**Supplementary material**

Zhu Z., Cheng Y., Qi Q., et al. Association of infant and young child feeding practices with cognitive development at 10-12 years: A birth cohort in rural western China.

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Supplemental Table 1. Construct of infant feeding index scoresa

|  |  |  |
| --- | --- | --- |
| Infant feeding practices | Cutoff points for scoring | Rationales |
| Exclusive breastfeeding duration, months | ≤1=1; 2-3=2; 4-5=3; 6=4; ≥7=1 | Within the first six months, longer durations scores higher for WHO recommending exclusively breastfeeding up to six months; however, after six months scores fairly lower for not starting complementary feeding. |
| Any breastfeeding duration, months | ≤3=1; 4-6=2; 7-12=3; 13-18=4; >18=5 | Longer durations scores higher for WHO recommending that continue the partial breastfeeding up to 2 years. |
| Vitamin/mineral supplements | No supplements=0; Ever received supplements=1 | Micronutrients can be given to infants even within the first six months; assuming micronutrients supplementation would produce benefits for child development in the study area where micronutrient deficiency was wildly prevalent. |
| Initial time of beans and eggs, months | 0=0; ≤6=1; 7-9=4; 10-12=3; ≥13=2 | Introducing of solid, semi-solid or softs foods just after six months scores the highest, i.e., 4, which is considered as timely complementary feeding. The delay of introducing complementary foods may increase the risk of infant micronutrient deficiency such as iron. Hence, introducing after 13 months scores the lowest, i.e., 2. |
| Initial time of cow’s/goat’s milk, monthsb | 0=0; ≤6=1;7-9=2; 10-12=3; ≥13=4 | Introducing animal’s milk after 12 months scores the highest, which is based on the feeding guidelines for infants and young child aged 7-24 months developed by the Chinese Nutrition Society, i.e., introducing of animal’s milk should wait until 12 months. |
| Regular Consumption of iron-rich food or iron-fortified foods during 6-23 monthsc | No=0; Yes=1 | Indicator based on IYCF; assuming regular consumption of iron-rich or iron fortified woods would produce benefits for child development. |

aThe cutoff points for scoring were grounded in the principles of WHO recommendations for breastfeeding and how to assess infant and young child feeding practices, i.e., indicators for assessing infant and young child feeding practices (IYCF). Specifically, we assumed that longer durations of any/exclusive breastfeeding with starting/timely complementary feeding after exclusively breastfeeding for 6 months would produce the largest benefits.

bRegarding the timing of introducing cow’s/goat’s milk, the related recommendations differed by countries, such as 12 months in US and UK, 9 months in Denmark, and 10 months in Sweden. As a result, we used the recommendation in China, i.e., 12 months.

cRegular Consumption of iron-rich food or iron-fortified foods during 6-23 months was defined by receiving the infant formula, or the frequency of meat/fish supplementation beyond 5-6 times per week at any visit of 6, 9, 12, 18, or 24 months of age.

Supplemental Table 2. Background characteristics of participants between followed and lost to follow-up

