## Table 1

|  |  |  | n (%) or median (IQR) |
| --- | --- | --- | --- |
| Child |  | Female | 408 (48%) |
|  | Urinary F2-isoprostanes (Year 1) | iPF(2a)-III | -0.42 (-0.73, -0.09) |
|  |  | 2,3-dinor-iPF(2a)-III | 1.76 (1.55, 1.97) |
|  |  | iPF(2a-VI | 2.57 (2.31, 2.87) |
|  |  | 8,12-iso-iPF(2a)-VI | 2.57 (2.16, 2.91) |
|  | Salivary cortisol reactivity (Year 2) | Change between pre- and post-stressor cortisol | 0 (-0.01, 0) |
|  |  | Cortisol residualized gain score | -0.09 (-0.21, 0.14) |
|  | sAA reactivity (Year 2) | Change between pre- and post-stressor sAA | -1.39 (-4.37, 0.06) |
|  |  | sAA residualized gain score | -26.37 (-51.35, 27.2) |
|  | SAM biomarkers (Year 2) | Mean arterial pressure | 64.44 (60.89, 68.89) |
|  |  | Resting heart rate | 109 (98.67, 118) |
|  | Glucocorticoid receptor | NR3C1 exon 1F promoter methylation | 0.33 (0.22, 0.48) |
|  |  | NGFI-A transcription factor binding site methylation | -4.48 (-4.65, -4.14) |
|  | Anthropometry (14 months, Year 1) | Length-for-age Z score | -1.43 (-2.09, -0.79) |
|  |  | Weight-for-age Z score | -1.31 (-1.99, -0.68) |
|  |  | Weight-for-length Z score | -0.89 (-1.61, -0.26) |
|  |  | Head circumference-for-age Z score | -1.79 (-2.39, -1.19) |
|  | Anthropometry (28 months, Year 2) | Length-for-age Z score | -1.56 (-2.26, -0.96) |
|  |  | Weight-for-age Z score | -1.56 (-2.1, -0.9) |
|  |  | Weight-for-length Z score | -1.01 (-1.6, -0.36) |
|  |  | Head circumference-for-age Z score | -1.79 (-2.37, -1.22) |
|  | Diarrhea (14 months, Year 1) | Caregiver-reported 7-day recall | 108 (15%) |
|  | Diarrhea (28 months, Year 2) | Caregiver-reported 7-day recall | 59 (8%) |
| Mother |  | Age (years) | 23 (20, 27) |
|  | Anthropometry at enrollment | Height (cm) | 150.3 (147.06, 153.8) |
|  | Education | Schooling completed (years) | 7 (4, 9) |
|  | Depression at Year 1 | CES-D score | 12 (9, 17) |
|  | Depression at Year 2 | CES-D score | 12 (9, 16) |
|  | Perceived stress at Year 2 | Perceived Stress Scale score | 14 (10, 18) |
|  | Intimate partner violence | Any lifetime exposure | 406 (56%) |

