placebo. At baseline, participants completed the Greene Climacteric Scale questionnaire and underwent calcaneal bone densitometry. Follow-up visits were scheduled at 3 and 6 months to repeat the Greene Scale assessment, bone densitometry, and to provide continued treatment. Fourteen patients completed the study and attended all scheduled visits: 3 from group A1, 3 from group A2, 4 from group C1, and 4 from group C2. Statistical comparisons of T-scores at baseline, 3 months, and 6 months were performed using Welch's t-test. Changes in Greene Scale scores at 0, 3, and 6 months were analyzed using ANOVA or the Friedman test, depending on the normality of data distribution. Age and BMI comparisons between groups were conducted using Welch's t-test. **Results:** No significant differences were observed in age between groups A1 and A2 ($p = 0.304$), or between groups C1 and C2 ($p = 0.955$). Similarly, there were no significant differences in BMI between A1 and A2 ($p = 0.317$), or C1 and C2 ($p = 0.760$). Regarding symptomatology, no significant changes were observed over time in groups A1 ($p = 0.255$), A2 ($p = 0.387$), C1 ($p = 0.361$), or C2 ($p = 0.237$). When grouping patients by symptom severity, no significant differences in T-scores were found within group A ($p = 0.350$) or group C ($p = 0.841$). Furthermore, no statistically significant differences were observed in T-score changes when comparing A1 vs A2 ($p = 0.465$) or C1 vs C2 ($p = 0.444$). **Conclusion:** No significant association was found between vitamin C supplementation and improvement in either bone mineral density or menopausal symptoms, compared to placebo across the studied groups. An important limitation of the study was the number of women who completed the study, due the poor adherence to treatment. Strategies to enhance compliance have been implemented, and the study is currently ongoing.
Sources of Funding: None

P-145.
Patient preferences regarding menopausal symptoms and treatments: a systematic review of quantitative stated preferences studies

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Objective: Efficacy and the safety of menopausal therapy are improved with optimal adherence and compliance. Offering therapies that meet women's expectation is therefore of importance for the relief of menopausal symptoms and additional long-term benefits of such therapies. The aim of this study is to provide an overview of studies reporting data on women preferences for menopausal symptoms and treatment to better guide research and development for future therapies. **Design:** A systematic literature review was conducted on MEDLINE (via Ovid) and Embase in October 2024 using a structured search strategy to identify all published evidence providing quantitative stated preference data on menopause symptoms or treatments, using the format of conjoint analysis (CA), discrete choice experiments (DCEs), best-worst scaling (BWS) or quantitative preference surveys. Manual searches of bibliographies of identified studies were also conducted. Study selection and data extraction were performed in adherence to *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) 2020 statement. The protocol was registered in PROSPERO (CRD42024614218). **Results:** In total, 576 references were screened after removing duplicates and 6 studies were included (3 DCEs, 1 CA and 2 quantitative surveys). Four studies were conducted in the United States of America and 2 in European countries. Sample size varied from 79 to 3397 women. Studies reported that women are globally not satisfied with their current therapeutic options and that women prefer to trade years of life rather than facing intense menopausal symptoms. The most important attribute when choosing a menopausal treatment is efficacy and particularly the ability of a treatment to reduce the severity and frequency of daytime hot flashes and improve sleep quality. Besides preferences for efficacy attributes, limited data were provided regarding other treatment characteristics. Two studies focused particularly on vaginal atrophy and reported that vaginal dryness was the most bothersome symptom. They also revealed a preference for vaginal tablets with applicators over other treatment modalities. **Conclusion:** This systematic review highlights that menopausal treatment preference research is currently limited. Diverse study designs hampered comparison and synthesis of the results. There is a need to conduct additional preference study research, especially DCEs, to improve shared decision-making processes of gynecologists and menopausal women and enhance patient management and treatment options.
Sources of Funding: None

P-146.

Integrating Peer Support into Menopause Care: Early Outcomes from a Subscription-Based Model Combining Clinical and Mentor-Led Support

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Objective: Women navigating the menopause transition frequently encounter fragmented care, inconsistent access to evidence-based treatment, and poor psychosocial support. Despite growing awareness of the need for holistic menopause care, scalable models that integrate medical management with tailored peer-led emotional support remain rare. In January 2025, we launched a novel, tiered subscription-based menopause care plan combining personalised clinical care—including hormonal and non-hormonal therapies—with structured opportunities for patient education and peer-to-peer support. Key components include asynchronous clinician messaging, monthly expert-led webinars, and the Menopause Mentor programme: an integrated service enabling patients to connect one-to-one with trained peer mentors. This service evaluation aimed to assess early uptake, engagement patterns, and patient feedback associated with the first three months of our subscription model, with a particular focus on the utilisation and perceived value of the Menopause Mentor programme. **Design:** We conducted a retrospective analysis of all new patient records between 15 January and 15 April 2025 at the specialist clinic Menopause Care, United Kingdom. Quantitative service utilisation data were extracted from internal dashboards and included subscription metrics, appointment bookings, webinar attendance, and Menopause Mentor session bookings. In addition, patient reviews submitted from November 2024 to April 2025 underwent thematic analysis to identify key experiential themes—such as emotional support, reassurance and quality of care. **Results:** A total of 859 women enrolled during the study period, with initial follow-up consultations occurring at a mean interval of 3.1 months. Six live webinars were delivered during the evaluation period, attracting a cumulative total of 2,111 attendances, with an average of 2.5 attendances per user. Attendance figures by topic were: ADHD & Menopause (n = 798), HRT & Testosterone (n = 456), HRT Safety (n = 268), Sexual Health (n = 211), Understanding HRT Risks (n = 191), and Cognitive Behavioural Therapy for Menopause Symptoms (n = 187). The peer-support programme was available throughout the evaluation period, with 175 women (20.4%) engaged in at least one Menopause Mentor session. The service received a mean patient satisfaction rating of 4.9/5, with many users describing the mentorship programme as "transformational" and a critical supplement to medical care. Qualitative feedback underscored the unique value of peer interactions, with dominant themes including emotional reassurance, normalisation of symptoms, and a sense of solidarity and empowerment. **Conclusion:** This early service evaluation suggests that an integrated subscription-based menopause care model can achieve high rates of patient engagement, supporting favourable outcomes and patient satisfaction. The Menopause Mentor programme emerged as a central and valued component of care, distinguishing itself from traditional clinical models, where gaps, especially in holistic and tailored care is often left unaddressed. Embedding structured, peer-led support into menopause care offered a patient-centred and needs-driven option to enhance patient experience, emotional wellbeing, and therapeutic adherence. Patterns of engagement across educational content suggest an evolution in societal norms and patient interests: whereas five years ago, sessions focused on understanding HRT might have attracted the most attendees, our data suggests a growing trend towards a more evenly distributed interest across topics including neurodiversity, sexual health, and psychological interventions. This trend potentially reflects a broadening conceptualisation of menopause care and an increasing appetite for a more holistic, personalised approach. Further longitudinal evaluation is required to assess clinical outcomes and the long-term impact of peer-led mentorship on positive health behaviour change and improved quality of life.

Sources of Funding: None

P-147.

Survey to Understand Factors Contributing to Healthcare and Treatment Perceptions for Vasomotor Symptoms among Non-Hispanic/Latino Black or African American Women in the US

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Objective: Black or African American women may be less likely than women from other racial/ethnic groups to discuss menopause and related vasomotor symptoms (VMS) with healthcare providers (HCPs) and receive treatment; however, reasons for this are not well understood. This study aimed to identify personal perspectives and environmental factors related to Black or African American women's VMS experience, treatment, and healthcare. **Design:** This cross-sectional, descriptive, non-interventional cohort study collected quantitative data via an online survey in English between 18 Nov and 03 Dec 2024. Participants were 40–65-year-old women who identified as Black or African American and non-Hispanic/Latino experiencing VMS and living in the US. Participants were required to have an intact uterus and at least 1 ovary; VMS for ≥1 month; menstrual cycle changes or amenorrhea in the past 12 months; presence of night sweats/hot flashes at least once daily for the past 2 weeks; to avoid treatment that may induce menopause or VMS; avoid hormone therapy (HT) other than for managing VMS; and have access to an internet-enabled computer or tablet. Survey questions were grouped into 13 concepts reflecting aspects of personal perceptions and environmental factors, treatment seeking behavior and decision making, provision of VMS treatment options and patterns of VMS treatment accessibility. A conceptual model was built hypothesizing the relationships between such concepts. For statistical analysis of survey data, descriptive statistics, correlations and multiple regressions or structural equation modeling (SEM) analyses were performed. **Results:** Of the 2,794 women contacted, 300 (10.7%) qualified to take the survey and were included in the full analysis set. Mean (standard deviation) age was 51 (6.4) years. Over 50% of women reported having their first experience with VMS within 2 years prior to the survey, and 70% experienced hot flashes multiple times per day. Information sharing with HCP about menopause/VMS and treatment was more likely to be reported when women had more positive feelings about their menopause (belief that menopause would be liberating or that others saw them in a more positive light). This was also the case when there was high relatability to their HCP (similar age, gender, race/ethnicity), when they had informal sources of information (friends and family) about menopause/VMS, and when they felt their VMS was more severe compared to others they know. Only 12.3% of participants had any experience using treatment for VMS. Even fewer women reported receiving a prescription for HT (3%) or non-HT (3.7%). Consequently, analyses focused on the relationships with other treatment-related concepts like a preference for/willingness to try different treatments for VMS. Social support from friends and family and how one's VMS compares with others appeared to help shape views of menopause and perceptions of prescription and non-prescription treatments as safe and effective, and women's willingness to try different treatments for VMS. **Conclusion:** These results suggest that African American or Black women's social networks, particularly friends and family, are key sources of information about menopause and VMS, and can affect personal perspectives such as seeing menopause as a medical condition to be medically treated or viewing it as a positive time in one's life. Within these supportive social environments, women may have more positive interactions with HCPs, more positive perceptions of treatment for VMS and be more willing to try prescription treatment for VMS. An important environmental factor is relatability to one's peers and HCP. Perceiving one's VMS as more severe than others and having an HCP of a similar age, gender, race/ethnicity can further promote positive interactions with HCPs around sharing information about menopause, VMS, and its treatments.

Sources of Funding: Astellas Pharma Inc.

P-148.

Menopause and Brain Structural Changes: A bibliographical revision.

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Objective: The objective of this bibliographical review is to explore the scientific literature on menopause-related brain structural changes, with a focus on how these alterations may contribute to menopausal symptoms. Additionally, it aims to synthesize existing findings and identify how structural brain changes manifest in cognitive, emotional, and physiological outcomes during menopause. **Design:** A qualitative, descriptive bibliographic review was conducted to explore menopause-related brain structural changes. Searches were performed in PubMed, Google Scholar, and EBSCOhost using Boolean combinations of terms such as "menopause," "brain structure," and "menopausal symptoms." Inclusion criteria focused on quantitative, peer-reviewed human studies published between 2020–2025 in English. Studies were screened based on relevance to neuroanatomical changes during menopause. Only articles focused on adult menopausal populations were included, and duplicates were excluded. **Results:** Menopause is associated with distinct structural changes in the brain. Across studies, reductions in gray matter volume were consistently observed in the frontal and temporal cortices and the hippocampus, regions critical for memory and executive function. These volumetric losses have been linked to declines in cognitive performance, particularly in verbal and visuospatial memory. Increased white matter hyperintensities (WMH), especially among women with early menopause or frequent vasomotor symptoms (VMS), suggest early cerebrovascular damage and heightened cognitive risk. Some evidence indicates a partial recovery of gray matter volume post-menopause, potentially reflecting compensatory neuroplastic processes. Additionally, elevated estrogen receptor density during the menopausal transition may represent an adaptive response to declining hormone levels, although it has also been associated with poorer memory outcomes. Alterations in cerebrovascular reactivity and brain energy metabolism further underscore menopause's impact on neural integrity and functional resilience. **Conclusion:** These findings indicate that menopause is associated with distinct structural brain changes, including gray matter loss in memory-related regions, increased white matter hyperintensities, and reduced cerebrovascular reactivity. These alterations may contribute to declines in memory, attention, and executive function. Although some gray matter recovery may occur after menopause, persistent disruptions in connectivity and metabolism suggest lasting effects on brain health. These results highlight the need for further research on menopause-related brain changes and their long-term consequences for cognitive and neural function.

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P-149.

Knowledge and Awareness of Menopause Among Women over 40 in the Dominican Republic

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Objective: This study aims to assess knowledge and awareness regarding menopause in women over 40 in the Dominican Republic. **Design:** A descriptive, observational, cross-sectional study was conducted using a researcher-developed questionnaire to assess knowledge and awareness of menopause among women aged 40 and older in the Dominican Republic. Participants were selected through convenience sampling, and data were collected between November 2024 and February 2025 via in-person interviews at the primary healthcare center and through self-administered, anonymous electronic surveys. Data were analyzed using descriptive statistics. **Results:** A total of 251 women were surveyed, with a mean age of 53 ± 10.07. 62.2% of the participants had a university-level education. The women who were interviewed answered the following questions: Have you ever researched menopause? Yes [57.4%] (144/251), No [42.6%] (107/251). How informed do you feel about menopause? Not Informed [8.4%] (21/251), Poorly informed [57%] (143/251), Highly Informed [34.7%] (87/251). Through what sources have you learned about menopause? Relatives [34.3%] (86/251), Medical Consults [25.1%] (63/251), Social Media [23.9%] (60/251), Other [16.7%] (42/251). What is your level of interest in learning about menopause? High [71.3%] (179/251), Neutral [20.3%] (51/251), Low [8.4%] (21/251). How long must a woman go without menstrual periods to be considered in menopause? 12 months [34.7%] (87/251), Other [65.3%] (164/251). Do you think that menopause is a disease? Yes [4.4%] (11/251), No [95.6%] (240/251). Are you familiar with the symptoms associated with menopause? Yes [94.8%] (238/251), No [5.2%] (13/251); the most commonly recognized symptoms were hot flashes, mood swings, and night sweats. Do you believe that symptoms of menopause are preventable or curable? Yes [49%] (123/251), No [51%] (128/251). Do you know about hormone replacement therapy (HRT) for menopause? Yes [29.9%] (75/251), No [70.1%] (176/251); among those who answered "yes", 50% indicated they would consider using HRT, and 57% reported being aware of its benefits. **Conclusion:** The study reveals significant gaps in overall knowledge about menopause and its management among women over 40 in the Dominican Republic. Although most participants were familiar with the common symptoms of menopause, many still felt poorly informed. The primary sources of information, in order of frequency, were family/friends, medical consultations, and social media, suggesting a need for more formal and accessible educational initiatives. The majority of women were unaware of HRT, with a significant portion of those who were familiar with it lacking in-depth knowledge about its benefits, risks, and potential role in managing menopause symptoms. Therefore, an open environment should be created to reduce stigma and foster support regarding menopause.

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P-150.

Association Between Bone Turnover, Inflammatory Markers, and Prune Intake in a 12-month Dietary Intervention in Postmenopausal Women: The Prune Study

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Objective: Inflammatory cytokines have the capacity to act on bone via actions on both bone resorption and bone formation. The Prune Study, a randomized controlled trial (RCT) in postmenopausal women, demonstrated that 50g/day of prune intake for 12 months preserved total hip bone mineral density (BMD) and 50 or 100g/day of prune intake was associated with reduced systemic inflammation. The associations between changes in inflammatory and bone turnover markers in the Prune Study have not yet been described. The purpose of this analysis was to investigate whether changes in bone turnover markers were impacted by prune intake for 12 months and by changes in pro-inflammatory markers in postmenopausal women who participated in the Prune Study RCT. **Design:** Postmenopausal women who completed The Prune Study RCT (n=183) were included in this analysis. Participants were randomized to a control group (n=70) or one of two intervention groups that consumed 50g/day (n=67) or 100g/day of prunes (n=46). At baseline and at month 12, total hip BMD was assessed with dual-energy x-ray absorptiometry (DXA) and fasting blood draws were collected. Serum concentrations of bone metabolism markers were assessed: procollagen type I N-terminal propeptide (P1NP), C-terminal telopeptide (CTx), tartrate-resistant acid phosphatase 5b (TRAcP 5b), osteoprotegerin (OPG), osteopontin, and sclerostin. Bone balance (BB) between bone formation and resorption and bone turnover rate were calculated from P1NP and CTx concentrations with bone algorithms (Bieglmayer and Kudlacek, Eur J Clin Invest, 2009). Pro-inflammatory markers were serum high-sensitivity C-reactive protein, and pro-inflammatory cytokines [interleukin (IL)-1β, IL-6, IL-8, and monocyte chemoattractant protein-1] in plasma and lipopolysaccharide (LPS)-stimulated peripheral blood mononuclear cell (PBMCs) culture supernatants. The percent change (%chg) from baseline was calculated for each marker to be used as variables in general linear models. Dependent variables were the %chg in bone turnover markers (log-transformed) and independent variables were %chg in inflammatory markers (covariates), study group (factor), and the interaction between inflammatory markers and study group. Data are mean±S.E.M. Significance was $p<0.05$. **Results:** Age was 62.0±0.5, 62.0±0.5, and 62.3±0.6 years, and body mass index was 25.1±0.5, 26.3±0.5, and 25.9±0.4 kg/m^2, respectively for the control, 50g/day, and 100g/day groups. Plasma IL-8 %chg (1.84±1.36 %) was positively associated with P1NP %chg (-3.57±1.55 %) (β=0.004, p=0.004), with a significant interaction between IL-8 and 50g/day of prune intake (β=-0.007, p=0.002). Supernatant IL-1β %chg (25.51±10.48 %) and supernatant IL-8 %chg (8.60±7.72 %) significantly predicted osteoprotegerin %chg (3.37±1.27 %) (β=0.001, p=0.009 and β=0.001, p=0.011, respectively), both with significant interactions with 50g/day of prune intake (β=-0.001, p=0.005 and β=-0.002, p=0.009, respectively). Plasma IL-6 %chg (5.94±1.66 %) was an inverse predictor of sclerostin %chg (27.21±12.30 %) (β=-0.007, p=0.005), with significant interactions observed between 100g/day of prune intake and plasma IL-6 %chg (β=0.008, p=0.039). Similar associations were observed for osteopontin %chg (28.55±8.05 %) with plasma IL-6 %chg (β=-0.008, p=0.006) with significant interactions between plasma IL-6 and 100g/day of prune intake (β=0.011, p=0.021). No other associations were observed ($p>0.05$). **Conclusion:** In postmenopausal women, 12-month changes in bone turnover markers were associated with changes in pro-inflammatory markers, but the pro-inflammatory effects on bone metabolism were attenuated by 50g/day or 100g/day groups of prune intake. Prunes likely act as anti-inflammatory agents that may have indirect impacts on bone health by altering bone metabolism favorably in postmenopausal women.

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P-151.

