**Supplementary Material**

Exposure to Air Pollution From Traffic and Neurodevelopmental Disorders in Swedish Twins

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Figure S1a. Correlation between NOx and PM10 levels (µg/m3) measured during different study periods (*n* = 3,299 for mother’s pregnancy; *n* = 3,408 for child’s first year of life; *n* = 3,041 for child’s 9th year of life)



Figure S1a. Correlation of each pollutant (NOx and PM10 in µg/m3) over different study periods (*n* = 3,408 for child’s first year of life; *n* = 3,041 for child’s 9th year of life)



Table S1. Codes based on the 9th and 10th edition of International Classification of Diseases (ICD-9 and ICD-10) used to identify cases with chromosome abnormalities, neural tube defects and other neurological diseases from the National Patient Register and the telephone interview.

|  |  |  |  |
| --- | --- | --- | --- |
| Diseases | ICD-9 codes | ICD-10 codes | *N* |
| Down’s syndrome | 758A | Q90 | 4 |
| Fragile X syndrome | 759.8 or 759W | Q99.2 | 0 |
| Other chromosome aberrations | 758B,C,D,E,F,G,H,W, X | Q91-Q92 | 0 |
| Epilepsy | 345 | G40-G41 | 25 |
| Spina bifida and other congenital anomalities of nervous system | 741,742 | Q01-Q07 | 4 |
| Mental retardation | 317, 318, 319 | F70-F79, F88-F89 | 74 |
| Cerebral paresis and plegias | 342, 343, 344 | G80, G81-G83 | 24 |
| Other neurological disorders | 330, 333-337, 348-349, 434, 436- 437 | G90-G99 | 9 |

Table S2. Distribution of NOx and PM10 exposure levels for different trimesters during pregnancy

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | 10th percentile | 25th percentile | Mean | Median | 75th percentile | 90th percentile | Missing (*n*) |
| First trimester | | |  |  |  |  |  |  |  |
| **NOx exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 2.53 | 4.94 | 13.27 | 9.25 | 18.78 | 29.76 | 105 |
| Dispersion model with seasonal variation but no imputation | 2.50 | 4.61 | 12.33 | 8.59 | 17.62 | 27.83 | 1,035 |
| Dispersion model with seasonal variation and imputation | 2.62 | 5.02 | 13.26 | 9.33 | 18.61 | 30.21 | 105 |
| **PM10 exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 0.95 | 1.94 | 4.28 | 3.42 | 6.15 | 8.50 | 105 |
| Dispersion model with seasonal variation but no imputation | 0.19 | 1.62 | 4.29 | 3.62 | 6.48 | 9.18 | 1,196 |
| Dispersion model with seasonal variation and imputation | 0.18 | 1.58 | 4.32 | 3.78 | 6.62 | 9.18 | 1,001 |
| Second trimester | | |  |  |  |  |  |  |  |
| **NOx exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 2.49 | 4.74 | 12.76 | 9.00 | 18.01 | 28.42 | 80 |
| Dispersion model with seasonal variation but no imputation | 2.20 | 4.46 | 11.95 | 8.65 | 16.81 | 26.86 | 865 |
| Dispersion model with seasonal variation and imputation | 2.31 | 4.72 | 12.73 | 8.99 | 17.68 | 28.38 | 80 |
| **PM10 exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 0.95 | 1.90 | 4.22 | 3.36 | 5.98 | 8.45 | 80 |
| Dispersion model with seasonal variation but no imputation | 0.28 | 1.75 | 4.22 | 3.66 | 6.24 | 8.81 | 994 |
| Dispersion model with seasonal variation and imputation | 0.48 | 1.73 | 4.26 | 3.68 | 6.23 | 8.80 | 834 |
| Third trimester | | |  |  |  |  |  |  |  |
| **NOx exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 2.42 | 4.67 | 12.03 | 8.38 | 16.37 | 26.95 | 100 |
| Dispersion model with seasonal variation but no imputation | 2.06 | 4.24 | 11.37 | 8.06 | 15.57 | 25.18 | 812 |
| Dispersion model with seasonal variation and imputation | 2.11 | 4.59 | 12.03 | 8.60 | 16.55 | 26.73 | 100 |
| **PM10 exposure** (µg/m3) | |  |  |  |  |  |  |  |
| Dispersion model | 0.92 | 1.86 | 4.09 | 3.24 | 5.80 | 8.32 | 100 |
| Dispersion model with seasonal variation but no imputation | -0.19 | 1.54 | 4.14 | 3.67 | 6.27 | 8.91 | 1,000 |
| Dispersion model with seasonal variation and imputation | 0.03 | 1.57 | 4.19 | 3.69 | 6.29 | 8.87 | 794 |
|  | | | |  |  |  |  |  |  |  |