## Table 2

| Urinary isoprostanes at Year 1 and child development at Years 1 and 2 | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Unadjusted | | | | | Adjusted | | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value |
| IPF(2a)-III | Sum of 2nd, 4th, 5th, and 6th WHO motor milestones | 674 | -0.73 | -0.09 | 2.43 | 2.49 | 0.05 (-0.07, 0.17) | 0.39 | 0.71 |  |  | (, ) |  |  |
|  | CDI expressive language Z-score Year 1 | 675 | -0.73 | -0.09 | 0.24 | 0.26 | 0.02 (-0.14, 0.17) | 0.86 | 0.89 | 0.3 | 0.33 | 0.03 (-0.11, 0.17) | 0.7 | 1 |
|  | CDI comprehension Z-score Year 1 | 679 | -0.73 | -0.09 | 0.37 | 0.4 | 0.02 (-0.07, 0.12) | 0.61 | 0.82 | 0.33 | 0.38 | 0.05 (-0.05, 0.15) | 0.34 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2,3-dinor-iPF(2a)-III | Sum of 2nd, 4th, 5th, and 6th WHO motor milestones | 674 | 1.55 | 1.97 | 2.27 | 2.77 | 0.5 (0.14, 0.86) | 0.01 | 0.15 |  |  | (, ) |  |  |
|  | CDI expressive language Z-score Year 1 | 675 | 1.55 | 1.97 | 0.25 | 0.21 | -0.04 (-0.14, 0.06) | 0.43 | 0.73 | 0.29 | 0.29 | 0 (-0.1, 0.1) | 0.95 | 1 |
|  | CDI comprehension Z-score Year 1 | 679 | 1.55 | 1.97 | 0.41 | 0.32 | -0.09 (-0.19, 0.01) | 0.08 | 0.34 | 0.34 | 0.33 | 0 (-0.12, 0.11) | 0.94 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| iPF(2a)-VI | Sum of 2nd, 4th, 5th, and 6th WHO motor milestones | 674 | 2.31 | 2.87 | 2.4 | 2.59 | 0.19 (-0.04, 0.42) | 0.1 | 0.35 |  |  | (, ) |  |  |
|  | CDI expressive language Z-score Year 1 | 675 | 2.31 | 2.87 | 0.25 | 0.21 | -0.05 (-0.14, 0.05) | 0.33 | 0.68 | 0.22 | 0.25 | 0.03 (-0.18, 0.25) | 0.77 | 1 |
|  | CDI comprehension Z-score Year 1 | 679 | 2.31 | 2.87 | 0.39 | 0.36 | -0.03 (-0.13, 0.07) | 0.58 | 0.81 | 0.34 | 0.4 | 0.06 (-0.07, 0.19) | 0.35 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8,12-iso-iPF(2a)-VI | Sum of 2nd, 4th, 5th, and 6th WHO motor milestones | 674 | 2.16 | 2.91 | 2.44 | 2.54 | 0.09 (-0.11, 0.29) | 0.36 | 0.68 |  |  | (, ) |  |  |
|  | CDI expressive language Z-score Year 1 | 675 | 2.17 | 2.92 | 0.13 | 0.33 | 0.21 (-0.01, 0.42) | 0.06 | 0.34 | 0.21 | 0.38 | 0.18 (-0.02, 0.38) | 0.08 | 1 |
|  | CDI comprehension Z-score Year 1 | 679 | 2.17 | 2.92 | 0.27 | 0.49 | 0.22 (-0.01, 0.45) | 0.06 | 0.34 | 0.32 | 0.45 | 0.13 (0.02, 0.25) | 0.02 | 0.76 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Combined urinary oxidative stress biomarkers | Sum of 2nd, 4th, 5th, and 6th WHO motor milestones | 674 | 2.48 | 3.54 | 2.36 | 2.61 | 0.24 (0, 0.49) | 0.05 | 0.34 |  |  | (, ) |  |  |
|  | CDI expressive language Z-score Year 1 | 675 | 2.49 | 3.54 | 0.06 | 0.26 | 0.2 (-0.04, 0.45) | 0.11 | 0.35 | 0.14 | 0.33 | 0.19 (-0.04, 0.42) | 0.11 | 1 |
|  | CDI comprehension Z-score Year 1 | 679 | 2.49 | 3.54 | 0.37 | 0.4 | 0.03 (-0.08, 0.14) | 0.61 | 0.82 | 0.32 | 0.42 | 0.09 (-0.03, 0.22) | 0.13 | 1 |
| N, 25th Percentile, and 75th Percentile are from the unadjusted analyses | | | | | | | | | | | | | | |

