

Supplementary Material

Prenatal and Postnatal Exposure to Air Pollution and symptoms of Emotional and Behavioural Problems in children from 7 European birth cohorts

Ainhoa Jorcano, Małgorzata J. Lubczyńska, Livia Pierotti, Hicran Altug, Ferran Ballester, Giulia Cesaroni, Carmen Iñiguez, Hanan El Marroun, Ana Fernández-Somoano, Carmen Freire, Wojciech Hanke, Gerard Hoek, Jesús Ibarluzea, Pauline W. Jansen, Johanna Lepeule, Iana Markevych, Kinga Polańska, Daniela Porta, Tamara Schikowski, Remy Slama, Marie Stand, Adonina Tardon, Tanja G.M Vrijkotte, Andrea von Berg, Henning Tiemeier, Jordi Sunyer, Mònica Guxens

eMethods 1. Description of the emotional and aggressive symptoms assessment.....	4
eTable 1. Distribution of the emotional and aggressive symptoms scales.....	6
eTable 2. Cohort specific NO ₂ and PM _{2.5} levels during prenatal and postnatal periods.....	7
eTable 3. Spearman correlations between prenatal air pollution levels.....	8
eTable 4. Spearman correlations between postnatal air pollution levels.....	9
eTable 5. Spearman correlations between prenatal and postnatal air pollution levels during pregnancy.....	10
eTable 6. Fully-adjusted combined associations between prenatal and postnatal exposure to each air pollutant and depressive and anxiety symptoms in the clinical range.....	11
eTable 7. Fully-adjusted combined associations between prenatal and postnatal exposure to each air pollutant and aggressive symptoms in the clinical range.....	12
eTable 8. Minimally-adjusted combined associations between prenatal and postnatal exposure to each air pollutant and depressive and anxiety symptoms in the borderline/clinical range.....	13
eTable 9. Minimally-adjusted combined associations between prenatal and postnatal exposure to each air pollutant and aggressive symptoms in the borderline/clinical range.....	14

eTable 10. Fully-adjusted combined association between prenatal air pollution exposure and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.....	15
eTable 11. Fully-adjusted combined associations between postnatal air pollution exposure and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.....	16
eTable 12. Fully-adjusted combined associations between prenatal air pollution exposure and aggressive symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.....	17
eTable 13. Fully-adjusted combined associations between postnatal air pollution exposure and aggressive symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.....	18
eTable 14. Fully adjusted combined associations between prenatal and postnatal exposure to air pollution and depressive and anxiety symptoms in the 90 th percentile of each test.....	19
eTable 15. Fully adjusted combined associations between prenatal and postnatal exposure to air pollution and aggressive symptoms in the 90 th percentile of each test.....	20
eTable 16. Fully adjusted combined associations between exposure to air pollution and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of CBCL test.....	21
eTable 17. Fully adjusted combined associations between exposure to air pollution and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of SDQ test.....	22
eTable 18. Fully adjusted combined associations between exposure to air pollution and aggressive symptoms in the borderline/clinical range: Assessing the influence of CBCL test.....	23
eTable 19. Fully adjusted combined associations between exposure to air pollution and aggressive symptoms in the borderline/clinical range: Assessing the influence of SDQ test.....	24

References.....25

eMethods1 . Description of the emotional and aggressive symptoms assessment.

Anxious/depressed and withdrawn/depression syndrome scales and rule-breaking behaviour and aggressive behaviour scale syndrome scales of the Child Behavior Checklist (CBCL 6/18)

CBCL/6-18 is a highly validated instrument to measure parental-reported behavioural and emotional problems of children at young age (Achenbach and Rescorla 2000). The subscales for syndromes derived from the CBCL had good fit across 30 diverse societies (Ivanova et al., 2007) and were consistent with diagnostic categories of the diagnostic and statistical Manual of Mental Disorders, 4th edition (DSM-IV) (APA 2010). The anxious/depressed syndrome scale (13 items) and withdrawn/depressed syndrome scale (8 items), as DSM-oriented scales, were selected with the aim to identify children at risk for emotional disorders. The rule-breaking syndrome scale (17 items) and aggression scale (18 items) were selected as measures of child's aggressive symptoms. These two syndrome scales total in 35 items. Each item of the questionnaire describes a specific behaviour, and the parent is asked to rate its frequency on a three point Likert scale (0, not true; 1, somewhat or sometimes true; 2, very true or often true). Higher scores indicate more symptoms. We used the 93rd and 98th percentile of the region specific total population as cut off scores, which have been validated and standardized, to classify children with symptoms in the borderline/ clinical range and in the clinical range, respectively (Achenbach and Rescorla, 2000) All subscales used have a good predictive validity to identify children at risk of emotional and aggressive symptoms, with areas under the receiving operating characteristics (ROC) curve of 0.72 (Pandolfi et al., 2013). Validation studies reported high sensitivity (>0.80) for borderline/clinical cut off's and medium specificity (>0.60) for clinical cut off's (Pandolfi et al., 2013).