Table S3a. Crude and adjusted ORs of neurodevelopmental disorders for twins born in Stockholm, by exposure to NOx in each trimester

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case | NOx during 1st trimester | | NOx during 2nd trimester | | NOx during 3rd trimester | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | |
| ASDlow | 109 | 0.96  (0.48,1.95) | 0.96  (0.47,1.99) | 0.91  (0.43,1.95) | 0.88  (0.40,1.93) | 0.90  (0.41,1.99) | 0.99  (0.46,2.14) |
| ASDhigh | 33 | 0.58  (0.21, 1.62) | 0.72  (0.25, 2.10) | 0.33  (0.10, 1.02) | 0.43  (0.13, 1.41) | 0.37  (0.12, 1.13) | 0.47  (0.13, 1.74) |
| ASDDSM-IV | 47 | 0.78  (0.30,2.06) | 0.85  (0.33,2.22) | 0.58  (0.19,1.75) | 0.61  (0.20,1.83) | 0.67  (0.22,2.05) | 0.74  (0.23,2.38) |
|  | | | | | | | |
| ADHD |  | | | | | | |
| ADHDlow | 328 | 0.70  (0.46,1.06) | 0.84  (0.54,1.29) | 0.76  (0.49,1.18) | 0.89  (0.57,1.39) | 0.86  (0.56,1.34) | 1.03  (0.67,1.60) |
| ADHDhigh | 62 | 0.59  (0.21,1.61) | 0.74  (0.30, 1.84) | 0.49  (0.17,1.45) | 0.61  (0.23,1.63) | 0.57  (0.19,1.69) | 0.68  (0.25, 1.88) |
| ADHDDSM-IV | 152 | 0.52  (0.27,1.00) | 0.59 (0.31,1.13) | 0.58 (0.30,1.13) | 0.62 (0.33,1.19) | 0.67 (0.35,1.29) | 0.77 (0.41,1.45) |
|  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | |
| ASD or ADHD | 355 | 0.75  (0.50, 1.13) | 0.88  (0.58, 1.33) | 0.81  (0.54, 1.23) | 0.92  (0.60, 1.41) | 0.90  (0.60, 1.37) | 1.07  (0.70, 1.62) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.

Table S3b. Crude and adjusted ORs of neurodevelopmental disorders for twins born in Stockholm, by exposure to PM10 in each trimester

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case | PM10 during 1st trimester | | PM10 during 2nd trimester | | PM10 during 3rd trimester | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | |
| ASDlow | 109 | 0.96  (0.49,1.89) | 1.05  (0.54,2.01) | 0.93  (0.45,1.92) | 0.96  (0.49,1.90) | 1.02  (0.48,2.13) | 1.11  (0.57,2.17) |
| ASDhigh | 33 | 0.71  (0.30, 1.72) | 0.88  (0.36, 2.16) | 0.48  (0.17, 1.39) | 0.62  (0.22, 1.71) | 0.55  (0.18, 1.65) | 0.70  (0.23, 2.20) |
| ASDDSM-IV | 47 | 0.83  (0.39,1.78) | 0.85  (0.43,1.69) | 0.66  (0.28,1.56) | 0.65  (0.31,1.39) | 0.74  (0.31,1.78) | 0.73  (0.33,1.62) |
|  | | | | | | | |
| ADHD |  | | | | | | |
| ADHDlow | 328 | 0.77  (0.52,1.14) | 0.93  (0.63,1.38) | 0.84  (0.56,1.24) | 0.97  (0.66,1.43) | 0.93  (0.63,1.38) | 1.12  (0.77,1.63) |
| ADHDhigh | 62 | 0.55  (0.25,1.22) | 0.70  (0.35,1.41) | 0.49  (0.21,1.15) | 0.62  (0.30,1.28) | 0.52  (0.22,1.25) | 0.62  (0.29,1.36) |
| ADHDDSM-IV | 152 | 0.70  (0.38,1.26) | 0.78 (0.45,1.36) | 0.80 (0.43,1.47) | 0.85 (0.49,1.49) | 0.86 (0.47,1.57) | 0.97 (0.56,1.68) |
|  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | |
| ASD or ADHD | 355 | 0.81  (0.56, 1.17) | 0.96  (0.66, 1.40) | 0.86  (0.59, 1.25) | 0.99  (0.68, 1.43) | 0.96  (0.66, 1.39) | 1.13  (0.79, 1.63) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.

