## Table 1

|  |  |  | n (%) or median (IQR) |
| --- | --- | --- | --- |
| Child |  | Female | 408 (48%) |
|  | Urinary F2-isoprostanes (Year 1) | iPF(2a)-III | 0.66 (0.48, 0.91) |
|  |  | 2,3-dinor-iPF(2a)-III | 5.8 (4.7, 7.14) |
|  |  | iPF(2a-VI | 13.06 (10.05, 17.63) |
|  |  | 8,12-iso-iPF(2a)-VI | 13.12 (8.7, 18.43) |
|  | Salivary cortisol reactivity (Year 2) | Change in slope 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 in slope between pre- and post-stressor sAA change | -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 | 0.87 (0, 1.21) |
|  | 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

|  |  |  |  | Outcome, 75th Percentile v. 25th Percentile | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusteda | | | |
| Urinary oxidative stress biomarker | Outcome | 25th Percentile | 75th Percentile | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb |
| IPF(2a)-III | LAZ Year 1 | -0.73 | -0.09 | -1.26 | -1.39 | -0.14 (-0.23, -0.05) | 0.01 | -1.61 | -1.59 | 0.02 (-0.06, 0.1) | 0.84 |
|  | LAZ Year 2 | -0.73 | -0.09 | -1.3 | -1.39 | -0.09 (-0.17, 0) | 0.14 | -1.8 | -1.8 | 0 (-0.06, 0.06) | 0.95 |
|  | Length velocity Year 1 and Year 2 | -0.73 | -0.09 | 0.8 | 0.8 | 0 (-0.01, 0.01) | 0.99 | 0.78 | 0.78 | 0 (-0.01, 0.01) | 0.79 |
|  | Change in LAZ Year 1 to Year 2 | -0.73 | -0.09 | -0.05 | -0.01 | 0.04 (-0.01, 0.08) | 0.12 | -0.25 | -0.24 | 0.01 (-0.03, 0.05) | 0.88 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 2,3-dinor-iPF(2a)-III | LAZ Year 1 | 1.55 | 1.97 | -1.24 | -1.5 | -0.26 (-0.37, -0.16) | 0 | -1.61 | -1.61 | 0 (-0.04, 0.04) | 0.98 |
|  | LAZ Year 2 | 1.54 | 1.97 | -1.29 | -1.45 | -0.17 (-0.27, -0.07) | 0.02 | -1.81 | -1.8 | 0.01 (-0.1, 0.11) | 0.95 |
|  | Length velocity Year 1 and Year 2 | 1.54 | 1.97 | 0.8 | 0.81 | 0.01 (0, 0.02) | 0.3 | 0.78 | 0.79 | 0.01 (0, 0.02) | 0.1 |
|  | Change in LAZ Year 1 to Year 2 | 1.54 | 1.97 | -0.06 | 0.01 | 0.07 (-0.03, 0.17) | 0.17 | -0.27 | -0.27 | 0.01 (-0.09, 0.1) | 0.9 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| iPF(2a)-VI | LAZ Year 1 | 2.31 | 2.87 | -1.11 | -1.44 | -0.32 (-0.55, -0.09) | 0.01 | -1.62 | -1.58 | 0.03 (-0.01, 0.08) | 0.3 |
|  | LAZ Year 2 | 2.3 | 2.86 | -1.31 | -1.41 | -0.1 (-0.19, 0) | 0.14 | -1.81 | -1.79 | 0.02 (-0.04, 0.08) | 0.95 |
|  | Length velocity Year 1 and Year 2 | 2.3 | 2.86 | 0.8 | 0.81 | 0 (-0.01, 0.02) | 0.8 | 0.78 | 0.79 | 0.02 (0, 0.03) | 0.1 |
|  | Change in LAZ Year 1 to Year 2 | 2.3 | 2.86 | -0.1 | 0.06 | 0.16 (0.06, 0.26) | 0.01 | -0.28 | -0.22 | 0.06 (-0.01, 0.12) | 0.26 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| 8,12-iso-iPF(2a)-VI | LAZ Year 1 | 2.16 | 2.91 | -1.39 | -1.33 | 0.06 (-0.15, 0.28) | 0.59 | -1.62 | -1.58 | 0.04 (0, 0.08) | 0.26 |
|  | LAZ Year 2 | 2.17 | 2.9 | -1.41 | -1.33 | 0.09 (-0.11, 0.28) | 0.66 | -1.89 | -1.88 | 0.01 (-0.15, 0.16) | 0.95 |
|  | Length velocity Year 1 and Year 2 | 2.17 | 2.9 | 0.79 | 0.81 | 0.02 (-0.01, 0.05) | 0.3 | 0.77 | 0.79 | 0.02 (0, 0.04) | 0.15 |
|  | Change in LAZ Year 1 to Year 2 | 2.17 | 2.9 | -0.1 | 0.02 | 0.12 (0.01, 0.23) | 0.07 | -0.3 | -0.22 | 0.09 (-0.01, 0.18) | 0.26 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Combined urinary oxidative stress biomarkers | LAZ Year 1 | 2.48 | 3.53 | -1.21 | -1.46 | -0.26 (-0.5, -0.02) | 0.04 | -1.62 | -1.59 | 0.03 (-0.01, 0.06) | 0.32 |
|  | LAZ Year 2 | 2.48 | 3.52 | -1.31 | -1.41 | -0.1 (-0.25, 0.05) | 0.36 | -1.7 | -1.89 | -0.19 (-0.34, -0.04) | 0.15 |
|  | Length velocity Year 1 and Year 2 | 2.48 | 3.52 | 0.8 | 0.8 | 0 (-0.02, 0.03) | 0.99 | 0.78 | 0.79 | 0 (-0.02, 0.03) | 0.82 |
|  | Change in LAZ Year 1 to Year 2 | 2.48 | 3.52 | -0.07 | 0.02 | 0.09 (0, 0.19) | 0.09 | -0.26 | -0.23 | 0.03 (-0.06, 0.12) | 0.87 |