Physician reported reasons for discontinuation of non-hormonal treatments in women experiencing post-menopausal vasomotor symptoms

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Objective: To ascertain healthcare provider (HCP)-reported reasons for discontinuation of non-hormonal therapies (NHT) prescribed for the management of vasomotor symptoms (VMS) in postmenopausal women. **Design:** Cross-sectional, online survey of US-based HCPs treating women with VMS associated with menopause who manage patients who have discontinued an NHT in the last 6 months. NHTs in this study included antidepressants [selective serotonin reuptake inhibitors (SSRI) and serotonin and norepinephrine reuptake inhibitors (SNRI)], anticonvulsants (gabapentin) and α2A-adrenergic receptor agonists (clonidine). Data were collected from February-March 2025. The survey included questions on duration of NHT for VMS and reasons for discontinuation. **Results:** A total of 96 HCPs entered screening to participate of which 81 [primary care providers (PCPs) n=40 and gynecologists n=41] went on to complete the survey. 89% worked in a community setting; 11% were in academic practice. HCPs reported a mean weekly workload of 23 women (standard deviation: 17.1) who consult specifically for menopause-related VMS. A total of 96% (n=78) and 93% (n=75) of HCPs prescribed SSRIs and SNRIs; 63% (n=51), and 38% (n=31) prescribed gabapentin and clonidine for the treatment of VMS, respectively. 94% (n=73) of HCPs who prescribed SSRIs reported having patients who had discontinued them in the last 6 months, (for SNRIs 85%, n=64; for gabapentin 78%, n=40; for clonidine 65%, n=20). HCPs with experience of patient discontinuation with the given medication reported mean SSRI duration of use of 3.7 months (m) (min:<1m, max:12m), SNRIs 3.5m (min:<1m, max:24m), gabapentin 2.2 (min<1m, max:12m), clonidine for 1.5 months (min:<1, max 3m). The most common reason for discontinuation was side effects, reported by 75% of HCPs for SSRIs (n=55), 69% for SNRIs (n=44), 72% for gabapentin (n=29) and 60% for clonidine (n=12). Amongst HCPs that had cited side effects as a reason for NHT discontinuation, side effects of SSRIs included loss of libido (71%), weight change (47%) and somnolence (29%). For HCPs prescribing SNRIs, the most frequent patient reported side effects were loss of libido (50%), weight change (45%), and headaches (32%). For those prescribing gabapentin the most frequent patient reported side effects causing discontinuation were somnolence (69%), fatigue (66%), and dizziness (41%); for clonidine, side effects included headaches (58%), dizziness (50%) and somnolence (42%). HCPs who had patients discontinuing each NHT in the last 6 months also reported lack of efficacy as the second most common reason for discontinuation, with 63% reporting for SSRIs, 70% for SNRIs, 60% for gabapentin and 70% for clonidine. In addition, HCPs reported NHT discontinuation because the treatment stopped working over time with 32% reporting this for SSRIs, 23% for SNRIs, 28% for gabapentin and 30% for clonidine. **Conclusion:** Discontinuation after a short treatment duration is frequently reported by HCPs amongst women prescribed SSRIs, SNRIs, gabapentin and clonidine, suggesting a considerable degree of dissatisfaction with these types of NHT. The main reasons for discontinuation of NHTs are associated with the drugs' tolerability and efficacy profiles with side effects, lack of efficacy and loss of efficacy over time all being cited as key factors. Loss of libido, changes in weight, headaches, somnolence, fatigue and dizziness were the most common patient reported side effects observed by HCPs. High discontinuation rates due to side effects or lack of efficacy suggest the need for additional treatment options with better symptom control and favorable tolerability profile.

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P-152.

Safety of non-hormonal treatments used for vasomotor symptoms: findings from a systematic literature review

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Objective: Vasomotor symptoms (VMS) associated with menopause strongly impact women's quality of life. While hormone therapy is available to manage these symptoms, many women do not take it due to contraindications or lack of treatment acceptance. A systematic literature review (SLR) was conducted to evaluate the safety and efficacy of non-hormonal pharmacological treatments and neurokinin-targeted therapies for moderate-to-severe VMS in menopausal women. Here the safety data are reported. **Design:** The SLR was conducted following the National Institute for Health and Care Excellence guidelines. Searches were performed in multiple bibliographical databases, including Medline, Embase, and CENTRAL, up to August 2024. The review included phase II-IV randomized controlled trials (RCTs) with a follow-up of at least four weeks, focusing on non-hormonal pharmacological treatments such as selective serotonin reuptake inhibitors (SSRIs), serotonin- norepinephrine reuptake inhibitors (SNRIs), gabapentinoids, clonidine, oxybutynin, and neurokinin-targeted therapies (elinzanetant, and fezolinetant) (Table 1). Safety outcomes assessed included adverse events (AEs), serious adverse events (SAEs), treatment-emergent adverse events (TEAEs), liver function parameters, and discontinuation rates. **Results:** Among the 62 randomised controlled trials identified, 29 reported safety outcomes. Many of the included trials had a duration of 12 weeks, reflecting regulatory guidelines on study length. Overall, participants in the active treatment groups experienced numerically higher AEs and TEAEs than those in the placebo groups. SAEs and serious TEAEs were infrequent and similar between active treatment and placebo groups. Liver function assessments were only reported for elinzanetant, fezolinetant and desvenlafaxine and indicated infrequent and asymptomatic elevations in liver enzymes with these treatments though differences in liver enzyme elevations were observed between treatments. Across trials of fezolinetant, there were no Hy's law cases reported (ie, no increases in either alanine aminotransferase (ALT) or aspartate transaminase (AST) >3x ULN combined with increases in bilirubin >2x ULN). One study of desvenlafaxine noted ALT or AST elevations >5x ULN in two patients treated with desvenlafaxine and two patients treated with placebo. No cases of liver enzyme elevations meeting criteria for liver injury causally related with elinzanetant as assessed by the liver safety monitoring board were observed in two pivotal Phase 3 RCTs of elinzanetant. Discontinuation rates due to AEs were higher in the active treatment groups, particularly for SNRIs, which showed statistically significant higher rates of discontinuation due to AEs compared to placebo. Discontinuation rates due to any reason were between 10-35% in trials of SSRIs or gabapentin and up to 54% for SNRIs while trials of neurokinin-targeted therapies reported discontinuation rates of 7%. **Conclusion:** Serious adverse events were infrequent with non-hormonal pharmacological treatments and neurokinin-targeted therapies, as were liver enzyme elevations, though differences were observed between treatments. SNRIs showed higher AE rates and discontinuation due to AEs than other treatment approaches. Further studies will increase our understanding of the safety profiles of these treatments.

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Table 1

SSRIs	SNRIs	Neurokinin-targeted therapies	Others
▪ Citalopram ▪ Escitalopram ▪ Fluoxetine ▪ **Paroxetine** ▪ Sertraline	▪ Venlafaxine ▪ Desvenlafaxine	▪ Elinzanetant ▪ **Fezolinetant**	▪ Gabapentin ▪ Pregabalin ▪ Clonidine ▪ Oxybutynin

Note: only paroxetine 7.5 mg and Fezolinetant 45 mg are approved by the Food & Drug Administration for the treatment of moderate to severe VMS (April 2025)

P-153.

Effect of Estrogen-Signaling via Neurons of Barrington's Nucleus on Lower Urinary Tract Function

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Objective: Barrington's nucleus (Bar), a brainstem nucleus with estrogen receptor-expressing neurons, drives micturition by innervating motor neurons that promote synergistic contraction of the detrusor muscle and relaxation of the external urethral sphincter (EUS). Bar is integral to the central switch between urine storage and voiding phases. Loss of ovarian function and lower estradiol levels after menopause are associated with increased prevalence of urinary incontinence, yet the mechanism of action of estrogen as a modulator of lower urinary tract (LUT) function remains underexplored. This study characterizes the functional importance of estrogen receptor alpha (Esr1)-expressing neurons of Bar and will elucidate the modulatory role of estrogen signaling via brainstem neurons in LUT function. The objective of this research is to gain a better understanding of the mechanisms by which changes in central hormone signaling influence female urogynecologic health. **Design:** To ablate Esr1-expressing neurons of Bar, diphtheria toxin A (DTA) fragment carried by an adeno-associated viral vector (AAV DIO-DTA-mCherry) was injected bilaterally into Bar of Esr1-IRES-Cre/+; L10-GFP young adult female mice (Bar^{Esr1}-DTA). Lower urinary tract function including void latency, frequency, volume, and location was recorded using micturition video thermography (MVT). Mice underwent cystometry and bladder sizes were measured following final MVT trial to assess for signs of urinary retention. To selectively target estrogen signaling via Esr1, Esr1 receptors were knocked out from Esr1+ neurons by bilateral Cre injection into Bar of female Esr1 lox/lox mice. This allowed for the excision of exon3 from the Esr1 gene and resulting loss of Esr1 protein expression (Esr1-KO). Mice underwent MVT to characterize LUT function. Brain tissue was collected and precise and bilateral injection of the AAVs into Bar was confirmed by fluorescence microscopy. **Results:** Following DTA ablation, Bar^{Esr1}-DTA mice exhibited a strong increase in the number of small, abnormal voids characterized as leaks compared to pre-DTA behavior. Furthermore, the bladders of Bar^{Esr1}-DTA mice were distended, with an average bladder diameter of 10.61 mm. We are increasing cohort sizes to better understand the changes in micturition behavior following targeted knockout of Esr1 and sequential absence of estrogen signaling via the Bar neurons. **Conclusion:** DTA ablation of Bar^{Esr1} neurons produces a urinary retention phenotype similar to the phenotype observed when the total glutamatergic Bar neuron population is ablated, suggesting that the Esr1 receptor is expressed by Bar neurons with functional importance to lower urinary tract function. Furthermore, prominent distension of bladders following Bar^{Esr1} neuron ablation with leaking behavior suggests a severe urinary retention phenotype with overflow incontinence secondary to loss of the total Bar^{Esr1} neuron population. Lastly, the voiding pattern upon targeted excision of the Esr1 receptor from Bar neurons will aid our investigation into the potential modulatory mechanism of brainstem estrogen signaling on LUT function. This research underscores that the lower urinary tract is susceptible to hormonal signaling pathways at the level of brainstem neurons and that modulation of the central control of micturition via the Esr1 receptor may contribute to changes in LUT symptomatology observed at major endocrinologic timepoints such as menopause.

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P-154.

A matching-adjusted indirect comparison of fezolinetant and elinzanetant for the treatment of vasomotor symptoms due to menopause

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Objective: Vasomotor (VMS) symptoms are burdensome for women in menopause. The efficacy of fezolinetant and elinzanetant, neurokinin receptor antagonists, in relieving VMS has been shown in their respective clinical trials. Matching-adjusted indirect comparison (MAIC) controls for the differences in treatment effect modifiers between trials, provides robust estimates of relative treatment effects, and was used to compare the efficacy of fezolinetant and elinzanetant in women with VMS due to menopause. **Design:** Treatment effect modifiers were identified, and patient-level data from the SKYLIGHT-1/2 trials were matched to the population and study design of OASIS-1/2. Assessments included frequency of VMS, severity of VMS, Patient-Reported Outcomes Measurement Information System Sleep Disturbance – Short Form 8b (PROMIS SD SF 8b), and Menopause Specific Quality of Life Questionnaire (MENQOL). **Results:** Before matching, the OASIS-1/2 trial populations had higher baseline VMS frequency and lower proportion of Hispanic/Latina individuals. Similar efficacy in reducing VMS frequency and severity was seen with fezolinetant and elinzanetant. Sleep disturbance improved with both drugs albeit more favorable for elinzanetant. However, the improved sleep disturbance did not result in better QoL for elinzanetant, as the MENQOL results were similar with both drugs. **Conclusion:** MAIC analysis showed that fezolinetant and elinzanetant had similar efficacy in reduction of VMS frequency and severity. The differences in reduction of sleep disturbances did not result in differences in QoL. Neurokinin receptor antagonists offer an alternative option to hormonal therapy or other non-hormonal therapies for the treatment of VMS due to menopause.

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P-155.

Global Perspectives on Perimenopause: A Digital Survey of Knowledge, Attitudes, and Symptoms using the Flo Application

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Objective: Perimenopause refers to the years before the final menstrual period and the first 12 months after. It is defined by hormonal fluctuations that can result in a variety of physical and psychological symptoms. Using Flo, a global menstrual cycle tracking application, we sought to assess current knowledge, attitudes, and symptoms of perimenopause. **Design:** English-speaking Flo App users >18 years were invited to participate in the survey. Users aged 18 to 34 years completed questions on attitudes and knowledge, while those over 35 years completed the full survey, including symptoms and experiences. A perimenopause knowledge score was based on the percentage of 26 symptoms correctly identified. **Results:** A total of 11,616 consented to participate in the survey; 1,224 were excluded due to current hormonal contraception use, for a total of 10,392 (90%) who completed the attitude and knowledge survey. The mean age 37.6 ± 8.0 yrs (SD), 61.9% Caucasian from 158 countries. For the knowledge questions,

75% recognized hot flashes, 74% sleep problems, and 69% night sweats as symptoms of perimenopause, while only 50% identified joint aches or headaches as related symptoms. The least recognized symptoms were new or increased allergies (21%), tinnitus (22%) and gum sensitivity or swelling (23%). Perimenopause knowledge score was 54% and varied by country (figure). Nigeria had the lowest knowledge score (32%), followed by India (40.5%), and the United Kingdom, Canada and Ireland scoring highest (58%). Regarding attitudes, 24% had negative feelings about menopause, 6% positive feelings, and 43% had mixed feelings, with the remainder neutral. The most common negative attitudes about menopause were long-term health impact (50%) and symptoms (53%). Among self-identifed perimenopausal women (n=7,641, mean age 41.3 $\pm$ 5 years), the most frequently reported symptoms were fatigue and exhaustion (75%), sleep problems (70%) and anxiety (69%). Hot flashes were reported by 31% of respondents, and painful sex was the least reported symptom (13%). **Conclusion:** This global survey reveals significant gaps in knowledge and awareness of perimenopause symptoms, with notable variation by country. These findings highlight the need for greater education and improved healthcare resources to better support individuals through this universal life transition.

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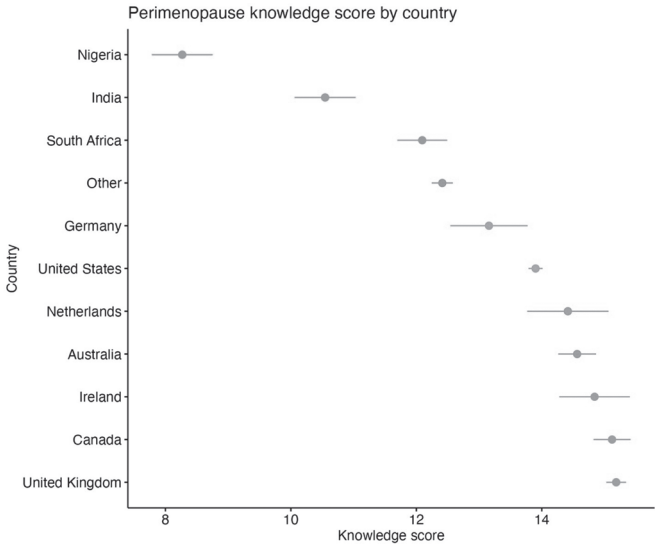

P-156.

Findings from an indirect treatment comparison of non-hormonal pharmacological approaches for vasomotor symptoms: effects on sleep disturbances

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Objective: Sleep disturbances and vasomotor symptoms (VMS) are common and disruptive menopause symptoms. For women who are contraindicated or do not wish to take hormone therapy, non-hormonal pharmacological treatments (NHT) are commonly used. NHTs include selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, anticonvulsants or antihypertensives and most, excepting paroxetine in the US and clonidine in the UK, are not licensed to treat VMS. A systematic literature review (SLR) and indirect treatment comparison (ITC) were undertaken to investigate the efficacy and safety of elinzanetant 120 mg, a dual neurokinin-targeted therapy (NKT) under regulatory review for the treatment of moderate-to-severe VMS associated with menopause, fezolinetant 45 mg (a recently approved NKT for VMS) and other NHTs, in addressing menopausal symptoms, including sleep disturbances. **Design:** An SLR of Medline, Embase, and Cochrane databases was conducted to identify Phase II–IV randomized controlled trials (RCTs) investigating NHTs and NKTs in women with moderate-to-severe VMS associated with menopause and reporting outcomes related to sleep disturbances, published up to August 2024. Interventions were selected based on clinical guidelines and clinical practice. RCTs with comparable populations and outcome measures (nighttime awakenings, Patient Reported Outcome Measurement Information System Sleep Disturbance Short Form [PROMIS SD SF] 8b and Insomnia Severity Index [ISI]) to those in the elinzanetant Phase III RCTs were selected for the ITC which was conducted using a Bayesian network meta-analysis to obtain mean differences (MD) with 95% credible intervals. For both PROMIS SD SF 8b and ISI, higher scores indicate greater sleep disturbances. **Results:** Overall, 22 studies reported sleep outcomes and were included in the SLR. Among the studies, various tools were used to measure sleep disturbances. Pittsburgh Sleep Quality Index and ISI were the most commonly used. A total of 17 RTCs were included in the ITC. Three RCTs (n=1965 patients) reported data on change in nighttime awakenings at week 4 and six RCTs (n=3,507) reported these data at week 12, allowing comparisons between elinzanetant and paroxetine 7.5 mg and elinzanetant, paroxetine 7.5 mg and desvenlafaxine (50, 100, 150 and 200 mg) respectively. Five RCTs (n=1,927) reported data on change in PROMIS SD SF 8b total raw score from baseline to week 4 and 12 facilitating comparison between elinzanetant and fezolinetant. Three RCTs (n=1,332), reported data on change in ISI total score from baseline to week 4 and 12 allowing comparison between elinzanetant and gabapentin 1800 mg. The mean age range of women in the included studies was 52.9 – 56.2. Elinzanetant significantly reduced the number of nighttime awakenings at week 4 vs paroxetine (MD [95% CI]: -0.65 [-1.09, -0.21]). At week 12, elinzanetant significantly reduced the number of nighttime awakenings vs paroxetine (-0.82 [-1.26,-0.39), and all doses of desvenlafaxine (-1.06 [-1.61,-0.53), -0.64 [-1.11, -0.18], -0.61 [-1.07, -0.14] and -0.68 [-1.23, -0.14] for 50, 100, 150 and 200 mg doses respectively). Elinzanetant significantly reduced PROMIS SD-SF-8b total raw score vs fezolinetant at week 4 (MD: -2.06 [-3.22, -0.91) and week 12 (MD:-2.67 [-3.92, -1.42]). Elinzanetant also reduced ISI total score vs gabapentin 1800mg at week 4 (MD [95% CI]: -0.82 [-2.33, 0.68) and week 12 (MD:-1.46 [-3.03, 0.11]) though the difference did not achieve statistical significance. **Conclusion:** Elinzanetant demonstrated significantly greater reductions in sleep disturbances compared indirectly with fezolinetant and significantly fewer nighttime awakenings compared indirectly with paroxetine and other NHTs. Based on current evidence, elinzanetant offers a promising alternative that can effectively address sleep disturbances and VMS associated with menopause. Results should be interpreted in the context of estimates being derived from an ITC.

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P-157.

