

**Table S8.** Associations between early-life exposures and timing of thelarche in the Sister Study cohort with multiple imputation of missing early-life exposure data (N=49,162)<sup>a</sup>

	Percent Imputed	Model 1				Model 2				Model 3			
		Early thelarche (≤10 years) <sup>b,c</sup>		Late thelarche (≥14 years) <sup>b,c</sup>		Early thelarche (≤10 years) <sup>b,d</sup>		Late thelarche (≥14 years) <sup>b,d</sup>		Early thelarche (≤10 years) <sup>b</sup>		Late thelarche (≥14 years) <sup>b</sup>	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<i>Maternal pregnancy characteristics</i>													
Diabetes	10.4												
Any		1.21	0.94, 1.55	0.90	0.70, 1.15	1.23	0.96, 1.58	0.90	0.70, 1.15				
None		1	Ref	1	Ref	1	Ref	1	Ref				
Gestational hypertensive disorder <sup>e</sup>	24.7												
Any		1.29	1.13, 1.47	0.97	0.84, 1.11	1.29	1.13, 1.47	0.98	0.85, 1.12	1.29	1.13, 1.48	0.98	0.85, 1.13
None		1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref
DES use <sup>f</sup>	15.0												
Yes		1.23	1.03, 1.45	1.03	0.87, 1.21	1.23	1.04, 1.46	1.03	0.88, 1.21	1.18	0.99, 1.40	1.03	0.88, 1.22
No		1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref
Smoking during pregnancy	4.9												
Yes		1.20	1.13, 1.27	1.02	0.97, 1.08	1.19	1.13, 1.26	1.02	0.97, 1.08				
No		1	Ref	1	Ref	1	Ref	1	Ref				
Farm exposure	3.3												
Work and residence		0.99	0.91, 1.08	0.94	0.87, 1.02	1.01	0.93, 1.10	0.93	0.86, 1.01				
Work only		1.06	0.84, 1.34	1.20	0.99, 1.47	1.07	0.84, 1.35	1.20	0.98, 1.46				
Residence only		0.98	0.86, 1.12	0.86	0.76, 0.97	0.97	0.85, 1.11	0.86	0.76, 0.97				
None		1	Ref	1	Ref	1	Ref	1	Ref				
Age at delivery	1.2												
<20 years		1.30	1.15, 1.47	0.93	0.82, 1.04	1.18	1.03, 1.34	1.05	0.92, 1.19				
20-24 years		1.08	1.01, 1.17	0.97	0.91, 1.03	1.04	0.96, 1.12	1.02	0.95, 1.09				
25-29 years		1	Ref	1	Ref	1	Ref	1	Ref				
30-34 years		0.95	0.88, 1.02	0.95	0.89, 1.01	0.97	0.90, 1.05	0.92	0.86, 0.99				
35-39 years		0.99	0.90, 1.08	0.94	0.87, 1.02	1.02	0.93, 1.11	0.91	0.84, 0.98				
≥40 years		0.95	0.84, 1.09	1.00	0.89, 1.12	0.98	0.86, 1.23	0.96	0.86, 1.08				
<i>Birth and infancy characteristics</i>													
Firstborn	0.5												
Yes		1.25	1.17, 1.33	0.84	0.79, 0.89	1.20	1.11, 1.28	0.80	0.75, 0.86				

No	1	Ref	1	Ref	1	Ref	1	Ref					
Birthweight <sup>e</sup>	25.6												
<2500g	1.06	0.96, 1.17	1.12	1.03, 1.23	1.05	0.95, 1.16	1.13	1.03, 1.24	1.08	0.95, 1.24	1.07	0.95, 1.21	
2500g-3999g	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	
≥4000g	1.00	0.90, 1.11	0.99	0.90, 1.09	1.02	0.92, 1.14	0.98	0.89, 1.08	1.03	0.92, 1.15	0.99	0.89, 1.09	
Multiple birth	<0.1												
Yes	0.87	0.74, 1.02	1.11	0.98, 1.27	0.83	0.70, 0.99	1.07	0.92, 1.23					
No	1	Ref	1	Ref	1	Ref	1	Ref					
Gestational age at birth <sup>h</sup>	53.6												
Born ≥1 month before due date	0.93	0.77, 1.12	1.24	1.05, 1.46	0.92	0.76, 1.11	1.24	1.05, 1.47	0.90	0.74, 1.09	1.22	1.03, 1.45	
Born 2-4 weeks before due date	1.07	0.94, 1.22	0.95	0.83, 1.09	1.07	0.94, 1.21	0.96	0.83, 1.10	1.05	0.92, 1.20	0.95	0.82, 1.10	
Not born ≥2 weeks before due date	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	
Ever breastfed <sup>i</sup>	7.5												
Yes	0.99	0.93, 1.04	0.94	0.90, 0.99	0.98	0.93, 1.04	0.95	0.90, 1.00	0.98	0.93, 1.04	0.96	0.91, 1.01	
No	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	
Ever fed soy formula <sup>i</sup>	17.1												
Yes	1.10	0.93, 1.30	1.06	0.90, 1.24	1.09	0.93, 1.29	1.06	0.90, 1.24	1.09	0.93, 1.29	1.05	0.90, 1.24	
No	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	1	Ref	

<sup>a</sup>Multiple imputation using chained equations was used to generate 50 imputed datasets in PROC MI (SAS 9.4). All except for 3 participants who withdrew their data from the study were included in the imputation models, which included the outcome, all early-life exposures, all considered covariates, age at menarche and whether mom was alive at baseline. PROC MIANALYZE (SAS 9.4) was used to combine regression coefficients across 50 imputation datasets for each early-life exposure. Multiple imputation analyses presented here are limited to the 49,162 eligible women as defined for this analysis (see Figure S1).

<sup>b</sup>Referent group is thelarche at 11-13 years

<sup>c</sup>Model 1 is adjusted for birth cohort, race/ethnicity and childhood family income

<sup>d</sup>Model 2 is adjusted for all variable in Model 1 plus maternal age and firstborn

<sup>e</sup>Model 3 includes all variables in Model 2 plus any diabetes, smoking during pregnancy and multiple birth

<sup>f</sup>Model 3 includes all variables in Model 2 plus any diabetes, any hypertension, smoking during pregnancy and multiple birth as potential indicators of a high-risk pregnancy

<sup>g</sup>Model 3 includes all variables in Model 2 plus any diabetes, any hypertension, DES use, smoking during pregnancy, multiple birth and gestational age at birth

<sup>h</sup>Model 3 includes all variables in Model 2 plus any diabetes, any hypertension, DES use, smoking during pregnancy, and multiple birth

<sup>i</sup>Model 3 includes all variables in Model 2 plus multiple birth, gestational age at birth and birthweight