

## **Supplemental Material**

# **Prenatal Polybrominated Diphenyl Ether Exposures and Neurodevelopment in U.S. Children through 5 Years of Age: The HOME Study**

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**Table S1.** Comparisons of demographics, socioeconomic status, prenatal PBDE concentrations, and Bayley scores between 190 children followed and 119 children loss to follow-up at age 5 years.

Characteristics	Followed at age 5 years	Loss to follow-up at age 5 years	p
Maternal age (years), n (%)			0.64
<25 years	39 (20.53)	24 (20.17)	
25-34 years	122 (64.21)	72 (60.50)	
≥35 years	29 (15.26)	23 (19.33)	
Maternal race/ethnicity, n (%)			0.19
Non-Hispanic White	122 (64.21)	85 (71.43)	
Non-Hispanic Black and others	68 (35.79)	34 (28.57)	
Maternal education, n (%)			0.32
High school or less	44 (23.16)	26 (21.85)	
Some college or 2-yr degree	50 (26.32)	22 (18.49)	
Bachelor's	60 (31.58)	41 (34.45)	
Graduate or professional	36 (18.95)	30 (25.21)	
Maternal marital status, n (%)			0.11
Married or living with partner	149 (78.42)	102 (85.71)	
Not married and living alone	41 (21.58)	17 (14.29)	
Household income, n (%)			0.23
<\$20,000	44 (23.16)	19 (15.97)	
\$20,000-79,999	96 (50.53)	61 (51.26)	
≥\$80,000	50 (26.32)	39 (32.77)	
Child gender, n (%)			0.39
Male	83 (43.68)	58 (48.74)	
Female	107 (56.32)	61 (51.26)	
Maternal BDE-47, n (GM ± GSD, ng/g lipid) <sup>a</sup>	190 (20.52±2.58)	119 (19.45±2.67)	0.63
Maternal Sum <sub>4</sub> BDEs, n (GM ± GSD, ng/g lipid) <sup>a,b</sup>	177 (37.58±2.59)	102 (37.95±2.62)	0.94
Bayley scores, n (mean ± SD)			
MDI at age 1 year	185 (93.44±9.73)	110 (94.43±10.13)	0.41
PDI at age 1 year	185 (91.51±13.33)	109 (92.56±13.25)	0.52
MDI at age 2 years	170 (90.00±14.02)	78 (89.97±12.93)	0.99
PDI at age 2 years	170 (92.36±13.44)	78 (89.50±13.52)	0.12
MDI at age 3 years	169 (93.69±13.34)	59 (92.69±14.73)	0.63
PDI at age 3 years	168 (98.00±14.50)	58 (95.86±15.81)	0.34

<sup>a</sup>GM: Geometric mean, GSD: Geometric standard deviation. <sup>b</sup>Sum<sub>4</sub>BDEs is the sum of BDE-47, -99, -100, and -153.

**Table S2.** Estimated score differences and 95% confidence intervals in Bayley Psychomotor Development Index and BASC-2 behavior rating scores at ages 1-5 years by a ten-fold increase in maternal BDE-47 concentration.<sup>a</sup>

<b>Assessment</b>	<b><math>\beta</math> (95% CI) of <math>\log_{10}</math>BDE-47</b>
Bayley PDI	
1 year	0.28 (-3.49, 4.05)
2 years	2.59 (-1.67, 6.85)
3 years	0.58 (-4.37, 5.53)
BASC-2 Internalizing Problems	
2 years	-0.25 (-2.42, 1.91)
3 years	1.86 (-1.20, 4.93)
4 years	2.27 (-0.84, 5.38)
5 years	0.72 (-2.49, 3.93)
BASC-2 Adaptive Skills	
2 years	-0.14 (-2.24, 1.97)
3 years	0.43 (-1.88, 2.74)
4 years	0.56 (-2.45, 3.57)
5 years	1.49 (-1.62, 4.60)
BASC-2 Attention Problems	
2 years	-0.22 (-2.71, 2.28)
3 years	1.49 (-0.99, 3.97))
4 years	0.34 (-2.50, 3.18)
5 years	2.47 (-0.69, 5.63)
BASC-2 Aggression	
2 years	1.99 (-0.21, 4.19)
3 years	2.31 (-0.69, 5.32)
4 years	2.01 (-1.42, 5.44)
5 years	1.63 (-1.33, 4.59)
BASC-2 Anxiety	
2 years	-1.31 (-3.41, 0.78)
3 years	-0.15 (-3.43, 3.14)
4 years	2.35 (-0.83, 5.53)
5 years	-0.70 (-4.05, 2.64)
BASC-2 Withdrawal	
2 years	-0.54 (-2.91, 1.82)
3 years	-0.99 (-3.71, 1.72)
4 years	1.38 (-1.53, 4.30)
5 years	-0.29 (-3.15, 2.56)

<sup>a</sup>Adjusted for maternal age at enrollment, race, education, marital status, maternal serum cotinine concentrations at enrollment, maternal IQ, child sex, maternal depression, household income, and HOME Inventory.