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Characteristics of household at the enrollment of original trial | | | | Characteristics of infants | | | |
|  | Followed | Not followed | P values |  | Followed | Not followed | P values |
| Number of children | 745 | 643 |  | Sex |  |  |  |
| Maternal age (years) | 24.5(4.5) | 24.3(4.4) | 0.46 | Male | 450(60.4) | 391(60.8) | 0.96 |
| Maternal education |  |  |  | Female | 295(39.6) | 252(39.2) |  |
| < 3 years | 30(4.0) | 31(4.8) | 0.45 | Birth weight | 3197(400) | 3173(421) | 0.27 |
| Primary | 192(25.8) | 149(23.2) |  | Weeks of gestation weeks | 39.9(1.5) | 39.9(1.7) | 0.98 |
| Secondary | 404(54.4) | 394(61.4) |  | Preterm | 19(2.6) | 31(4.8) | 0.02 |
| High school+ | 117(15.8) | 68(10.6) |  | Low birth weight | 25(3.4) | 25(4.0) | 0.58 |
| Maternal occupation |  |  |  | Small for gestational age | 84(11.6) | 81(13.2) | 0.40 |
| Farmer | 622(83.7) | 550(86.1) | 0.22 | Duration (months) of exclusive breastfeeding | 3(1-3) 2 | 3(3-1) 2 | 0.49 |
| Others | 121(16.3) | 89(13.9) |  | ≤3 | 592(79.7) | 496(77.4) | 0.53 |
| Paternal age (years) | 27.7(4.2) | 27.7(4.3) | 0.77 | 4-6 | 135(18.2) | 134(20.9) |  |
| Paternal education |  |  |  | ≥7 | 16(2.2) | 11(1.7) |  |
| < 3 years | 9(1.2) | 3(0.5) | 0.11 | Duration (months) of any breastfeeding | 12(6-16) 2 | 15(16-6) 2 | 0.07 |
| Primary | 80(10.8) | 59(9.2) |  | ≤3 | 130(17.4) | 127(19.8) | 0.05 |
| Secondary | 472(63.6) | 442(69.1) |  | 4-6 | 72(9.7) | 64(10.0) |  |
| High school+ | 181(24.4) | 136(21.3) |  | 7-12 | 198(26.7) | 187(29.2) |  |
| Paternal occupation |  |  |  | 13-18 | 248(33.4) | 202(31.5) |  |
| Farmer | 555(74.7) | 499(77.6) | 0.21 | >18 | 95(12.8) | 61(9.5) |  |
| Others | 188(25.3) | 144(22.4) |  | Age (months) of initial vitamin/mineral intake | 9(6-12) 2 | 9(12-6) 2 | 0.06 |
| Parity at enrollment |  |  |  | ≤6 | 228(30.6) | 187(29.1) | 0.63 |
| 0 | 508(68.2) | 435(67.7) | 0.17 | 7-9 | 203(27.3) | 185(28.8) |  |
| 1 | 196(26.3) | 185(28.8) |  | 10-12 | 152(20.4) | 122(19.0) |  |
| >= 2 | 41(5.5) | 23(3.6) |  | ≥13 or none3 | 162(21.7) | 149(23.2) |  |
| Maternal MUAC(cm) | 23.2(1.8) | 23.0(1.7) | 0.04 | Age (months) of initial high protein-based food intake | 8(6-9) 2 | 9(9-6) 2 | 0.95 |
| <21.5 | 107(14.5) | 112(17.5) | 0.13 | ≤6 | 313(42.0) | 237(36.9) | 0.01 |
| >=21.5 | 631(85.5) | 528(82.5) |  | 7-9 | 273(36.6) | 230(35.8) |  |
| Trial treat |  |  | 0.29 | 10-12 | 95(12.8) | 95(14.8) |  |
| Folic acid | 266(35.7) | 230(35.8) |  | ≥13 or none3 | 64(8.6) | 81(12.6) |  |
| Iron/folic acid | 239(32.1) | 228(35.5) |  | Age (months) of initial cow's/goat's milk intake | 9(3-18) 2 | 9(18-6) 2 | 0.63 |
| Multiple micronutrients | 240(32.2) | 185(28.8) |  | ≤3 | 127(17.1) | 85(13.2) | 0.46 |
| Household wealth at enrollment |  |  | 0.64 | 4-6 | 71(9.5) | 68(10.6) |  |
| Poorest | 180(24.2) | 144(22.4) |  | 7-9 | 58(7.8) | 60(9.3) |  |
| Medium | 294(39.5) | 268(41.7) |  | 10-12 | 77(10.3) | 64(10.0) |  |
| Richest | 271(36.4) | 231(35.9) |  | ≥13 | 138(18.5) | 114(17.7) |  |
|  |  |  |  | None | 274(36.8) | 252(39.2) |  |
|  |  |  |  | Whether received iron-rich or iron-fortified foods at 6-23 months |  |  | 0.03 |
|  |  |  |  | No | 333(44.7) | 326(50.7) |  |
|  |  |  |  | Yes | 412(55.3) | 317(49.3) |  |
|  |  |  |  | Feeding index scoresa | 11(9-13)b | 11(9-13)b | 0.87 |
|  |  |  |  | Q1-the lowest | 272(38.1) | 229(38.8) | 0.95 |
|  |  |  |  | Q2 | 229(32.1) | 185(31.4) |  |
|  |  |  |  | Q3-the highest | 213(29.8) | 176(29.8) |  |

Abbreviation: MUAC, mid-upper arm circumference.

aFeeding index scores were categorized into three-level appropriate feeding groups using their tertiles.

bVariables were described as medians (interquartile ranges, IQRs).