aAdjusted for pre-specified covariates: Child age, child sex, birth order, prior child length and weight measurements from Year 1,season of measurement, time between anthropometry measurements (included in growth velocity and change in growth measurements between Year 1 and Year 2 outcomes only),caregiver-reported diarrhea, mother’s age, mother’s height, mother’s education level, mother’s Center for Epidemiologic Studies Depression Scale Revised (CESD-R) score, mother’s Perceived Stress Scale score, mother’s lifetime exposure to physical, sexual, and emotional intimate partner violence, household food insecurity, number of children <18 years in the household, number of individuals living in the compound, distance in minutes to the primary water source, household floor materials, household wall materials, household electricity, and household assets (wardrobe, table, chair, clock, khat, chouki, radio, television, refrigerator, bicycle, motorcycle, sewing machine, mobile phone, cattle, goats, and chickens), and treatment arm (control or N+WSH).

bP-values were adjusted using the Benjamini-Hochberg procedure to control false discovery rate.

## Table 3

|  |  |  |  | Outcome, 75th Percentile v. 25th Percentile | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusteda | | | |
| Salivary stress biomarker | Outcome | 25th Percentile | 75th Percentile | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb |
| Pre to post-stress change in slope of cortisol | LAZ Year 2 | -0.01 | 0 | -1.41 | -1.4 | 0.01 (-0.08, 0.09) | 0.97 | -1.89 | -1.94 | -0.05 (-0.2, 0.09) | 0.95 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Cortisol residualized gain score | LAZ Year 2 | -0.21 | 0.14 | -1.41 | -1.41 | 0 (-0.09, 0.08) | 0.97 | -1.9 | -1.85 | 0.05 (-0.04, 0.14) | 0.95 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Pre to post-stress change in slope of sAA | LAZ Year 2 | -4.37 | 0.06 | -1.45 | -1.5 | -0.04 (-0.28, 0.19) | 0.97 | -1.81 | -1.82 | -0.01 (-0.05, 0.03) | 0.95 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| sAA residualized gain score | LAZ Year 2 | -51.35 | 27.2 | -1.48 | -1.48 | -0.01 (-0.25, 0.23) | 0.97 | -1.94 | -1.83 | 0.11 (-0.01, 0.22) | 0.42 |

aAdjusted for pre-specified covariates: Child age, child sex, birth order, prior child length and weight measurements from Year 1,season of measurement, time between anthropometry measurements (included in growth velocity and change in growth measurements between Year 1 and Year 2 outcomes only),caregiver-reported diarrhea, mother’s age, mother’s height, mother’s education level, mother’s Center for Epidemiologic Studies Depression Scale Revised (CESD-R) score, mother’s Perceived Stress Scale score, mother’s lifetime exposure to physical, sexual, and emotional intimate partner violence, household food insecurity, number of children <18 years in the household, number of individuals living in the compound, distance in minutes to the primary water source, household floor materials, household wall materials, household electricity, and household assets (wardrobe, table, chair, clock, khat, chouki, radio, television, refrigerator, bicycle, motorcycle, sewing machine, mobile phone, cattle, goats, and chickens), and treatment arm (control or N+WSH).

