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Supplemental Material

Prenatal Exposure to Nonpersistent Endocrine Disruptors and Behavior in Boys at 3 and 5 Years

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References

Table S1: Scoring of the Strengths and Difficulties Questionnaire

Clinical behaviors (score ranges: 0-20)	**Subscale (score ranges: 0-10)**	**Items used to compute each subscale (score ranges: 0-3)**
Internalizing behavior	Emotional symptoms	Often complains of headaches Many worries Often unhappy, downhearted Nervous or clingy in new situations Many fears, easily scared
	Peer relationship problems	Rather solitary, tends to play alone Has at least one good friend Generally liked by other children Picked on or bullied Gets on better with adults than with other children
Externalizing behavior	Conduct problems	Often has temper tantrums or hot tempers Generally obedient Often fights with other children Often argumentative with adults Can be spiteful to others
	Hyperactivity /Inattention problems	Restless, overactive Constantly fidgeting or squirming Easily distracted, concentration wanders Can stop and think things out before acting Sees tasks through to the end
	Prosocial behavior	Considerate of other people's feelings Shares readily with other children Helpful if someone is hurt Kind to younger children Often volunteers to help others

The Strengths and Difficulties Questionnaire can be uploaded online (The Strengths and Difficulties Questionnaire website).

Table S2: Spearman correlation coefficients between SDQ scores assessed at 3 and 5 years among boys of the EDEN mother-child cohort

SDQ scores	**Spearman correlation coefficients between the assessments performed at 3 and 5 years**
Emotional symptoms	0.41
Conduct problems	0.59
Peer relationship problems	0.37
Hyperactivity-inattention	0.62
Prosocial behavior	0.46
Internalizing behavior	0.51
Externalising behavior	0.66

Table S3: Concentrations of phenols and phthalate metabolites in maternal urine (n = 546 mother-son pairs of the French EDEN cohort)

Biomarker	Abbreviation	LOD (µg/L)	% < LOD	GM	Percentiles		
					33th	50th	66th
2,4-dichlorophenol	2.4-dichlorophenol	0.2	2	1.16	0.73	0.99	1.42
2,5-dichlorophenol	2.5-dichlorophenol	0.2	0	12.90	5.38	9.42	17.0
Sum of dichlorophenol concentrations (µmol/L)	Σdichlorophenols	-	-	0.09	0.04	0.07	0.11
Bisphenol A		0.4	0	2.50	1.74	2.37	3.10
Benzophenone-3		0.4	7	3.06	1.39	2.32	3.96
Triclosan		2.3	19	23.7	7.09	28.2	99.7
Methyl paraben		1	0	104	52.4	112	200
Ethyl paraben		1	26	3.07	1.39	3.70	9.70
Propyl paraben		0.2	1	12.5	5.41	14.3	30.9
Butyl paraben		0.2	14	2.23	0.77	2.13	5.61
Sum of paraben concentrations (µmol/L)		-	-	0.87	0.42	0.95	1.72
Monoethyl phthalate (µg/L)	MEP	0.6	0	109	65.4	97.0	154
Mono-n-butyl phthalate (µg/L)	MBP	0.2	0	51.1	33.1	44.2	57.2
Mono-isobutyl phthalate (µg/L)	MiBP	0.2	0	42.3	29.3	40.1	56.8
Mono(2-ethyl-5-carboxypentyl) phthalate (µg/L)	MECPP	0.2	0	40.8	27.9	38.4	50.3
Mono(2-ethyl-5-hydroxyhexyl) phthalate (µg/L)	MEHHP	0.2	0	26.8	18.8	26.8	35.1
Mono(2-ethyl-5-oxohexyl) phthalate (µg/L)	MEOHP	0.2	0	22.3	15.6	22.4	29.3
Mono(2-ethylhexyl) phthalate (µg/L)	MEHP	0.5	2	7.46	5.08	7.44	10.8
*Sum of DEHP concentrations (µ*mol/L*)*	∑DEHP	-	-		0.24	0.32	0.42
Monobenzyl phthalate (µg/L)	MBzP	0.3	0	19.9	12.8	18.4	26.6
Monocarboxy-isooctyl phthalate (µg/L)	MCOP	0.2	0	4.13	2.85	3.90	5.37
Mono(3-carboxypropyl) phthalate (µg/L)	MCPP	0.2	0	2.17	1.50	1.94	2.60
Monocarboxy-isononyl phthalate (µg/L)	MCNP	0.2	0	1.54	0.97	1.27	1.72
Creatinine	-	-	-	1.00	0.86	1.04	1.22