## Table 3

| Salivary Stress Biomarkers and Development at Year 2 | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Unadjusted | | | | | Adjusted | | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value |
| Cortisol Reactivity | CDI expressive language Z-score | 674 | -0.01 | 0 | 0.12 | 0.12 | 0 (0, 0) | 1 | 1 | -0.05 | 0.21 | 0.26 (0.04, 0.48) | 0.02 | 0.22 |
|  | CDI comprehension Z-score | 671 | -0.01 | 0 | -0.02 | 0.01 | 0.03 (-0.05, 0.12) | 0.47 | 0.89 | -0.2 | -0.03 | 0.17 (0.02, 0.31) | 0.02 | 0.22 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pre-stressor Cortisol | CDI expressive language Z-score | 735 | -2.51 | -1.66 | 0.12 | 0.11 | -0.01 (-0.09, 0.07) | 0.84 | 0.92 | 0.18 | 0.15 | -0.03 (-0.12, 0.06) | 0.52 | 0.83 |
|  | CDI comprehension Z-score | 733 | -2.51 | -1.66 | 0.02 | 0.01 | -0.01 (-0.1, 0.07) | 0.76 | 0.92 | 0.01 | -0.15 | -0.16 (-0.36, 0.04) | 0.12 | 0.49 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post-stressor Cortisol | CDI expressive language Z-score | 680 | -2.06 | -0.6 | 0.14 | 0.09 | -0.05 (-0.16, 0.06) | 0.34 | 0.86 | 0.15 | 0.07 | -0.08 (-0.19, 0.03) | 0.17 | 0.57 |
|  | CDI comprehension Z-score | 677 | -2.06 | -0.6 | 0.03 | -0.03 | -0.07 (-0.18, 0.04) | 0.21 | 0.86 | -0.03 | -0.14 | -0.12 (-0.22, -0.01) | 0.04 | 0.27 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| sAA Reactivity | CDI expressive language Z-score | 685 | -4.41 | 0.08 | 0.11 | 0.11 | 0 (0, 0) | 1 | 1 | 0.08 | 0.07 | -0.01 (-0.07, 0.04) | 0.69 | 0.85 |
|  | CDI comprehension Z-score | 682 | -4.43 | 0.06 | 0.02 | -0.03 | -0.05 (-0.11, 0) | 0.06 | 0.63 | -0.05 | -0.08 | -0.03 (-0.09, 0.02) | 0.24 | 0.63 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Pre-stressor sAA | CDI expressive language Z-score | 730 | 3.49 | 4.63 | 0.11 | 0.07 | -0.04 (-0.17, 0.09) | 0.54 | 0.89 | 0.16 | 0.09 | -0.07 (-0.22, 0.09) | 0.42 | 0.83 |
|  | CDI comprehension Z-score | 728 | 3.49 | 4.64 | 0.01 | -0.02 | -0.03 (-0.15, 0.09) | 0.65 | 0.92 | -0.03 | -0.07 | -0.03 (-0.15, 0.08) | 0.58 | 0.83 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Post-stressor sAA | CDI expressive language Z-score | 697 | 3.89 | 5.14 | 0.08 | 0.14 | 0.06 (-0.05, 0.17) | 0.3 | 0.86 | 0.09 | 0.1 | 0.01 (-0.08, 0.11) | 0.8 | 0.91 |
|  | CDI comprehension Z-score | 694 | 3.9 | 5.15 | -0.02 | 0.04 | 0.06 (-0.05, 0.17) | 0.32 | 0.86 | -0.04 | 0 | 0.03 (-0.06, 0.13) | 0.52 | 0.83 |
| N, 25th Percentile, and 75th Percentile are from the unadjusted analyses | | | | | | | | | | | | | | |

## Table 4

| Mean arterial pressure and heart rate at year 2 v. development at year 2 | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Unadjusted | | | | | Adjusted | | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value |
| Mean arterial pressure | CDI expressive language Z-score | 734 | 60.81 | 68.67 | 0.14 | 0.14 | 0 (-0.16, 0.16) | 1 | 1 | 0.17 | 0.18 | 0.01 (-0.2, 0.21) | 0.96 | 0.96 |
|  | CDI comprehension Z-score | 733 | 60.78 | 68.67 | 0.08 | 0.07 | -0.01 (-0.21, 0.2) | 0.95 | 1 | 0.05 | 0.04 | -0.01 (-0.23, 0.22) | 0.96 | 0.96 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mean Resting Heart Rate | CDI expressive language Z-score | 738 | 98.33 | 117.92 | 0.13 | 0.1 | -0.02 (-0.11, 0.06) | 0.6 | 1 | 0.12 | 0.12 | -0.01 (-0.1, 0.08) | 0.9 | 0.96 |
|  | CDI comprehension Z-score | 736 | 98 | 117.75 | 0.05 | -0.04 | -0.09 (-0.31, 0.13) | 0.42 | 1 | -0.02 | -0.04 | -0.02 (-0.11, 0.07) | 0.73 | 0.96 |
| N, 25th Percentile, and 75th Percentile are from the unadjusted analyses | | | | | | | | | | | | | | |