bP-values were adjusted using the Benjamini-Hochberg procedure to control false discovery rate.

## Table 4

|  |  |  |  | Outcome, 75th Percentile v. 25th Percentile | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusteda | | | |
| Resting SAM biomarker | Outcome | 25th Percentile | 75th Percentile | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb |
| Mean arterial pressure | LAZ Year 2 | 60.89 | 68.89 | -1.39 | -1.26 | 0.13 (0, 0.25) | 0.14 | -1.8 | -1.81 | -0.01 (-0.07, 0.06) | 0.95 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Mean resting heart rate | LAZ Year 2 | 98.5 | 118 | -1.27 | -1.42 | -0.15 (-0.3, -0.01) | 0.14 | -1.82 | -1.83 | 0 (-0.07, 0.07) | 0.95 |

aAdjusted for pre-specified covariates: Child age, child sex, birth order, prior child length and weight measurements from Year 1,season of measurement, time between anthropometry measurements (included in growth velocity and change in growth measurements between Year 1 and Year 2 outcomes only),caregiver-reported diarrhea, mother’s age, mother’s height, mother’s education level, mother’s Center for Epidemiologic Studies Depression Scale Revised (CESD-R) score, mother’s Perceived Stress Scale score, mother’s lifetime exposure to physical, sexual, and emotional intimate partner violence, household food insecurity, number of children <18 years in the household, number of individuals living in the compound, distance in minutes to the primary water source, household floor materials, household wall materials, household electricity, and household assets (wardrobe, table, chair, clock, khat, chouki, radio, television, refrigerator, bicycle, motorcycle, sewing machine, mobile phone, cattle, goats, and chickens), and treatment arm (control or N+WSH).

bP-values were adjusted using the Benjamini-Hochberg procedure to control false discovery rate.

## Table 5

|  |  |  |  | Outcome, 75th Percentile v. 25th Percentile | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Unadjusted | | | | Fully adjusteda | | | |
| Methylation site | Outcome | 25th Percentile | 75th Percentile | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb | Predicted Outcome at 25th Percentile | Predicted Outcome at 75th Percentile | Coefficient (95% CI) | P-valueb |
| Entire promoter region (39 assayed CpG sites) | LAZ Year 2 | 0.22 | 0.48 | -1.34 | -1.38 | -0.05 (-0.11, 0.01) | 0.29 | -1.82 | -1.84 | -0.02 (-0.06, 0.02) | 0.95 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| NGFI-A transcription factor binding site (CpG site #12) | LAZ Year 2 | -4.65 | -4.14 | -1.31 | -1.3 | 0.02 (-0.1, 0.13) | 0.97 | -1.69 | -1.68 | 0.02 (-0.06, 0.09) | 0.95 |

aAdjusted for pre-specified covariates: Child age, child sex, birth order, prior child length and weight measurements from Year 1,season of measurement, time between anthropometry measurements (included in growth velocity and change in growth measurements between Year 1

and Year 2 outcomes only),caregiver-reported diarrhea, mother’s age, mother’s height, mother’s education level, mother’s Center for Epidemiologic Studies Depression Scale Revised (CESD-R) score, mother’s Perceived Stress Scale score, mother’s lifetime exposure to physical, sexual, and emotional intimate partner violence, household food insecurity, number of children <18 years in the household, number of individuals living in the compound, distance in minutes to the primary water source, household floor materials, household wall materials, household electricity, and household assets (wardrobe, table, chair, clock, khat, chouki, radio, television, refrigerator, bicycle, motorcycle,

sewing machine, mobile phone, cattle, goats, and chickens), and treatment arm (control or N+WSH).

bP-values were adjusted using the Benjamini-Hochberg procedure to control false discovery rate.