Impact of an employer-sponsored digital menopause program on workplace retention and career longevity

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Objective: The impact of menopause symptoms on work outcomes costs the U.S. economy $1.8 billion a year through reduced work productivity, absenteeism, and early exit from the workforce, among other factors. This constitutes a major loss to the overall economy in addition to the personal financial and career losses experienced directly by menopausal people. While much of the work force will experience menopause, gaps in menopause education and care leave many menopausal people unprepared to manage their symptoms, putting them at risk of adverse work outcomes. Employer-sponsored programs specifically for menopause may mitigate these effects by providing employees with evidence-based resources that are convenient and accessible. This analysis assessed the influence of an employer-sponsored digital menopause program on workplace retention and career longevity. **Design:** Data were obtained from individuals with menopause symptoms who receive Maven's menopause program as an employer-sponsored benefit. Users completed a survey evaluating their perception of the program's influence on their likelihood of remaining: 1) with their current employer (retention), and 2) in the workforce (career longevity). Results were stratified by each user's menopause symptom severity score at enrollment into the menopause program. Symptom scores were measured on the validated Menopause Rating Scale (MRS), with scores indicating mild symptoms (1-10), moderate symptoms (11-22), and severe or very severe symptoms (23 and higher). Data were assessed descriptively and with bivariate tests. **Results:** Data were collected from 85 program users. Overall, 36.5% of users reported that they are more likely to continue working for their current employer because they have the menopause program, and 27.1% of users reported that they would stay in the workforce longer because of using the menopause program (Table 1). Retention differed significantly by symptom severity (p=0.007), such that those with severe or very severe symptoms were more likely to report that they would continue working for their current employer because they have the menopause program (46.7%), compared to those with moderate (31.1%) or mild (40.0%) symptoms. 46.7% of users with severe or very severe symptoms reported that they are more likely to stay in the workforce longer because of using the menopause program, compared to 22.2% of users with moderate symptoms, and 24.0% of users with mild symptoms. Differences in career longevity were not statistically significant (p=0.17). **Conclusion:** This work demonstrates that an employer-sponsored menopause program may help menopausal people stay longer at their current jobs and in the workforce, particularly for those with the highest symptom severity. Supporting people with the highest symptom severity is particularly important because previous work has shown that these are the people who are most likely to experience adverse workplace outcomes. Employer-sponsored menopause programs may increase awareness of and access to evidence-based resources on menopause, which can help reduce symptoms and ultimately reduce workplace attrition.

Sources of Funding: Maven Clinic

Table 1. Workplace retention and career longevity by symptom severity

	Mild (N=25)	Moderate (N=45)	Severe or very severe (N=15)	Overall (N=85)	p-value
Are you more likely to continue to work for your current employer because you have this program?					0.007
Yes	10 (40.0%)	14 (31.1%)	7 (46.7%)	31 (36.5%)	
I'm not sure	10 (40.0%)	11 (24.4%)	8 (53.3%)	29 (34.1%)	
No	5 (20.0%)	20 (44.4%)	0 (0%)	25 (29.4%)	
Do you think you will stay in the workforce longer because you have this program?					0.17
Yes	6 (24.0%)	10 (22.2%)	7 (46.7%)	23 (27.1%)	
I'm not sure	13 (52.0%)	19 (42.2%)	7 (46.7%)	39 (45.9%)	
No	6 (24.0%)	16 (35.6%)	1 (6.7%)	23 (27.1%)	

Fisher's exact tests were used to calculate p-values across all groups. Pairwise tests were not calculated.

P-158.

Safety of Fezolinetant for Treatment of Moderate to Severe Vasomotor Symptoms Due to Menopause in Participants with Medical Comorbidities: Pooled Analysis of Three 52-Week Phase 3 Studies (SKYLIGHT 1, 2, and 4)

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Objective: Fezolinetant is approved as a treatment option for moderate to severe vasomotor symptoms (VMS) in many regions, including North America, Europe, Asia, and Australia at a dose of 45 mg once daily. Phase 3 studies have demonstrated the efficacy, safety, and tolerability of fezolinetant vs placebo. The objective of this analysis was to evaluate the safety of fezolinetant in prespecified subgroups of women with certain medical comorbidities and VMS due to menopause. **Design:** SKYLIGHT 1 (NCT04003155) and 2 (NCT04003142) were identical 12-week, randomized, double-blind, placebo-controlled, phase 3 efficacy and safety studies, followed by 40-week active treatment extensions. Participants were women aged ≥40 to ≤65 years with moderate to severe VMS initially randomized 1:1:1 to placebo, fezolinetant 30 mg, or fezolinetant 45 mg once daily; following the 12-week placebo-controlled period, those on placebo were re-randomized to fezolinetant 30 or 45 mg; those on fezolinetant continued. SKYLIGHT 4 (NCT04003389) was a 52-week, randomized, double-blind, placebo-controlled, phase 3 safety study in women with VMS. Safety was assessed by evaluation of treatment-emergent adverse events (TEAEs) in subgroups of participants with and without hypertension, hyperlipidemia, diabetes mellitus, obesity, and osteoporosis. **Results:** The pooled safety analysis set comprised 952 participants who received placebo, 1103 who received fezolinetant 30 mg, and 1100 who received fezolinetant 45 mg. The fezolinetant groups included participants re-randomized to fezolinetant after completing 12 weeks on placebo. Participants who initially received placebo and continued into the extension were counted in both placebo and fezolinetant groups, based on re-randomization assignment. TEAEs occurred in 55.3%, 65.4%, and 62.9% of placebo, fezolinetant 30 mg, and fezolinetant 45 mg groups, respectively; however, exposure-adjusted incidence rates (EAIRs) were 95.8, 81.4, and 75.9 per 100 person-years, respectively. Overall occurrence of drug-related serious TEAEs and those leading to treatment withdrawal was low. Overall TEAEs and drug-related TEAEs were generally similar for participants with and without each medical comorbidity, examined across all treatment groups (Tables 1 and 2). The majority of TEAEs in those with and without medical comorbidities were not drug-related. The population of the osteoporosis subgroup was too small to draw meaningful conclusions. **Conclusion:** Safety of fezolinetant was observed in subgroups of women in the pooled SKYLIGHT studies over 52 weeks with medical comorbidities of hyperlipidemia, hypertension, diabetes mellitus, and obesity, consistent with results seen in the pooled overall population.

Sources of Funding: Astellas Pharma Inc.

Table 1. Overall TEAEs by medical comorbidity

Overall TEAEs by subgroup n/*N* (%) [EAIR]	Placebo Total (N = 952)	Fezolinetant 30 mg Total (N = 1103)	Fezolinetant 45 mg Total (N = 1100)
Hypertension Yes No	117/207 (56.5%) [95.3] 409/745 (54.9%) [95.9]	147/234 (62.8%) [77.7] 574/869 (66.1%) [82.3]	173/276 (62.7%) [75.9] 519/824 (63.0%) [75.9]
Hyperlipidemia Yes No	87/139 (62.6%) [100.0] 439/813 (54.0%) [95.0]	112/178 (62.9%) [75.9] 609/925 (65.8%) [82.4]	117/172 (68.0%) [81.0] 575/928 (62.0%) [74.9]
Diabetes mellitus Yes No	43/72 (59.7%) [89.4] 483/880 (54.9%) [96.4]	55/84 (65.5%) [73.6] 666/1019 (65.4%) [82.1]	64/95 (67.4%) [78.9] 628/1005 (62.5%) [75.6]
Obesity (BMI ≥30 kg/m^2) Yes No	183/312 (58.7%) [99.6] 343/639 (53.7%) [93.9]	260/390 (66.7%) [81.6] 460/712 (64.6%) [81.2]	236/375 (62.9%) [75.2] 454/723 (62.8%) [76.1]
Osteoporosis Yes No	7/11 (63.6%) [74.7] 519/941 (55.2%) [96.2]	18/20 (90.0%) [109.0] 703/1083 (64.9%) [80.8]	11/14 (78.6%) [85.4] 681/1086 (62.7%) [75.7]

BMI = body mass index; EAIR = exposure-adjusted incidence rate; TEAE = treatment-emergent adverse event. EAIR was defined as number of participants with an event divided by the total observation time, per 100 person-years. *N* denotes subgroup size.

Table 2. Drug-related TEAEs by medical comorbidity

Drug-related TEAEs by subgroup n/*N* (%) [EAIR]	Placebo Total (N = 952)	Fezolinetant 30 mg Total (N = 1103)	Fezolinetant 45 mg Total (N = 1100)
Hypertension Yes No	32/207 (15.5%) [26.1] 108/745 (14.5%) [25.3]	37/234 (15.8%) [19.6] 124/869 (14.3%) [17.8]	39/276 (14.1%) [17.1] 132/824 (16.0%) [19.3]
Hyperlipidemia Yes No	18/139 (12.9%) [20.7] 122/813 (15.0%) [26.4]	28/178 (15.7%) [19.0] 133/925 (14.4%) [18.0]	32/172 (18.6%) [22.2] 139/928 (15.0%) [18.1]
Diabetes mellitus Yes No	9/72 (12.5%) [18.7] 131/880 (14.9%) [26.2]	12/84 (14.3%) [16.1] 149/1019 (14.6%) [18.4]	15/95 (15.8%) [18.5] 156/1005 (15.5%) [18.8]
Obesity (BMI ≥30 kg/m^2) Yes No	48/312 (15.4%) [26.1] 92/639 (14.4%) [25.2]	58/390 (14.9%) [18.2] 103/712 (14.5%) [18.2]	57/375 (15.2%) [18.2] 114/723 (15.8%) [19.1]
Osteoporosis Yes No	1/11 (9.1%) [10.7] 139/941 (14.8%) [25.8]	2/20 (10.0%) [12.1] 159/1083 (14.7%) [18.3]	3/14 (21.4%) [23.3] 168/1086 (15.5%) [18.7]

BMI = body mass index; EAIR = exposure-adjusted incidence rate; TEAE = treatment-emergent adverse event. EAIR was defined as number of participants with an event divided by the total observation time, per 100 person-years. *N* denotes subgroup size.

P-159.

High Aromatization Variability in Female TRT Patients: Implications for Symptom-Guided Estradiol Management

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Objective: To describe three cases of postmenopausal women undergoing injectable testosterone therapy who demonstrated variable estradiol responses due to individual aromatization patterns, and to illustrate the clinical value of delaying estradiol supplementation until patient-specific hormonal expression is established. **Design:** This retrospective case series reviewed three midlife women initiating subcutaneous weekly TRT. Subjects had baseline estradiol levels below 80 pg/mL. Serial laboratory assessments and structured symptom evaluations were conducted over a 3-6 month period following TRT initiation. Interventions for estradiol modulation were symptom-guided, utilizing diindolylmethane (DIM), calcium d-glucarate, and progesterone if indicated. No patients received exogenous estradiol at baseline. **Results:** All three patients demonstrated significant increases in estradiol following TRT initiation. One patient (age 55, baseline estradiol 75 pg/mL) experienced supraphysiologic estradiol levels (peak 268 pg/mL) associated with fluid retention, breast tenderness, and bloating. She was successfully managed with diindolylmethane (DIM), calcium d-glucarate, and the addition of low-dose progesterone to support estrogen-progesterone balance. A second patient (age 49, baseline estradiol 80 pg/mL) exhibited robust estradiol elevation (peak 160 pg/mL) with mild symptoms of bloating, requiring DIM, calcium d-glucarate, and progesterone support. The third patient (age 48, baseline estradiol 19 pg/mL) achieved therapeutic estradiol levels (peak 136 pg/mL) without intervention and remained asymptomatic. None of the three required direct estradiol supplementation. All subjects reported improved energy, libido, and cognitive clarity on TRT. **Conclusion:** This case series highlights the wide variability in endogenous aromatization among female TRT patients. Many women can achieve physiologic estradiol levels without exogenous supplementation. A conservative, symptom-guided approach-delaying estradiol replacement until post-therapy reassessment-may optimize safety, reduce unnecessary interventions, and improve clinical outcomes. Recognition of this variability supports a precision medicine model for female hormone optimization. These findings underscore the need for individualized estradiol monitoring protocols in female TRT programs. Future research should evaluate predictive markers of aromatization efficiency, such as baseline SHBG levels and body composition, to further refine targeted treatment strategies.

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High Aromatization In Female TRT Patients

Patient Age	Baseline Estradiol (pg/ml)	Post-TRT Estradiol (pd/ml)	TRT Dos (mg/week SQ)	Subjective Symptoms	Intervention
48	19	136	3.75	Asymptomatic	None Needed
49	80	160	3.75	Fluid Retention, Bloating	DIM + Calcium D-Glucarate + Progesterone
55	75	268	4	Fluid Retention, Bloating	DIM + Calcium D-Glucarate + Progesterone

P-160.

Identifying sleep associations in 200,000 US women: Insights from smartwatch data on age, BMI, and physical activity

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Objective: To examine associations between sleep measures—total sleep period duration (TSPD), total sleep time (TST), wake after sleep onset (WASO) — and age, BMI, physical activity, and weekday/weekend differences in a large cohort of US women. We also assessed whether wearable devices (Samsung Galaxy Watches) can detect sleep disturbances potentially related to menopause. **Design:** We analyzed data

from 200,000 US women aged 20–65 years with ≥7nights of sleep recordings. Of these, 28.4% (n=56,704) were aged > 50 years. Linear mixed models assessed the effect of age categories (5 year groups), BMI (kg/m^2: healthy weight: 18.5–24.9, overweight: 25.0–29.9, obese: ≥30), weekday/weekend sleep patterns, active time duration (tertiles), and daily steps (sedentary: <5,000, low active: 5,000–7,499, somewhat active: 7,500–9,999, active: >10,000, highly active: >12,500). A log-transformed model was used for WASO. **Results:** Median TSPD, TST, and WASO were 438, 390, and 39 min, respectively. Mean BMI was 30.8 kg/m^2 and mean daily step count was 5,598. TSPD and TST were most affected by weekday vs weekend (+23 / +21 min on weekends) and BMI (obese: -13 /-14 min vs normal weight; **Table 1**). Age had a minor impact on TSPD (6-8 min less for women > 35 years vs 20-25), but effects were greater for TST and WASO; women > 50 years had 15-17 min less sleep and 5-10 min more wakefulness vs those aged 20-25, suggesting a potential menopause-related sleep disturbance pattern. The age effect was incremental across 5-year groups. Age had the largest effect on WASO, while obesity impacted TST and TSPD most. Activity effects on sleep measures were small and consistent across age groups. **Conclusion:** Smartwatch data provides a unique opportunity to assess modifiable (BMI) and non-modifiable (age) factors influencing sleep in women, confirming and expanding existing knowledge at a population scale. The most marked age-related difference was increased nighttime wakefulness in women over 50, which could reflect a pattern of menopause-related sleep disturbances. Obesity was associated with shorter sleep duration but had no impact on WASO. Weekend sleep extension highlights lifestyle behaviours. Wearable devices are emerging as valuable tools for large-scale sleep research and may support development of targeted sleep interventions for midlife women.

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Table 1. Effects of age, BMI, and weekend/weekday on sleep measures, mean effects from LMM

Factor	TSPD (Δ min)	TST (Δ min)	WASO (Δ min)
Weekend vs Weekday	+23	+21	+1
Obesity vs normal BMI	-13	-14	0
Age vs. [20;25[			
[25;30[	-3	-4	+1
[30;35[	-5	-7	+1
[35;40[	-6	-9	+1
[40;45[	-7	-10	0
[45;50[	-8	-11	+1
[50;55[	-8	-15	+5
[55;60[	-8	-17	+8
[60;65[	-5	-17	+10

Δ = Mean difference compared to the reference category (either weekday, normal BMI, or [20–25[years age group). LMM = Linear Mixed Model, a statistical approach accounting for repeated measures and clustering.

P-161.
Can Midlife Women's Quality of Life Improve From a Coordinated Weight Loss Program?

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Objective: Overweight and obesity affect 70% of U.S. women, increasing risks for body image dissatisfaction, depression, and anxiety. While modest weight loss (5–10%) improves physical health, its psychosocial impacts, particularly in midlife women, remain understudied. GLP-1 agonists (e.g., semaglutide, tirzepatide) enhance weight loss, yet their effects on quality of life (QOL) and mental health are unclear. We seek to evaluate whether a six-month weight management program achieving ≥5% total body weight loss improves QOL, body image, depression, and anxiety in mid-life women. We also aim to assess whether outcomes differ between participants using GLP-1 agonists versus non-users and between those achieving ≥10% versus <10% weight loss. **Design:** This prospective cohort study aims to enroll 95 women (body mass index [BMI] ≥27 kg/m^2) in Mayo Clinic Arizona's women's health weight management program, who will complete validated questionnaires at baseline, 3-, and 6-month visits: *Linear Analogue Self-Assessment (LASA)* for QOL, *Patient Health Questionnaire-9 (PHQ-9)* for depression, *Generalized Anxiety Disorder-7 (GAD-7)*, and *Body Image Acceptance and Action Questionnaire-5 (BI-AAQ 5)*. Weight, BMI, and clinician-guided lifestyle/pharmacologic interventions will be recorded. Primary endpoints compare improvements in QOL between women achieving ≥5% weight loss and women not achieving ≥5% weight loss. Secondary endpoints compare improvements in body image, depression, and anxiety and explore differences in outcomes by medication use and amount of weight loss (≥10% vs. <10%). This study is a secondary analysis of mid-life women aged 40-65 years old participating in this study. The primary endpoint will be analyzed using repeated measures mixed models to compare changes in QOL from baseline to six months between weight loss groups. **Results:** This study is currently being implemented. Based on prior evidence, we anticipate midlife women achieving ≥5% weight loss will report significant QOL improvements. Reductions in depression and anxiety scores are expected. Women prescribed GLP-1 agonists and/or achieving ≥10% weight loss may demonstrate larger improvements in QOL, and psychosocial outcomes. Improved body image acceptance (BI-AAQ 5) is anticipated to correlate with the degree of weight reduction. **Conclusion:** The literature clearly documents the effects of weight loss on physical health; however, the psychological impact remains underexplored. Our study aims to investigate key aspects of well-being and the need to provide personalized strategies for optimizing weight management in midlife women. Strengths of this study include its longitudinal design, use of validated questionnaires, and a clear focus on midlife women undergoing weight management at Mayo Clinic Arizona. The integration of standard care, regular follow-up, and technology for data collection enhances its relevance and applicability to clinical settings. Limitations include a small, non-diverse sample using self-reported data which may introduce bias and accessibility issues and may limit generalizability. The impact of weight on QOL, body image, and mental health is crucial for women, who are more prone to body image dissatisfaction and mood disorders. Studying the effects of a weight management program in midlife women will offer valuable insights into the relationship between weight and quality of life, aiding in a more comprehensive approach to treatment.

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P-162.
The Effects of Estrogen-Based Menopause Hormone Therapy on Anxiety Symptoms in Perimenopausal and Early Postmenopausal Women: A Systematic Review

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Objective: To investigate the impacts of Menopause Hormone Therapy (MHT) on anxiety symptoms among perimenopausal and early postmenopausal women, and to evaluate how treatment-related factors such as dosage, route of administration, and baseline symptom severity may influence therapeutic outcomes. **Design:** This systematic review was developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline. The protocol was prospectively registered with the International Prospective Register of Systematic Reviews (PROSPERO; Registration ID: CRD42024614479). The search strategy was completed by one information specialist in December 2024 using relevant databases including Ovid MEDLINE, PubMed, Ovid EMBASE, and Web of Science. The search strategy included a combination of controlled vocabularies and keywords related to hormone replacement therapies, menopause, and anxiety. Eligible studies included randomized controlled trials (RCTs), cohort studies, and case-control studies that evaluated estrogen-based MHT, administered via oral or transdermal routes, in perimenopausal or early postmenopausal women. Risk of bias was assessed independently using the Joanna Briggs Institute checklist, with studies rated as moderate to high quality. **Results:** Seven studies met the inclusion criteria, comprising four RCTs (including one crossover design), and three population-based observational studies. The trials enrolled more than twelve hundred peri- or early postmenopausal women, whereas the observational studies captured roughly 175,000 individuals spanning the midlife years. Intervention arms tested conventional oral conjugated equine estrogens at 0.45 mg per day, oral 17β-estradiol ranging from 0.5 to 2 mg per day, or transdermal estradiol patches delivering 50–100 μg daily; treatment duration varied from six weeks in the shortest study to four years in the longest. Anxiety outcomes were measured using validated self-report instruments, most commonly the Profile of Mood States tension subscale, the Women's Health Questionnaire anxiety/fear domain, the GAD-7 or were identified through diagnostic coding in administrative datasets. Across the studies, two trials showed improvement in symptoms of anxiety. The four-year KEEPs-Cog study detected a modest and statistically significant reduction in tension-anxiety scores among women receiving oral conjugated estrogens, which was not seen with an equivalent transdermal dose. In a six-month Finnish trial, both oral and transdermal estradiol therapies reduced anxiety and fear scores, but only in participants who also experienced moderate-to-severe vasomotor symptoms. Four studies found no meaningful change in anxiety using MHT after appropriate adjustment for confounding variables. One study, a Finnish cross-sectional survey, suggested that current MHT users reported a higher prevalence of clinical anxiety, although its design precluded causal inference. **Conclusion:** Collectively, it appears that estrogen-based MHT does not consistently reduce anxiety symptoms among midlife women. However, modest benefits may be seen in perimenopausal or early postmenopausal women, particularly among those who are symptomatic and within a few years of their final menstrual period. The route, dose, and baseline severity of symptoms appear to influence treatment response, with oral estrogen showing the most promise. More targeted research is needed to clarify which characteristics, such as menopausal stage, symptom severity, and timing of treatment, may predict which women are most likely to benefit from estrogen-based MHT for anxiety symptoms.