Table S4a. Sensitivity analyses: crude and adjusted ORs of neurodevelopmental disorders for twins born in Stockholm, by exposure to NOx in each trimester with seasonal variation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case\* | NOx during 1st trimester | | NOx during 2nd trimester | | NOx during 3rd trimester | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | |
| ASDlow | 96 | 0.96  (0.47,1.96) | 0.95  (0.46,1.98) | 0.91  (0.43,1.92) | 0.87  (0.40,1.89) | 0.89  (0.40,2.00) | 0.97  (0.44,2.17) |
| ASDhigh | 29 | 0.61  (0.23, 1.65) | 0.78  (0.30, 2.05) | 0.33  (0.11, 1.04) | 0.43  (0.13, 1.37) | 0.34  (0.10, 1.16) | 0.42  (0.10, 1.84) |
| ASDDSM-IV | 43 | 0.81  (0.31,2.10) | 0.89  (0.35,2.26) | 0.55  (0.18,1.67) | 0.57  (0.19,1.70) | 0.64  (0.20,2.06) | 0.68  (0.19,2.41) |
|  | | | | | | | |
| ADHD |  | | | | | | |
| ADHDlow | 303 | 0.70  (0.45,1.07) | 0.84  (0.54,1.31) | 0.75  (0.49,1.16) | 0.87  (0.56,1.36) | 0.85  (0.54,1.33) | 1.02  (0.65,1.60) |
| ADHDhigh | 56 | 0.57  (0.20,1.59) | 0.72  (0.28, 1.84) | 0.47  (0.16,1.40) | 0.58  (0.21,1.58) | 0.59  (0.20,1.74) | 0.70  (0.25, 1.95) |
| ADHDDSM-IV | 140 | 0.50  (0.25,0.98) | 0.57 (0.29,1.11) | 0.57 (0.29,1.11) | 0.61 (0.32,1.17) | 0.69 (0.36,1.33) | 0.79 (0.42,1.50) |
|  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | |
| ASD or ADHD | 328 | 0.76  (0.50, 1.14) | 0.88  (0.58, 1.34) | 0.81  (0.53, 1.22) | 0.91  (0.60, 1.39) | 0.89  (0.58, 1.36) | 1.05  (0.68, 1.62) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

\*Case: Number of cases identified among twins with non-missing values (after imputation) for NOx exposure.

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.

Table S4b. Sensitivity analyses: crude and adjusted ORs of neurodevelopmental disorders for twins born in Stockholm, by exposure to PM10 in each trimester with seasonal variation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case\* | PM10 during 1st trimester | | PM10 during 2nd trimester | | PM10 during 3rd trimester | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | |
| ASDlow | 75 | 0.87  (0.38,2.01) | 0.98  (0.46,2.09) | 0.77  (0.30,1.97) | 0.87  (0.37,2.04) | 0.80  (0.31,2.10) | 0.78  (0.31,1.95) |
| ASDhigh | 25 | 0.81  (0.37, 1.79) | 0.99  (0.42, 2.36) | 0.60  (0.23, 1.53) | 0.84  (0.39, 1.78) | 0.31  (0.10, 0.99) | - |
| ASDDSM-IV | 33 | 0.87  (0.41,1.87) | 0.98  (0.45,2.11) | 0.65  (0.27,1.55) | 0.66  (0.31,1.39) | 0.47  (0.18,1.19) | 0.29  (0.10,0.84) |
|  | | | | | | | |
| ADHD |  | | | | | | |
| ADHDlow | 225 | 0.81  (0.50,1.31) | 0.92  (0.58,1.47) | 0.84  (0.54,1.32) | 1.12  (0.72,1.72) | 0.96  (0.61,1.52) | 1.02  (0.65,1.62) |
| ADHDhigh | 47 | 0.36  (0.15,0.88) | 0.48  (0.20,1.15) | 0.37  (0.16,0.89) | 0.54  (0.24,1.21) | 0.28  (0.09,0.91) | 0.32  (0.10,1.00) |
| ADHDDSM-IV | 106 | 0.58  (0.28,1.18) | 0.67 (0.35,1.29) | 0.67 (0.34,1.34) | 0.87 (0.47,1.60) | 0.83 (0.40,1.70) | 0.87 (0.44,1.72) |
|  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | |
| ASD or ADHD | 242 | 0.83  (0.53, 1.30) | 0.95  (0.61, 1.48) | 0.85  (0.55, 1.31) | 1.11  (0.73, 1.70) | 0.97  (0.62, 1.50) | 1.02  (0.65, 1.59) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