Abbreviation: GM: geometric mean, LOD: limit of detection

[a] Concentrations standardized for sampling conditions and creatinine concentration (Mortamais et al. 2012)

[b] Includes mother-child pairs that have biomarker assessments and SDQ scores at 3 or 5 years

Table S4: Spearman correlation coefficients between biomarker concentrations measured in maternal urine (n = 546 mother-son pairs of EDEN mother-child cohort)

	2,4-DCP	2,5-DCP	BPA	BP3	TCS	MP	EP	PP	BP	MEP	MBP	MiBP	MCPP	MBzP	MEHP	MEOHP	MEHHP	MECPP	MCOP	MCNP
2,4-DCP	1.00																			
2,5-DCP	0.69	1.00																		
BPA	-0.01	-0.01	1.00																	
BP3	0.12	0.10	0.04	1.00																
TCS	0.38	0.02	-0.06	0.13	1.00															
MP	0.08	0.02	-0.02	0.20	0.15	1.00														
EP	0.13	0.00	-0.05	0.17	0.16	0.60	1.00													
PP	0.10	0.00	-0.08	0.17	0.18	0.82	0.49	1.00												
BP	0.10	0.00	-0.03	0.23	0.17	0.57	0.72	0.48	1.00											
MEP	0.17	0.07	0.09	0.20	0.23	0.26	0.15	0.28	0.21	1.00										
MBP	0.05	0.09	0.14	0.12	-0.03	-0.01	0.06	0.00	0.05	0.13	1.00									
MiBP	-0.03	0.04	0.15	0.06	-0.05	0.03	0.00	0.01	-0.01	0.04	0.37	1.00								
MCPP	0.07	0.08	0.26	0.04	-0.05	0.01	0.01	0.00	-0.02	0.04	0.62	0.24	1.00							
MBzP	-0.02	-0.01	0.22	0.09	-0.04	-0.01	-0.01	0.00	-0.05	0.11	0.42	0.38	0.28	1.00						
MEHP	0.06	0.08	0.27	0.04	0.00	-0.02	-0.01	-0.03	-0.02	0.10	0.23	0.28	0.25	0.30	1.00					
MEOHP	0.08	0.09	0.28	0.03	-0.01	-0.05	-0.03	-0.09	-0.05	0.09	0.32	0.30	0.34	0.38	0.84	1.00				
MEHHP	0.08	0.10	0.28	0.03	-0.01	-0.05	-0.02	-0.09	-0.04	0.08	0.30	0.29	0.34	0.35	0.83	0.98	1.00			
MECPP	0.09	0.09	0.24	0.00	-0.03	-0.07	-0.05	-0.10	-0.08	0.04	0.26	0.26	0.30	0.32	0.78	0.92	0.91	1.00		
MCOP	0.08	0.02	0.24	0.05	0.03	0.01	-0.02	0.01	-0.02	0.07	0.14	0.19	0.28	0.20	0.28	0.34	0.34	0.38	1.00	
MCNP	0.14	0.06	0.20	0.01	0.04	0.03	0.02	0.04	0.00	0.02	0.15	0.12	0.34	0.17	0.19	0.26	0.26	0.27	0.42	1.00

Abbreviations: BP: butylparaben, BPA: bisphenol A, BP3: benzophenone-3, DCP: dichlorophenol, EP: ethylparaben, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MECPP: mono(2-ethyl-5-carboxypentyl) phthalate, MEHHP: mono(2-ethyl-5-hydroxyhexyl) phthalate, MEHP: mono(2-ethylhexyl) phthalate, MEOHP: mono(2-ethyl-5-oxohexyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, MP: methylparaben, PP: propylparaben, TCS: triclosan.

[a] Includes boys that had SDQ scores at 3 years and/or at 5 years

Table S5: Adjusted associations between phenols, phthalate metabolites and behavior at 3 years among boys of the EDEN mother-child cohort (N = 518 to 520 mother-son pairs, depending of the subscale). Analysis simultaneously adjusted for all phenols and phthalate metabolites assessed in our study population

