## Supplemental Tables to the manuscript ‘Within-person, between-person and seasonal variance in nutrient intakes among 4- to 8-year-old rural Zambian children’

Supplemental Table 1. Within- and between-person coefficients of variation and within- to between-person variance ratios for energy and nutrient intakes, by age group, among 4- to 8-year-old participants in the non-intervened arm of a biofortified maize efficacy trial in Mkushi, Zambia, 2012–2013

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Unadjusted** |  |  | **Adjusted\*** |
|  | **Under 5 years** | **5 years and older** | **Under 5 years** | **5 years and older** |
| Nutrient | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ |
| Energy (kcal/d) | 19.0 | 6.9 | 7.5 | 19.5 | 7.9 | 6.1 | 18.4 | 7.7 | 5.7 | 17.7 | 7.9 | 5.1 |
| Protein (g/d) | 20.8 | 7.6 | 7.4 | 22.6 | 7.0 | 10.4 | 20.9 | 8.7 | 5.8 | 21.4 | 6.6 | 10.5 |
| Fat (g/d) | 20.0 | 8.5 | 5.5 | 20.6 | 9.0 | 5.2 | 19.5 | 8.9 | 4.8 | 19.0 | 8.6 | 4.9 |
| Carbohydrates (g/d) | 20.0 | 6.5 | 9.6 | 20.4 | 6.7 | 9.2 | 19.4 | 7.0 | 7.6 | 18.5 | 7.2 | 6.6 |
| Calcium (mg/d) | 27.8 | 8.1 | 11.9 | 28.7 | 6.8 | 17.7 | 30.1 | 9.7 | 9.6 | 29.6 | 7.4 | 15.9 |
| Iron (mg/d) | 19.1 | 6.3 | 9.3 | 20.1 | 3.5 | 33.0 | 18.9 | 6.8 | 7.7 | 19.3 | 3.3 | 34.1 |
| Zinc (mg/d) | 21.2 | 8.2 | 6.6 | 21.2 | 7.4 | 8.1 | 21.2 | 9.4 | 5.1 | 19.6 | 7.4 | 7.1 |
| Vitamin A (μg RAE/d) | 33.2 | 8.4 | 15.6 | 35.8 | 9.9 | 13.0 | 36.9 | 9.4 | 15.4 | 37.0 | 10.6 | 12.3 |
| Thiamin (mg/d) | 30.0 | 12.9 | 5.4 | 31.0 | 12.3 | 6.4 | 29.9 | 13.1 | 5.2 | 28.3 | 11.6 | 5.9 |
| Riboflavin (mg/d) | 25.8 | 6.5 | 15.7 | 28.2 | 7.2 | 15.1 | 25.5 | 7.2 | 12.5 | 26.9 | 8.0 | 11.4 |
| Niacin (mg/d) | 24.9 | 5.2 | 23.2 | 25.3 | 7.4 | 11.7 | 24.2 | 5.5 | 19.7 | 24.8 | 7.5 | 11.1 |
| Vitamin B6 (mg/d) | 27.8 | 15.6 | 3.2 | 28.4 | 11.3 | 6.3 | 27.7 | 15.6 | 3.2 | 25.9 | 10.3 | 6.3 |
| Folate (μg/d) | 18.0 | 4.7 | 14.7 | 18.2 | 5.8 | 9.8 | 17.8 | 5.2 | 11.6 | 17.5 | 5.7 | 9.5 |
| Vitamin B12 (μg/d) | 58.6 | 17.9 | 10.7 | 66.2 | 20.4 | 10.5 | 62.4 | 21.9 | 8.1 | 67.4 | 21.1 | 10.2 |
| Vitamin C (mg/d) | 31.0 | 7.0 | 19.7 | 30.6 | 3.3 | 85.6 | 31.7 | 8.5 | 14.0 | 31.9 | 4.5 | 49.7 |

RAE, Retinol Activity Equivalents. CVw, within-person coefficient of variation. CVb, between-person coefficient of variation. ${σ\_{w}^{2}}/{σ\_{b}^{2}}$, ratio of within- to between-person variance.