Sources of Funding: None

Evaluation of Estrogen-based MHT on Anxiety Symptoms

Authors	Journal	Year	Study Design
Lee et al.	European Psychiatry	2023	Retrospective population cohort study
Gerber et al.	Journal of General Internal Medicine	2014	National cross-sectional study
Savolainen-Peltonen et al,	Menopause: The Journal of the North American Menopause Society	2014	Randomized, double-blind, placebo controlled trial
Gleason et al.	PLOS Medicine	2015	Randomized, double-blind, placebo-controlled clinical trial
Caan et al.	Menopause: The Journal of the North American Menopause Society	2015	Randomized, double-blind, placebo-controlled 3-arm clinical trial
Schmidt et al	JAMA Psychiatry	2015	Randomized, double-blind, placebo-controlled clinical trial following open-label run-in
Toffol et al.	Menopause: The Journal of the North American Menopause Society	2013	Cross-sectional, population-based study

P-163.

Climacteric Impacts On The Mental Health Of Brazilian Women: A Nationwide Depression Screening

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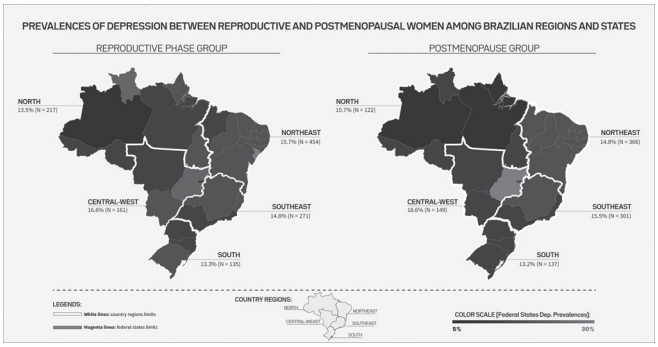
Objective: The aim of this study was to examine the prevalence of clinically significant depressive cases and its relation with age, social determinants, and health care assistance among reproductive and postmenopausal Brazilian women. **Design:** This was a retrospective cross-sectional study from the last available Brazilian National Health Survey (collected in 2019). Ethics Approval: 3.529.376. A total of 15,734 women aged 35–65 years were classified into two groups: Reproductive Phase (RP; aged 35–44 years old and who were menstruating; n = 8,320) and Postmenopause (PM; >12 months of amenorrhea, not using hormone therapy; n = 7,414). Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9; cutoff ≥10). Additional variables included self-reported prior diagnosis, age at first diagnosis, functional impact, and use of psychotherapy, antidepressants, and integrative practices. Analyses were performed using chi-square tests with Yates correction. **Results:** The prevalence of depression was similar in both groups (RP: 14.9%, 95% CI: 14.1 – 15.6; PM: 14.5%, 95% CI: 13.7 – 15.3). PM women had higher rates of prior depression diagnosis (RP: 13.8% vs. PM: 15.0%, p = 0.03; χ^2 = 4.5), with a mean age at diagnosis of 43 ± 10 (SD) years old (median: 45; IQR: 36–51), and 51% of diagnoses occurring between ages 40 – 54. Although no differences were observed in the mean national prevalence of depression between groups, higher regional prevalences were observed in the Central-West (RP: 16.6% and PM: 18.6%), Northeast (RP: 15.7% and PM: 14.8%) and Southeast (RP: 14.8% and PM: 15.5%) – RP: p<0.01, χ^2 = 93.4; PM: p<0.01, χ^2 = 66.7. Moderate (PHQ-9 Score = 10 - 14) depression was more common, but women in the RP group showed significant regional differences, with a higher proportion of severe cases in the Southeast and Central-West regions (p = 0.02, χ^2 = 18.2). Higher depression prevalence was observed among Black and Biracial women in the RP group (p<0.05, χ^2 = 22.7). Lower depression rates were observed with increased education in both groups (p<0.05 in either RP and PM, with χ^2 = 37.7 and 26.1 respectively). Unemployment was associated with higher depression rates, particularly in RP women (p<0.05, χ^2 = 23.5). PM women reported lower use of psychotherapy (PM: 19.0% vs. RP: 26.1%, p = 0.01, χ^2 = 6.3) and antidepressants (PM: 28.2% vs. RP: 54.4%, p < 0.01, χ^2 = 63.8). Most women with depressive cases reported impact on daily activities. **Conclusion:** Our findings showed increasing emotional vulnerability in Brazilian postmenopause women and low mental healthcare as well as social and regional disparities. Further studies are warranted to better characterize the needs and explore targeted, equity-oriented mental health assistance for midlife women.

Sources of Funding: Science Valley Research Institute



P-164.

The Combined Influence of Earlier Menopause and Cardiac Function on Brain Health

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Objective: Women face a higher risk of developing both cardiovascular disease (CVD) and Alzheimer's disease (AD) dementia than men. CVD is linked to an increased likelihood of AD dementia, especially among women. Menopause marks a significant endocrine transition characterized by the depletion of ovarian hormones, including estradiol and progesterone. This transition, especially when it occurs earlier than average, is associated with increased risks of both CVD and AD dementia. Despite these established links, there is limited research examining the combined impact of age at menopause and cardiac function on brain and cognitive outcomes. This study investigated whether earlier age at menopause influences the associations between cardiac function and gray matter volume (GMV), white matter hyperintensity (WMH) burden, and cognitive performance. **Design:** We analyzed data from postmenopausal female participants enrolled in both the Canadian Alliance for Healthy Hearts and Minds Study and the Ontario Health Study. Cardiac function was assessed using resting left ventricular ejection fraction (LVEF) measured on cardiac MRI. Brain MRI was used to quantify GMV and WMH burden. Cognition was assessed with the Montreal Cognitive Assessment (MoCA) and the Digit Symbol Substitution Test (DSST). Linear regression models assessed the interactive associations of age at menopause and LVEF on brain and cognitive outcomes, adjusting for age, ethnicity, years of education, menopausal hormone therapy, cause of menopause (surgical/spontaneous), visceral adipose tissue, systolic blood pressure, cardiac index, and intracranial volume (for brain outcomes). **Results:** We included 701 participants (median age of menopause=51±5.5 years, range=25-61, mean LVEF=65±6.3%, range=45-80%). Age at menopause moderated the associations between LVEF and brain outcomes, such that earlier age at menopause strengthened the associations of lower LVEF with reduced GMV (β= -86.45, p= 0.0142) and increased WMH burden (β = 0.0012, p= 0.013). The associations between age at menopause and LVEF on cognitive outcomes were not significant (MoCA: β = 0.0024, p= 0.251; DSST: β = -0.0046, p= 0.697). **Conclusion:** Earlier menopause and reduced cardiac function may have a compounding negative effect on brain health. These findings underscore the importance of integrating sex-specific factors, such as age at menopause, into research on dementia risk and informing targeted prevention and intervention strategies.

Sources of Funding: Canada Graduate Scholarships-Master's (CGS-M) award from the Canadian Institutes of Health Research (CIHR); University of Toronto, Canada; and the Alzheimer's Association.

P-165.

Supplement Use Among Menopausal Women In Los Angeles

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Objective: Menopause reflects a critical time in a person's life that can significantly impact physical and mental health. While menopause hormone therapy is the standard of care for managing vasomotor symptoms, the supplement industry, propelled by celebrity influencers and misinformation, continues to market its products to women desperate for relief. In a study of menopausal women, 60% of participants were taking 4 or more supplements. Given the widespread and unregulated use of supplements, it is essential for healthcare providers to have knowledge of common products used by women to provide nuanced guidance; yet many providers have limited awareness of these products. There is currently limited data around this topic. To address this knowledge gap, we aim to deepen our understanding of the supplements utilized by menopausal women at the UCLA Comprehensive Menopause Program (CMP). This information will guide the development of educational materials tailored for both providers and patients, enhancing awareness and informed decision-making around supplement use. **Design:** We analyzed supplement data from the CMP intake survey completed by patients receiving care between August 2023 and August 2024. Reported supplements were categorized into six primary groups: (1) essential and nonessential micronutrients, (2) herbal products, (3) adaptogens, (4) food-based nutraceuticals, (5) Ayurvedic herbs and Traditional Chinese Medicine (TCM), and (6) glandular extracts. We calculated the percentage of patients using supplements and the percentages within each category. Additionally, we calculated the average number of supplements taken per participant and examined supplement usage in relation to menopause hormone therapy usage. **Results:** A total of 1,105 participants provided data on their supplement use. 62.2% of participants were White, followed by 9.4% Asian, 8.4% Hispanic, 5.3% Black, and 14.7% multiracial or other. 773 (66.3%) patients seen were taking at least one supplement with an average of 3.65 (sd 2.43) supplements per person. 63 respondents reported taking a supplement that included a combination of active ingredients. Among those, the average number of ingredients they were taking was 6.49 (sd 3.30). On average, participants reported taking 2.40 (sd 1.35) essential micronutrients, 1.14 (sd 0.38) nonessential micronutrients, 1.32 (sd 0.64) herbals, 1.36 (sd 0.87) adaptogens, 1.36 (sd 0.87) food based products, 1 traditional chinese herb, and 1.07 (sd 0.30) glandulars. Women utilizing menopause hormone therapy (MHT) on average used the same amount of supplements as those not using MHT, 3.62 (sd 2.42) vs 3.65 (sd 2.43), respectively. The most commonly utilized category was essential micronutrients including: Vitamin D (367, 33.2%), multivitamin (295, 26.7%), magnesium (253, 22.9%) and calcium (159, 14.4%). The next most common category was food-based nutraceuticals, including fish oil/omegas (199, 18.0%), probiotics (115, 10.4%), and turmeric (92, 8.3%). The most common herbals were isoflavones/phytoestrogens (28, 2.5%) and black cohosh (20, 1.8%). The most common adaptogen was ashwagandha (35, 3.2%), and the most widely used glandular supplement was DHEA (39, 3.5%). 20 respondents (1.8%) utilized traditional Chinese herbs. **Conclusion:** Women in our clinical cohort reported using over 80 distinct supplement ingredients, highlighting the wide scale of supplements available. By identifying and categorizing supplements into groups, we can more effectively educate healthcare providers to discuss benefits and risks of these products. This information is essential for educating patients and providers about safe and effective use, potential interactions, and cultural practices influencing supplement choice. Our results highlight the need for systematic education about the supplement industry to empower patients to make informed decisions and support providers to offer tailored, non-judgmental advice, ultimately promoting a holistic approach to menopause care. Based on the results of our study, we will create and implement patient and provider educational resources to address the common issues and concerns surrounding supplement use in menopausal women

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P-166.

Xerostomia and Vaginal Atrophy- Is there a connection?

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Objective: Vaginal atrophy occurs in up to 84% of menopausal women. Xerostomia, or dry mouth, occurs in approximately 30% of adults over 65. Xerostomia is associated with symptoms such as difficulty swallowing, halitosis, difficulty vocalizing, and serious conditions such as periodontal disease and oral cancer. Risk factors include medication, chemotherapy, tobacco, cannabis, head radiation, autoimmune diseases, and menopause. Vaginal mucosa, buccal mucosa and salivary glands contain 17β-estradiol receptors and progesterone receptors. Low salivary and serum 17β-estradiol and progesterone levels correlate with xerostomia in menopausal women. There are no studies that investigate if women with xerostomia are likely to have vaginal atrophy. There is minimal and conflicting data on the impact of systemic menopausal hormone therapy on xerostomia. Current treatment relies on lifestyle and medication modification. The primary objective was to determine if there is an association between vaginal atrophy and xerostomia. Secondary objectives were to determine rates of bothersome symptoms, awareness of menopause as a risk factor for xerostomia, the impact of systemic estrogen use on the presence of dry mouth, and desire for treatment. **Design:** 350 women who self-identified as being peri or post menopause and having "dry mouth" were recruited through social media. They were then directed to an 11 question multiple-choice survey regarding: Age, menopausal status, vaginal dryness, dry mouth, risk factors (medical conditions, medications, tobacco/cannabis use), symptoms, use of menopausal hormone therapy and awareness that menopause was a risk factor for dry mouth. **Results:** 100% of women in this survey reported mild, moderate, or severe dry mouth. 51% of those women used systemic estrogen therapy. 92% of women with xerostomia also report vaginal dryness. 18.5% report a medical condition associated with dry mouth. 49.5% reported use of a medication, tobacco, or cannabis. 72% of women with dry mouth reported bothersome symptoms (Bad breath-34%, gum disease 15%, difficulty swallowing 18%, difficulty speaking or singing 14%, tooth loss 8%, mouth infections 2%, oral cancer 1%.) 62% were unaware that menopause is a risk factor for dry mouth. Only 8% had been informed by a health care professional. 90% desired treatment. **Conclusion:** Xerostomia is a common problem in post menopause women. While many medications and medical conditions contribute to prevalence, there is also a high correlation with hypoestrogenemia, which can be explained by the known dependence of saliva production on estrogen and progesterone. The vaginal mucosa and oral mucosa have many similarities including the presence of hormone receptors. While not previously documented, it appears that the majority of women with symptomatic xerostomia also have symptomatic vaginal atrophy. There are reports of hormone therapy benefiting women with xerostomia; however, over half of the women with dry mouth in this survey were using systemic estrogen. Almost 75% of women had bothersome or serious symptoms and desired treatment beyond what they were already doing. This represents a huge unmet need. Medical professionals are not informing women that menopause is a risk factor for dry mouth, and most women are unaware. Further research is warranted to explore the potential role of hormone therapy in the prevention and treatment of xerostomia.

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P-167.

The menopausal transition among women with HIV: How can clinicians best support this patient population?

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Objective: Women living with HIV (WWH) experience greater menopausal symptom burden than women without HIV (WWOH) and severe menopausal symptoms have been associated with suboptimal engagement in HIV care and treatment. However, WWH use evidence-based treatments for menopausal symptom management, like Menopause Hormone Therapy (MHT), less often than WWOH. Research suggests that talking about MHT with a healthcare provider increases uptake, but most providers currently caring for WWH have received little or no training on menopause and associated symptom management. This study sought to understand how providers caring for WWH in two clinics in the San Francisco Bay Area worked with their patients to manage the menopausal transition (MT). **Design:** This paper draws from a dataset of N=15 semi-structured interviews conducted with healthcare providers who work with WWH in the San Francisco Bay Area. Data were collected from May – September 2024. Providers from two clinics were purposively sampled by provider type (n=8 prescribing vs. n=7 non-prescribing). Interviews lasted about 40 minutes and were conducted over Zoom by the study PI and a research assistant. Providers were asked about their: 1) knowledge of and training in menopause, as well as in menopause and HIV specifically; 2) knowledge of and experience with MHT; 3) experience working with WWH going through menopause. Data were coded using Dedoose qualitative analysis software and analyzed thematically. **Results:** All providers reported little or no training in menopause, though training was more common among prescribing providers. None of the providers interviewed had received any training on the intersection of menopause and HIV, but all expressed interest in such a training. Providers reported mixed levels of competence caring for WWH going through the MT and said they gained competence in this area either through many years on the job or their own personal experiences with menopause – *I went through menopause myself, right? So, I had to find out […] what's going on with my body*. Several worried that they were not up to date on the latest science, particularly science related to MHT and other evidence-based symptom management options. Nearly all providers said they did not initiate conversations about menopause with their patients unless patients raised concerns about their symptoms. Some, especially non-prescribing providers, suspected that patients were either embarrassed to talk about sensitive menopausal symptoms, or felt other medical concerns (e.g. managing comorbidities) should take precedence when meeting with their clinician. Prescribing and non-prescribing providers alike noted that past trauma, which is common among WWH, could influence both patients' ability to discern symptoms and willingness to discuss them – *And for women who've experienced trauma […] talking about their bodies is really difficult*. Among patients who complained of menopausal symptoms, non-prescribing providers referred to primary care providers for follow-up. Prescribing providers looked at a constellation of symptoms to diagnose the MT and offered treatment, including MHT, as they felt it was appropriate. **Conclusion:** Healthcare providers who care for WWH would benefit from education on the intersection between HIV and menopause to fill gaps in their training and increase their competence managing the MT with patients. Such training should include prompts providers can use to initiate conversations about menopause before patients present with symptoms and resources for managing menopause with trauma survivors. Primary care providers would especially benefit from this training, as non-prescribing providers most commonly refer to them and they are the prescribing providers patients see most often.

Sources of Funding: National Institutes of Health, UCSF-Bay Area Center for AIDS Research, P30AI027763

P-168.

Navigating Menopause with HIV: Perspectives on Hormone Therapy and Recommendations for Patient-Centered Care

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Objective: Women living with HIV (WWH) experience greater menopausal symptom burden than women without HIV (WWOH), and severe menopausal symptoms have been associated with suboptimal engagement in HIV care and treatment. However, WWH use evidence-based treatments for menopausal symptom management, like Menopause Hormone Therapy (MHT), less often than WWOH. Little is known about why WWH are less likely to take up treatment. Some research among women of color suggests Black women, who make up the majority of WWH in the U.S., are hesitant to take allopathic medications and are more likely to view menopause as a natural process women need to endure. This study sought to understand how WWH in the San Francisco Bay Area understand menopause and manage symptoms, and their opinions on using MHT for menopausal symptom management. **Design:** This paper draws from a dataset of N=20 semi-structured interviews conducted with WWH in the San Francisco Bay Area. Participants were: cisgender women; between 45-60 years of age; living with HIV; not pregnant; not using contraception that may cause amenorrhea; without history of hysterectomy; English speaking. From December 2024 – April 2025, we recruited participants in two clinics; participants were recruited from the waiting room by a member of the study team or referred by their provider. One-third (n=7) of participants in the sample identified as Black or mixed-race. Interviews lasted about 30 minutes and were conducted either in person or over the phone/Zoom by the study PI. We asked WWH about their: 1) knowledge of menopause; 2) experiences with menopausal symptoms and how they managed symptoms; and 3) opinions or experiences using MHT to manage menopausal symptoms. Data were coded using Dedoose qualitative analysis software and analyzed thematically. **Results:** Nearly all participants knew very little about what menopause is and what to expect when going through the menopausal transition. When asked where they had learned about menopause, most cited female relatives, even if they had spoken about menopause with their healthcare provider as well. Several women specifically noted they knew very little because they hadn't grown up with a mother – *I don't really know much about [menopause]. I didn't grow up with my mom*. Hot flashes were the most common symptom participants experienced, but whether and how they attempted to manage these symptoms varied by perceived symptom severity and social determinants of health. Similar to the general population, those who felt bothered by hot flashes were more likely to seek treatment from a healthcare provider. Specific to a safety net population, participants who had unmet material needs (e.g. unstable housing) prioritized managing these. Specific to WWH, co-occurring and conflicting health issues (e.g. HIV, substance use disorder) made it difficult for some WWH to determine if their symptoms were related to menopause and required treatment. Among those who had used MHT, most liked the treatment and felt it had eased their symptoms – *[MHT] works, so I feel much, much better*. Most participants who were bothered by menopausal symptoms and hadn't used MHT were interested in learning more, but were concerned about managing potential side effects in addition to side effects from other medications they were already taking, such as antiretroviral treatment for HIV. **Conclusion:** Our findings suggest that WWH want to learn more about menopause. Those who experience bothersome symptoms and whose material needs are met are particularly interested in learning about MHT. HIV care providers should proactively discuss common signs of perimenopause and options for symptom management, including MHT, with patients who are within the menopausal window. During these discussions, providers should address potential side effects associated with different MHT formulations and delivery mechanisms, and plans for side effect mitigation.