\*Case: Number of cases identified among twins with non-missing values (after imputation) for PM10 exposure.

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.

Table S5. Sensitivity analyses: crude and adjusted ORs of neurodevelopmental disorders for twins born in Stockholm, by exposure to NOx and PM10 in their 9th year of lives

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Outcomes | Case | NOx during 9th year of life | | PM10 during 9th year of life | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | |
| ASDlow | 109 | 0.75  (0.33,1.71) | 0.93  (0.42,2.06) | 0.93  (0.36,2.40) | 1.14  (0.48,2.71) |
| ASDhigh | 33 | 1.07  (0.20,5.63) | 1.30  (0.27, 6.21) | 1.78  (0.33,9.66) | 2.28  (0.50,10.35) |
| ASDDSM-IV | 47 | 1.11  (0.33, 3.73) | 1.23  (0.38,3.97) | 1.73  (0.49,6.17) | 1.97  (0.58,6.76) |
|  | | | | | |
| ADHD |  | | | | |
| ADHDlow | 328 | 0.94  (0.59,1.49) | 1.14  (0.73,1.77) | 1.08  (0.67,1.75) | 1.27  (0.83,1.93) |
| ADHDhigh | 62 | 0.88  (0.28,2.78) | 1.04  (0.33,3.21) | 0.67  (0.27,1.66) | 0.77  (0.33,1.79) |
| ADHDDSM-IV | 152 | 0.94  (0.50,1.76) | 1.15  (0.62,2.15) | 1.12  (0.57,2.20) | 1.33  (0.73,2.41) |
|  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | |
| ASD or ADHD | 355 | 0.93  (0.60, 1.44) | 1.13  (0.74, 1.74) | 1.07  (0.67, 1.70) | 1.27  (0.84, 1.91) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at child’s 9th year of life, parental education, family income, and neighborhood deprivation at child’s 9th year of life.

Table S6. Sensitivity analyses: crude and adjusted ORs of ASD and ADHD comorbid with brain damage and chromosome abnormalities for twins born in Stockholm

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case\* | NOx during pregnancy | | NOx during infancy | | PM10 during pregnancy | | PM10 during infancy | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | | | |
| ASDlow | 44 | 0.56  (0.22,1.46) | 0.42  (0.17,1.06) | 0.72  (0.29,1.78) | 0.50  (0.20,1.22) | 0.65  (0.27,1.60) | 0.57  (0.24,1.36) | 0.90  (0.39,2.11) | 0.76  (0.33,1.74) |
| ASDDSM-IV | 24 | 0.59  (0.19,1.78) | 0.69  (0.28,1.68) | 0.67  (0.23,1.98) | 0.80  (0.41,1.54) | 0.84  (0.27,2.56) | 0.89  (0.43,1.87) | 1.07  (0.35,3.27) | 1.02  (0.51,2.01) |
|  | | | | | | | | | |
| ADHD |  | | | | | | | | |
| ADHDlow | 48 | 0.49  (0.19,1.28) | 0.55  (0.22,1.40) | 0.65  (0.25,1.65) | 0.65  (0.25,1.69) | 0.55  (0.22,1.39) | 0.68  (0.30,1.55) | 0.67  (0.27,1.67) | 0.71  (0.30,1.65) |
| ADHDDSM-IV | 34 | 0.43 (0.13,1.44) | 0.50 (0.16,1.57) | 0.59 (0.18,1.88) | 0.61 (0.18,1.99) | 0.53 (0.17,1.70) | 0.59 (0.22,1.59) | 0.67 (0.22,2.05) | 0.64 (0.22,1.80) |
|  |  |  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | | | |
| ASD or ADHD | 59 | 0.59  (0.26, 1.35) | 0.55  (0.24, 1.23) | 0.78  (0.35, 1.74) | 0.66  (0.29, 1.51) | 0.66  (0.30, 1.43) | 0.71  (0.34, 1.48) | 0.66  (0.30, 1.43) | 0.71  (0.34, 1.48) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), OR = Odds Ratio, CI = Confidence Interval