Emotional problems scale and conduct problems scale of the Strenght Difficulties Questionnaire (SDQ).

The SDQ is a parental-reported questionnaire designed to assess emotional and behavioural screening for children between 2-17 years. The SDQ is comprised of 5 scales. For the present study we used the emotional problem scale as indicators of child's depressive and anxiety symptoms and conduct problems scale as the scale measure of child's aggressive symptoms. The selected scales are composed of 5 items that can be scored with 0, 1 or 2, with higher scores indicating more symptoms. Validated and standardized cut offs were used to classify children in the borderline/clinical range and in the clinical range for emotional and aggressive symptoms (Goodman, 1997). For the emotional problems scale, a cut off of 4 points was considered as cut off to classify children in the borderline/clinical range, and a cut off of 5 points was used to classify children in the clinical range. For the conduct problems scale, a cut off of 3 points was considered as threshold to classify children in the borderline/clinical range, and a cut off of 4 points was used to classify children in the clinical range (Goodman, 1997). A review showed that SDQ is a sensitive tool to screen for emotional and aggressive symptoms (Stone et al., 2010). All subscales have a good predictive validity with

areas under ROC curve of 0.88 (Gómez-Beneyto et al, 2013). Cut off's used have a sensitivity of 64.3% for emotional disorders and 60.4% sensitivity for aggressive disorders and high specificity 94.6% for diagnostic cut off's (Goodman et al, 2004).

eTable 1. Distribution of the emotional and aggressive symptoms scales.

Cohort Study	Domain	Test	Range	P10	P25	P50	P75	P90	Mean ± SD	Cut-off borderline or clinical range	Cut-off borderline or clinical range
ABCD, The Netherlands	Emotional	SDQ	0-10	0	0	2	3	5	1.9 ± 1.8	4	5
	Aggressive		0-9	0	0	1	2	3	1.3 ± 1.3	3	4
GENERATION R, The Netherlands	Emotional	CBCL	0-25	0	1	2	5	8	3.2 ± 3.7	9.1	14
	Aggressive		0-42	0	0	2	5	10	3.8 ± 4.7	12	17
GINIplus, Germany-Wesel	Emotional	SDQ	0-10	0	0	1	3	4	1.8 ± 1.8	4	5
	Aggressive		0-10	0	0	1	2	4	1.6 ± 1.5	3	4
LISA, Germany-Munich	Emotional	SDQ	0-10	0	0	1	3	5	1.9 ± 2.0	4	5
	Aggressive		0-10	0	1	1	3	4	1.7 ± 1.5	3	4
REPRO_PL, Poland	Emotional	SDQ	0-8	0	1	2	3	5	2.2 ± 1.8	4	5
	Aggressive		0-7	0	1	2	3	3	1.7 ± 1.4	3	4
EDEN, France-Nancy	Emotional	SDQ	0-10	0	1	2	4	6	2.5 ± 2.2	4	5
	Aggressive		0-7	0	0	1	3	4	1.7 ± 1.6	3	4
EDEN, France-Poitiers	Emotional	SDQ	0-10	0	1	2	4	5	2.4 ± 1.9	4	5
	Aggressive		0-10	0	0	1	3	4	1.7 ± 1.6	3	4
GASPII, Italy	Emotional	CBCL	0-25	1	2	5	8	11	5.5 ± 4.0	12	15
	Aggressive		0-38	1	3	6	10	14	7.3 ± 5.4	16	20
INMA, Spain-Asturias	Emotional	SDQ	0-9	0	1	2	3	5	2.2 ± 2.1	4	5
	Aggressive		0-7	0	0	1	3	4	1.6 ± 1.5	3	4
INMA. Spain-Gipuzkoa	Emotional	CBCL	0-27	0	1	3	7	10	4.4 ± 4.0	11	15
	Aggressive		0-29	0	2	4	8	14	5.9 ± 5.6	16	21
INMA, Spain-Sabadell	Emotional	CBCL	0-25	1	2	4	7	12	5.6 ± 4.9	14	19
	Aggressive		0-37	0	2	5	11	15	6.9 ± 6.6	19	26
INMA, Spain-Valencia	Emotional	CBCL	0-22	1	2	4	7	11	5.3 ± 4.3	13	17
	Aggressive		0-31	1	2	3	10.5	16	7.6 ± 6.0	19	23
INMA, Spain-Granada	Emotional	CBCL	0-23	2	3	6	9	12	6.2 ± 4.0	13	17
	Aggressive		0-30	1	3	6	10	16	7.5 ± 6.0	18	23

CBCL, child behaviour checklist 6/18; SD, standard deviation; SDQ, Strengths and Difficulties Questionnaire

eTable 2. Cohort specific NO₂ and PM_{2.5} levels during prenatal and postnatal periods.