	Emotional symptoms		Conduct problems		Peer relationship problems		Hyperactivity - inattention problems		Prosocial behavior		External behavior		Internal behavior	
	IRR	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**
Phenols														
∑Dichlorophenols	1.02	[0.98; 1.06]	1.02	[0.99; 1.04]	0.99	[0.95; 1.03]	1.00	[0.98; 1.03]	1.01	[0.98; 1.04]	1.01	[0.99; 1.03]	1.01	[0.98; 1.04]
Bisphenol A	1.01	[0.93; 1.09]	1.04	[0.99; 1.09]	1.11	[1.03; 1.20]	1.06	[1.01; 1.11]	1.06	[1.01; 1.13]	1.05	[1.00; 1.09]	1.05	[0.99; 1.12]
Benzophenone-3	0.99	[0.96; 1.03]	0.99	[0.97; 1.01]	1.01	[0.98; 1.05]	1.01	[0.99; 1.04]	0.99	[0.96; 1.02]	1.00	[0.98; 1.02]	1.00	[0.97; 1.03]
Triclosan	1.02	[0.99; 1.04]	1.01	[1.00; 1.03]	1.01	[0.99; 1.04]	1.01	[1.00; 1.03]	1.01	[0.99; 1.03]	1.01	[1.00; 1.03]	1.01	[1.00; 1.03]
∑Parabens	1.00	[0.96; 1.04]	0.99	[0.97; 1.02]	0.99	[0.95; 1.03]	0.98	[0.95; 1.00]	0.97	[0.94; 1.00]	0.98	[0.96; 1.01]	1.00	[0.97; 1.03]
Phthalates														
MEP	1.01	[0.95; 1.07]	1.00	[0.96; 1.03]	0.96	[0.90; 1.01]	1.00	[0.96; 1.03]	0.99	[0.95; 1.03]	0.99	[0.96; 1.03]	0.98	[0.94; 1.03]
MBP	1.09	[1.00; 1.18]	1.04	[0.98; 1.09]	1.06	[0.97; 1.15]	1.03	[0.97; 1.08]	1.04	[0.98; 1.10]	1.03	[0.99; 1.08]	1.07	[1.01; 1.14]
MiBP	0.94	[0.86; 1.02]	1.00	[0.95; 1.05]	1.01	[0.93; 1.09]	0.96	[0.91; 1.01]	1.01	[0.95; 1.07]	0.98	[0.94; 1.02]	0.97	[0.91; 1.04]
MCPP	0.95	[0.85; 1.06]	0.94	[0.88; 1.01]	0.98	[0.88; 1.10]	0.95	[0.89; 1.02]	0.92	[0.85; 1.00]	0.95	[0.90; 1.01]	0.97	[0.89; 1.05]
MBzP	1.02	[0.95; 1.09]	1.00	[0.96; 1.05]	1.04	[0.97; 1.11]	0.99	[0.95; 1.03]	0.97	[0.92; 1.02]	1.00	[0.96; 1.03]	1.03	[0.98; 1.09]
MCOP	1.02	[0.94; 1.11]	1.03	[0.98; 1.09]	0.96	[0.88; 1.04]	1.00	[0.95; 1.05]	1.02	[0.96; 1.08]	1.02	[0.97; 1.06]	0.99	[0.93; 1.06]
MCNP	1.00	[0.93; 1.08]	0.99	[0.94; 1.03]	0.99	[0.92; 1.06]	0.98	[0.94; 1.03]	0.99	[0.94; 1.05]	0.98	[0.95; 1.02]	1.00	[0.94; 1.05]
∑DEHP	1.02	[0.94; 1.10]	0.98	[0.93; 1.03]	1.02	[0.94; 1.11]	0.98	[0.93; 1.03]	0.99	[0.93; 1.05]	0.97	[0.93; 1.02]	1.02	[0.96; 1.09]

Associations adjusted for recruitment center, maternal age, parity, parental education, breastfeeding duration, household income, smoking during pregnancy, maternal psychological difficulties during pregnancy and child age at assessment.

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols: molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S6: Adjusted associations between phenols, phthalate metabolites and behavior at 5 years among boys of the EDEN mother-child cohort (N = 457 to 458 mother-son pairs, depending of the subscale). Analysis simultaneously adjusted for all phenols and phthalate metabolites assessed in our study population