\*Cases comorbid with severe chromosome abnormality, malformations of the brain, epilepsy, cerebral palsy and other neurological disorders.

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.

Table S7. Sub-analysis: crude and adjusted ORs of neurodevelopmental disorders (using validated cut-off values) for twins (*n* = 2,960) whose mothers answered the telephone interview

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outcomes | Case | NOx during pregnancy | | NOx during infancy | | PM10 during pregnancy | | PM10 during infancy | |
| ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) | ORa  (95% CI) | ORb  (95% CI) |
| ASD |  | | | | | | | | |
| ASDlow | 91 | 0.56  (0.22,1.41) | 0.70  (0.28,1.75) | 0.71  (0.34,1.48) | 0.86  (0.41,1.79) | 0.79  (0.33,1.89) | 0.96  (0.44,2.09) | 0.88  (0.46,1.66) | 1.01  (0.57,1.77) |
| ASDhigh | 29 | 0.41  (0.13,1.26) | 0.45 (0.13,1.54) | 0.55  (0.20,1.55) | 0.51  (0.18,1.45) | 0.55  (0.19,1.58) | 0.59  (0.21,1.64) | 0.77  (0.27,2.18) | 0.72  (0.28,1.87) |
| ASDDSM-IV | 41 | 0.33  (0.13,0.88) | 0.36  (0.13,1.00) | 0.48  (0.21,1.14) | 0.48  (0.20,1.11) | 0.57  (0.22,1.46) | 0.56  (0.25,1.24) | 0.83  (0.34,2.00) | 0.76  (0.37,1.57) |
|  | | | | | | | | | |
| ADHD |  | | | | | | | | |
| ADHDlow | 281 | 0.66  (0.41,1.06) | 0.87  (0.54,1.39) | 0.91  (0.60,1.38) | 1.16  (0.76,1.78) | 0.78  (0.50,1.20) | 1.01  (0.66,1.53) | 0.91  (0.62,1.33) | 1.13  (0.78,1.65) |
| ADHDhigh | 53 | 0.35  (0.11,1.19) | 0.50  (0.16,1.56) | 0.60  (0.19,1.88) | 0.79  (0.27,2.34) | 0.38  (0.15,0.99) | 0.55  (0.24,1.23) | 0.56  (0.23,1.37) | 0.72  (0.33,1.54) |
| ADHDDSM-IV | 132 | 0.49 (0.23,1.04) | 0.63 (0.30,1.31) | 0.75 (0.39,1.43) | 1.00 (0.53,1.92) | 0.71 (0.36,1.41) | 0.89 (0.48,1.63) | 0.85 (0.47,1.57) | 1.11 (0.63,1.92) |
|  |  |  |  |  |  |  |  |  |  |
| Any neurodevelopmental outcomes | | | | | | | | | |
| ASD or ADHD | 303 | 0.66  (0.43, 1.04) | 0.85  (0.54, 1.33) | 0.90  (0.61, 1.34) | 1.13  (0.75, 1.70) | 0.78  (0.52, 1.19) | 0.99  (0.66, 1.48) | 0.92  (0.64, 1.32) | 1.12  (0.78, 1.61) |

Note: ASD = Autism Spectrum Disorders, ADHD = Attention Deficit/Hyperactivity Disorders, DSM-IV = Diagnostic and Statistical Manual of Mental Disorders (4th edition), OR = Odds Ratio, CI = Confidence Interval

a Estimates based on crude models.

b Models adjusted for parity, gender, maternal age during pregnancy, maternal smoking during pregnancy, maternal marital status at birth year, parental education, family income, and neighborhood deprivation at birth year.