Supplemental Table 3. WISC-IV test scores of adolescents with respect to the initial age (months) of consumption of iron-rich or iron-fortified foods during 6-23 months

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| WISC-IV | Initial age (months) | N | Mean (SD) | Adjusted mean differences (95%CI)a | P values |
| FSIQ |  |  |  |  |  |
|  | 6-11 | 199 | 110.9(13.2) | Ref. |  |
|  | 12-17 | 83 | 100.5(12.9) | 0.08(-2.96, 3.12) | 0.96 |
|  | 18-23 | 100 | 100.8(10.7) | 2.07(-0.45, 4.60) | 0.11 |
| VCI |  |  |  |  |  |
|  | 6-11 | 199 | 105.9(16.5) | Ref. |  |
|  | 12-17 | 83 | 105.2(15.1) | 0.35(-3.95, 4.66) | 0.87 |
|  | 18-23 | 100 | 105.7(13.0) | 2.87(0.15, 5.59) | 0.04 |
| WMI |  |  |  |  |  |
|  | 6-11 | 199 | 95.8(10.7) | Ref. |  |
|  | 12-17 | 83 | 96.1(12.9) | 0.78(-1.93, 3.49) | 0.57 |
|  | 18-23 | 100 | 95.5(11.6) | 2.24(-0.01, 4.50) | 0.05 |
| PRI |  |  |  |  |  |
|  | 6-11 | 199 | 98.3(12.2) | Ref. |  |
|  | 12-17 | 83 | 97.1(12.8) | -1.52(-4.23, 1.18) | 0.27 |
|  | 18-23 | 100 | 97.6(12.1) | -0.34(-3.27, 2.58) | 0.82 |
| PSI |  |  |  |  |  |
|  | 6-11 | 199 | 101.2(15.3) | Ref. |  |
|  | 12-17 | 83 | 102.2(12.5) | 1.29(-1.70, 4.28) | 0.40 |
|  | 18-23 | 100 | 103.0(12.6) | 2.29(-1.16, 5.74) | 0.19 |

Abbreviations: CI, confidence interval; FSIQ, full-scale intelligence quotient; PRI, perceptual reasoning index; PSI, processing speed index; SD, standard deviation; VCI, verbal comprehension index; WISC-IV, Wechsler Intelligence Scale for Children-Fourth Edition; WMI, working memory index.

aAdjusted for covariates (including parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (mid-upper arm circumference) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA), durations of exclusive breastfeeding, adolescent sex, and school type) in general estimating equation linear models.

Supplemental Table 4 WISC-IV test scores of adolescents with respect to duration (months) of any/exclusive breastfeeding, after using inverse probability weighting to account for the missing outcome