Sources of Funding: University of California Society of Hellman Fellows

P-169.

Associations Between Omega Fatty Acid Levels, Inflammation, and Menopausal Symptoms

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Objective: Low omega-3 fatty acid levels have been observed in association with increased inflammation, which may contribute to symptoms such as brain fog, mood changes (anxiety and depressed mood), joint pain, and vasomotor symptoms (VMS). A previous study reported a 62.8% prevalence of low omega-3 fatty acid levels in middle-aged women and some studies have shown that omega-3 supplementation may help reduce VMS and improve symptoms of depression and anxiety. However, data on the prevalence of omega-3 deficiency and its associations with inflammatory markers and symptoms specifically in menopausal women remain limited. This study aims to evaluate the prevalence of low omega-3 fatty acid levels in symptomatic menopausal women and explore their associations with inflammatory biomarkers and menopausal symptoms. **Design:** We will conduct a retrospective study including women aged 40–60 who visited a Specialized Women's Health Clinic with menopausal symptoms from January 2022 to December 2024. Patients will be enrolled if their initial evaluation includes omega fatty acids levels, C-reactive protein, ferritin, vitamin B12, thyroid stimulating hormone, follicle stimulating hormone, and estradiol. Menopausal symptoms will be reviewed in relation to these biomarkers, categorizing patients into low versus normal omega-3 groups. Planned analyses include calculating the prevalence of omega-3 deficiency, comparing symptom occurrence, and assessing associations with biomarkers using chi-square or Fisher's exact tests, t-tests or Wilcoxon tests, correlation, and multivariable regression analyses. **Results:** Data analysis will begin following IRB approval. The study aims to determine the prevalence of omega-3 deficiency among symptomatic menopausal women and evluate potential associations between omega fatty acid levels, inflammatory markers, hormone levels, and specific menopausal symptoms. No data or observed trends are included at this time. **Conclusion:** This study will investigate potential associations between omega fatty acid status, inflammation, hormonal biomarkers, and menopausal symptoms. The anticipated findings may help determine whether evaluation of omega fatty acid levels or inflammatory markers should be considered in symptomatic menopausal patients, particularly those presenting with specific symptoms such as brain fog, joint pain, or mood changes. If such associations are observed, the findings could support a more individualized approach to symptoms assessment and guide the consideration of targeted therapeutic interventions.

Sources of Funding: None

P-170.

Feasibility and Acceptability of MENOGAP: Optimizing Health with Combined Conventional and Integrative Menopause Care and Group Acupuncture

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Objective: An estimated 85% of women experience vasomotor symptoms during peri- and post-menopause ("menopause") which may lead to poor menopause-related quality of life (MRQoL). Women may also experience bothersome symptoms such as pain, anxiety, sleep and mood problems, and depression during menopause. These symptoms may lead to decreased MRQoL and reduced productivity. Women report feeling unprepared to deal with menopause and seek healthcare to address symptoms, and yet may not receive adequate care for menopause related symptoms due to few healthcare providers receiving adequate menopause management training. To address these gaps in care, we developed and are feasibility testing MENOGAP, a multi-modal group medical visit intervention comprised of education, experientials, and social support. **Design:** A single-arm, pre/post design was employed with quantitative and qualitative data collected at baseline and 4 weeks. Inclusion criteria: women aged 35+ who reported low MRQoL (≥2 on a 0-6 scale), moderate or severe hot flashes (severity ≥3 on a 0-10 scale) lasting for 6+ months, and were willing to provide a menstrual history. MENOGAP is a 4-session intervention delivered in person, lasting 2.5 hours each session. Each session includes a "doc talk" with conventional health education, integrative health education "doc talk", social support, and group acupuncture delivered in a group medical visit format. **Results:** Twenty-six peri- or post-menopausal women attended and self-identified as 100% female, 25% Hispanic, mean age=48.54 years (SD 4.26). All sessions were attended by 75% of participants. Participants rated MENOGAP as feasible [4.91(0.01)], acceptable [4.52(0.14)] and appropriate [4.793(0.42)] on a scale of 1-5. The Overall Menopause Rating Scale score decreased ($p = 0.005$), as did the Somatovegetative ($p = 0.03$) and Psychological ($p = 0.05$) subscales. Knowledge about menopause ($p=0.04$), integrative health therapies ($p=0.008$), and Perimenopausal Health Self-Efficacy Scale scores increased ($p=0.01$). Participant self-reported use of non-prescription therapy to alleviate menopause-related symptoms increased ($p = 0.04$), indicated by the increased number of self-care practices (from 25% to 42%). Qualitative themes include: increased understanding, improved hot flashes, and appreciation of combined acupuncture therapy, integrative health self-care, and medical information. **Conclusion:** MENOGAP appears to be feasible and acceptable, but this needs to be evaluated with a larger sample. The pilot feasibility study indicates that MENOGAP may address unmet needs of this population by optimizing health with symptom management, patient education, and the combined delivery of conventional and integrative health interventions. Future studies will also include a fully powered randomized controlled trial (RCT) to assess efficacy, and, if indicated, a subsequent implementation study.

Sources of Funding: University of Utah School of Medicine Meaningful Use Fund.

P-171.

Menopausal Status Inference and Association with Cardiometabolic Tissue Gene Expression Profiles

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Objective: The hormonal changes of menopause cause downstream physiological changes that can impact cardiometabolic health. Since sex hormones often act through their nuclear receptors to regulate gene expression, the main objective of this study was to use cardiometabolic tissue gene expression profiles to gain insight into the mechanisms underlying menopause-related changes in cardiometabolic risk factors. Unfortunately, most existing human gene expression datasets have not captured menopausal status information, so another objective was to infer the menopausal status of female tissue donors using reproductive tissue gene expression profiles and accompanying histological information. **Design:** The dimensionality reduction approach PEER (probabilistic estimation of expression residuals) was used on the postmortem GTEx (Genotype-Tissue Expression) female reproductive tissue gene expression dataset to identify "hidden factors" that appear to capture the menopausal status of the donors from whom the tissues were derived. These hidden factor-based inferences were combined with histological observations of a subset of reproductive tissue samples to infer the menopausal status of the majority (N=234) of female GTEx donors. Since each GTEx donor contributed 20 different tissues on average, inferred menopausal status derived from reproductive tissues was then tested for association with gene expression levels in cardiometabolic tissues while adjusting for relevant covariates, including donor, sample, and sequencing library characteristics. Since menopausal status is confounded by chronological age, significantly associated genes were also categorized depending on the linearity of their relationship with age to help distinguish chronological aging from true menopause effects. **Results:** Uterus hidden factor 2 (HF2) appeared to best capture menopausal status information. 96% of donors with negative uterus HF2 values were under 54 years old (inferred premenopausal), and 95% of donors with positive uterus HF2 values were over 48 years old (inferred postmenopausal). These inferences were further supported by histological data from ovaries (follicle/ova presence or atrophy) and vaginas (epithelium thickness), with donors with positive uterus HF2 values generally exhibiting more ovarian atrophy, absence of ovarian follicles/ova, and thinner vaginal epithelia. Uterus HF2 and ovarian and vaginal histology information were combined to infer menopausal status (premenopausal versus postmenopausal) of the majority (N=234) of female GTEx donors. Expression levels of hundreds of genes were significantly associated with inferred menopausal status in at least once cardiometabolic tissue with sufficient sample size for analysis (including adipose, arteries, and skeletal muscle). Associated genes had functions including glucose homeostasis, response to fatty acid, vasodilation, oxidative stress, steroid hormone metabolism, and response to estrogen. Though many genes exhibited a relatively linear relationship with age, indicating a dominant contribution of chronological aging to the changes in gene expression, others displayed an inflection point around age 51 that supported a menopause effect. **Conclusion:** Menopause status can be inferred from gene expression profiles, and there is a transcriptomic signature of menopause in cardiometabolic tissues that reflects the physiological changes that take place due to the menopausal transition.

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P-172.

2019-2022 Trends and Patient Characteristics Associated with Systemic Hormone Therapy Use Among Women Aged 50–80: An Analysis of Utilization Patterns in Relation to Menopausal Status and Contraindications

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Objective: Menopausal hormone therapy (MHT) is an effective treatment for vasomotor symptoms and genitourinary syndrome, with FDA approval for several menopause-related conditions. This is supported by leading organizations including The Menopause Society, The American College of Obstetricians and Gynecologists, The National Institute for Health and Care Excellence, and The US Preventive Services Task Force, all of which recommend MHT as a key option for managing menopausal symptoms based on individual risk-benefit assessment. It comes in various forms, and alternatives are available for those who cannot or choose not to use it. However, MHT use declined sharply, from 26.9% in 1999 to 4.7% in 2022, mainly due to concerns raised by the Estrogen/Progestin Replacement Study and Women's Health Initiative trials about cardiovascular and breast cancer risks. However, more recent guidelines support MHT for women under 60 or within 10 years of menopause onset without contraindications, citing a favorable benefit-risk profile. In this analysis, our primary aim was to examine trends in the use of MHT, including estradiol patches, oral conjugated estrogens, and estradiol intravaginal rings from 2019 to 2022. **Design:** This retrospective observational study used closed claims data from the Komodo Healthcare Map (January 1, 2018–December 31, 2022), which includes medical and pharmacy records for 210 million US-insured individuals. The study included females aged 50–80 with complete demographic data (race/ethnicity, US region, rurality, and a composite Social Determinants of Health (SDoH) index). The SDoH score reflects community-level factors such as education, insurance coverage, infrastructure, economic status, and food access, with higher scores indicating greater social need. Females with contraindications to hormone therapy (e.g., breast or endometrial cancer, cardiovascular disease, venous thromboembolism) were excluded. The final sample focused on women without contraindications who had a documented menopause diagnosis. Descriptive statistics were used to describe the patient population and statistical significance was at the 5% level. MHT was defined as: estradiol patch 25, 37, 50, 100 mcg; oral conjugated equine estrogens; oral estradiol 1, 2 mg; and estradiol intravaginal ring (Femring). **Results:** Use of hormone therapy among all women

aged 50 to 80 remained steady at 6.32% in 2019 and 6.99% in 2022. Among all women without contraindications, the rate of hormone therapy use increased by 11.4% over the study period, from 5.07% to 5.65%. Among women without contraindications and with a menopause diagnosis, hormone therapy use rose from 13.83% to 15%, an 8.4% increase. Patients with surgical menopause consistently showed the highest rates of hormone use, increasing from 33.6% in 2019 to 39.7% in 2022. The most substantial relative increase occurred in the group with diagnoses of both menopause and gender dysphoria, where hormone use rose from 12.3% to 22.9%, representing an 85.8% increase. **Conclusion:** Overall, between 2019 and 2022, systemic hormone therapy use among women aged 50 to 80 showed a gradual upward trend, particularly among those without contraindications. Utilization was highest in individuals with surgical menopause, indicating potential shifts in prescribing practices and treatment acceptance. Changing practice patterns may have been influenced by the 2017 Menopause Society Hormone Therapy Position Statement. Ongoing research is necessary to examine further changes in treatment trends, including the influence of the 2022 Menopause Society Hormone Therapy Position Statement.
Sources of Funding: Funded by Evernorth Research Institute as apart of an ongoing collaboration

P-173.

Persistent Vasomotor Symptoms and Poor Sleep Quality Associated with Worsening Attitudes Towards Menopause in the Study of Women's Health Across the Nation (SWAN)

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Objective: Women's attitudes towards menopause generally become more positive post menopause. However, the relationship of menopause symptoms to changes in attitudes is less understood. This study aimed to examine the longitudinal relationship between vasomotor symptoms (VMS), sleep disturbances, and attitudes towards menopause over a 9-year period among participants in SWAN. We hypothesized that women experiencing more persistent VMS and sleep disturbances would be more likely to report increasingly negative attitudes over time. **Design:** Data are from SWAN, a multi-site study of the menopause transition. 3302 women from five racial and ethnic groups were enrolled at 7 sites across the United States and completed surveys annually. At baseline, women were pre- or early perimenopausal and aged 42-52. Participants rated 7 statements regarding attitudes towards menopause and aging on a scale of 1 (agree) to 3 (disagree). Scores were summed (reverse scored as needed) to create a total score from 7–21; higher scores indicated more positive attitudes. Total scores were calculated at baseline and follow-up (average of 9 years later). Participants with incomplete data at either visit were excluded. The 3 primary predictors were frequent VMS, defined as proportion of 10 visits with ≥ 6 days experiencing hot flashes, night sweats, or both in the past 2 weeks; sleep disturbance, defined as proportion of visits with ≥ 3 instances of trouble falling asleep, staying asleep, or waking early in the past 2 weeks; and poor sleep quality, defined as proportion of 7 visits where participants rated sleep as "fairly bad" or "very bad." We tested longitudinal associations between predictors and changes in menopause attitudes using linear regression. Multivariable models were adjusted for race/ethnicity, economic strain, education, self-assessed health, and depressive symptoms. **Results:** A total of 1902 women (27% Black, 8% Chinese, 4% Hispanic, 10% Japanese, and 50% White) were included in the analytic sample. Most participants (76%) were postmenopausal by follow-up visit 9. In univariable models, women with frequent hot flashes (β = -0.067 (SE 0.034), P = 0.047), night sweats (β = -0.093 (SE 0.036), P = 0.010), or both (β = -0.080 (SE 0.032), P = 0.012) experienced significantly more negative shifts in menopause attitudes between baseline and visit 9. Poor self-reported sleep quality was also significantly associated with negative attitude change (β = -0.064 (SE 0.031), P = 0.038). The proportion of visits with sleep disturbance did not show a significant association with attitudes toward menopause (β = -0.239 (SE 0.185), P = 0.196). In multivariable models, associations between VMS and attitude change (β = -0.058 (SE 0.034), P = 0.088) and sleep quality and attitude change (β = -0.056 (SE 0.035), P = 0.108) were no longer statistically significant. **Conclusion:** While midlife women generally report more positive attitudes towards menopause over time, those with more persistent VMS or poor sleep quality may develop worsening attitudes. However, in multivariable models, these associations were attenuated, reflecting the nuanced nature of attitudes and highlighting the importance of individualized, context-aware care for women navigating the menopausal transition.
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P-174.

Treatment Patterns and Demographic Associations Among Women Aged 50-80 with Menopausal Vasomotor Symptoms

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Objective: Menopausal hormone therapy (MHT) is an effective treatment for vasomotor symptoms (VMS) and other menopausal conditions, with FDA approval for many indications. This is supported by leading organizations including The Menopause Society, ACOG, NICE, and USPTO, all recommend MHT for managing symptoms. However, MHT use among US postmenopausal women has declined from 26.9% (1999) to 4.7% (2022), especially in women aged 52– 65, largely due to safety concerns raised by major studies (i.e., HERS, WHI). For women who cannot/choose not to use MHT, non-hormonal alternatives such as antidepressants and gabapentin are available. Current guidelines recommend MHT for symptomatic women <60/within 10 years of menopause onset without contraindications. This study aimed to assess the proportion of women with VMS who are treated/ untreated and explore how demographic and social factors are associated with use of hormonal/non-hormonal therapies. **Design:** This retrospective observational study used closed claims data from Komodo Healthcare Map (Jan. 1, 2018–Dec. 31, 2022), which has medical and pharmacy records for 210 million US-insured people. The study included females 50–80 years with a documented index diagnosis of natural/surgical menopause, flushing or hyperhidrosis between January 1, 2019–June 30, 2022. Patients with complete demographic data (race/ethnicity, US region, rurality and Social Determinants of Health (SDoH) index, where higher scores indicate greater social need) were included. Females with contraindications to hormone therapy (breast/endometrial cancer, CVD, venous thromboembolism) were excluded. The final sample focused on women without contraindications who had no prior use of study medications and continuous enrollment one year prior and after index date. Descriptive statistics were produced and logistic regression models assessed associations between patient characteristics (insurance, age, race/ethnicity, region, SDoH, comorbidities) and likelihood of being treated, and getting hormone vs no hormone therapy. **Results:** Overall, 18.1% of patients with VMS received some type of pharmacologic treatment. Among those who were treated, 59.6% received non-hormonal therapy and 40.1% received MHT. Race, age and insurance status were significant predictors of receiving treatment for VMS. Older women (70+ years) were less likely to receive any treatment (OR 0.41, 95%CI 0.40, 0.42, p<0.001) vs younger women, while Asian (OR 0.71, 95%CI 0.69, 0.72, p<0.001) and Black (OR 0.98, 95%CI 0.96, 0.99, p<0.001) women were less likely to receive any treatment vs white patients. Women with Medicaid insurance were more likely to receive some type of treatment (OR 1.18, 95%CI 1.16, 1.20, p<0.001) vs commercial insurance. Social need, race, and insurance status were significant predictors of receipt of hormone therapy among women with VMS without contraindications. Women residing in areas with higher social need were less likely to receive MHT (OR 0.96, 95%CI 0.93, 0.98, p=0.001). Women from racial and ethnic minority groups had consistently lower odds of receiving MHT vs white women (e.g., Asian: OR 0.63, 95%CI 0.60, 0.66, p<0.001; Black: OR 0.70, 95%CI 0.68, 0.72, p<0.001; Hispanic: OR 0.87, 95%CI 0.85, 0.90, p<0.001). Patients on Medicaid (OR 0.69, 95%CI 0.68, 0.71, p<0.001) or Medicare (OR 0.68, 95%CI 0.65, 0.70, p<0.001) were less likely to receive hormone therapy vs commercial insurance. **Conclusion:** Further research is necessary to understand why women from racial/ethnic minority groups and women with higher social need are less likely to be treated. Factors may include lack of access to healthcare providers with menopause expertise, a perceived higher risk of CVD/ breast cancer risk among minority groups, especially as race/ ethnicity are included in many risk calculators.
Sources of Funding: funded by ERI as apart of an ongoing collaboration

P-175.

