Supplementary Material

Gestational Diabetes and Offspring Birth Size at Elevated Environmental Pollutant Exposures

Damaskini Valvi, Youssef Oulhote, Pal Weihe , Christine Dalgård, Kristian S. Bjerve, Ulrike Steuerwald and Philippe Grandjean.

Contents

Figure S1. Conceptual path diagram of SEM analyses for the associations of environmental pollutant exposures at pregnancy with gestational diabetes mellitus and birth size measures, and the hypothesised role of gestational diabetes as a possible mediator in the associations with birth size.

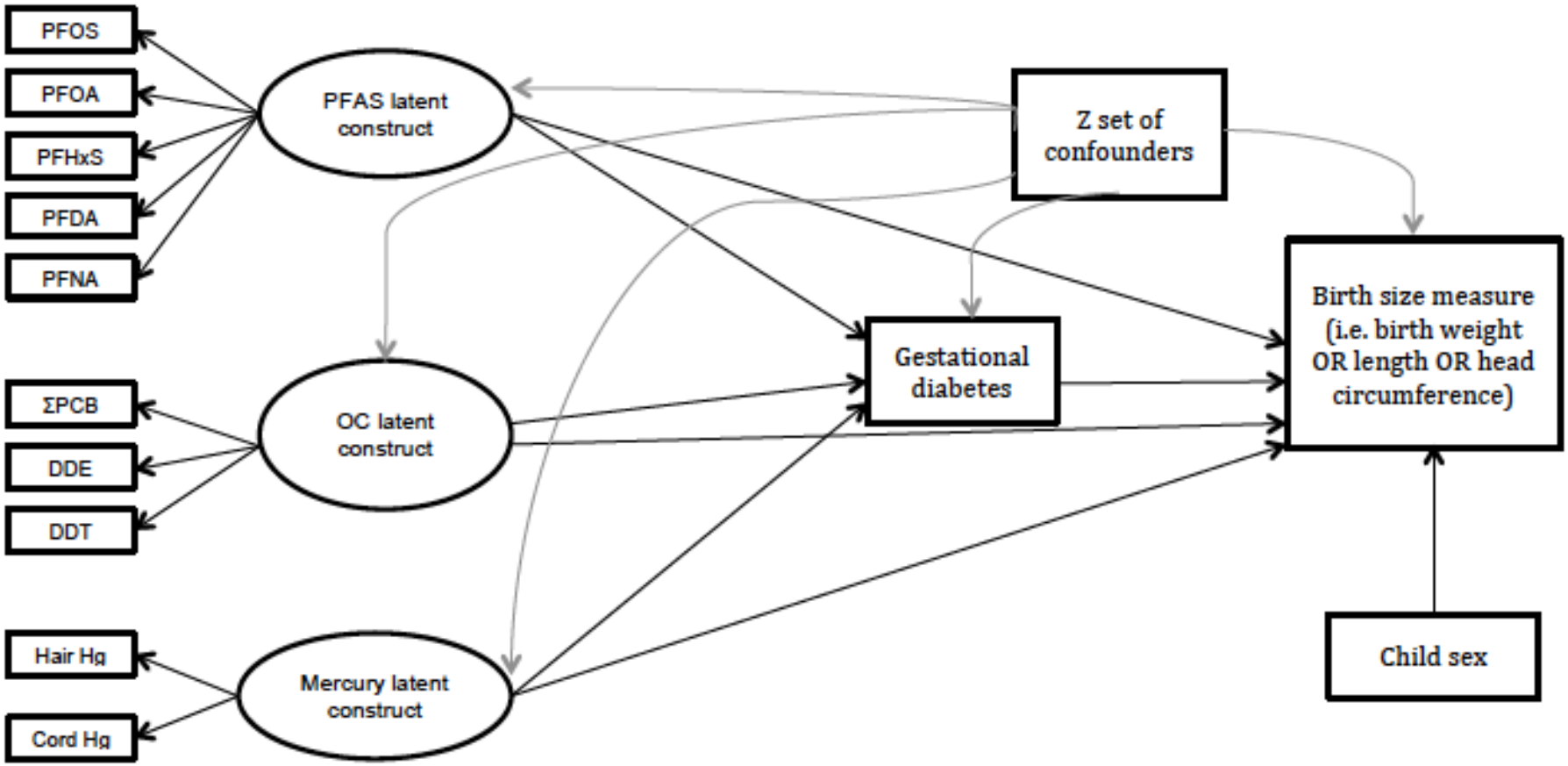

Table S1. Factor loadings and estimated correlation of measured environmental pollutant concentrations to their latent construct used in SEM analyses.