	NO ₂		PM _{2.5}	
	Prenatal	Postnatal	Prenatal	Postnatal
ABCD, The Netherlands	39.9 (7.3)	na	13.9 (1.3)	na
GENERATION R, The Netherlands	35.1 (7.7)	32.7 (6.0)	16.5 (0.5)	16.4 (0.4)
GINIplus, Germany-Wesel	23.0 (5.2)	22.1 (4.7)	15.3 (2.2)	15.7 (2.2)
LISA, Germany-Munich	22.0 (5.6)	20.5 (5.1)	14.1 (1.8)	14.1 (1.8)
REPRO_PL, Poland	25.7 (4.7)	24.0 (4.1)	na	28.4 (3.0)
EDEN, France-Nancy	30.3 (10.3)	na	na	na
EDEN, France-Poitiers	15.9 (5.2)	na	na	na
GASPIL, Italy	43.3 (10.0)	43.5 (9.9)	23.0 (2.7)	19.4 (2.0)
INMA, Spain-Asturias	30.5 (13.4)	20.7 (6.7)	na	na
INMA, Spain-Gipuzkoa	18.9 (4.6)	14.0 (4.5)	16.9 (2.5)	11.8 (0.6)
INMA, Spain-Sabadell	43.1 (11.0)	36.7 (10.6)	15.1 (1.8)	14.8 (2.2)
INMA, Spain-Valencia	24.7 (10.6)	29.3 (10.7)	na	na
INMA, Spain-Granada	27.9 (13.9)	na	na	na

na, not available; NO₂, nitrogen dioxide; PM_{2.5}, particulate matter less than 2.5µm
 Values are mean (standard deviation).

eTable 3. Spearman correlations^a between prenatal air pollution levels.

	NO₂ vs NO_x	NO₂ vs PM_{2.5}	NO₂ vs PM_{2.5} abs	NO_x vs PM_{2.5}	NO_x vs PM_{2.5} abs	PM_{2.5} vs PM_{2.5} abs
ABCD, The Netherlands	0.87	0.19	0.78	0.17	0.73	0.62
GENERATION R, The Netherlands	0.85	0.82	0.85	0.74	0.87	0.72
GINIplus, Germany-Wesel	0.98	0.72	0.78	0.72	0.73	0.75
LISA, Germany-Munich	0.94	0.70	0.61	0.43	0.70	0.41
GASPII, Italy	0.70	na	0.57	na	0.74	na
INMA, Spain-Asturias	0.99	na	na	na	na	na
INMA, Spain-Gipuzkoa	0.96	na	na	na	na	na
INMA, Spain-Sabadell	0.92	0.73	0.82	0.78	0.95	0.82
INMA, Spain-Valencia	0.98	na	na	na	na	na
INMA, Spain - Granada	0.99	na	na	na	na	na

^aall pvalues are ≤ 0.05

na, not available; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM_{2.5}, particulate matter less than 2.5 μ m; PM_{2.5}abs, reflectance of PM_{2.5} filters.

eTable 4. Spearman correlations^a between postnatal air pollution levels.

	NO₂ vs NO_x	NO₂ vs PM_{2.5}	NO₂ vs PM_{2.5} abs	NO_x vs PM_{2.5}	NO_x vs PM_{2.5} abs	PM_{2.5} vs PM_{2.5} abs
GENERATION R, The Netherlands	0.84	0.36	0.87	0.45	0.87	0.51
GINIplus, Germany-Wesel	0.97	0.71	0.78	0.72	0.72	0.75
LISA, Germany-Munich	0.93	0.20	0.55	0.35	0.66	0.41
REPRO_PL, Poland	na	0.60	na	na	na	na
GASPII, Italy	0.66	0.55	0.56	0.69	0.66	0.70
INMA, Spain-Gipuzkoa	na	0.30	na	na	na	na
INMA, Spain-Sabadell	0.99	0.68	0.93	0.71	0.94	0.78

^aall pvalues are ≤ 0.05

na, not available; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM_{2.5}, particulate matter less than 2.5 μ m; PM_{2.5}abs, reflectance of PM_{2.5} filters.

eTable 5. Spearman correlations^a between prenatal and postnatal air pollution levels.

	NO₂ pre vs NO₂ post	NO_x pre vs NO_x post	PM₁₀ pre vs PM₁₀ post	PM_{2.5} pre vs PM_{2.5} post	PM_{coarse} pre vs PM_{coarse} post	PM_{25abs} pre vs PM_{25abs} post	PAH pre Vs PAH post
ABCD, The Netherlands	na	na	na	na	na	na	na
GENERATION R, The Netherlands	0.47	0.55	0.51	0.59	0.55	0.52	0.67
GINIplus, Germany-Wesel	0.69	0.66	0.86	0.93	0.79	0.86	na
LISA, Germany-Munich	0.66	0.62	0.73	0.75	0.70	0.71	na
REPRO_PL, Poland	0.70	na	0.13	na	na	na	na
EDEN, France-Nancy	na	na	na	na	na	na	na
EDEN, France-Poitiers	na	na	na	na	na	na	na
GASPII, Italy	0.88	0.80	0.80	0.78	0.72	0.67	na
INMA, Spain-Asturias	0.57	na	na	na	na	na	na
INMA, Spain-Gipuzkoa	0.41	na	na	0.33	na	na	na
INMA, Spain-Sabadell	0.73	0.66	0.64	0.59	0.59	0.58	0.82
INMA, Spain-Valencia	0.68	na	na	na	na	na	na
INMA, Spain-Granada	na	na	na	na	na	na	na