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WISC-IV | Exclusive breastfeeding duration, months | N | Mean(SD) | Adjusted mean differences (95%CI)a | P values | Any breastfeeding duration, months | N | Mean(SD) | Adjusted mean differences (95%CI)a | P values |
| FSIQ |  |  |  |  | 0.77b |  |  |  |  | 0.19b |
|  | ≤1 | 211 | 98.9(12.5) | Ref. |  | ≤3 | 96 | 100.6(13.2) | Ref. |  |
| 2-3 | 342 | 97.9(13.1) | -0.39(-2.65, 1.87) | 0.73 | 4-6 | 71 | 101.0(14.5) | 0.51(-2.82, 3.84) | 0.77 |
| 4-6 | 131 | 97.0(12.1) | 0.26(-2.37, 2.89) | 0.85 | 7-12 | 195 | 99.7(12.9) | 1.15(-1.43, 3.74) | 0.38 |
| ≥7 | 16 | 96.0(10.3) | 1.33(-4.71, 7.36) | 0.67 | 13-18 | 244 | 97.1(11.5) | -0.46(-3.01, 2.09) | 0.72 |
|  |  |  |  |  | >18 | 94 | 92.1(11.1) | -3.18(-7.30, 0.95) | 0.13 |
| VCI |  |  |  |  | 0.92b |  |  |  |  | 0.25b |
|  | ≤1 | 211 | 104.2(16.1) | Ref. |  | ≤3 | 96 | 106.9(17.1) | Ref. |  |
| 2-3 | 342 | 102.5(15.7) | -0.80(-3.88, 2.29) | 0.61 | 4-6 | 71 | 105.0(16.6) | -1.30(-6.21, 3.61) | 0.60 |
| 4-6 | 131 | 101.9(15.2) | 0.06(-4.02, 4.15) | 0.98 | 7-12 | 195 | 103.8(14.9) | -1.23(-4.59, 2.12) | 0.47 |
| ≥7 | 16 | 101.6(11.8) | 1.33(-4.81, 7.47) | 0.67 | 13-18 | 244 | 101.7(14.9) | -1.78(-5.14, 1.58) | 0.30 |
|  |  |  |  |  | >18 | 94 | 98.5(15.7) | -3.59(-8.85, 1.66) | 0.18 |
| WMI |  |  |  |  | 0.83b |  |  |  |  | 0.65b |
|  | ≤1 | 211 | 94.6(10.7) | Ref. |  | ≤3 | 96 | 95.2(9.9) | Ref. |  |
| 2-3 | 342 | 94.5(11.8) | 0.09(-1.58, 1.75) | 0.92 | 4-6 | 71 | 96.5(11.0) | 1.06(-1.88, 3.99) | 0.48 |
| 4-6 | 131 | 93.7(10.2) | 0.55(-1.85, 2.96) | 0.65 | 7-12 | 195 | 95.7(12.7) | 1.81(-0.49, 4.10) | 0.12 |
| ≥7 | 16 | 90.7(10.0) | -0.95(-6.91, 5.00) | 0.75 | 13-18 | 244 | 93.8(10.3) | 0.86(-0.98, 2.71) | 0.36 |
|  |  |  |  |  | >18 | 94 | 90.0(9.7) | -1.26(-4.25, 1.73) | 0.41 |
| PRI |  |  |  |  | 0.95b |  |  |  |  | 0.13b |
|  | ≤1 | 211 | 96.6(13.1) | Ref. |  | ≤3 | 96 | 97.1(12.2) | Ref. |  |
| 2-3 | 342 | 95.7(12.4) | -0.64(-2.79, 1.50) | 0.56 | 4-6 | 71 | 98.6(13.6) | 1.72(-1.23, 4.66) | 0.25 |
| 4-6 | 131 | 95.1(12.5) | -0.10(-2.58, 2.38) | 0.94 | 7-12 | 195 | 97.6(13.3) | 2.34(-0.28, 4.95) | 0.08 |
| ≥7 | 16 | 95.5(10.4) | 1.37(-3.93, 6.68) | 0.61 | 13-18 | 244 | 95.3(11.6) | -0.12(-2.62, 2.38) | 0.93 |
|  |  |  |  |  | >18 | 94 | 90.6(11.7) | -2.50(-5.93, 0.93) | 0.15 |
| PSI |  |  |  |  | 0.70b |  |  |  |  | 0.32b |
|  | ≤1 | 211 | 100.1(11.8) | Ref. |  | ≤3 | 96 | 100.9(12.7) | Ref. |  |
| 2-3 | 342 | 99.9(15.0) | 0.39(-1.82, 2.60) | 0.73 | 4-6 | 71 | 102.7(18.0) | 1.00(-2.52, 4.52) | 0.58 |
| 4-6 | 131 | 99.1(14.2) | 0.30(-2.47, 3.07) | 0.83 | 7-12 | 195 | 101.0(14.7) | 0.93(-2.05, 3.92) | 0.54 |
| ≥7 | 16 | 98.1(8.3) | 1.51(-4.33, 7.34) | 0.61 | 13-18 | 244 | 99.3(12.2) | 0.21(-2.65, 3.07) | 0.89 |
|  |  |  |  |  | >18 | 94 | 94.9(11.9) | -2.72(-7.23, 1.79) | 0.24 |