Case-Based Online Education Enhances Competence in Individualizing Management of Menopause Symptoms

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Objective: Vasomotor symptoms (VMS), including hot flashes and night sweats, are among the most common and disruptive symptoms experienced during the menopausal transition. Despite their prevalence and impact on quality of life, VMS often go underdiagnosed and undertreated, particularly in primary care settings. Clinicians face challenges in identifying candidates for treatment, navigating evolving therapeutic options—including emerging nonhormonal agents—and delivering care that aligns with patient preferences and risk profiles. As the field of menopause management advances, there is a growing need for targeted education that enhances provider knowledge, builds competence in treatment decision-making, and strengthens confidence in addressing this spectrum of symptoms. This study evaluates the impact of an online CME activity on improving clinician performance and preparedness in managing VMS. **Design:** The CME intervention comprised of a 60- minute text-based clinical cases authored by one faculty expert. Response to 3 multiple choice, knowledge questions 1 self-efficacy, 5-point Likert scale confidence question were analyzed using a repeated pairs pre-/post-assessment study design. Pre- to post responses were compared using a McNemar's test to assess statistical significance (P < .001 level). The activity posted on 10/22/2024; data were collected through11/20/2024. **Results:** The analysis set consisted of responses of OB/GYNs (n=101) and Primary Care Physicians (n=359). Analysis demonstrated a significant improvement in competence and confidence. 129% relative increase (38% pre vs. 87% post, P<.001) among OB/GYNs and 190% relative increase (29% pre vs. 84% post, P<.001) among PCPs in competence related to individualizing treatment for moderate to severe VMS due to menopause 208% relative increase (24% pre vs. 74%

post, P<.001) among OB/GYNs and 168% relative increase (25% pre vs. 67% post, P<.001) among PCPs in competence related to recognizing patients with moderate to severe VMS due to menopause 67% relative increase (32% pre vs. 59% post, P<.001) among OB/GYNs and 100% relative increase (32% pre vs. 59% post, P<.001) among PCPs confidence in counseling patients on treatment options for VMS associated with menopause **Conclusion:** This analysis highlights the significant impact of online continuing medical education (CME) in enhancing clinician competence and confidence in managing vasomotor symptoms (VMS) associated with menopause. Both OB/GYNs and primary care physicians demonstrated substantial gains in their ability to recognize patients with moderate to severe VMS and to individualize treatment plans effectively. Notably, competence improvements exceeded 100% across key domains, underscoring a critical educational gap that was successfully addressed through targeted learning. Confidence in counseling patients on treatment options also improved markedly, reinforcing the value of CME in equipping providers with the tools needed to deliver patient-centered, evidence-based care. These findings suggest that well-designed educational interventions can play a pivotal role in advancing menopause care across clinical settings.
Sources of Funding: NA

P-176.
Enhancing Knowledge, Competence and Confidence in the Management of the Spectrum of Menopause Symptoms

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Objective: Menopause is a highly individualized experience that can significantly impact quality of life. Primary care clinicians and specialists alike are pivotal in recognizing symptoms early and offering effective, evidence-based treatment. The CME intervention aimed to enhance clinicians' knowledge and confidence in addressing the broad impact of menopause, particularly regarding the emerging landscape of nonhormonal therapies. This study examined effectiveness of an online CME activity in improving clinician knowledge, competence, and confidence related to the management of menopause symptoms, including early intervention strategies and awareness of emerging nonhormonal options. **Design:** The CME intervention comprised of a 60- minute online video-based, three-faculty panel discussion. Response to 3 multiple choice, knowledge questions 1 self-efficacy, 5-point Likert scale confidence question were analyzed using a repeated pairs pre-/post-assessment study design. Pre- to post responses were compared using a McNemar's test to assess statistical significance (P < .001 level). The activity posted on 10/11/2024; data were collected through 03/04/2025. **Results:** The analysis set consisted of responses of OB/GYNs (n=324), Primary Care Physicians (n=1,100) and Nurses/Advanced Practice Nurses (n=4,472). Analysis demonstrated a significant improvement in knowledge, competence, and confidence. 6% relative increase (80% pre vs. 85% post, P<.001) among OB/GYNs, 10% relative increase (69% pre vs. 76% post, P<.001) among PCPs, and 11% relative increase(61% pre vs. 68% post<.001) among Nurses/Advanced Practice Nurses in knowledge of the burden of menopause on patient QoL 9% relative increase (76% pre vs. 83% post, P<.001) among OB/GYNs, 16% relative increase (63% pre vs. 73% post, P<.001) among PCPs, and 19% (53% pre vs. 63% post<.001) among Nurses/Advanced Practice Nurses in knowledge of strategies to support early menopause intervention 15% relative increase (47% pre vs. 54% post, P<.001) among OB/GYNs, 23% relative increase (39% pre vs. 48% post, P<.001) among PCPs, and 28% (32% pre vs. 41% post<.001) among Nurses/Advanced Practice Nurses in knowledge of the role of nonhormonal treatments in managing the spectrum of menopause associated symptoms 48% relative increase (27% pre vs. 40% post, P<.001) among OB/GYNs, 109% relative increase (11% pre vs. 23% post, P<.001) among PCPs, and 64% (11% pre vs. 18% post<.001) among Nurses/Advanced Practice Nurses in confidence in understanding the role of emerging non-hormonal treatments in managing menopause related symptoms **Conclusion:** This study demonstrated the success of online, video-based panel discussion CME on improving knowledge and confidence related to the latest advances the management of menopause related symptoms. The confidence gains demonstrates a growing readiness among clinicians to incorporate emerging nonhormonal therapies in the individualized management of menopause, potentially expanding access to options that meet diverse patient needs.
Sources of Funding: None

P-177.
Online CME Improves Adoption of Clinical Practice related to Individualizing Treatment of Vasomotor Symptoms

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Objective: Vasomotor symptoms (VMS), including hot flashes and night sweats, are among the most common and disruptive symptoms experienced during the menopausal transition, significantly impacting quality of life. Despite the availability of both hormonal and non-hormonal treatment options, many healthcare providers face challenges in identifying appropriate candidates and tailoring therapies to individual patient needs. Clinical performance in this area is often limited by gaps in knowledge, confidence, and competence, particularly in recognizing the spectrum of VMS severity and navigating evolving treatment landscapes. Continuing medical education (CME) offers a critical opportunity to close these gaps by delivering timely, evidence-based guidance to frontline clinicians. This study evaluates the effectiveness of an online CME activity in improving clinician competence and confidence in the individualized management of moderate to severe VMS. **Design:** Clinicians participated in an online, 30-minute CME/CE video panel discussion among 2 faculty experts with synchronized slides. Performance in the real world was assessed 30-60 days post-education for learners in the target audience(s). Learners in the first 3 months were invited to complete a survey identifying practice changes and the degree to which clinicians experience barriers to those changes. Each respondent reported for each possible practice whether they were implementing for the first time or had modified it due to education, they were already doing it prior to education; or they were not doing it before or after education. They also indicated barriers they experience at least "some" of the time for each practice. The activity posted on 8/14/2024. Data collection ended on 2/14/2025. **Results:** There were a total of 54 learners consisting of PCPs, OB/GYNS, Nurses and NPs who completed the survey. Analysis showed that 92% of learners made a practice change or had practices reinforced due to education. Top 5 practice changes included: 63% are now identifying patients with VMS who are candidates for medical therapy 69% are seeking additional training about VMS 63% are routinely asking midlife women about menopausal symptoms 62% are recommending non-HT for patients with VMS 58% are recommending HT for patients with VMS 69% are taking a proactive approach to managing VMS Survey results evidence persistent barriers to incorporating medical management of menopause symptoms: 37% patient perceptions of VMS as a normal part of aging 35% Lack of time during routine clinical workflows to address VMS concerns **Conclusion:** Findings demonstrate that CME significantly influenced clinical behavior, with 92% of learners reporting practice changes or reinforcement of existing practices following the educational activity. Participants showed increased initiative in identifying candidates for VMS treatment, initiating proactive conversations with midlife women about symptoms, and incorporating both hormonal and non-hormonal therapies into their management strategies. Notably, 69% expressed a commitment to further education, signaling sustained engagement and dedication to improving menopause care. Despite these positive shifts, barriers such as time constraints in clinical practice and persistent patient misperceptions about VMS remain key challenges. Ongoing education and systemic support are essential to fully integrate evidence-based VMS management into routine care.
Sources of Funding: NA

P-178.
Elinzanetant for VMS and sleep disturbances in postmenopausal women: rapid, sustained effects

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Objective: This study evaluated elinzanetant's effects on vasomotor symptoms (VMS) and sleep disturbances in postmenopausal women, including the speed of onset, magnitude, duration and symptom recurrence after treatment cessation. **Design:** Pooled post-hoc analysis from the phase 3 OASIS-1 and -2 trials included 796 postmenopausal women (elinzanetant 399; placebo 397) experiencing ≥50 moderate-to-severe VMS episodes/week, randomized (1:1) to receive elinzanetant 120 mg for 26 weeks or matching placebo for 12 weeks followed by elinzanetant for 14 weeks. Assessments included VMS frequency and severity (assessed via daily diary for 8 days), sleep disturbances (assessed by the Patient-Reported Outcomes Measurement Information System Sleep Disturbance short form (PROMIS SD SF 8b total T-score) at week 1 and week 26, and symptom changes after treatment cessation (assessed weekly for 4 weeks). A mixed model for repeated measures analysis was implemented for comparisons. Nominal p-values are reported, as Type I error was not controlled. **Results:** Baseline mean (SD) daily VMS frequency was 14.02 (9.12) in the elinzanetant group and 15.22 (12.63) in the placebo group. By day 3, VMS frequency declined by -3.95 (95% CI: -4.55 to -3.34) with elinzanetant and -2.63 (95% CI: -3.24 to -2.02) with placebo. By the end of week 1, further reductions were observed: -6.10 (95% CI: -6.81 to -5.38) with elinzanetant versus -4.10 (95% CI: -5.03 to -3.16) with placebo, with a least square (LS) mean difference in change from baseline to week 1 between groups of -2.03 (95% CI: -2.75 to -1.31, nominal P< .0001). VMS severity showed a similar pattern of reduction, mirroring VMS frequency; baseline mean (SD) was 2.54 (0.23) in the elinzanetant group and 2.53 (0.24) in the placebo group. At the end of week 1, VMS severity changed by -0.54 (95% CI: -0.60 to -0.48) in the elinzanetant group vs. -0.36 (95% CI: -0.41 to -0.32) in the placebo-to-elinzanetant group. At week 1, sleep disturbances also improved from baseline, with an LS mean difference in PROMIS score of –4.73 (95% CI: -5.66 to -3.79, nominal P< .0001). By week 26, when both groups had received elinzanetant, VMS frequency change from baseline was -10.9 (95% CI: -12.13 to -9.70) in the elinzanetant group versus -11.5 (95% CI: -12.89 to -10.09) in the placebo-to-elinzanetant group. Four weeks after treatment cessation, VMS frequency change from baseline was reduced to -7.28 (95% CI: -8.37 to -6.18) in the elinzanetant group versus -7.78 (95% CI: -9.15 to -6.42) in the placebo-to-elinzanetant group, but appeared to remain below baseline levels. VMS severity and PROMIS SD SF 8b total T-scores showed similar trends. **Conclusion:** Elinzanetant was associated with rapid and sustained reductions in VMS frequency and severity, beginning by the end of week 1 and maintained through week 26 of treatment, along with improvements in sleep disturbances within one week. After treatment cessation, symptoms partially returned, but remained below baseline levels. These observations support elinzanetant as a potential fast-acting, effective dual neurokinin-targeted therapy for postmenopausal VMS and sleep disturbances. As statistical comparisons used nominal p-values without adjustment for multiple testing, results should be interpreted with caution.
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P-179.

Examination of the pain-relieving effects of equol on pain-like behavior in a post-menopausal mouse model

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Objective: Hand Osteoarthritis (OA) is one of the postmenopausal symptoms, and it is thought to associate with estrogen depletion occurred with menopause. Japanese Society for Surgery of the Hand is trying to spread awareness of these features as "menopausal hand". Previous in vivo studies using an ovariectomized (OVX) mouse model indicated that OVX mice which showing osteoporosis with high bone turnover had greater skeletal pain than sham-operated mice and inhibiting osteoclast function contributed to an improvement in the pain. Equol, which is an intestinal bacterial metabolite of soy isoflavone daidzein, shows estrogen-like bioactivity. The clinical trials of *S*-equol supplement in Japanese and USA suggested that *S*-equol had beneficial effects for menopausal symptom relieves, bone health, metabolic syndrome risk reduction, and skin aging inhibition in postmenopausal women. Recently hand surgeons in Japan come to use *S*-equol supplement for mitigating "menopausal hand" pain symptoms but it is unclarified the mechanism by which *S*-equol effects. In this study, we assessed whether *S*-equol improved pain-like behavior in OVX mouse and bone micro architecture. **Design:** Experiments were conducted on 8-week-old female C57BL mice. After OVX or sham operation, mice were given free access to purified food with or without *S*-equol which did not contain any soy components. The effects of *S*-equol on skeletal pain in OVX mice were examined using pain-like behavior test (i.e. mechanical withdrawal response (von Frey test) and thermal nociceptive testing (paw flick test)) by comparing the score between OVX mice given *S*-equol (OVX+EQL) and Sham-operated or OVX mice which were not given *S*-equol. Behavioral tests were conducted just before OVX surgery and every 2 weeks thereafter for 12 weeks. In addition, we assessed bone micro architecture of tibial bone by micro-computed tomography (μCT) 6 weeks after surgery. **Results:** OVX mice had higher pain threshold value on both von Frey test and paw flick test than Sham mice at 4, 6, 8, 10 and 12 weeks after surgery (P <0.05). OVX+EQL mice showed a decrease in the pain thresholds than OVX mice at 4, 6, 8, 10 and 12 weeks on von Frey test and at 6, 8, 10, 12 weeks on paw flick test (P <0.05). The 6 weeks *S*-equol dietary intake improved bone micro architecture (i.e. the ratio of bone volume to tissue volume and trabecular number) of the tibia in OVX+EQL mice than OVX mice significantly (P <0.05), although we observed significant aggravation in bone micro architecture in OVX+EQL mice than Sham-operated mice (P <0.05). **Conclusion:** It is indicated that *S*-equol have preventive effect for skeletal pain associated menopause and bone metabolism. The significant improvement of bone micro architecture with treatment with *S*-equol suggested that changes in bone microstructure around joints may be involved in the alleviation of pain-like behavior.

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P-180.

Male And Female Factors Associated With Male Sexual Dysfunction Among Couples Aged 50-70

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Objective: The aim of this study was to assess the male and female factors associated with male sexual dysfunction in couples aged 50 to 70. **Design:** This was a cross-sectional study involving 266 couples, recruited through snowball sampling using a structured questionnaire. The sample size was determined to be 225 couples, based on an estimated 28% prevalence of male sexual dysfunction with a significance level of 5%. Trained interviewers conducted separate telephone interviews with each partner. Male sexual dysfunction was defined using the Male Sexual Function Sex Quotient (QS-M). To identify associated factors, we performed both univariate and multivariate Poisson regression analyses. **Results:** The mean age was 60 years for men and 57.5 years for women. The prevalence of male sexual dysfunction was found to be 16.4%. Key characteristics are presented in Table 1. Univariate analysis revealed the following associations with male dysfunction: male factors included lower education (p=0.002), health status (regular/poor health, p=0.017), smoking (p=0.009), use of antihypertensive medication (p=0.010), sexual inactivity in the past month (p<0.001), lower sexual desire (p=0.002), sexual activity less than once a week (p<0.001), and erectile issues (p<0.001). Female factors associated with dysfunction included older age (p=0.007), pain during penetration (p=0.034), less satisfaction with partner (p=0.007), and presence of female sexual dysfunction (p=0.014). The results of the multivariate analysis are displayed in Table 2. **Conclusion:** Male sexual dysfunction was significantly associated with erectile problems and recent inactivity in sexual activity. No independent associations were found with female factors.

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Table 1: Sociodemographics, clinical and behavioral characteristics of couples aged 50 to 70

	Woman		Man	
	n	%	n	%
Age (y)	-	-	-	-
<50	-	-	09	3.43
50-59	174	66.4	116	44.27
≥60	88	33.58	137	52.29
Educatioon (y)	-	-	-	-
0-4	16	6.10	16	6.10
5-8	56	21.37	58	22.13
9-11	82	31.29	79	30.15
≥12	108	41.22	109	41.6
Height (m)			-	-
<1.70			68	25.95
1.70-1.79			140	53.43
≥1.80			54	20.61
IMC			-	-
<25			68	26.05
25-29.9			128	48.85
≥30			65	24.80
Smoking			-	-
Smoker/Ex Smoker			129	49.23
Alcohol			-	-
1 or more time/week			50	19.08
Self-rated health	-	-	-	-
Excellent/good	188	71.75	205	78.24
Regular/poor	74	28.24	57	21.75
Use of antihypertensives			-	-
Yes			121	46.36
Use of antidiabetic medications			-	-
Yes			37	14.17
Use of Lipid-lowering medications			-	-
Yes			50	19.23
Acute Myocardial Infarction			-	-
Yes			16	6.15
Use of antidepressant	-	-	-	-
Yes	48	18.32	14	5.34
Use of anxiolytic	-	-	-	-
Yes	70	43.47	16	6.15
Use of Osteoarthritis medications			-	-
Yes			11	4.21
Depression	-	-		
Yes	94	36.01		
Prostate Cancer			-	-
Yes			7	2.67
Relationship length (y)			-	-
<20			39	14.88
20-29			53	20.22
30-39			113	43.12
≥40			57	14.93
Sexual Activity in the Past Month			-	-
Yes			212	80.91
Frequency of sexual activity			-	-
Never/Rarely			39	14.94
<1 time/week			56	21.45
1 or more times/week			166	63.60
Erectile disorders			-	-
No/sometimes			221	84.67
Yes			41	15.70
Erectille problems that affected male sexual function			-	-
Yes			49	61.25
Frequency of Sexual Desire			-	-
Never			34	13.17
Less than 1 time/week			19	7.36
1 or more times/weeks			205	79.45
Pain during penetration	-	-		
1	120	57.97		
2-3	52	25.12		
4-6	35	16.90		
Geniturinary Syndrome of Menopause	-	-		
Yes	194	74.04		
MRS total	-	-		
0-4	45	17.24		
5-8	49	18.77		
9-15	66	25.28		
≥16	101	38.69		
Vaginal dryness	-	-		
No/little	146	55.93		
Moderate/intense/very intense	115	44.06		
Satisfaction with Partner	-	-		
1-2	29	11.06		
3	20	7.63		
4-6	212	80.91		
Sexual Disfunction	-	-	-	-
Yes	120	45.80	43	16.41

R.P. = Prevalence Ratio for dysfunction; (n=205 'without dysfunction' and n=38 'with dysfunction'). 95% CI PR = 95% confidence interval for the prevalence ratio. Stepwise variable selection criterion. Ref.: reference level

Table 2 - Results of multiple Poisson regression analysis for male sexual dysfunction. (n=243)

Variable	Categories	P value	P.R.	CI 95% P.R.
Erectile Disorders	Yes	<0.001	3.51	1.81-6.8
Sexual activity in the past month	No	0.001	2.94	1.52-5.69

***R.P. = Prevalence Ratio for dysfunction; (n=205 'without dysfunction' and n=38 'with dysfunction'). 95% CI PR = 95% confidence interval for the prevalence ratio. Stepwise variable selection criterion. Ref.: reference level.**

P-181.