^aall pvalues are ≤ 0.05 na, not available; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; ; PM_{coarse}, particulate matter between 2.5 and 10 μ m; PM₁₀, particulate matter less than 10 μ m; PM_{2.5}, particulate matter less than 2.5 μ m; PM_{coarse}, particulate matter between 2.5 and 10 μ m; PM_{2.5abs}, reflectance of PM_{2.5} filte

eTable 6. Fully adjusted combined associations^a between exposure to air pollution and depressive and anxiety symptoms in clinical range.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	12	1.04	0.94;1.14	0.369	7.80	9	0.90	0.76;1.07	0.572	0.00
NO _x	9	1.03	0.94;1.13	0.797	0.00	5	0.97	0.80;1.18	0.933	0.00
PM ₁₀	7	1.04	0.80;1.34	0.454	0.00	6	0.79	0.52;1.18	0.796	0.00
PM _{2.5}	7	0.83	0.58;1.20	0.949	0.00	6	0.66	0.39;1.11	0.702	0.00
PM _{coarse}	6	0.88	0.70;1.10	0.908	0.00	6	0.75	0.53;1.06	0.890	0.00
PM _{2.5abs}	6	0.90	0.70;1.17	0.872	0.00	5	0.79	0.50;1.23	0.757	0.00
PAH	5	0.79	0.50;1.23	0.757	0.00	2	0.86	0.50;1.50	0.496	0.00

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^a Odds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, prenatal alcohol use, parity), paternal characteristics (education level, country of birth, age at delivery), household status during pregnancy, and child's sex and age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with depressive and anxiety symptoms in the clinical were excluded.

eTable 7. Fully adjusted combined associations^a between exposure to air pollution and aggressive symptoms in clinical range.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	12	1.08	0.93;1.24	0.211	23.7	9	0.99	0.82;1.20	0.314	14.5
NO _x	9	1.06	0.96;1.18	0.383	6.2	5	0.97	0.79;1.19	0.361	8.0
PM ₁₀	7	1.05	0.61;1.81	0.007	66.0	6	1.13	0.69;1.87	0.218	28.9
PM _{2.5}	6	1.15	0.73;1.87	0.257	22.5	6	1.06	0.52;2.18	0.166	36.1
PM _{coarse}	6	1.18	0.82;1.70	0.104	45.2	6	1.08	0.67;1.74	0.111	44.2
PM _{2.5abs}	6	1.04	0.72;1.49	0.179	34.3	5	1.21	0.78;1.88	0.258	24.5
PAH	2	0.74	0.36;1.53	0.190	41.9	2	0.95	0.52;1.74	0.188	42.3

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, prenatal alcohol use, parity), paternal characteristics (education level, country of birth, age at delivery), household status during pregnancy, and child's sex and age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with aggressive symptoms in the clinical were excluded.

eTable 8. Minimally-adjusted combined associations^a between exposure to each air pollutant and depressive and anxiety symptoms in the borderline/clinical range

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	13	0.99	0.91;1.07	0.220	22.13	9	0.94	0.84;1.05	0.582	0.00
NO _x	10	1.01	0.95;1.08	0.682	0.00	5	0.98	0.86;1.10	0.719	0.00
PM ₁₀	7	0.90	0.74;1.10	0.341	11.63	6	0.79	0.59;1.04	0.431	0.00
PM _{2.5}	7	0.85	0.65;1.09	0.868	0.00	6	0.73	0.51;1.04	0.837	0.00
PM _{coarse}	6	0.88	0.73;1.06	0.313	16.08	6	0.82	0.65;1.02	0.960	0.00
PM _{2.5abs}	6	0.90	0.75;1.08	0.399	2.70	5	0.82	0.62;1.08	0.691	0.00
PAH	2	0.97	0.69;1.40	0.571	0.00	2	0.94	0.70;1.26	0.697	0.00

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, prenatal alcohol use, parity), paternal characteristics (education level, country of birth, age at delivery), household status during pregnancy, and child's sex and age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with depressive and anxiety symptoms in the border/clinical were excluded.

eTable 9. Minimally-adjusted combined associations^a between exposure to each air pollutant and aggressive symptoms in the borderline/clinical range.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	13	1.05	0.99;1.12	0.434	1.14	9	0.97	0.88;1.07	0.530	0.00
NO _x	10	1.03	0.97;1.10	0.785	0.00	5	0.96	0.86;1.09	0.929	0.00
PM ₁₀	7	0.96	0.79;1.18	0.794	0.00	6	0.85	0.66;1.09	0.740	0.00
PM _{2.5}	7	1.03	0.79;1.35	0.996	0.00	6	1.00	0.75;1.32	0.456	0.00
PM _{coarse}	6	0.99	0.84;1.19	0.782	0.00	6	0.87	0.71;1.07	0.931	0.00
PM _{2.5abs}	6	0.95	0.79;1.16	0.767	0.00	5	0.95	0.74;1.22	0.569	0.00
PAH	2	0.94	0.68;1.30	0.608	0.00	2	0.94	0.71;1.24	0.966	0.00

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, prenatal alcohol use, parity), paternal characteristics (education level, country of birth, age at delivery), household status during pregnancy, and child's sex and age at assessment.