Latent construct	Indicators	Factor loading	SE	*p*-value	Standardized coefficient
OCs	Serum DDE	1	0	NA	0.98
	Serum ΣPCB	0.73	0.03	<0.001	0.92
	Serum DDT	0.95	0.05	<0.001	0.86
PFASs	Serum PFOS	1	0	NA	0.66
	Serum PFOA	0.43	0.09	<0.001	0.22
	Serum PFHxS	0.53	0.18	0.005	0.92
	Serum PFDA	2.10	0.14	<0.001	0.88
	Serum PFNA	1.99	0.11	<0.001	0.12
Mercury	Hair mercury	1	0	NA	0.95
	Cord blood mercury	0.82	0.04	<0.001	0.88

SE: standard Error
NA: not applicable

Table S2. Pearson correlation coefficients between pairs of environmental pollutant concentrations (log_2- transformed) measured in maternal biological samples during pregnancy and cord blood.

	Serum DDE	Serum DDT	Serum PFOS	Serum PFOA	Serum PFHxS	Serum PFDA	Serum PFNA	Hair mercury	Cord mercury
Serum ΣPCB	0.88	0.64	0.25	-0.06	0.02	0.48	0.52	0.35	0.33
Serum DDE	1	0.78	0.17	-0.02	0.10	0.42	0.49	0.33	0.29
Serum DDT		1	0.16	-0.04	0.20	0.36	0.37	0.36	0.37
Serum PFOS			1	0.55	0.12	0.56	0.63	0.19	0.23
Serum PFOA				1	0.17	0.14	0.26	-0.06	-0.03
Serum PFHxS					1	0.13	0.08	0.20	0.17
Serum PFDA						1	0.80	0.45	0.41
Serum PFNA							1	0.39	0.36
Hair mercury								1	0.83

Table S3. Change in birth size measures per doubling of environmental pollutant concentrations in maternal biological samples and cord blood, according to sex.

Birth size measure/ Exposure variable	**Total N**	**Girls (47.4 %)** *β (95%CI)* [a]	**Boys (52.3%)** *β (95%CI)* [a]	***p* for sex interaction**
Weight (g)				
Serum ΣPCB	564	-5 (-62, 51)	12 (-48, 74)	0.71
Serum DDE	564	-39 (-94, 15)	-5 (-62, 51)	0.39
Serum PFOS	604	5 (-124, 135)	-150 (-282, -17)	0.08
Serum PFOA	604	58 (-48, 164)	-71 (-184, 42)	0.04
Serum PFHxS	604	20 (-24, 65)	12 (-36, 59)	0.75
Serum PFDA	604	-28 (-110, 54)	-44 (-133, 44)	0.81
Serum PFNA	604	-39 (-125, 46)	-33 (-136, 69)	0.96
Hair mercury	561	-6 (-48, 35)	13 (-33, 60)	0.61
Cord blood mercury	538	12 (-35, 59)	3 (-51, 56)	0.63
Length (cm)				
Serum ΣPCB	564	0.15 (-0.10, 0.41)	-0.03 (-0.30, 0.23)	0.21
Serum DDE	564	-0.11 (-0.37, 0.14)	0.10 (-0.11, 0.31)	0.38
Serum PFOS	604	0.32 (-0.24, 0.89)	-0.18 (-0.60, 0.23)	0.17
Serum PFOA	604	-0.01 (-0.48, 0.46)	0.02 (-0.42, 0.47)	0.64
Serum PFHxS	604	-0.03 (-0.23, 0.16)	-0.15 (-0.34, 0.03)	0.50
Serum PFDA	604	0.13 (-0.22, 0.49)	-0.16 (-0.47, 0.15)	0.22
Serum PFNA	604	0.11 (-0.27, 0.48)	0.04 (-0.36, 0.44)	0.72
Hair mercury	561	0.09 (-0.10, 0.29)	-0.04 (-0.23, 0.16)	0.29
Cord blood mercury	538	0.14 (-0.11, 0.40)	-0.05 (-0.28, 0.17)	0.18
Head circumference (cm)				
Serum ΣPCB	564	0.25 (0.07, 0.42)	0.07 (-0.09, 0.23)	0.39
Serum DDE	564	0.08 (-0.10, 0.25)	0.12 (-0.04. 0.27)	0.60
Serum PFOS	604	0.48 (0.05, 0.90)	-0.28 (-0.65, 0.09)	0.01
Serum PFOA	604	0.10 (-0.23, 0.44)	-0.05 (-0.36, 0.26)	0.90
Serum PFHxS	604	0.01 (-0.13, 0.16)	0.18 (0.05, 0.32)	0.04
Serum PFDA	604	0.35 (0.09, 0.62)	-0.08 (-0.33, 0.18)	0.03
Serum PFNA	604	0.22 (-0.06, 0.50)	-0.07 (-0.36, 0.21)	0.30
Hair mercury	561	0.02 (-0.11, 0.15)	0.09 (-0.04, 0.21)	0.64
Cord blood mercury	538	0.07 (-0.08, 0.21)	0.06 (-0.09, 0.20)	0.67

[a] Linear regression estimates adjusted for maternal age at delivery, education, parity, pre-pregnancy BMI (continuous) and smoking during pregnancy.