	Emotional symptoms		Conduct problems		Peer relationship problems		Hyperactivity - inattention problems		Prosocial behavior		External behavior		Internal behavior	
	IRR	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**
Phenols														
∑Dichlorophenols	1.01	[0.97; 1.05]	1.03	[1.00; 1.07]	0.98	[0.94; 1.03]	1.01	[0.98; 1.04]	1.00	[0.96; 1.05]	1.02	[0.99; 1.05]	1.00	[0.97; 1.03]
Bisphenol A	1.03	[0.95; 1.12]	1.02	[0.95; 1.10]	1.01	[0.92; 1.12]	1.08	[1.02; 1.15]	1.07	[0.98; 1.17]	1.06	[1.00; 1.12]	1.03	[0.95; 1.10]
Benzophenone-3	0.96	[0.92; 0.99]	1.00	[0.97; 1.03]	1.02	[0.98; 1.07]	1.02	[0.99; 1.05]	1.02	[0.98; 1.06]	1.01	[0.99; 1.04]	0.98	[0.95; 1.01]
Triclosan	1.01	[0.99; 1.04]	1.00	[0.98; 1.02]	1.01	[0.98; 1.04]	1.00	[0.98; 1.02]	1.00	[0.97; 1.03]	1.00	[0.98; 1.02]	1.01	[0.99; 1.03]
∑Parabens	0.99	[0.95; 1.03]	0.99	[0.95; 1.02]	0.99	[0.94; 1.04]	0.97	[0.94; 1.01]	0.99	[0.94; 1.04]	0.98	[0.95; 1.01]	0.99	[0.96; 1.03]
Phthalates														
MEP	1.01	[0.95; 1.07]	1.04	[0.98; 1.09]	0.98	[0.91; 1.05]	0.99	[0.95; 1.04]	0.96	[0.90; 1.03]	1.01	[0.97; 1.06]	0.99	[0.94; 1.04]
MBP	1.03	[0.95; 1.12]	1.00	[0.93; 1.08]	1.05	[0.95; 1.16]	1.02	[0.95; 1.09]	1.03	[0.94; 1.14]	1.01	[0.95; 1.08]	1.04	[0.96; 1.12]
MiBP	0.95	[0.88; 1.04]	1.02	[0.95; 1.10]	0.99	[0.89; 1.09]	0.95	[0.90; 1.02]	1.06	[0.97; 1.17]	0.98	[0.93; 1.04]	0.97	[0.90; 1.04]
MCPP	0.93	[0.83; 1.03]	1.05	[0.95; 1.16]	1.02	[0.89; 1.17]	0.99	[0.91; 1.08]	0.97	[0.86; 1.10]	1.01	[0.93; 1.09]	0.96	[0.87; 1.06]
MBzP	1.04	[0.97; 1.11]	0.98	[0.92; 1.04]	1.00	[0.92; 1.08]	1.00	[0.95; 1.05]	0.96	[0.89; 1.04]	0.99	[0.94; 1.04]	1.02	[0.96; 1.08]
MCOP	1.05	[0.97; 1.14]	1.00	[0.93; 1.08]	0.96	[0.86; 1.06]	1.02	[0.95; 1.08]	0.94	[0.85; 1.03]	1.01	[0.95; 1.07]	1.02	[0.94; 1.09]
MCNP	1.03	[0.96; 1.11]	0.97	[0.91; 1.03]	1.04	[0.95; 1.13]	0.97	[0.92; 1.03]	1.01	[0.93; 1.09]	0.97	[0.92; 1.02]	1.04	[0.97; 1.10]
∑DEHP	0.98	[0.91; 1.06]	0.97	[0.90; 1.05]	1.02	[0.92; 1.12]	1.01	[0.95; 1.07]	0.98	[0.90; 1.07]	0.99	[0.94; 1.06]	0.99	[0.92; 1.07]

Associations adjusted for recruitment center, maternal age, parity, parental education, breastfeeding duration, household income, smoking during pregnancy, maternal psychological difficulties during pregnancy and child age at assessment.

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols : molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S7**:** Associations between phenols, phthalate metabolites and behavior at 3 years corrected for exposure measurement error using the a posteriori disattenuation method (N = 518 to 520 mother-son pairs, depending of the subscale)