^bNumber of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with aggressive symptoms in the border/clinical were excluded.

eTable 10. Fully-adjusted combined associations^a between prenatal air pollution exposure and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.

	NO ₂		NO _x		PM ₁₀		PM _{2.5}		PM _{coarse}		PM _{2.5abs}		PAH	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Combined estimate	1.02	0.95;1.10	1.02	0.96;1.09	0.93	0.76;1.15	0.83	0.64;1.09	0.88	0.74;1.04	0.92	0.76;1.10	0.90	0.67;1.22
Area omitted ^c :														
ABCD.The Netherlands	1.03	0.94;1.13	1.03	0.95;1.11	1.06	0.83;1.35	0.90	0.64;1.25	0.97	0.76;1.25	0.97	0.77;1.24		
GENERATION R, The Netherlands	0.98	0.90;1.06	1.01	0.94;1.09	0.92	0.73;1.15	0.82	0.62;1.08	0.85	0.72;1.01	0.88	0.72;1.08	0.83	0.45;1.53
GINIplus, Germany-Wesel	1.02	0.84;1.10	1.02	0.96;1.10	0.94	0.74;1.18	0.83	0.63;1.09	0.89	0.73;1.08	0.92	0.76;1.11		
LISA, Germany-Munich	1.02	0.93;1.10	1.02	0.95;1.09	0.87	0.70;1.07	0.81	0.60;1.10	0.85	0.70;1.02	0.87	0.71;1.06		
REPRO_PL. Poland	1.03	0.96;1.10			0.91	0.71;1.17								
EDEN.France-Nancy	1.01	0.93;1.10												
EDEN.France-Poitiers	1.03	0.96;1.11												
GASPII.Italy	1.04	0.95;1.14	1.03	0.96;1.10	0.97	0.79;1.19	0.95	0.74;1.22	0.96	0.76;1.21	0.94	0.77;1.14		
INMA. Spain-Asturias	1.01	0.96;1.10	1.02	0.94;1.10										
INMA.Spain-Gipuzkoa	1.02	0.94;1.10	1.03	0.96;1.10			0.80	0.61;1.05						
INMA.Spain-Sabadell	1.04	0.97;1.11	1.04	0.97;1.12	0.94	0.74;1.20	0.84	0.64;1.11	0.86	0.72;1.04	0.95	0.78;1.15	0.98	0.65;1.47
INMA.Spain-Valencia	1.01	0.94;1.10	1.02	0.96;1.10										
INMA.Spain-Granada ^b	1.02	0.94;1.10	1.02	0.96;1.09										

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{coarse}, particulate matter between 2.5 and 10µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; PAH, polycyclic aromatic hydrocarbons; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Region with less than 10 children with depressive and anxiety symptoms in the border/clinical were excluded.

eTable 11. Fully-adjusted combined associations^a between postnatal air pollution exposure and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.

	NO ₂		NO _x		PM ₁₀		PM _{2.5}		PM _{coarse}		PM _{2.5abs}		PAH	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Combined estimate	0.92	0.82;1.03	0.94	0.82;1.07	0.77	0.57;1.03	0.69	0.47;1.01	0.79	0.62;1.01	0.79	0.58;1.06	0.90	0.67;1.22
Area omitted ^c :														
ABCD.The Netherlands														
GENERATION R, The Netherlands	0.92	0.80;1.05	0.92	0.77;1.10	0.80	0.58;1.10	0.70	0.47;1.03	0.82	0.63;1.06	0.82	0.58;1.16	0.98	0.68;1.43
GINIplus, Germany-Wesel	0.92	0.81;1.04	0.92	0.80;1.07	0.74	0.54;1.00	0.66	0.44;1.00	0.80	0.62;1.03	0.74	0.54;1.03		
LISA, Germany-Munich	0.93	0.81;1.06	0.95	0.81;1.10	0.68	0.47;0.99	0.63	0.39;1.02	0.77	0.58;1.02	0.75	0.53;1.06		
REPRO_PL. Poland	0.92	0.82;1.04			0.82	0.60;1.12								
EDEN.France-Nancy														
EDEN.France-Poitiers														
GASPII.Italy	0.98	0.87;1.10	0.95	0.86;1.10	0.82	0.60;1.12	0.80	0.55;1.17	0.84	0.64;1.09	0.84	0.61;1.15		
INMA. Spain-Asturias	0.90	0.80;1.02												
INMA.Spain-Gipuzkoa	0.92	0.82;1.04					0.69	0.47;1.01	0.79					
INMA.Spain-Sabadell	0.92	0.81;1.04	0.94	0.82;1.08	0.72	0.49;1.06	0.74	0.47;1.16	0.76	0.57;1.00	0.77	0.55;1.00	0.77	0.46;1.30
INMA.Spain-Valencia	0.92	0.81;1.04	0.94	0.81;1.07	0.77	0.57;1.03	0.69	0.47;1.01	0.79	0.62;1.01	0.79	0.58;1.06		
INMA.Spain-Granada ^b														

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{coarse}, particulate matter between 2.5 and 10µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; PAH, polycyclic aromatic hydrocarbons; OR, Odds Ratio.