**Table S3.** Estimated score differences and 95% confidence intervals in cognitive and behavior rating scores at ages 1-5 years by a ten-fold increase in maternal Sum<sub>4</sub>BDEs concentration.<sup>a,b</sup>

<b>Age</b>	<b>Bayley MDI/WPPSI FSIQ</b>	<b>BASC-2 Externalizing Problems</b>	<b>BASC-2 Hyperactivity subscale</b>	<b>BASC-2 Behavioral Symptoms Index</b>
1 year	-0.77 (-3.84, 2.30)	--	--	--
2 years	-1.67 (-5.66, 2.31)	1.83 (-0.56, 4.22)	2.09 (-0.63, 4.80)	0.89 (-1.28, 3.06)
3 years	-1.13 (-5.14, 2.89)	2.53 (-0.32, 5.38)	3.11 (0.22, 6.00)	2.44 (-0.31, 5.20)
4 years	--	2.57 (-0.71, 5.85)	2.92 (-0.30, 6.14)	2.48 (-0.49, 5.44)
5 years	-4.38 (-8.90, 0.14)	2.70 (-0.39, 5.80)	3.35 (0.18, 6.52)	2.90 (-0.18, 5.99)

<sup>a</sup>Adjusted for maternal age at enrollment, race, education, marital status, maternal serum cotinine concentrations at enrollment, maternal IQ, child sex, maternal depression, household income, and HOME Inventory. <sup>b</sup>Sum<sub>4</sub>BDEs is the sum of BDE-47, -99, -100, and -153.

**Table S4.** Estimated odds ratios and 95% confidence intervals of having cognitive and behavior rating scores one standard deviation from the population mean at ages 1-5 years by a ten-fold increase in maternal Sum<sub>4</sub>BDEs concentration.<sup>a,b</sup>

<b>Age</b>	<b>N (%) MDI/FSIQ &lt;85</b>	<b>OR (95% CI) MDI/FSIQ &lt;85</b>	<b>N (%) Externalizing Problems ≥60</b>	<b>OR (95% CI) Externalizing Problems ≥60</b>	<b>N (%) Hyperactivity subscale ≥60</b>	<b>OR (95% CI) Hyperactivity subscale ≥60</b>	<b>N (%) Behavioral Symptoms Index ≥60</b>	<b>OR (95% CI) Behavioral Symptoms Index ≥60</b>
1 year	48 (18.75)	1.17 (0.47, 2.88)	--	--	--	--	--	--
2 years	71 (32.87)	0.69 (0.30, 1.57)	12 (5.56)	4.96 (1.94, 12.66)	26 (12.04)	2.90 (1.04, 8.11)	12 (5.56)	1.25 (0.41, 3.83)
3 years	49 (24.50)	1.39 (0.59, 3.31)	34 (16.50)	2.04 (0.94, 4.41)	29 (14.08)	2.28 (0.93, 5.60)	28 (13.59)	2.23 (0.88, 5.62)
4 years	--	--	16 (10.53)	2.09 (0.68, 6.44)	16 (10.52)	3.16 (0.90, 11.12)	11 (7.24)	2.24 (0.48, 10.39)
5 years	23 (13.86)	1.80 (0.39, 8.30)	17 (10.00)	3.30 (0.73, 14.83)	18 (10.59)	5.38 (1.78, 16.32)	16 (9.41)	4.40 (1.02, 18.92)

<sup>a</sup>Adjusted for maternal age at enrollment, race, education, marital status, maternal serum cotinine concentrations at enrollment, maternal IQ, child sex, maternal depression, household income, and HOME Inventory. <sup>b</sup>Sum<sub>4</sub>BDEs is the sum of BDE-47, -99, -100, and -153.

**Table S5.** Estimated score differences and 95% confidence intervals of Bayley MDI and WPPSI FSIQ in separate models by a ten-fold increase in maternal PBDE concentration<sup>a</sup>

<b>Outcome</b>	<b>Log10 BDE-47</b>	<b>Log10 Sum<sub>4</sub>BDEs<sup>b</sup></b>
Bayley MDI <sup>c</sup>		
1 year	-0.83 (-3.80, 2.14)	-0.83 (-3.90, 2.24)
2 years	-1.84 (-5.66, 1.98)	-1.84 (-5.84, 2.17)
3 years	-1.98 (-5.77, 1.81)	-1.44 (-5.49, 2.60)
WPPSI FSIQ <sup>d</sup>		
5 years	-4.17 (-8.91, 0.56)	-4.47 (-9.36, 0.43)

<sup>a</sup>Adjusted for maternal age at enrollment, race, education, marital status, maternal serum cotinine concentrations at enrollment, maternal IQ, child sex, maternal depression, household income, and HOME Inventory. <sup>b</sup>Sum<sub>4</sub>BDEs is the sum of BDE-47, -99, -100, and -153. <sup>c</sup>Covariates adjusted Mixed model for Bayley MDI including ages 1 to 3 years. <sup>d</sup>Covariates adjusted linear model for WPPSI FSIQ at age 5 years.