Abbreviations: CI, confidence interval; FSIQ, full-scale intelligence quotient; PRI, perceptual reasoning index; PSI, processing speed index; SD, standard deviation; VCI, verbal comprehension index; WISC-IV, Wechsler Intelligence Scale for Children-Fourth Edition; WMI, working memory index.

aAdjusted for covariates including parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (middle-up arm circumferences) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA, small for gestational age), adolescent sex, and school type in general estimating equation linear models.

bP values for trend are calculated in general estimating equation linear models and adjusted for covariates (parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (mid-upper arm circumferences) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA, small for gestational age), adolescent sex, and school type).

Supplemental Table 5 WISC-IV test scores of adolescents with respect to frequent consumption of iron-rich or iron-fortified foods during 6-23 monthsa, after using inverse probability weighting to account for the missing outcome

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| WISC-IV | Whether regularly consumed iron-rich or iron-fortified foods at 6-23 months | N | Mean (SD) | Adjusted mean differences (95%CI)b | P values |
| FSIQ |  |  |  |  |  |
|  | No | 320 | 94.8(12.2) | Ref. |  |
|  | Yes | 382 | 100.7(12.5) | 4.24(1.98, 6.50) | <0.001 |
| VCI |  |  |  |  |  |
|  | No | 320 | 99.6(15.4) | Ref. |  |
|  | Yes | 382 | 105.7(15.3) | 4.45(1.59, 7.31) | 0.002 |
| WMI |  |  |  |  |  |
|  | No | 320 | 92.5(10.5) | Ref. |  |
|  | Yes | 382 | 95.8(11.4) | 1.99(0.34, 3.64) | 0.02 |
| PRI |  |  |  |  |  |
|  | No | 320 | 93.5(12.5) | Ref. |  |
|  | Yes | 382 | 97.9(12.3) | 3.06(0.95, 5.17) | 0.004 |
| PSI |  |  |  |  |  |
|  | No | 320 | 97.3(13.1) | Ref. |  |
|  | Yes | 382 | 101.9(14.0) | 3.48(1.24, 5.73) | 0.002 |

Abbreviations: CI, confidence interval; FSIQ, full-scale intelligence quotient; PRI, perceptual reasoning index; PSI, processing speed index; SD, standard deviation; VCI, verbal comprehension index; WISC-IV, Wechsler Intelligence Scale for Children-Fourth Edition; WMI, working memory index.

aRegular consumption of iron-rich food or iron-fortified foods during 6-23 months was defined by receiving the infant formula, or the frequency of meat/fish supplementation beyond 5-6 times per week at any visit of 6, 9, 12, 18, or 24 months of age.

bAdjusted for covariates (including parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (mid-upper arm circumference) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA, small for gestational age), adolescent sex, and school type) in general estimating equation linear models.

Supplemental Table 6 WISC-IV test scores of adolescents with respect to the initial age (months) of introduction of cow's/goat's milk and high protein-based food in infancy, after using inverse probability weighting to account for the missing outcome