^a Odds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Region with less than 10 children with depressive and anxiety symptoms in the border/clinical were excluded.

eTable 12. Fully-adjusted combined associations^a between prenatal air pollution exposure and aggressive symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.

	NO ₂		NO _x		PM ₁₀		PM _{2.5}		PM _{coarse}		PM _{2.5abs}		PAH	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Combined estimate	1.04	0.96;1.12	1.03	0.96;1.11	1.03	0.83;1.27	0.99	0.75;1.32	1.03	0.85;1.26	0.96	0.78;1.18	0.76	0.53;1.08
Area omitted ^c :														
ABCD.The Netherlands	1.02	0.94;1.12	1.01	0.93;1.09	1.03	0.82;1.30	0.98	0.71;1.34	1.04	0.82;1.30	0.91	0.72;1.15		
GENERATION R, The Netherlands	1.06	0.97;1.16	1.06	0.98;1.15	1.08	0.87;1.34	1.03	0.77;1.37	1.10	0.89;1.34	1.02	0.81;1.29	0.79	0.42;1.47
GINIplus, Germany-Wesel	1.03	0.95;1.12	1.02	0.94;1.11	1.02	0.83;1.26	0.99	0.73;1.34	1.03	0.84;1.28	0.98	0.79;1.23		
LISA, Germany-Munich	1.03	0.94;1.13	1.02	0.94;1.11	0.96	0.75;1.22	0.98	0.69;1.41	0.99	0.78;1.24	0.88	0.70;1.12		
REPRO_PL. Poland	1.05	0.96;1.14			1.08	0.84;1.37								
EDEN.France-Nancy	1.02	0.93;1.11												
EDEN.France-Poitiers	1.04	0.96;1.13												
GASPII.Italy	1.04	0.95;1.13	1.02	0.94;1.11	1.02	0.82;1.27	0.96	0.70;1.30	1.03	0.83;1.27	0.96	0.75;1.21		
INMA. Spain-Asturias	1.03	0.94;1.13	1.01	0.92;1.10										
INMA.Spain-Gipuzkoa	1.04	0.96;1.13	1.03	0.96;1.11			1.00	0.74;1.35						
INMA.Spain-Sabadell	1.05	0.96;1.14	1.04	0.94;1.13	1.03	0.83;1.29	1.02	0.75;1.37	1.02	0.83;1.26	0.99	0.78;1.25	0.75	0.49;1.14
INMA.Spain-Valencia	1.04	0.96;1.13	1.03	0.95;1.12										
INMA.Spain-Granada ^b	1.04	0.95;1.13	1.03	0.95;1.12										

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{coarse}, particulate matter between 2.5 and 10µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; PAH, polycyclic aromatic hydrocarbons; OR, Odds Ratio.

^a Odds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^bRegion with less than 10 children with aggressive symptoms in the border/clinical were excluded.

eTable 13. Fully-adjusted combined associations^a between postnatal air pollution exposure and aggressive symptoms in the borderline/clinical range: Assessing the influence of each cohort separately in the meta-analysis estimates.

	NO ₂		NO _x		PM ₁₀		PM _{2.5}		PM _{coarse}		PM _{2.5abs}		PAH	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Combined estimate	0.94	0.84;1.05	0.92	0.80;1.04	0.85	0.65;1.13	0.95	0.68;1.32	0.83	0.64;1.08	0.94	0.72;1.23	0.82	0.57;1.17
Area omitted ^c :														
ABCD.The Netherlands														
GENERATION R, The Netherlands	0.96	0.85;1.09	0.97	0.83;1.15	0.91	0.69;1.20	0.98	0.69;1.37	0.91	0.72;1.15	1.05	0.78;1.41	0.95	0.66;1.37
GINIplus, Germany-Wesel	0.94	0.84;1.06	0.92	0.79;1.07	0.82	0.61;1.11	0.94	0.63;1.42	0.82	0.61;1.00	0.90	0.65;1.23		
LISA, Germany-Munich	0.95	0.83;1.07	0.92	0.79;1.08	0.90	0.61;1.33	1.02	0.67;1.55	0.84	0.59;1.18	0.94	0.66;1.34		
REPRO_PL. Poland	0.94	0.84;1.05			0.83	0.60;1.14								
EDEN.France-Nancy														
EDEN.France-Poitiers														
GASPII.Italy	0.93	0.83;1.05	0.89	0.77;1.02	0.81	0.60;1.11	0.88	0.64;1.23	0.78	0.60;1.01	0.87	0.66;1.17		
INMA. Spain-Asturias	0.94	0.84;1.05												
INMA.Spain-Gipuzkoa	0.95	0.85;1.06					0.95	0.68;1.32						
INMA.Spain-Sabadell	0.92	0.82;1.04	0.91	0.79;1.04	0.87	0.60;1.27	1.04	0.73;1.50	0.82	0.58;1.16	0.98	0.69;1.38	0.65	0.39;1.07
INMA.Spain-Valencia	0.94	0.83;1.05	0.92	0.80;1.04	0.85	0.65;1.13	0.95	0.68;1.32	0.83	0.64;1.08	0.94	0.72;1.23		
INMA.Spain-Granada ^b														