	Emotional symptoms		Conduct problems		Peer relationship problems		Hyperactivity - inattention problems		Prosocial behavior		Externalizing behavior		Internalizing behavior	
	IRR	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**
Phenols														
∑Dichlorophenols	1.03	[0.96; 1.09]	1.02	[0.98; 1.06]	0.98	[0.92; 1.05]	1.00	[0.97; 1.04]	1.01	[0.96; 1.05]	1.01	[0.98; 1.05]	1.01	[0.96; 1.06]
Bisphenol A	1.06	[0.72; 1.54]	1.15	[0.90; 1.46]	1.69	[1.16; 2.46]	1.19	[0.95; 1.50]	1.25	[0.95; 1.65]	1.17	[0.95; 1.43]	1.32	[0.98; 1.77]
Benzophenone-3	0.99	[0.94; 1.05]	0.99	[0.95; 1.02]	1.02	[0.96; 1.08]	1.02	[0.99; 1.06]	0.98	[0.94; 1.02]	1.01	[0.97; 1.04]	1.00	[0.96; 1.05]
Triclosan	1.03	[0.99; 1.07]	1.02	[1.00; 1.05]	1.01	[0.97; 1.05]	1.02	[1.00; 1.04]	1.01	[0.99; 1.04]	1.02	[1.00; 1.04]	1.02	[0.99; 1.05]
∑Parabens	1.01	[0.94; 1.07]	0.99	[0.95; 1.03]	0.98	[0.92; 1.04]	0.97	[0.93; 1.01]	0.95	[0.91; 1.00]	0.98	[0.95; 1.01]	0.99	[0.94; 1.04]
Phthalates														
MEP	1.07	[0.94; 1.22]	1.01	[0.93; 1.10]	0.94	[0.82; 1.07]	1.00	[0.92; 1.09]	0.97	[0.88; 1.08]	1.01	[0.93; 1.08]	1.00	[0.90; 1.11]
MBP	1.15	[1.00; 1.32]	1.01	[0.93; 1.11]	1.16	[1.01; 1.33]	0.96	[0.88; 1.05]	0.97	[0.87; 1.07]	0.99	[0.92; 1.07]	1.15	[1.04; 1.29]
MiBP	0.93	[0.78; 1.13]	1.00	[0.89; 1.12]	1.13	[0.95; 1.36]	0.89	[0.80; 0.99]	0.98	[0.86; 1.12]	0.94	[0.85; 1.04]	1.03	[0.89; 1.19]
MCPP	1.16	[0.81; 1.68]	0.91	[0.72; 1.14]	1.24	[0.86; 1.78]	0.81	[0.65; 1.02]	0.78	[0.60; 1.02]	0.86	[0.70; 1.05]	1.19	[0.89; 1.58]
MBzP	1.06	[0.91; 1.24]	1.01	[0.92; 1.11]	1.18	[1.01; 1.36]	0.94	[0.86; 1.03]	0.94	[0.84; 1.05]	0.97	[0.90; 1.06]	1.11	[0.99; 1.25]
MCOP	1.08	[0.85; 1.37]	1.05	[0.91; 1.22]	0.97	[0.76; 1.23]	0.94	[0.81; 1.09]	0.99	[0.83; 1.17]	0.99	[0.88; 1.13]	1.02	[0.85; 1.23]
MCNP	1.09	[0.59; 2.00]	0.90	[0.62; 1.33]	0.96	[0.51; 1.78]	0.74	[0.50; 1.08]	0.83	[0.53; 1.31]	0.82	[0.58; 1.14]	1.02	[0.63; 1.65]
∑DEHP	1.20	[0.84; 1.70]	0.97	[0.77; 1.21]	1.27	[0.90; 1.80]	0.86	[0.69; 1.07]	0.96	[0.75; 1.24]	0.90	[0.75; 1.10]	1.23	[0.93; 1.62]

Associations adjusted for recruitment center, maternal age, parity, parental education, breastfeeding duration, household income, smoking during pregnancy, maternal psychological difficulties during pregnancy and child age at assessment.

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols: molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S8**:** Associations between phenols, phthalate metabolites and behavior at 5 years corrected for exposure measurement error using the a posteriori disattenuation method (N = 457 to 458 mother-son pairs, depending of the subscale)