## Table 5

| Glucocortoic receptor methylation and child development at Year 2 | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Unadjusted | | | | | Adjusted | | | | |
|  |  |  |  |  | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-value | FDR Corrected P-value |
| Mean Overall Percentage Glucocorticoid Receptor Methylation | CDI expressive language Z-score | 726 | 0.22 | 0.48 | 0.12 | 0.06 | -0.06 (-0.27, 0.14) | 0.57 | 1 | 0.14 | 0.03 | -0.11 (-0.32, 0.1) | 0.3 | 0.99 |
|  | CDI comprehension Z-score | 724 | 0.22 | 0.48 | 0.01 | -0.02 | -0.03 (-0.23, 0.17) | 0.78 | 1 | -0.06 | -0.08 | -0.03 (-0.24, 0.19) | 0.83 | 0.99 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Percentage methylation at NGFI-A transcription factor binding site (CpG site #12) | CDI expressive language Z-score | 410 | -4.65 | -4.14 | 0.2 | 0.18 | -0.02 (-0.13, 0.08) | 0.69 | 1 | 0.14 | 0.2 | 0.05 (-0.24, 0.35) | 0.74 | 0.99 |
|  | CDI comprehension Z-score | 409 | -4.65 | -4.14 | 0.08 | 0.08 | 0 (0, 0) | 1 | 1 | -0.11 | -0.14 | -0.04 (-0.15, 0.08) | 0.56 | 0.99 |
| N, 25th Percentile, and 75th Percentile are from the unadjusted analyses | | | | | | | | | | | | | | |