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{coarse}, particulate matter between 2.5 and 10µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; PAH, polycyclic aromatic hydrocarbons; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Region with less than 10 children with aggressive symptoms in the border/clinical were excluded.

eTable 14. Fully adjusted combined associations^a between exposure to air pollution and depressive and anxiety symptoms in the 90th percentile of each test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	13	1.04	0.96;1.15	0.649	0.00	9	0.93	0.84;1.03	0.979	0.00
NO _x	10	1.02	0.95;1.09	0.925	0.00	5	0.95	0.85;1.08	0.887	0.00
PM ₁₀	7	1.06	0.87;1.31	0.582	0.00	6	0.85	0.65;1.13	0.823	0.00
PM _{2.5}	7	0.94	0.72;1.23	0.672	0.00	6	0.78	0.54;1.11	0.988	0.00
PM _{coarse}	6	0.98	0.83;1.17	0.735	0.00	6	0.83	0.66;1.04	0.901	0.00
PM _{2.5abs}	6	0.95	0.79;1.14	0.581	0.00	5	0.90	0.69;1.15	0.987	0.00
PAH	2	0.76	0.56;1.03	0.793	0.00	2	0.85	0.64;1.13	0.770	0.00

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with depressive and anxiety symptoms in the border/clinical were excluded.

eTable 15. Fully adjusted combined associations^a between exposure to air pollution and aggressive symptoms in the 90th percentile of each test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	13	1.02	0.90;1.50	0.095	35.99	9	0.95	0.79;1.15	0.964	40.66
NO _x	10	1.01	0.92;1.10	0.290	16.63	5	0.93	0.81;1.07	0.966	0.00
PM ₁₀	7	0.92	0.74;1.15	0.481	0.00	6	0.87	0.66;1.19	0.873	0.00
PM _{2.5}	7	0.94	0.70;1.26	0.974	0.00	6	0.78	0.52;1.18	0.724	0.00
PM _{coarse}	6	0.97	0.82;1.15	0.751	0.00	6	0.89	0.69;1.14	0.732	0.00
PM _{2.5abs}	6	0.94	0.78;1.14	0.605	0.00	5	1.06	0.78;1.44	0.335	12.43
PAH	2	0.77	0.57;1.05	0.941	0.00	2	0.84	0.64;1.11	0.338	0.00

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with aggressive symptoms in the border/clinical were excluded.

eTable 16. Fully adjusted combined associations^a between exposure to air pollution and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of CBCL test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	6	1.06	0.97;1.15	0.448	0.0	5	0.89	0.80;1.00	0.820	0.0
NO _x	6	1.01	0.93;1.09	0.738	0.0	3	0.92	0.82;1.05	0.941	0.0
PM ₁₀	3	0.85	0.36;1.16	0.566	0.0	3	0.67	0.49;0.91	0.672	0.0
PM _{2.5}	4	0.87	0.62;1.22	0.783	0.0	4	0.56	0.38;0.82	0.977	0.0
PM _{coarse}	3	0.95	0.70;1.24	0.334	11.8	3	0.72	0.57;0.91	0.678	0.0
PM _{2.5abs}	3	0.89	0.72;1.10	0.600	0.0	3	0.69	0.52;0.90	0.797	0.0
PAH	2	0.93	0.73;1.19	0.909	0.0	2	0.90	0.73;1.12	0.756	0.0

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^bNumber of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with depressive and anxiety symptoms in the borderline/clinical were excluded.

eTable 17. Fully adjusted combined associations^a between exposure to air pollution and depressive and anxiety symptoms in the borderline/clinical range: Assessing the influence of SDQ test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	7	1.04	0.96;1.12	0.315	14.6	4	0.96	0.85;1.09	0.908	0.0
NO _x	4	1.03	0.97;1.09	0.993	0.0	3	0.95	0.82;1.10	0.902	0.0
PM ₁₀	4	0.96	0.81;1.15	0.379	4.9	3	0.85	0.63;1.17	0.451	0.0
PM _{2.5}	3	0.81	0.65;1.03	0.931	0.0	2	0.84	0.58;1.21	0.987	0.0
PM _{coarse}	3	0.86	0.75;0.99	0.727	0.0	3	0.88	0.69;1.13	0.885	0.0
PM _{2.5abs}	3	0.94	0.79;1.11	0.592	0.0	2	0.94	0.67;1.31	0.953	0.0