	Emotional symptoms		**Conduct problems**		**Peer relationship problems**		**Hyperactivity - inattention problems**		**Prosocial behavior**		**Externalizing behavior**		**Internalizing behavior**	
	IRR	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**	**IRR**	**95% CI**
Phenols														
∑Dichlorophenols	1.01	[0.95; 1.07]	1.06	[1.00; 1.12]	0.98	[0.91; 1.06]	1.01	[0.97; 1.06]	1.00	[0.94; 1.08]	1.03	[0.99; 1.08]	1.00	[0.94; 1.05]
Bisphenol A	1.16	[0.79; 1.69]	1.11	[0.78; 1.58]	1.13	[0.70; 1.82]	1.44	[1.07; 1.94]	1.26	[0.82; 1.94]	1.30	[0.98; 1.72]	1.15	[0.82; 1.61]
Benzophenone-3	0.94	[0.88; 0.99]	1.01	[0.95; 1.06]	1.02	[0.95; 1.10]	1.03	[0.98; 1.08]	1.03	[0.96; 1.10]	1.02	[0.98; 1.06]	0.97	[0.92; 1.02]
Triclosan	1.02	[0.98; 1.06]	1.00	[0.97; 1.04]	1.01	[0.97; 1.06]	0.99	[0.96; 1.02]	0.99	[0.95; 1.03]	1.00	[0.97; 1.03]	1.02	[0.98; 1.05]
∑Parabens	0.98	[0.92; 1.04]	0.99	[0.94; 1.05]	0.98	[0.91; 1.06]	0.96	[0.91; 1.01]	0.98	[0.91; 1.05]	0.97	[0.93; 1.02]	0.98	[0.93; 1.04]
Phthalates														
MEP	1.01	[0.89; 1.16]	1.08	[0.96; 1.22]	0.97	[0.82; 1.14]	0.98	[0.88; 1.09]	0.91	[0.78; 1.06]	1.02	[0.93; 1.13]	0.99	[0.88; 1.11]
MBP	0.99	[0.86; 1.13]	1.06	[0.93; 1.19]	1.14	[0.97; 1.35]	1.02	[0.92; 1.14]	1.02	[0.88; 1.20]	1.04	[0.94; 1.14]	1.04	[0.92; 1.18]
MiBP	0.94	[0.78; 1.13]	1.02	[0.87; 1.21]	1.00	[0.80; 1.25]	0.92	[0.80; 1.06]	1.10	[0.90; 1.35]	0.96	[0.84; 1.10]	0.96	[0.81; 1.13]
MCPP	0.90	[0.63; 1.30]	1.21	[0.87; 1.67]	1.37	[0.88; 2.12]	1.04	[0.78; 1.38]	0.96	[0.64; 1.44]	1.10	[0.84; 1.44]	1.06	[0.76; 1.46]
MBzP	1.07	[0.92; 1.24]	0.96	[0.84; 1.10]	1.03	[0.86; 1.24]	0.99	[0.88; 1.12]	0.95	[0.80; 1.11]	0.97	[0.87; 1.09]	1.06	[0.92; 1.21]
MCOP	1.15	[0.91; 1.45]	0.99	[0.80; 1.22]	0.98	[0.73; 1.30]	1.05	[0.88; 1.26]	0.83	[0.63; 1.08]	1.02	[0.86; 1.22]	1.08	[0.88; 1.33]
MCNP	1.44	[0.78; 2.64]	0.86	[0.49; 1.52]	1.40	[0.67; 2.91]	0.87	[0.53; 1.42]	0.83	[0.42; 1.65]	0.87	[0.55; 1.38]	1.44	[0.84; 2.45]
∑DEHP	1.04	[0.74; 1.48]	0.95	[0.68; 1.31]	1.14	[0.74; 1.76]	1.07	[0.82; 1.41]	0.87	[0.59; 1.28]	1.02	[0.79; 1.33]	1.08	[0.79; 1.47]

Associations adjusted for recruitment center, maternal age, parity, parental education, breastfeeding duration, household income, smoking during pregnancy, maternal psychological difficulties during pregnancy and child age at assessment.

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols : molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S9: Associations between phenols, phthalate metabolites and dichotomized SDQ scores at 3 years corrected for exposure measurement error using the a posteriori disattenuation method (N = 518 to 520 mother-son pairs, depending of the subscale)

