| human reproduction | **SUPPLEMENTARY DATA** |

Supplementary Table SIII Association between serum 25(OH)D concentrations and premenstrual symptom scores by group during the premenstrual week in two cohorts of reproductive age women with regular cycles: EAGeR and BioCycle.

	EAGeR			BioCycle		
	25(OH)D sufficient (≥ 30 ng/ml)	25(OH)D insufficient (< 30 ng/ml)	25(OH)D (per 10 ng/ml)	25(OH)D sufficient (≥ 30 ng/ml)	25(OH)D insufficient (< 30 ng/ml)	25(OH)D (per 10 ng/ml)
Emotional score						
Mean ± SD	3.0 ± 1.9	3.0 ± 2.0		2.2 ± 1.6	2.7 ± 1.6	
Unadjusted β (95% CI)	Ref	0.07 (−0.16, 0.30)	−0.02 (−0.12, 0.07)	Ref	0.57 (−0.19, 1.33)	−0.25 (−0.69, 0.19)
Adjusted 1: β (95% CI)	Ref	−0.03 (−0.27, 0.21)	0.02 (−0.08, 0.12)	Ref	0.55 (−0.23, 1.33)	−0.21 (−0.68, 0.25)
Adjusted 2: β (95% CI)	Ref	0.01 (−0.23, 0.26)	0.01 (−0.09, 0.11)	Ref	0.31 (−0.13, 0.76)	−0.08 (−0.34, 0.18)
Psychological score						
Mean ± SD	1.9 ± 1.8	1.9 ± 1.8		1.9 ± 1.3	1.8 ± 1.5	
Unadjusted β (95% CI)	Ref	0.05 (−0.16, 0.25)	0.01 (−0.07, 0.10)	Ref	−0.17 (−0.82, 0.47)	−0.06 (−0.43, 0.30)
Adjusted 1: β (95% CI)	Ref	−0.01 (−0.23, 0.20)	0.04 (−0.05, 0.13)	Ref	−0.11 (−0.81, 0.60)	−0.09 (−0.50, 0.32)
Adjusted 2: β (95% CI)	Ref	0.03 (−0.19, 0.25)	0.03 (−0.07, 0.12)	Ref	−0.48 (−1.08, 0.12)	0.12 (−0.23, 0.48)
Physical score						
Mean ± SD	4.6 ± 2.9	5.0 ± 3.1		4.4 ± 2.9	4.6 ± 2.4	
Unadjusted β (95% CI)	Ref	0.45 (0.10, 0.80)*	−0.14 (−0.28, 0.003)	Ref	0.20 (−1.05, 1.45)	−0.28 (−0.99, 0.43)
Adjusted 1: β (95% CI)	Ref	0.22 (−0.14, 0.58)	−0.03 (−0.18, 0.12)	Ref	0.02 (−1.36, 1.39)	−0.15 (−0.96, 0.66)
Adjusted 2: β (95% CI)	Ref	0.24 (−0.13, 0.61)	−0.04 (−0.20, 0.11)	Ref	0.03 (−1.47, 1.52)	−0.16 (−1.02, 0.70)
Consumption score						
Mean ± SD	2.2 ± 1.3	2.3 ± 1.4		2.2 ± 1.2	2.0 ± 1.6	
Unadjusted β (95% CI)	Ref	0.13 (−0.03, 0.28)	−0.03 (−0.09, 0.04)	Ref	−0.23 (−0.89, 0.43)	0.14 (−0.24, 0.51)
Adjusted 1: β (95% CI)	Ref	0.08 (−0.08, 0.25)	−0.01 (−0.07, 0.06)	Ref	−0.24 (−0.96, 0.48)	0.10 (−0.33, 0.52)
Adjusted 2: β (95% CI)	Ref	0.08 (−0.09, 0.25)	−0.01 (−0.08, 0.06)	Ref	−0.33 (−1.10, 0.44)	0.16 (−0.29, 0.60)

25(OH)D, 25-hydroxyvitamin D; EAGeR, Effects of Aspirin in Gestation and Reproduction; Ref, reference.

Adjusted 1 model controls for age, BMI, smoking status, race, income, exercise, season of blood draw. Adjusted 2 model controls for the variables in Adjusted 1 as well as depression (BioCycle) or antidepressant use (EAGeR), education, alcohol, race (EAGeR only), CRP (high sensitivity c-reactive protein), and parity.

Scores based on the sum of symptom severity ratings reported during the premenstrual week for symptoms within each grouping (0 = none, 1 = mild, 2 = moderate, 3 = severe). Groups based on the clusters identified using factor analysis in prior work by Quintana-Zinn et al. (2017). Emotional score includes the symptoms: tension or irritability; anger, aggression, short temper; crying spells. Psychological score includes the symptoms: depression or sadness; anxiety or nervousness; insomnia. Physical score includes the symptoms: breast tenderness or fulness; lower abdominal cramping; generalized aches and pains; lower backache; headache. Consumption score includes the symptoms: abdominal bloating; fatigue.