\*Model contains fixed effects for season, interviewer and market day

Supplemental Table 2. Within- and between-person coefficients of variation and within- to between-person variance ratios for energy and nutrient intakes, by sex, among 4- to 8-year-old participants in the non-intervened arm of a biofortified maize efficacy trial in Mkushi, Zambia, 2012–2013

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Unadjusted** |  |  | **Adjusted\*** |
|  | **Boys** | **Girls** | **Boys** | **Girls** |
| Nutrient | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $${σ\_{w}^{2}}/{σ\_{b}^{2}}$$ |
| Energy (kcal/d) | 19.4 | 6.6 | 8.5 | 19.1 | 8.6 | 5.0 | 18.0 | 7.4 | 6.0 | 17.8 | 8.7 | 4.2 |
| Protein (g/d) | 21.6 | 5.3 | 16.8 | 22.2 | 9.2 | 5.8 | 21.2 | 5.8 | 13.5 | 21.3 | 9.2 | 5.3 |
| Fat (g/d) | 20.8 | 9.1 | 5.3 | 19.8 | 8.6 | 5.2 | 19.8 | 9.2 | 4.7 | 18.3 | 8.8 | 4.3 |
| Carbohydrates (g/d) | 20.3 | 4.6 | 20.0 | 20.1 | 8.8 | 5.2 | 18.5 | 5.8 | 10.4 | 19.0 | 8.7 | 4.7 |
| Calcium (mg/d) | 29.2 | 5.6 | 27.4 | 27.4 | 9.1 | 9.1 | 30.0 | 5.7 | 27.7 | 29.8 | 10.9 | 7.5 |
| Iron (mg/d) | 19.5 | 4.6 | 17.9 | 20.0 | 5.6 | 12.8 | 19.1 | 5.2 | 13.7 | 19.2 | 5.7 | 11.4 |
| Zinc (mg/d) | 21.6 | 6.5 | 11.1 | 20.5 | 9.2 | 4.9 | 20.5 | 7.4 | 7.7 | 19.8 | 8.8 | 5.0 |
| Vitamin A (μg RAE/d) | 35.5 | 7.5 | 22.5 | 33.9 | 11.4 | 8.9 | 35.8 | 7.4 | 23.4 | 38.5 | 11.7 | 10.8 |
| Thiamin (mg/d) | 31.3 | 9.8 | 10.2 | 29.7 | 15.7 | 3.6 | 29.1 | 10.0 | 8.4 | 28.3 | 15.2 | 3.5 |
| Riboflavin (mg/d) | 27.1 | 5.6 | 23.3 | 27.6 | 8.5 | 10.6 | 25.8 | 6.9 | 14.0 | 26.9 | 9.5 | 8.0 |
| Niacin (mg/d) | 24.8 | 5.2 | 23.1 | 25.6 | 8.3 | 9.5 | 24.5 | 6.1 | 16.3 | 24.7 | 8.1 | 9.4 |
| Vitamin B6 (mg/d) | 27.6 | 11.5 | 5.8 | 28.9 | 15.2 | 3.6 | 25.8 | 10.8 | 5.6 | 27.9 | 14.1 | 3.9 |
| Folate (μg/d) | 18.5 | 4.5 | 16.5 | 17.7 | 6.3 | 7.9 | 17.8 | 5.0 | 12.6 | 17.2 | 6.3 | 7.4 |
| Vitamin B12 (μg/d) | 64.2 | 7.6 | 70.8 | 61.7 | 29.3 | 4.4 | 72.2 | 10.3 | 48.9 | 61.7 | 29.4 | 4.4 |
| Vitamin C (mg/d) | 31.1 | 4.3 | 52.7 | 30.2 | 6.8 | 19.8 | 29.4 | 6.2 | 22.5 | 34.0 | 7.6 | 20.3 |

RAE, Retinol Activity Equivalents. CVw, within-person coefficient of variation. CVb, between-person coefficient of variation. ${σ\_{w}^{2}}/{σ\_{b}^{2}}$, ratio of within- to between-person variance.

\*Model contains fixed effects for season, interviewer and market day

Supplemental Table 3. Within- and between-person coefficients of variation and within- to between-person variance ratios for energy and nutrient intakes, by season, among 4- to 8-year-old participants in the non-intervened arm of a biofortified maize efficacy trial in Mkushi, Zambia, 2012–2013