	Emotional symptoms		Conduct problems		Peer relationship problems		Hyperactivity / inattention problems		Prosocial behavior		Externalizing behavior		Internalizing behavior	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Phenols														
∑Dichlorophenols	1.10	[0.89; 1.35]	0.95	[0.74; 1.23]	0.98	[0.77; 1.24]	1.07	[0.87; 1.32]	1.04	[0.84; 1.29]	1.08	[0.89; 1.32]	1.08	[0.88; 1.31]
Bisphenol A	0.65	[0.17; 2.42]	1.45	[0.35; 6.00]	5.44	[1.41; 21.0]	1.39	[0.39; 4.93]	1.39	[0.37; 5.18]	1.05	[0.31; 3.55]	2.71	[0.83; 8.87]
Benzophenone-3	1.00	[0.82; 1.22]	1.03	[0.83; 1.28]	1.05	[0.85; 1.30]	1.01	[0.83; 1.23]	0.96	[0.78; 1.18]	0.96	[0.80; 1.17]	1.03	[0.86; 1.24]
Triclosan	1.13	[0.98; 1.30]	1.18	[1.01; 1.38]	1.10	[0.95; 1.28]	1.03	[0.90; 1.18]	1.13	[0.98; 1.30]	1.08	[0.95; 1.23]	1.09	[0.95; 1.24]
Parabens	1.01	[0.82; 1.26]	1.00	[0.79; 1.27]	0.95	[0.76; 1.20]	1.02	[0.82; 1.26]	0.87	[0.69; 1.09]	0.90	[0.73; 1.11]	1.06	[0.86; 1.29]
Phthalates														
MEP	1.38	[0.88; 2.15]	0.88	[0.53; 1.48]	1.11	[0.68; 1.80]	1.19	[0.75; 1.88]	0.95	[0.59; 1.54]	1.01	[0.65; 1.56]	0.95	[0.62; 1.47]
MBP	1.25	[0.79; 1.98]	0.98	[0.58; 1.66]	1.45	[0.89; 2.37]	0.89	[0.55; 1.45]	0.80	[0.48; 1.34]	0.84	[0.53; 1.34]	1.64	[1.08; 2.50]
MiBP	0.71	[0.39; 1.32]	1.36	[0.68; 2.70]	1.46	[0.74; 2.89]	0.79	[0.43; 1.44]	1.28	[0.67; 2.44]	0.83	[0.47; 1.49]	1.25	[0.70; 2.24]
MCPP	1.12	[0.32; 3.92]	0.31	[0.07; 1.39]	1.82	[0.48; 6.90]	0.32	[0.08; 1.20]	0.33	[0.08; 1.32]	0.37	[0.10; 1.29]	2.48	[0.78; 7.89]
MBzP	0.97	[0.58; 1.63]	0.97	[0.54; 1.74]	1.75	[1.01; 3.04]	0.85	[0.51; 1.41]	0.86	[0.50; 1.47]	0.87	[0.53; 1.41]	1.55	[0.96; 2.49]
MCOP	1.08	[0.49; 2.38]	1.57	[0.68; 3.61]	1.12	[0.46; 2.73]	0.59	[0.25; 1.35]	0.93	[0.42; 2.10]	1.27	[0.61; 2.66]	1.30	[0.62; 2.71]
MCNP	0.36	[0.04; 3.65]	0.98	[0.09; 11.1]	2.35	[0.26; 21.5]	0.04	[0.00; 0.51]	0.18	[0.01; 2.19]	0.20	[0.02; 1.93]	0.98	[0.13; 7.66]
∑DEHP	3.28	[1.03; 10.4]	1.62	[0.44; 6.02]	1.52	[0.41; 5.64]	1.15	[0.35; 3.77]	2.33	[0.71; 7.61]	1.39	[0.46; 4.25]	5.53	[1.83; 16.8]

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols : molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S10**:** Associations between phenols, phthalate metabolites and dichotomized SDQ scores at 5 years corrected for exposure measurement error using the a posteriori disattenuation method (N = 518 to 520 mother-son pairs, depending of the subscale)

	Emotional symptoms		**Conduct problems**		**Peer relationship problems**		**Hyperactivity / inattention problems**		**Prosocial behavior**		**Externalizing behavior**		**Internalizing behavior**	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Phenols														
∑Dichlorophenols	0.98	[0.79; 1.21]	0.90	[0.69; 1.16]	0.90	[0.68; 1.19]	1.17	[0.95; 1.43]	1.02	[0.80; 1.31]	1.08	[0.88; 1.32]	0.91	[0.73; 1.13]
Bisphenol A	1.23	[0.33; 4.59]	1.21	[0.26; 5.65]	1.61	[0.34; 7.66]	5.39	[1.45; 20.0]	1.53	[0.34; 6.91]	2.46	[0.69; 8.77]	1.02	[0.28; 3.68]
Benzophenone-3	0.88	[0.71; 1.09]	1.01	[0.80; 1.27]	0.98	[0.77; 1.25]	1.09	[0.89; 1.33]	1.08	[0.85; 1.36]	1.10	[0.91; 1.33]	0.94	[0.77; 1.15]
Triclosan	1.15	[0.99; 1.32]	1.10	[0.94; 1.29]	1.17	[0.99; 1.39]	1.01	[0.88; 1.16]	0.99	[0.85; 1.16]	1.00	[0.88; 1.15]	1.11	[0.97; 1.28]
Parabens	0.92	[0.74; 1.14]	0.93	[0.72; 1.20]	1.02	[0.80; 1.32]	0.97	[0.77; 1.21]	0.96	[0.74; 1.23]	1.01	[0.82; 1.25]	0.93	[0.76; 1.14]
Phthalates														
mEP	1.46	[0.93; 2.30]	1.35	[0.81; 2.26]	1.04	[0.60; 1.80]	1.14	[0.71; 1.83]	0.56	[0.31; 0.99]	1.22	[0.79; 1.90]	0.84	[0.53; 1.32]
mBP	1.06	[0.67; 1.68]	1.16	[0.67; 1.98]	1.71	[1.04; 2.83]	1.08	[0.67; 1.75]	0.70	[0.38; 1.28]	1.10	[0.69; 1.76]	1.38	[0.90; 2.11]
miBP	1.03	[0.56; 1.89]	1.05	[0.52; 2.11]	1.14	[0.55; 2.38]	0.89	[0.47; 1.67]	1.05	[0.50; 2.24]	1.01	[0.56; 1.83]	0.92	[0.51; 1.67]
mCPP	1.05	[0.31; 3.62]	1.43	[0.34; 5.99]	2.45	[0.61; 9.79]	0.89	[0.24; 3.29]	0.47	[0.10; 2.15]	1.22	[0.36; 4.20]	2.11	[0.67; 6.70]
mBzP	1.15	[0.70; 1.89]	1.06	[0.59; 1.88]	0.89	[0.48; 1.65]	1.04	[0.62; 1.75]	0.56	[0.29; 1.08]	0.80	[0.49; 1.31]	1.10	[0.68; 1.78]
mCOP	1.59	[0.74; 3.45]	0.78	[0.30; 2.01]	1.10	[0.44; 2.79]	2.00	[0.90; 4.44]	0.66	[0.25; 1.70]	1.11	[0.51; 2.41]	1.34	[0.64; 2.83]
mCNP	1.08	[0.12; 9.47]	0.34	[0.02; 5.26]	0.88	[0.06; 12.0]	1.25	[0.13; 12.04]	1.84	[0.17; 20.0]	0.96	[0.11; 8.50]	1.41	[0.18; 10.8]
∑DEHP	1.44	[0.45; 4.62]	0.94	[0.23; 3.88]	2.27	[0.58; 8.90]	1.38	[0.41; 4.65]	0.32	[0.07; 1.40]	1.25	[0.39; 4.04]	2.01	[0.66; 6.14]