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| WISC-IV | Age of initiation (months) | Cow's/goat's milk | | | |  | Age of initiation (months) | High protein-based food | | | |
| N | Mean (SD) | Adjusted mean differences (95%CI)a | P values |  | N | Mean (SD) | Adjusted mean differences (95%CI)a | P values |
| FSIQ |  |  |  |  |  |  |  |  |  |  |  |
|  | ≤6 | 173 | 97.9(12.8) | -1.74(-4.40, 0.93) | 0.20 |  | ≤6 | 292 | 97.7(12.5) | -2.35(-4.18, -0.53) | 0.01 |
|  | 7-9 | 55 | 99.0(14.0) | -0.90(-5.08, 3.29) | 0.67 |  | 7-9 | 258 | 98.8(13.0) | Ref. |  |
|  | 10-12 | 73 | 102.0(10.3) | 2.73(0.22, 5.24) | 0.03 |  | 10-12 | 90 | 96.8(12.9) | -1.82(-5.44, 1.81) | 0.33 |
|  | ≥13 | 135 | 98.4(13.1) | Ref. |  |  | ≥13 or Noneb | 62 | 98.3(11.9) | -0.45(-3.37, 2.46) | 0.76 |
|  | None | 266 | 96.7(12.6) | -1.80(-4.06, 0.46) | 0.12 |  |  |  |  |  |  |
| VCI |  |  |  |  |  |  |  |  |  |  |  |
|  | ≤6 | 173 | 103.2(16.2) | -1.43(-4.63, 1.77) | 0.38 |  | ≤6 | 292 | 102.7(16.0) | -2.26(-4.97, 0.44) | 0.10 |
|  | 7-9 | 55 | 104.3(18.2) | -0.05(-5.44, 5.35) | 0.99 |  | 7-9 | 258 | 103.6(15.2) | Ref. |  |
|  | 10-12 | 73 | 105.8(14.0) | 1.86(-1.94, 5.66) | 0.34 |  | 10-12 | 90 | 102.1(16.5) | -1.56(-5.83, 2.70) | 0.47 |
|  | ≥13 | 135 | 102.8(15.6) | Ref. |  |  | ≥13 or Noneb | 62 | 102.7(14.7) | -0.69(-4.99, 3.60) | 0.75 |
|  | None | 266 | 101.8(15.2) | -1.04(-3.96, 1.87) | 0.48 |  |  |  |  |  |  |
| WMI |  |  |  |  |  |  |  |  |  |  |  |
|  | ≤6 | 173 | 93.6(10.1) | -2.81(-5.07, -0.54) | 0.02 |  | ≤6 | 292 | 93.9(11.1) | -1.62(-3.53, 0.28) | 0.10 |
|  | 7-9 | 55 | 94.1(12.0) | -2.78(-7.14, 1.57) | 0.21 |  | 7-9 | 258 | 94.8(10.8) | Ref. |  |
|  | 10-12 | 73 | 95.7 (10.2) | -0.39(-3.12, 2.34) | 0.78 |  | 10-12 | 90 | 94.4(12.6) | -0.13(-2.79, 2.52) | 0.92 |
|  | ≥13 | 135 | 95.4(12.3) | Ref. |  |  | ≥13 or Noneb | 62 | 93.8(10.5) | -1.07(-3.68, 1.55) | 0.46 |
|  | None | 266 | 93.8(11.2) | -1.85(-4.16, 0.47) | 0.12 |  |  |  |  |  |  |
| PRI |  |  |  |  |  |  |  |  |  |  |  |
|  | ≤6 | 173 | 96.2(13.4) | -0.01(-3.37, 3.35) | 0.99 |  | ≤6 | 292 | 96.2(12.7) | -0.72(-2.61, 1.16) | 0.45 |
|  | 7-9 | 55 | 97.2(13.2) | 0.88(-3.19, 4.95) | 0.67 |  | 7-9 | 258 | 95.9(13.3) | Ref. |  |
|  | 10-12 | 73 | 99.9(12.1) | 3.33(0.11, 6.55) | 0.04 |  | 10-12 | 90 | 94.3(11.1) | -1.60(-5.24, 2.05) | 0.39 |
|  | ≥13 | 135 | 96.1(13.8) | Ref. |  |  | ≥13 or Noneb | 62 | 96.8(10.9) | 0.75(-1.90, 3.41) | 0.58 |
|  | None | 266 | 94.2(11.1) | -2.17(-4.44, 0.09) | 0.06 |  |  |  |  |  |  |
| PSI |  |  |  |  |  |  |  |  |  |  |  |
|  | ≤6 | 173 | 99.2(13.9) | -1.41(-3.85, 1.03) | 0.26 |  | ≤6 | 292 | 98.9(12.7) | -3.14(-4.92, -1.37) | 0.001 |
|  | 7-9 | 55 | 99.5(12.4) | -1.79(-5.23, 1.66) | 0.31 |  | 7-9 | 258 | 101.1(14.6) | Ref. |  |
|  | 10-12 | 73 | 104.3(14.2) | 3.96(1.05, 6.88) | 0.01 |  | 10-12 | 90 | 98.3(13.7) | -2.77(-6.55, 1.02) | 0.15 |
|  | ≥13 | 135 | 99.6(13.3) | Ref. |  |  | ≥13 or Noneb | 62 | 100.6(14.9) | -0.53(-3.91, 2.85) | 0.76 |
|  | None | 266 | 99.2(14.0) | -0.47(-2.66, 1.73) | 0.68 |  |  |  |  |  |  |