Characteristics of Chilean Women with Premature Ovarian Insufficiency

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Objective: Premature Ovarian Insuffciency (POI) is characterized by the loss of ovarian function indicated by irregular menstrual cycles with biochemical confirmation of low estradiol levels, and elevated follicle-stimulating hormone (FSH) level before the age of 40. The significant lack of awareness among healthcare professionals regarding the diagnosis, treatment, and implications of POI leads to delayed diagnoses and suboptimal therapies, resulting in negative short-, medium-, and long-term health outcomes for affected women. This study aims to characterize the clinical, demographic, and symptomatic profile of women diagnosed with POI in Chile. **Design:** We conducted a cross-sectional study in gynecologic outpatient centers located in Santiago, Chile, over a four-year period from June 2021 to June 2025. Women recruited met the inclusion criteria: age18–50 years and a confirmed diagnosis of POI according to current guidelines. Participants completed the Menopause Rating Scale (MRS) to assess the presence and severity of menopausal symptoms and their impact on quality of life. The data were analyzed with RStudio software. **Results:** The inclusion criteria were met by 117 women. The median age at diagnosis of POI was 34 years. In 37,6% of women we did not identify a possible etiology for POI. In 20,5% of women there was a family history of POI though only in 3,4% a specific genetic cause was identified. Personal or family history of autoimmune conditions was present in 10,3% of women; in 1,7% POI was linked to polyglandular autoimmune syndromes. In 13,7 % of women POI occurred after chemo/radiotherapy, in 6,8% after gynecologic surgery for benign conditions and in 1,7% after gynecologic surgery for cancer treatment. At the time of diagnosis 42,6% of participants had had no pregnancies, 25,6 % of women had future desire of parity at the time of inclusion to the study, in this cohort 3 women had 4 spontaneous pregnancies after the diagnosis; 2 had healthy term deliveries and the other woman had 2 missed abortions. Since being diagnosed, 92,3 % of women had used some form of hormone therapy (HT). The median time between diagnosis and initiation of hormone therapy was 5 months. Of the women that had used any HT 68,4% and 33,3 % of women had used transdermal and/or oral estrogen therapy respectively at some point. We evaluated the dose of hormone therapy the women were receiving at the time of inclusion to the study: 5,1% low dose (≤ 0,75 mg gel pump/one 1,53 mg spray dose/1 mg oral estradiol daily) 47,9 % intermediate dose (0,75 -1,5 mg gel pump, two 1,53 mg spray doses, 1-2 mg oral estradiol daily) and 38,5% higher recommended dose (≥ 2 mg gel pump/3-4 1,53 mg spray doses/2 mg oral estradiol daily); 2,6% of women were using tibolone 2,5 mg. Of the 117 women 112 completed the MRS questionnaire. MRS consists of 11 items grouped into 3 subscales: somatic, psychological and urogenital, each rated on a 5-point scale from 0 (no complaints) to 4 (very severe). The total score, derived from the sum of individual item scores, can range from 0 to 44. Women with total score ≥ 15, somatic score ≥ 8, psychological score ≥ 6 and urogenital score ≥ 3 are considered to have a significant negative impact of menopausal symptoms on their quality of life. In our group 73,2% of women had total scores ≥ 15; 27,7% had somatic score ≥ 18, 53,6% had psychological score ≥ 6, and 70,5% had urogenital score ≥ 3. Almost 80 % of women were using some form of HT when completing the questionnaire. **Conclusion:** Our study results provide powerful insights to the limitations and challenges in diagnosis and management of women with POI in Chile; showing a tendency to delay in starting hormone therapy and use of suboptimal estrogen doses. There is an urgent need to develop public policies to train clinicians in the caring of these patients according to current guidelines. The high scores exhibiting impaired QoL even in women receiving HT evidence the profound repercussions of POI on overall health and wellbeing beyond the absence or presence of hypoestrogenism.

Sources of Funding: None

P-182.

Earlier Menopause is Associated with Less Favorable Brain Health and Cognitive Performance: A Latent Profile Analysis in Postmenopausal Women

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Objective: Females are twice as likely as males to be diagnosed with Alzheimer's disease, and often experience a more severe disease course. Emerging evidence suggests that female-specific risk factors, particularly the loss of neuroprotective ovarian hormones during menopause, may contribute to sex differences in brain health and cognitive function with age. Notably, females who experience menopause earlier than the average age may be at a greater risk of adverse brain and cognitive outcomes. However, our understanding of the impact of earlier menopause on brain health and cognitive outcomes remains limited. To address this gap, we 1) applied a person-centered approach to identify latent profiles of brain health with the incorporation of age at menopause, and 2) investigated how these profiles related to cognitive performance. **Design:** Cross-sectional data were collected from 81 cognitively unimpaired postmenopausal females (mean age=66.1±6.7) participating in the Canadian Multiethnic Research on Aging (CAMERA) study at Sunnybrook Research Institute in Toronto, Canada. We used latent profile analysis (LPA) to identify data-driven subgroups based on measures of brain health, including whole-brain gray matter volume (GMV) and white matter volume (WMV) derived from FreeSurfer (v8), as well as whole-atlas fractional anisotropy (FA; a summary metric of white matter microstructural integrity) and free water (FW; a measure of extracellular water content that may indicate age-related or neurodegenerative processes including neuroinflammation or vascular damage) derived from UKF tractography-based analysis. Age at menopause was also included in profile definition. Finally, we used linear regression analyses to examine the relationship between profile assignment and cognitive performance as measured by tests of episodic memory, processing speed, and executive function. Covariates included age and years of education for linear regression, with the addition of total intracranial and white matter hyperintensity volume for LPA. **Results:** Two distinct latent subgroups emerged from LPA: a less favourable brain health profile (n=45), characterized by lower GMV, lower WMV, lower FA, higher FW, and earlier age at menopause, and a more favourable brain health profile (n=36), characterized by the opposite pattern. Compared to the more favourable brain health profile, the less favourable brain health profile had lower composite scores for episodic memory (pFDR=.03; partial f^2=0.51) and processing speed (p=.09, uncorrected; partial f^2=0.41), but not executive function (p>.05). **Conclusion:** Earlier menopause was associated with a less favorable brain health profile, which in turn was linked to poorer cognitive function. These findings underscore the potential significance of earlier menopause as a risk factor for adverse brain health and cognitive decline in postmenopausal women. Interventions aimed at mitigating the consequences of earlier menopause—or addressing the associated reduction in neuroprotective hormone exposure—may be critical for preserving brain health and preventing neurodegeneration in women.

Sources of Funding: Canadian Institutes of Health Research, Alzheimer's Society of Canada, Alzheimer's Association, Council of Ontario Universities (Ontario Women's Health Scholar's Award), Ontario Graduate Scholarship

P-183.

Female sexual function after pelvic and vaginal surgeries in perimenopausal and menopausal women

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Objective: Approximately 50–70% of women undergo pelvic or vaginal surgeries at some point in their lives. Common procedures include hysterectomies (abdominal or vaginal), laparoscopic and robotic-assisted interventions, exploratory laparotomies, anterior and posterior repairs, sacrospinous fixation, and sling placements. Indications include endometriosis, chronic pelvic pain, pelvic adhesions, genital prolapse, urinary and fecal incontinence, fibroid uterus, and pelvic masses. Despite this, societal taboos and lack of comprehensive sexual education have limited objective research into the true impact of these surgeries on sexual function. While previous studies have suggested mixed or negative outcomes, our objective was to assess the potential positive sexual benefits of these procedures in women with prior sexual dysfunction. **Design:** We conducted a retrospective review of 268 women aged 18 to 76 who underwent pelvic surgeries between 2020 and 2022 at two medical centers. All patients had reported sexual dysfunction preoperatively and consented to surgical intervention. Pre- and post-surgical evaluations included pain with intercourse, dryness, shame, sexual desire, frequency of orgasm, and partner relationship quality. Follow-up was maintained with 126 of these patients through structured questionnaires and clinical visits. Hormone replacement therapy (HRT), local estrogen therapy, and vaginal dilator use were offered, particularly to those without regular partners. The goal was to determine whether pelvic surgery could improve overall sexual function and relational satisfaction. **Results:** The results were highly promising: over 90% of patients reported improvement in one or more aspects of their sexual function. Enhancements were seen in libido, orgasm frequency, comfort during intercourse, and emotional intimacy. Notably, many partners also reported improvement in their sexual experience, suggesting a bidirectional benefit. Among the small subset of patients (approximately 5%) who did not report improvement—or reported decline—30% had no change in sexual activity, while others experienced deterioration. These cases were most often associated with surgical complications, refusal of hormone therapy, or partners with nonfunctional sexual capacity. Surgical indications with the most pronounced improvement included those for urinary incontinence, rectal incontinence, chronic pelvic pain, and fibroid uterus. **Conclusion:** Contrary to traditional assumptions, pelvic surgery can lead to significant improvements in sexual function for both women and their partners. With appropriate surgical technique, hormonal and rehabilitative support, and open communication, these procedures can restore—not reduce—sexual well-being in the majority of cases.

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P-184.

Incidence of Obesity, Cardiovascular Disease, Anxiety, Depression and Alzheimer's Disease in Postmenopausal Women on Oral Hormone Therapy

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Objective: Oral and transdermal menopausal hormone therapy (HT) differ in their metabolic pathways and systemic effects. Oral HT undergoes first-pass metabolism in the liver, which affects lipid profiles, coagulation pathways, inflammatory markers, and hormone-binding proteins. These changes may influence cardiometabolic, neuropsychiatric, and cognitive health. Obesity, cardiovascular disease (CVD),

anxiety, depression, and Alzheimer's disease share overlapping biological, lifestyle, and sociodemographic risk factors and may be affected by hormonal changes or supplementation. This study examines the incidence of these five outcomes in postmenopausal women on oral HT to better understand its broader health implications. **Design:** A retrospective study was conducted using the TriNetX database to identify postmenopausal women aged 46-60 who were prescribed oral HT. Two cohorts were established: Cohort 1 included postmenopausal women prescribed HT, defined as oral estrogen (HS300) or oral progestins (HS800); Cohort 2 included postmenopausal women not prescribed HT. Menopausal status was defined using ICD-10 codes N95 and Z78.0. Women with risk factors for CVD (diabetes, obesity, hyperlipidemia, hypertension, tobacco use, family history of heart disease, and premature menopause) were excluded to create a CVD-risk-free population at the baseline. Propensity score matching was then performed to balance baseline characteristics including demographics, medication use, and comorbidities. Risk differences, risk ratios, and odds ratios with 95% confidence intervals (CI) were calculated to compare the incidence of obesity (ICD-10: E66 or BMI ≥30 kg/m^2), CVD (ICD-10: I50; ICD-10: I21; ICD-10: I63; or ICD-10: I25.1), anxiety (ICD-10: F40-F48), depression (ICD-10: F32) and Alzheimer's disease (ICD-10: G30), between cohorts. Kaplan–Meier survival analysis and the log-rank test were used to evaluate the time to event, defined as the interval from HT initiation in cohort 1 or menopause diagnosis in cohort 2 to outcome onset. Cox proportional hazards regression was employed to estimate hazard ratios (HRs) and examine the association between oral HT and incident outcomes. The proportional hazards assumption was tested using Schoenfeld residuals. Individuals with a diagnosis of any of the five outcomes prior to baseline were excluded from the analysis. **Results:** A total of 49,982 patients were included in each cohort following matching. The proportional hazards assumption was met for all outcomes except obesity, supporting the use of the Cox model where applicable. For obesity, risk-based estimates were used instead. The incidence of obesity was lower among oral HT users compared to non-users (4.0% vs. 4.9%, $p < .001$), while higher rates of anxiety (8.9% vs. 8.3%, $p < .001$) and depression (4.4% vs. 3.9%, $p < .001$) were observed in the oral HT group. Oral HT use was associated with a significantly reduced risk of obesity (RR: 0.83, 95% CI: 0.77–0.88, $p < .001$), but an increased hazard of anxiety (HR: 1.12, 95% CI: 1.07–1.18, $p < .001$) and depression (HR: 1.20, 95% CI: 1.13–1.29, $p < .001$). No significant differences were found in the risk of cardiovascular disease or Alzheimer's disease. **Conclusion:** In this matched cohort study, oral HT was associated with a modestly lower risk of obesity and a higher risk of developing anxiety and depression; however, the absolute risk differences for these outcomes remained below 1%. No significant association was observed between oral HT use and the risk of cardiovascular disease or Alzheimer's disease. These findings underscore the need for prospective studies to further explore these associations and support informed clinical decision-making when considering oral HT in postmenopausal women, particularly those with potential mental health concerns.

Sources of Funding: None

P-185.

Oral vs. Transdermal Hormone Therapy in Postmenopausal Women: A Comparison of Obesity, Cardiovascular, Mental Health, and Alzheimer's Disease Risks

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Objective: Oral and transdermal menopausal hormone therapy (HT) differ in their pharmacokinetics and systemic effects, which may influence long-term health outcomes. Oral HT undergoes first-pass hepatic metabolism, potentially impacting lipid metabolism, inflammatory markers, and coagulation pathways, while transdermal HT bypasses the liver and may exert a different risk profile. These physiological differences may translate into variable risks for cardiometabolic, neuropsychiatric, and neurodegenerative conditions in postmenopausal women. This study aims to compare the incidence of obesity, cardiovascular disease (CVD), anxiety, depression, and Alzheimer's disease among postmenopausal women receiving oral versus transdermal HT. **Design:** A retrospective study was conducted using the TriNetX database to identify postmenopausal women aged 46-60 who were prescribed oral or transdermal estrogen for HT. Two cohorts were established: Cohort 1 included postmenopausal women prescribed HT, defined as oral estrogen (HS300); Cohort 2 included postmenopausal women prescribed transdermal estrogen-only HT, identified through prescription records of estradiol patch formulations. Menopausal status was defined using ICD-10 codes N95 and Z78.0. Women with risk factors for CVD (diabetes, obesity, hyperlipidemia, hypertension, tobacco use, family history of heart disease, and premature menopause) were excluded to create a CVD-risk-free population at the time of HT initiation. Propensity score matching was then performed to balance baseline characteristics including demographics, medication use, and comorbidities. Risk differences, risk ratios, and odds ratios with 95% confidence intervals (CI) were calculated to compare the incidence of obesity (ICD-10: E66 or BMI ≥30 kg/m^2), CVD (ICD-10: I50; ICD-10: I21; ICD-10: I63; or ICD-10: I25.1), anxiety (ICD-10: F40-F48), depression (ICD-10: F32) and Alzheimer's disease (ICD-10: G30), between cohorts. Kaplan–Meier survival analysis and the log-rank test were used to evaluate the time to event, defined as the interval from HT initiation to outcome onset. Cox proportional hazards regression was performed to estimate hazard ratios (HRs) and assess the association between HT and incident outcomes of interest. The proportional hazards assumption was tested using Schoenfeld residuals. Individuals diagnosed with any of five outcomes prior to HT initiation were excluded from the analysis. **Results:** A total of 3,844 postmenopausal women were included in each cohort after propensity score matching. The proportional hazards assumption was satisfied for all outcomes, validating the use of the Cox proportional hazards model. Compared to those receiving oral HT, women on transdermal HT experienced a lower incidence of anxiety (7.2% vs. 9.1%, $p = .009$) and depression (3.3% vs. 5.1%, $p < .001$). Oral HT was associated with a significantly increased hazard of depression over time (HR: 1.30, 95% CI: 1.01–1.66, $p = .038$), while no significant difference was observed in the hazard of anxiety (HR: 1.10, 95% CI: 0.91–1.33, $p = .33$). The risks of obesity, cardiovascular disease, and Alzheimer's disease did not differ significantly between the two treatment groups. **Conclusion:** In this matched cohort study, transdermal HT was associated with a lower incidence of anxiety and depression compared to oral HT. Oral HT was linked to a significantly increased hazard of depression over time, with an absolute risk difference of 1.8%, while no significant difference in the hazard of anxiety was observed. No significant differences were observed between the two routes of HT administration in the risk of obesity, cardiovascular disease, or Alzheimer's disease. While further prospective studies are needed to confirm these associations, the findings suggest potential mental health advantages of transdermal HT and underscore the importance of considering the route of administration when prescribing menopausal HT, particularly for women with existing or potential mental health concerns.

Sources of Funding: None

P-186.

Can Acute Changes in Physical Activity Impact Objectively Measured Hot Flashes?

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Objective: Hot flashes (HFs) are a major symptom of those undergoing the menopausal transition that can impact quality of life. While physical activity (PA) has been shown to improve other symptoms of menopause, the capacity for daily PA and acute exercise to influence HFs remains unclear. Examining the association between objectively measured PA and HFs can enhance the quality of information available to menopausal individuals, influencing lifestyle and treatment decisions. Our objective was to test the hypotheses that 1) HFs are impacted by an acute bout of laboratory exercise and 2) the relationship between free-living PA and HFs is affected by the presence or absence of an acute exercise session. **Design:** All participants were free of risk factors for cardiovascular disease and reproductive abnormalities, and had not used hormonal contraception or medications to reduce HFs for at least six months. A total of 38 perimenopausal participants underwent two 2acute one, 4-hour periods of simultaneous monitoring of objectively measured HFs and wrist-worn actigraphy (Actigraph GT3X+ PA, Pensacola, FL). The first 24-hour condition consisted of no exercise, and the second condition included a 30-minute bout of acute moderate intensity exercise in the laboratory. Objective HFs were assessed using sternal skin conductance (Biolog, UFI, Morrow Bay, CA). HFs were defined by a ≥2umho increase in skin conductance over 30s and/or a distinctive HF pattern (rapid rise followed by a slow descent) when accompanied by a self-reported HF. The rate of HFs was calculated by dividing the number of total HF by wear time for each exercise condition. Of these participants, 23 had at least one HF during both conditions. To investigate the association between acute changes in PA and HFs, data from 38 participants were evaluated. PA data were segmented into 10-minute windows, with windows preceding a HF labeled "HF windows", and all other windows labeled "control windows." The mean vector magnitude from the accelerometry data was calculated for both window types, allowing for comparison of activity before a hot flash versus every other time during the day. This analysis was completed for both the exercise and no-exercise condition referenced above. All analyses were completed using R (version 4.4.3). The Wilcoxon signed-rank test was used to test for a significant difference in HF rates between the two 24-hour periods. A linear multilevel model was used to further investigate this relationship between the objective rate of HFs and exercise condition while controlling for body mass index (BMI), age, and activity level of participants. To account for skewness and heteroscedasticity, the response variable was log-transformed prior to analysis. Differences in proportions of HF windows were assessed using Chi-Square Tests for Equality of Proportions and z-tests. **Results:** A statistically significant difference in objective HF rate was observed between conditions, with a lower HF rate in the exercise (median 0.39 ± 0.27) compared to the no-exercise (median 0.17 ± 0.18) condition ($p = 0.03$). Exercise condition was also a significant predictor of HF rate when controlling for age and BMI in the regression model ($\beta = -0.49$, $p = 0.03$). BMI, age, and activity level were not significant predictors of HF rate. In the no-exercise condition, 68% of participants had a mean vector magnitude of their windows preceding hot flashes exceeding the mean of their control windows, compared to 52.6% in the exercise condition. This proportion was statistically significant in the no-exercise condition ($p = 0.04$) but not in the exercise condition ($p = 0.87$). However, no significant difference was observed between the two conditions ($p = 0.28$). **Conclusion:** Our data support the hypothesis that HF frequency decreases following an acute bout of physical exercise, and the relationship between free-living PA and HFs differs based on the presence or absence of an acute exercise session.

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P-187.