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Unadjusted** |  |  | **Adjusted\*** |
|  | **Late post-harvest season (Aug–Oct)** | **Early lean season (Nov–Jan)** | **Late lean season (Feb–Apr)** | **Late post-harvest season (Aug–Oct)** | **Early lean season (Nov–Jan)** | **Late lean season (Feb–Apr)** |
| Nutrient | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ | **CVw** | **CVb** | $$\frac{σ\_{w}^{2}}{σ\_{b}^{2}}$$ |
| Energy (kcal/d) | 19.6 | 13.5 | 2.1 | 18.4 | 7.8 | 5.5 | 16.9 | 6.9 | 6.1 | 18.3 | 11.0 | 2.8 | 18.2 | 8.2 | 4.9 | 14.6 | 7.5 | 3.8 |
| Protein (g/d) | 23.5 | 10.7 | 4.8 | 21.0 | 7.4 | 8.0 | 19.9 | 7.7 | 6.7 | 21.9 | 8.3 | 7.0 | 20.5 | 7.1 | 8.2 | 18.7 | 7.9 | 5.7 |
| Fat (g/d) | 20.9 | 13.4 | 2.4 | 19.8 | 8.4 | 5.6 | 18.9 | 8.5 | 4.9 | 18.7 | 11.0 | 2.9 | 20.0 | 9.3 | 4.6 | 16.2 | 9.4 | 3.0 |
| Carbohydrates (g/d) | 19.3 | 13.9 | 1.9 | 19.5 | 7.9 | 6.1 | 17.0 | 6.3 | 7.3 | 18.7 | 11.4 | 2.7 | 18.9 | 7.7 | 6.1 | 15.3 | 6.4 | 5.7 |
| Calcium (mg/d) | 29.8 | 6.2 | 22.8 | 26.1 | 10.2 | 6.5 | 28.3 | 6.1 | 21.7 | 26.0 | 10.1 | 6.7 | 25.3 | 11.3 | 5.0 | 30.4 | 4.4 | 48.4 |
| Iron (mg/d) | 20.3 | -- | -- | 20.4 | 6.8 | 9.1 | 16.0 | 6.6 | 5.8 | 17.4 | -- | -- | 20.0 | 5.6 | 13.0 | 14.3 | 7.1 | 4.0 |
| Zinc (mg/d) | 19.6 | 5.9 | 10.9 | 22.1 | 9.8 | 5.1 | 18.1 | 8.0 | 5.1 | 17.8 | 5.4 | 10.9 | 20.4 | 8.5 | 5.7 | 16.8 | 8.1 | 4.3 |
| Vitamin A (μg RAE/d) | 35.0 | 5.6 | 39.6 | 32.4 | 9.8 | 11.1 | 38.1 | -- | -- | 36.0 | -- | -- | 29.9 | 9.2 | 10.6 | 38.5 | -- | -- |
| Thiamin (mg/d) | 29.5 | 15.1 | 3.8 | 27.8 | 17.6 | 2.5 | 30.1 | 13.3 | 5.2 | 21.9 | 13.8 | 2.5 | 26.7 | 18.2 | 2.1 | 26.5 | 12.1 | 4.8 |
| Riboflavin (mg/d) | 28.8 | 11.0 | 6.9 | 23.6 | 11.3 | 4.4 | 25.6 | 11.5 | 5.0 | 22.3 | 12.8 | 3.0 | 22.0 | 12.3 | 3.2 | 24.2 | 12.1 | 4.0 |
| Niacin (mg/d) | 25.9 | 10.0 | 6.8 | 23.0 | 10.0 | 5.3 | 25.3 | 4.2 | 35.6 | 22.2 | 10.7 | 4.3 | 21.5 | 11.3 | 3.6 | 23.9 | 6.6 | 12.9 |
| Vitamin B6 (mg/d) | 29.9 | 2.6 | 129.6 | 25.3 | 18.9 | 1.8 | 27.0 | 13.3 | 4.1 | 19.2 | 9.6 | 4.1 | 23.4 | 17.9 | 1.7 | 24.3 | 13.3 | 3.3 |
| Folate (μg/d) | 18.4 | 7.3 | 6.3 | 17.1 | 7.1 | 5.8 | 17.6 | 4.7 | 14.2 | 17.6 | 6.9 | 6.4 | 17.1 | 7.3 | 5.5 | 16.0 | 5.8 | 7.6 |
| Vitamin B12 (μg/d) | 56.7 | 29.1 | 3.8 | 59.1 | 15.9 | 13.8 | 71.1 | 30.0 | 5.6 | 58.0 | 32.5 | 3.2 | 53.0 | 15.1 | 12.3 | 66.4 | 28.3 | 5.5 |
| Vitamin C (mg/d) | 26.6 | -- | -- | 29.7 | 10.7 | 7.8 | 29.5 | -- | -- | 25.2 | -- | -- | 28.0 | 9.4 | 8.9 | 29.9 | -- | -- |

RAE, Retinol Activity Equivalents. CVw, within-person coefficient of variation. CVb, between-person coefficient of variation. ${σ\_{w}^{2}}/{σ\_{b}^{2}}$, ratio of within- to between-person variance. Dashes (--) indicate parameter could not be estimated.

\*Model contains fixed effects for interviewer and market day