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with depressive and anxiety symptoms in the borderline/clinical were excluded.

eTable 18. Fully adjusted combined associations^a between exposure to air pollution and aggressive symptoms in the borderline/clinical range: Assessing the influence of CBCL test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	6	0.96	0.86;1.07	0.859	0.0	5	0.93	0.83;1.04	0.839	0.0
NO _x	6	0.93	0.86;1.03	0.939	0.0	3	0.93	0.81;1.07	0.542	0.0
PM ₁₀	3	0.91	0.66;1.28	0.480	0.0	3	0.71	0.48;1.05	0.310	16.3
PM _{2.5}	4	0.95	0.66;1.36	0.814	0.0	4	0.82	0.46;1.47	0.262	23.9
PM _{coarse}	3	0.98	0.77;1.24	0.533	0.0	3	0.78	0.55;1.09	0.227	30.9
PM _{2.5abs}	3	0.80	0.63;1.02	0.963	0.0	3	0.86	0.64;1.17	0.379	2.7
PAH	2	0.78	0.61;1.02	0.888	0.0	2	0.87	0.68;1.11	0.365	0.7

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; PAH, polycyclic aromatic hydrocarbon; OR, Odds Ratio

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with aggressive symptoms in the borderline/clinical were excluded.

eTable 19. Fully adjusted combined associations^a between exposure to air pollution and aggressive symptoms in the borderline/clinical range: Assessing the influence of SDQ test.

	Prenatal exposure					Postnatal exposure				
	N ^b	OR	(95% CI)	p-heter	I ²	N ^b	OR	(95% CI)	p-heter	I ²
NO ₂	7	1.16	1.05;1.26	0.429	0.0	4	0.95	0.80;1.12	0.501	0.0
NO _x	4	1.14	1.03;1.21	0.904	0.0	3	0.88	0.74;1.05	0.982	0.0
PM ₁₀	4	1.04	0.76;1.41	0.248	26.1	3	0.93	0.67;1.30	0.950	0.0
PM _{2.5}	3	0.93	0.68;1.27	0.879	0.0	2	0.63	0.41;0.97	0.897	0.0
PM _{coarse}	3	1.14	0.93;1.39	0.892	0.0	3	0.89	0.62;1.30	0.387	0.0
PM _{2.5abs}	3	1.18	0.94;1.49	0.950	0.0	2	1.03	0.71;1.51	0.903	0.0

CI, Confidence Interval; NO₂, nitrogen dioxide; NO_x, nitrogen oxides; p-heter, P value of heterogeneity using the Cochran's Q test; PM_{coarse}, particulate matter between 2.5 and 10µm; PM₁₀, particulate matter less than 10µm; PM_{2.5}, particulate matter less than 2.5µm; PM_{2.5abs}, reflectance of PM_{2.5} filters; I² =Percentage of the total variability due to between-areas heterogeneity; OR, Odds Ratio.

^aOdds Ratio and 95% confidence interval estimated by random-effects meta-analysis by cohort/region, calculated per increments of: 10µg/m³ for NO₂; 20µg/m³ for NO_x; 10µg/m³ for PM₁₀; 5 µg/m³ for PM_{2.5}; 5 µg/m³ for PM_{coarse}; 10⁻⁵ m¹ for PM_{2.5abs}; 1 ng/m³ for PAH. Models were adjusted for maternal characteristics (education level, country of birth, age at delivery, pre-pregnancy body mass index, height, prenatal smoking, alcohol use during pregnancy, parity), paternal characteristics (education level, country of birth, age at delivery) household status, child's sex and child's age at assessment.

^b Number of cohorts/regions included in the meta-analysis. Cohorts/regions with less than 10 children with aggressive symptoms in the borderline/clinical were excluded.

References

- American Psychiatric Association.. Diagnostic and statistical manual of mental disorders, 4th ed. (DSM-IV). Washington, DC: APA. 2000
- Gómez-Beneyto M, Nolasco A, Moncho J, Pereyra-Zamora P, Tamayo-Fonseca N, Munarriz M et al. Psychometric behaviour of the strenghts and difficulties questionnaire (SDQ) in the Spanish national Health survey 2006. *BMC Psychiatry*. 2013; 13:95.
- Ivanova MY, Achenbach TM, Dumenci L, Rescorla LA, Almqvist F, Weintraub S et al. Testing the 8-syndrome structure of the child behaviour checklist in 30 societies. *Journal of clinical Child and Adolescent Psychology*. 2007; 36(3), 405-407.
- Pandolfi V, Magyar CI, Dill CA. An Initial Psychometric Evaluation of the CBCL 6-18 in a Sample of Youth with Autism Spectrum Disorders. *Res Autism Spectr Disord*. 2012;6(1):96–108.
- Stone LL, Otten R, Engels RC, Vermulst AA, Janssens JM. Psychometric properties of the parent and eacher versions of the strengths and difficulties questionnaire for 4- to 12-year-olds: a review. *Clin Child Fam Psychol Rev*. 2010;13(3):254-274.