Examining sleep disturbance as a mediator of the relationship between vasomotor symptoms and affect in midlife postmenopausal women

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Objective: Vasomotor symptoms (VMS) can have a negative effect on psychological well-being, a relationship due in part to the effect of VMS on sleep disturbance. Prior work in this area has generally focused on specific aspects of negative mood, including depressive symptoms. Less work has focused on positive affect (PA) and negative affect (NA) which are characterized by shorter-term positive (i.e., energetic, interested/involved) and negative (i.e., angry/irritated, nervous/anxious, stressed) emotions, respectively. Further, most prior work focuses on self-reported menopause symptoms rather than objectively measured menopause symptoms, which are not subject to the same reporting biases. Here we examine the association of objective and self-report measures of VMS with PA and NA in midlife postmenopausal women. We also examine objectively measured sleep disturbance (i.e., wake after sleep onset, WASO) as a potential mediator of these relationships. **Design:** Participants (N = 231 women; mean age = 59.2y, mean education = 15.7y, 81.8% White) were enrolled in MsBrain I. Objective WASO was assessed over 72h via wrist actigraphy. PA and NA were measured over 72h via ecological momentary assessment. Both WASO and PA/NA were averaged over the data collection period. For 24h, objective VMS were assessed via sternal skin conductance and self-reported VMS were measured via a button press on the VMS device and a diary. VMS frequency during the night, daytime, and 24h period was calculated. Analyses of the relationship between VMS and affect were conducted using linear regression, controlling for age, race, and years of education. A mediating role of WASO on associations between VMS and affect was tested using the *mediate* function in R and bootstrapping (1000 simulations). **Results:** No measure of objective VMS frequency was statistically significantly associated with PA nor NA (*p*s>.05). Self-reported VMS were also not statistically significantly associated with PA (*p*s>.05). There was a significant direct effect of self-reported daytime VMS frequency on NA such that greater daytime VMS frequency was associated with worse NA (*b*=.028, 95% CI [.003, .050], *p*=.030), but no significant mediation effect of WASO was observed on this relationship (*b*=-.000, 95% CI [-.004, .003] *p*=.816). **Conclusion:** In midlife postmenopausal women, objective VMS were not significantly associated with PA nor NA. Conversely, higher self-reported daytime VMS were significantly associated with worse NA. Despite known associations between self-reported VMS and sleep disturbance, associations between self-reported VMS and NA were not significantly mediated by sleep disturbance measured by WASO. Findings suggest the potential value in reducing self-reported daytime VMS to improve NA in midlife postmenopausal women.

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P-188.

Dry Eye Disease: An Unrecognized Problem In Clinical Practice

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Objective: The aim of the study was to evaluate the insights, symptoms, and prevalence of dry eye disease (DED) in premenopausal and postmenopausal women using the Ocular Surface Disease Index (OSDI) questionnaire. Additionally, to investigate the relationship between dry eye disease and menopause as a potential risk factor, history of autoimmune disease, tobacco use, use of lenses. **Design:** A cross-sectional analytical observational design study involved 3547 women. The primary data was obtained through a survey, which gathered personal information including age, menopausal status, and the OSDI score. The OSDI score categorizes individuals into four groups based on symptom severity: Normal (0–12); Mild (13-22); Moderate (23-32); and Severe (33–100). **Results:** A total of 3547 women were surveyed. The median age was 52 years (IR: 47-58 years). The median OSDI Score was 14.58 (IR: 4.16–27.08). The frequency distribution of the OSDI score was Normal: 44.15%; Mild: 21.74%; Moderate: 14.46% and Severe: 19.65%. Regarding the menopausal status of the respondents, we found that 63.24% were in menopause. The prevalence of DED according to the menopausal period revealed that 57.38% of menopausal women had DED compared to 53.22% of premenopausal women (p value: 0.016). The following factors were independently and significantly associated with dry eye in a logistic model: history of autoimmune disease (OR: 1,75 [1,41 – 2,17]); smoking status ((OR: 1,39 [1,13 – 1,72]); use of lenses (OR: 1.35 [0.94-1.96]); use of tears (OR 3.21 [2.71-3.80]). **Conclusion:** Postmenopausal women exhibit a higher prevalence of DED symptoms and elevated OSDI scores compared to perimenopausal women. Healthcare providers should persist in promoting awareness, education, and support to assist individuals in managing the challenges associated with DED.

Sources of Funding: NONE

P-189.

Nature of equol producer status and its relationship with biomarkers related to oxidative stress, bone, and sex hormones in 2060 women

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Objective: To examine the changes in equol producer status and its effects on biomarkers related to oxidative stress, bone, and sex hormones in 2060 women **Design:** It was the prospective observational study of 2060 women who had annual health screening at least once at the Nihonbashi Tokyo Midtown Clinic between July 1, 2020 to March 31, 2025. **Results:** Among 3403 equol tests performed in 2060 women, 1115 (33%) results were regarded as equol producers and 2288 (67%) results as equol non-producers. Among 2060 women, 1302 (63%) had equol producer status check for only once and around 30% (n=385) are equol producers. The remaining 758 (37%) had the status check at least 2 times during six years. Among them, 129 (17%) can be defined as stable equol producers and 365 (48%) as stable equol non-producers, whereas 264 (35%) fluctuates between producer and non-producer status. When compared between equol producers and non-producers of women in their 20s and 30s, high sensitivity CRP and reactive oxygen metabolites (d-ROM) values were also significantly lower in equol producers in their 20s and 30s. However, oxidative stress index (OSI) was significantly higher in equol producers of these age groups. In addition, body mass index (BMI), and visceral fat area values showed decreasing trend in these groups. These parameters were significantly lower in equol producer women in their 40s, while those in their 50s had significantly lower BMI, visceral fat, free triiodothyronine (T3) and higher active vitamin D levels. For blood pressure parameters, significant effects were observed in equol producer women in their 50s and 60s. Women equol producers in their 70s who had significantly higher free testosterone level. In non-parametric regression analysis, FSH levels could better predict the changes in bone mineral density, and bone resorption markers in women in their 50s, whereas estradiol levels could better predict bone resorption markers in women in their 40s. Those changes were also influenced by the use of hormone replacement therapy, blood levels of FSH and estradiol. Equol producer status had little effect on those bone parameters. **Conclusion:** Equol producer status was associated with health benefits but these benefits might differ depending on their life stages. The status was unstable in some individuals and factors affecting their production ability needs further investigation.

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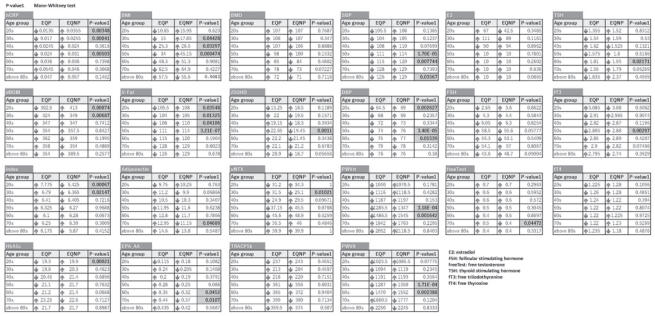
Comparison of median values of parameters between equol producers and non-producers



Comparison of median values of parameters between equol producers and non-producers

P-190.

How Restricted Education and Lack of Support for Female Sexual Pleasure Affect the Health of Perimenopausal and Menopausal Women in the Middle East: A Personal Testimonial and Experience Presentation

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Objective: In many cultures, particularly in the Middle East, sexual education is limited or distorted, and the pursuit of sexual pleasure—especially for women—is often stigmatized. This suppression leads to deep-rooted beliefs that sexual activity is solely for reproduction, ignoring its vital role in pleasure, emotional and physical health. For perimenopausal and menopausal women, these misconceptions result in increased health issues and a lower quality of life. We aim to: 1. Raise awareness of the impact of restricted sexual education and lack of support for women's sexual well-being. 2. Highlight the health consequences of these factors in premenopausal, perimenopausal and menopausal women, more when mutilating procedures have been performed. 3. Advocate for better education, interventions and support systems. 4. Propose actions to promote healthy sexuality throughout women's lives. **Design:** A detailed review of medical and psychological literature, along with the collection, description, and analysis of personal and family experiences. **Results:** Our findings show that limited education about sexuality, combined with cultural shame around female pleasure, leads to

widespread sexual dysfunction in later life. Many women experience hypoactive sexual desire disorder (35–50%), orgasmic dysfunction (25–40%), dyspareunia (15–45%), vaginismus (5–42%), and vulvodynia (8–10%). Psychological consequences are also significant, with high rates of depression (20–40%) and anxiety disorders (30–50%). Our research and personal experiences reveal oppressive practices like suppression of childhood sexual expression, stigma surrounding menstruation, and female genital mutilation, such as infundibulectomy and clitoridectomy, aimed at eliminating sexual pleasure. Women face mandatory virginity preservation till marriage under threat of abuse, or even death, as well as forced tolerance of sexual and physical abuse by husbands. Without proper education and support, primeopausal, perimenopausal and menopausal women often accept sexual dysfunction and emotional distress as inevitable. **Conclusion:** Addressing sexual education and promoting the importance of sexual pleasure as part of overall health are crucial steps. Social, governmental, and healthcare systems must prioritize this issue to improve the well-being of women across all life stages, particularly during the vulnerable perimenopausal and menopausal periods.
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P-191.
Why It Is Important To Be Prepared To Talk About Sex With Postmenopausal Women: A Sexologists Point of View

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Objective: In most animal species, contrary to what has been the classical belief, sex is not only practiced for reproduction but for pleasure. This is a biological, evolutionary, and sexological aim that disappears with death; and that is true in human beings. But in addition, remaining sexually active preserves the structure and function, not only of the organs involved in such activity (genitourinary system) but of vital organs as the brain, heart, bones, and muscles. On the other hand, due to aging (postmenopausal and hypoestrogenic conditions), education, culture, and religious beliefs, asexuality characterized most of our postmenopausal women (>45% asexual over 40; >60% asexual over 50; >75% asexual over 60; >90% asexual over 70; >98% asexual over 80). The prevalence of female sexual dysfunction is greater than the prevalence of any regular common disease for which we always talk in our medical evaluation: chronic hypertension, diabetes and asthma. We aim to highlight the importance of taking a sexual H&P in the medical practice, to call the attention of multiple diagnosis that we miss due to the lack of taking a sexual H&P (>20), to clarify that there is still a very high number of physicians that don't do a sexual H&P, despite the extensive research and the openness of the topic in recent years, and finally to understand that sexual activity needs to be promoted at the same level of mental and physical exercise. **Design:** Systematic review of the literature and review of our sexual history in more than 2,000 postmenopausal women in our two centers in Miami for >15 years. Extensive number of studies have been published showing the poor connection between physicians and patients in the sexual arena. More than 20 diagnosis can be found when the physician develops a sexual H&P. **Results:** Our systematic review and clinical experience with over 2,000 postmenopausal women in Miami over 15 years reveal a significant prevalence of female sexual dysfunctions: hypoactive sexual desire disorder, dyspareunia, vulvodynia, vaginismus, hypoactive arousal disorder, sexless marriage, asexuality, orgasmic dysfunction, anorgasmia, hyperactive arousal dysfunction, hypersexuality for multiple etiologies, and vestibulodynia; diagnoses that are found in more than 47% of postmenopausal women. Our data indicate that neglecting to take a comprehensive sexual history and physical examination (H&P) leads to missed diagnoses, including psychological factors like depression and anxiety secondary to the sexual dysfunctions. Despite extensive research underscoring the importance of sexual health, many physicians still omit sexual H&P from routine evaluations which results in underdiagnosis. **Conclusion:** Addressing sexual health in postmenopausal women is crucial for their overall well-being. Regular inclusion of sexual H&P in medical practice can uncover prevalent yet often overlooked conditions, enabling timely and effective interventions. Physician education and training should emphasize the significance of sexual health assessments to improve quality of life for peri and postmenopausal women.
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P-192.
Efficacy and Safety of GS1-144 in Postmenopausal Women with Moderate-to-Severe Vasomotor Symptoms: A Phase 2 Clinical Trial

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Objective: Vasomotor symptoms (VMS) are commonly treated with hormone therapy and selective serotonin reuptake inhibitors. For women who cannot tolerate or are contraindicated for these therapies, alternative options are needed. GS1-144 is a novel, nonhormonal neurokinin-3 receptor antagonist targeting the central thermoregulatory pathway. This study evaluated the efficacy and safety of GS1-144 in reducing moderate-to-severe VMS in Chinese postmenopausal women (NCT06726850). **Design:** This phase 2, multicenter, randomized, double-blind, placebo-controlled trial was conducted at 46 sites in China. A total of 276 postmenopausal women aged 40-64 years were enrolled. Eligible participants had an average of ≥7 moderate-to-severe hot flashes per day during a consecutive 7-day period before randomization. Participants were randomized 1:1:1:1 to receive GS1-144 at 30 mg once daily (QD), 60 mg QD, 30 mg twice daily (BID), or placebo for 12 weeks, followed by a 2-week safety follow-up. Randomization was stratified by BMI (<28 or ≥28 kg/m^2). All treatments were given orally on a BID schedule, with two tablets taken each in the morning and evening to maintain blinding. Each group received the assigned GS1-144/placebo combination accordingly. Co-primary endpoints were the changes from baseline in the daily frequency and severity of moderate-to-severe VMS at Weeks 4 and 12, based on patient-reported symptom diary, and were analyzed using a mixed model for repeated measures (two-sided α=0.1). Secondary endpoints included weekly frequency and severity of moderate-to-severe VMS over 12 weeks, the percent change in frequency, and the proportion of achieving ≥50% or 100% reduction. The safety profile of GS1-144 was also evaluated. **Results:** GS1-144 demonstrated promising efficacy in reducing the frequency and severity of moderate-to-severe VMS compared with placebo. At Week 4, the 30 mg BID group showed a significant reduction in daily VMS frequency versus placebo (least-squares mean [LSM] difference: -1.305; 90% CI: -2.348 to -0.263; P=0.0398). By Week 12, both 60 mg QD and 30 mg BID groups achieved significant reductions relative to placebo, with LSM differences of -1.418 (90% CI: -2.283 to -0.553; P=0.0072) and -1.407 (90% CI: -2.277 to -0.536; P=0.0081), respectively. Reductions in VMS severity followed a similar trend. At Weeks 4 and 12, both 60 mg QD and 30 mg BID groups showed significant improvements compared to placebo. Specifically, at Week 4, the LSM differences were -0.135 (90% CI: -0.259 to -0.011; P=0.0744) for the 60 mg QD group and -0.136 (90% CI: -0.260 to -0.012; P=0.0706) for the 30 mg BID group. At Week 12, the LSM difference for 60 mg QD group was -0.192 (90% CI: -0.382 to -0.001; P=0.0980), and for 30 mg BID group was -0.237 (90% CI: -0.428 to -0.046; P=0.0418). By Week 12, 87.0% (60 mg QD) and 86.8% (30 mg BID) of participants achieve ≥50% reduction in VMS frequency, compared with 72.5% of placebo. Treatment-emergent adverse events (TEAEs) were reported in 67.6% of participants receiving GS1-144 and 62.3% in those receiving placebo, mostly mild or moderate. The most common TEAEs included blood parathyroid hormone increased, upper respiratory tract infection, and urinary tract infection; their incidence was similar between GS1-144 and placebo groups and showed no dose-dependent trends. No risks of liver enzyme elevation were observed. **Conclusion:** GS1-144 significantly reduced the frequency and severity of moderate-to-severe VMS in postmenopausal women. The 60 mg QD and 30 mg BID regimens showed consistent and clinically meaningful efficacy at Weeks 4 and 12. GS1-144 was well tolerated, with no liver enzyme elevation risk. These findings support its further development as a nonhormonal treatment for menopause-associated VMS.
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P-193.
Premature Aging of Ovarian Function After Hysterectomy and Bilateral Salpingectomy

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Objective: While hysterectomy and bilateral salpingectomy are commonly performed for benign gynecologic conditions, emerging evidence suggests these procedures may accelerate ovarian aging. The loss of the uterus and fallopian tubes may compromise ovarian blood flow and hormonal regulation, potentially leading to early ovarian insufficiency and menopausal symptoms. To evaluate the impact of hysterectomy with bilateral salpingectomy on ovarian function in premenopausal women and to assess the risk of premature ovarian aging following these procedures. **Design:** We conducted a retrospective cohort study involving premenopausal women aged 33–48 who underwent hysterectomy with bilateral salpingectomy for benign indications. A control group with no history of pelvic surgery was matched for age and baseline ovarian function. Having followed these patients during the next seven years on average, most of them enter perimenopause according to their symptoms between 2-5 years post-procedure. The earlier reach of menopause was found in the older patients, and the later premature reach of menopause was found in younger patients, and that was 5 years post-procedure. Menopausal symptoms were evaluated through standardized questionnaires. **Results:** Women in the surgical group demonstrated a significantly steeper decline in AMH and a rise in FSH over 24 months, compared to controls. Estradiol levels decreased earlier in the postoperative period. Approximately 35% of surgical patients showed biochemical signs of ovarian insufficiency within two years, compared to 10% in controls. Vasomotor symptoms, sleep disturbances, and mood changes were reported more frequently in the surgical group. **Conclusion:** Hysterectomy with bilateral salpingectomy is associated with an accelerated decline in ovarian function and earlier onset of menopausal symptoms. These findings highlight the importance of preoperative counseling and consideration of long-term hormonal and reproductive health, especially in younger women undergoing gynecologic surgery for benign conditions.
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P-194.

Psychological function in a randomized trial of continuous nitroglycerin for hot flashes

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Objective: To evaluate prospective changes in psychological function among menopausal women using continuous nitroglycerin for hot flashes and examine whether changes in hot flash frequency or severity are associated with meaningful changes in psychological function. **Design:** The Flushing Reduction Associated with Nitrates (FRAN) study was a randomized, parallel-group, double-blinded, placebo-controlled, 12-week trial of uninterrupted transdermal nitroglycerin therapy for hot flashes in menopausal women. Participants were eligible if they were in the late menopause transition or post menopause, documented at least 7 hot flashes per day and 4 moderate-to-severe hot flashes per day on a validated 7-day symptom screening diary, and were not using hormone therapy or other medications with known effects on hot flashes. Eligible participants were randomly assigned by computer algorithm to continuous transdermal nitroglycerin (0.2-0.4 mg/hour, hypothesized to decrease hot flash-related vasodilation by inducing nitrate tolerance in the vascular endothelium) or placebo patches daily for 12 weeks. Frequency and severity of hot flashes were examined using validated 7-day diaries, and psychological function was evaluated using the Center for Epidemiologic Studies-Depression Scale [CES-D], Generalized Anxiety Disorders-7 [GAD-7], and Menopausal-Specific Quality of Life [MENQOL] Psychosocial Subscale. Linear mixed models examined treatment effects on psychological symptoms from baseline to 5 and 12 weeks. Additional models examined repeated demographics-adjusted associations between psychological function and hot flash frequency in both groups combined over these timepoints. **Results:** Among 141 randomized participants, 137 (97%) participants completed at least one psychological function measure. Participants reported an average of 10.8±3.5 total hot flashes/day and 8.7±4.1 moderate-to-severe hot flashes/day. On average, baseline GAD-7 and CES-D scores were below the conventional thresholds to detect clinically significant anxiety and depression, with a mean GAD-7 score of 2.8 and mean CES-D score of 8.6. Overall, nitroglycerin therapy did not improve psychological symptoms from baseline to 5 and 12 weeks compared to placebo. In the combined-group sample, greater hot flash frequency was associated with worse GAD-7 scores across all timepoints (β=0.05 per each additional hot flash/day, P=0.005), but no significant associations between hot flashes and CES-D or MENQOL Psychosocial scores were observed. In analyses examining prospective change in hot flash frequency in relation to prospective change in psychological function, participants who reported greater improvement in hot flash frequency over 5 and 12 weeks also reported greater improvement in MENQOL Psychosocial scores (β=0.04 per each 1 fewer hot flash/day, P=0.03), but not greater improvements in GAD-7 or CES-D scores. **Conclusion:** In a randomized trial of menopausal women with frequent hot flashes, continuous nitroglycerin therapy did not result in greater improvement in anxiety, depression, or quality-of-life relative to placebo. Greater hot flash frequency was associated with greater levels of anxiety, but not with greater burden of depression or quality of life across all trial timepoints. Furthermore, improvements in hot flash frequency translated into improvements in psychosocial quality-of-life, but not specific improvements in depression or anxiety symptoms. Although findings should not be extrapolated to women with clinical mood disorders, these results suggest that clinicians caring for women with overlapping hot flashes and mood symptoms should consider other factors that may influence midlife psychological function.

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