Abbreviations: ∑DEHP: molecular sum of di(2-ethylhexyl) phthalate metabolites, CI: confidence interval, OR: odds ratio, MBP: mono-n-butyl phthalate, MBzP: monobenzyl phthalate, MCNP: monocarboxy-isononyl phthalate, MCOP: monocarboxy-isooctyl phthalate, MCPP: mono(3-carboxypropyl) phthalate, MEP: monoethyl phthalate, MiBP: mono-isobutyl phthalate, ∑dichlorophenols : molecular sum of 2,4 and 2,5-dichlorophenols, ∑Parabens : molecular sum of methyl, ethyl, propyl and butyl parabens.

Table S11: Overview of the results from previous studies that explored the associations between prenatal exposure to bisphenol A and child behavior using assessments similar to the one used in our study

Cohort	Study	Age	N	Behavioral assessments	Trends observed
EDEN	This study	3 and 5	529 boys	Strengths and Difficulties Questionnaire	In boys: Increased hyperactivity-inattention and externalizing behavior scores (5 yrs). Increased relationship problems and internalyzing behavior scores (3 yrs)
INMA	Casas 2015	4 and 7	438 boys and girls	McCarthy Scales of Children's Abilities ADHD Criteria of DSM-IV	In boys: Increased hyperactivity and inattention scores (4 yrs) In girls: Decreased inattention scores (4 yrs)
CHAMACOS	Harley 2013	7 to 9	292 boys and girls	Behavior Assessment System for Children 2 Conners' ADHD/DSM-IV Scales	In boys: Increased internalizing, agressive, depression, anxiety scores. In girls: No clear association
SFFII	Evans 2014	6 to 10	153 boys and girls	Child Behavior Check List (CBCL)	In boys: Increased internalizing, externalizing, somatic, oppositional/defiant problem scores In girls: No clear association
CCCEH	Perera 2012	3 to 5	198 boys and girls	Child Behavior Checklist (CBCL)	In boys: Increased internalizing, externalizing, emotionally reactive, aggressive behavior scores In girls: Decreased anxious-depressed, aggressive behavior scores
CCCEH	Roen 2015	7 to 9	250 boys and girls	Child Behavior Check List (CBCL)	In boys: Increased internalizing, externalizing, anxious/depressed, withdrawn/depressed, somatic complaints, rule-breaking and aggressive behavior scores. In girls: Decreased internalyzing problems.
CCCEH	Perera 2016	10 to 12	241 boys and girls	Revised Children's Manifest Anxiety Scale (RCMAS) Children's Depression Rating Scale (CDRS)	In boys: Increased depression and anxiety scores In girls: No clear association
HOME	Braun 2011	2	244 boys and girls	Behavioral assessment for children Behavior Rating Inventory of Executive Function-Preschool	In boys: no clear association In girls: Increased externalizing behavior

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