Abbreviations: CI, confidence interval; FSIQ, full-scale intelligence quotient; PRI, perceptual reasoning index; PSI, processing speed index; SD, standard deviation; VCI, verbal comprehension index; WISC-IV, Wechsler Intelligence Scale for Children-Fourth Edition; WMI, working memory index.

aAdjusted for covariates (including parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (mid-upper arm circumference) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA, small for gestational age), adolescent sex, and school type) in general estimating equation linear models. For high protein-based food, the potential covariates also included durations of exclusive breastfeeding.

bThe number of participants who did not consume high protein-based food in infancy was 28.

Supplemental Table 7 WISC-IV test scores of adolescents with respect to tertiles of infant feeding index scores, after using inverse probability weighting to account for the missing outcome

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| WISC-IV | Feeding index scores | N | Mean (SD) | Adjusted mean differences (95% CI)a | P values | P values for trendb |
| FSIQ |  |  |  |  |  |  |
|  | Q1-lowest | 239 | 97.6(12.6) | Ref. |  | 0.001 |
|  | Q2 | 224 | 98.5(13.0) | 2.64(0.61, 4.68) | 0.01 |
|  | Q3-highest | 209 | 98.2(12.5) | 2.98(1.29, 4.67) | 0.001 |
| VCI |  |  |  |  |  |  |
|  | Q1-lowest | 239 | 102.8(15.9) | Ref. |  | 0.05 |
|  | Q2 | 224 | 103.4(15.8) | 2.49(-0.37, 5.35) | 0.09 |
|  | Q3-highest | 209 | 102.6(15.3) | 2.21(0.001, 4.42) | 0.05 |
| WMI |  |  |  |  |  |  |
|  | Q1-lowest | 239 | 94.2(10.6) | Ref. |  | 0.03 |
|  | Q2 | 224 | 94.2(12.0) | 0.95(-0.82, 2.71) | 0.29 |
|  | Q3-highest | 209 | 94.8(11.0) | 2.31(0.22, 4.40) | 0.03 |
| PRI |  |  |  |  |  |  |
|  | Q1-lowest | 239 | 95.5(12.2) | Ref. |  | 0.09 |
|  | Q2 | 224 | 96.7(12.8) | 2.61(0.21, 5.00) | 0.03 |
|  | Q3-highest | 209 | 95.5(13.0) | 1.71(-0.31, 3.73) | 0.10 |
| PSI |  |  |  |  |  |  |
|  | Q1-lowest | 239 | 98.9(13.3) | Ref. |  | <0.001 |
|  | Q2 | 224 | 99.9(14.1) | 2.08(0.04, 4.12) | 0.05 |
|  | Q3-highest | 209 | 100.8(13.7) | 3.41(1.54, 5.28) | <0.001 |

Abbreviations: CI, confidence interval; FSIQ, full-scale intelligence quotient; PRI, perceptual reasoning index; PSI, processing speed index; SD, standard deviation; VCI, verbal comprehension index; WISC-IV, Wechsler Intelligence Scale for Children-Fourth Edition; WMI, working memory index.

aAdjusted for covariates (including parental age, job and education at pregnancy enrollment, household wealth at pregnancy enrollment, maternal MUAC (mid-upper arm circumference) at pregnancy enrollment, maternal parity, randomized regimen, birth outcome (SGA, small for gestational age), adolescent sex, and school type) in general estimating equation linear models.

bP values for trend are calculated in general estimating equation linear models with the original feeding index scores as a continuous exposure variable, and adjusted for the same covariates as above.