## Table 6

| Urinary isoprostanes and time to WHO motor milestone at Year 1 | Outcome | N | 25th Percentile | 75th Percentile | Outcome, 75th Percentile v. 25th Percentile | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Unadjusted | | | Adjusted | | |
|  |  |  |  |  | Hazard Ratio (95% CI) | P-value | FDR Corrected P-value | Hazard Ratio (95% CI) | P-value | FDR Corrected P-value |
| IPF(2a)-III | Time to sitting unsupported | 683 | -0.72 | -0.09 | 1 (0.8, 1.24) | 0.98 | 0.99 | 0 (0, Inf) | 1 | 1 |
|  | Time to crawling | 682 | -0.73 | -0.09 | 1.05 (0.94, 1.17) | 0.36 | 0.68 | 1.02 (0.91, 1.14) | 0.73 | 1 |
|  | Time to standing with support | 678 | -0.73 | -0.09 | 0.99 (0.88, 1.1) | 0.82 | 0.88 | 0.83 (0.53, 1.29) | 0.41 | 1 |
|  | Time to walking with support | 677 | -0.73 | -0.09 | 1.02 (0.91, 1.14) | 0.78 | 0.87 | 1.04 (0.91, 1.19) | 0.57 | 1 |
|  | Time to standing unsupported | 679 | -0.72 | -0.09 | 1.1 (0.82, 1.47) | 0.54 | 0.8 | 1.03 (0.73, 1.43) | 0.89 | 1 |
|  | Time to walking unsupported | 679 | -0.71 | -0.09 | 1.14 (0.97, 1.34) | 0.11 | 0.35 | 1.07 (0.91, 1.27) | 0.42 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |
| 2,3-dinor-iPF(2a)-III | Time to sitting unsupported | 683 | 1.55 | 1.97 | 1.04 (0.81, 1.32) | 0.78 | 0.87 | 0 (0, Inf) | 1 | 1 |
|  | Time to crawling | 682 | 1.55 | 1.97 | 1.18 (0.85, 1.64) | 0.34 | 0.68 | 1.06 (0.75, 1.48) | 0.77 | 1 |
|  | Time to standing with support | 678 | 1.55 | 1.97 | 0.97 (0.84, 1.11) | 0.65 | 0.83 | 1.04 (0.86, 1.25) | 0.7 | 1 |
|  | Time to walking with support | 677 | 1.55 | 1.97 | 1.03 (0.88, 1.19) | 0.76 | 0.87 | 0.96 (0.79, 1.16) | 0.68 | 1 |
|  | Time to standing unsupported | 679 | 1.55 | 1.97 | 1.68 (1.13, 2.51) | 0.01 | 0.15 | 1.1 (0.93, 1.3) | 0.28 | 1 |
|  | Time to walking unsupported | 679 | 1.55 | 1.97 | 1.66 (1.03, 2.68) | 0.04 | 0.34 | 1.04 (0.85, 1.28) | 0.7 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |
| iPF(2a)-VI | Time to sitting unsupported | 683 | 2.31 | 2.87 | 1.97 (0.26, 14.87) | 0.52 | 0.8 | 691705242005.24 (0, Inf) | 1 | 1 |
|  | Time to crawling | 682 | 2.31 | 2.87 | 1.03 (0.92, 1.16) | 0.64 | 0.83 | 0.99 (0.88, 1.13) | 0.94 | 1 |
|  | Time to standing with support | 678 | 2.31 | 2.87 | 0.94 (0.84, 1.06) | 0.34 | 0.68 | 0.89 (0.74, 1.05) | 0.17 | 1 |
|  | Time to walking with support | 677 | 2.31 | 2.87 | 1.24 (1, 1.54) | 0.05 | 0.34 | 1.13 (0.89, 1.45) | 0.32 | 1 |
|  | Time to standing unsupported | 679 | 2.31 | 2.87 | 1.21 (0.93, 1.59) | 0.16 | 0.46 | 0.93 (0.79, 1.09) | 0.38 | 1 |
|  | Time to walking unsupported | 679 | 2.31 | 2.87 | 1.24 (0.94, 1.65) | 0.13 | 0.38 | 1.09 (0.81, 1.48) | 0.58 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |
| 8,12-iso-iPF(2a)-VI | Time to sitting unsupported | 683 | 2.17 | 2.91 | 0.94 (0.5, 1.77) | 0.86 | 0.89 | 0 (0, Inf) | 1 | 1 |
|  | Time to crawling | 682 | 2.17 | 2.91 | 1.02 (0.9, 1.16) | 0.75 | 0.87 | 0.97 (0.85, 1.11) | 0.7 | 1 |
|  | Time to standing with support | 678 | 2.16 | 2.91 | 0.93 (0.82, 1.06) | 0.31 | 0.68 | 0.88 (0.72, 1.06) | 0.18 | 1 |
|  | Time to walking with support | 677 | 2.16 | 2.91 | 1.03 (0.85, 1.23) | 0.8 | 0.88 | 1 (0.8, 1.25) | 1 | 1 |
|  | Time to standing unsupported | 679 | 2.16 | 2.91 | 1.15 (0.89, 1.48) | 0.3 | 0.68 | 1.08 (0.8, 1.44) | 0.64 | 1 |
|  | Time to walking unsupported | 679 | 2.17 | 2.91 | 1.17 (0.97, 1.42) | 0.1 | 0.35 | 0.99 (0.81, 1.22) | 0.94 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |
| Combined urinary oxidative stress biomarkers | Time to sitting unsupported | 683 | 2.49 | 3.54 | 0.68 (0.13, 3.51) | 0.66 | 0.83 | 0 (0, Inf) | 1 | 1 |
|  | Time to crawling | 682 | 2.48 | 3.54 | 1.04 (0.91, 1.18) | 0.59 | 0.81 | 0.99 (0.86, 1.13) | 0.86 | 1 |
|  | Time to standing with support | 678 | 2.48 | 3.54 | 1.12 (0.78, 1.59) | 0.55 | 0.8 | 1.25 (0.8, 1.98) | 0.33 | 1 |
|  | Time to walking with support | 677 | 2.48 | 3.54 | 1.07 (0.9, 1.26) | 0.47 | 0.75 | 1.01 (0.83, 1.22) | 0.94 | 1 |
|  | Time to standing unsupported | 679 | 2.48 | 3.54 | 1.39 (0.96, 2.02) | 0.08 | 0.34 | 1.22 (0.81, 1.82) | 0.34 | 1 |
|  | Time to walking unsupported | 679 | 2.49 | 3.54 | 1.59 (1.11, 2.27) | 0.01 | 0.15 | 1.02 (0.83, 1.25) | 0.89 | 1 |
| N, 25th Percentile, and 75th Percentile are from the unadjusted analyses | | | | | | | | | | |
| Hazard ratio could not be estimated for sitting without support since nearly all children had achieved this milestone before time of measurement | | | | | | | | | | |