**Supplementary Table 2.**Univariable associations between potential confounders and age and gender standardised serum phosphate, calcium and PTH concentrations

|  |  |  |  |
| --- | --- | --- | --- |
|   | Phosphate | Albumin-adjusted calcium | Parathyroid hormone  |
|   | SD change per SD/category change (95%CI) | *P* | SD change per SD/category change (95%CI) | *P* | SD change per SD/category change (95%CI) | *P* |
| BMI (kg/m2) | 0.00(-0.01 to 0.01) | 0.82 | 0.00(-0.01 to 0.01) | 0.81 | 0.01(0.00 to 0.02) | 0.02 |
| WISC full IQ score at 8.5 years | 0.00(0.00 to 0.00) | 0.09 | 0.00(0.00 to 0.00) | 0.17 | 0.00(0.00 to 0.00) | 0.16 |
| Non-white ethnicity | -0.14(-0.38 to 0.10) | 0.24 | -0.09(-0.33 to 0.15) | 0.46 | 0.35(0.11 to 0.59) | 0.004 |
| Head of household social class |  |  |  |  |  |
| i | 0.03(-0.06 to 0.11) | 0.09 | -0.06(-0.14 to 0.03) | 0.35 | -0.03(-0.11 to 0.06) | 0.19 |
| ii | 0.00(-0.10 to 0.10) |  | 0.07(-0.03 to 0.17) |  | 0.00(-0.10 to 0.10) |  |
| iii non-manual | -0.05(-0.17 to 0.06) |  | 0.05(-0.06 to 0.17) |  | 0.01(-0.11 to 0.12) |  |
| iii manual | -0.12(-0.29 to 0.05) |  | 0.03(-0.14 to 0.19) |  | 0.06(-0.11 to 0.23) |  |
| iv/v | -0.12(-0.37 to 0.14) |  | 0.18(-0.07 to 0.44) |  | 0.21(-0.04 to 0.47) |  |
| Paternal education |  |  |  |  |  |
| None/CSE | 0.01(-0.10 to 0.12) | 0.44 | 0.12(0.01 to 0.22) | 0.02 | 0.03(-0.08 to 0.14) | 0.72 |
| Vocational | -0.12(-0.30 to 0.06) |  | -0.15(-0.33 to 0.03) |  | -0.12(-0.31 to 0.06) |  |
| O level | -0.02(-0.16 to 0.12) |  | -0.12(-0.26 to 0.02) |  | -0.06(-0.19 to 0.08) |  |
| A level | 0.00(-0.13 to 0.13) |  | -0.10(-0.23 to 0.02) |  | 0.09(-0.06 to 0.24) |  |
| Degree | 0.01(-0.12 to 0.14) |  | -0.19(-0.32 to -0.06) |  | -0.06(-0.19 to 0.06) |  |
| Maternal education |  |  |  |  |  |  |
| None/CSE | -0.02(-0.16 to 0.12) | 0.24 | 0.06(-0.08 to 0.19) | 0.02 | 0.09(-0.04 to 0.23) | 0.38 |
| Vocational | 0.08(-0.12 to 0.28) |  | -0.03(-0.23 to 0.17) |  | -0.28(-0.48 to -0.08) |  |
| O level | -0.03(-0.19 to 0.12) |  | -0.02(-0.17 to 0.13) |  | -0.13(-0.28 to 0.02) |  |
| A level | 0.03(-0.12 to 0.19) |  | -0.06(-0.22 to 0.09) |  | -0.13(-0.28 to 0.03) |  |
| Degree | 0.07(-0.09 to 0.23) |  | -0.14(-0.30 to 0.01) |  | -0.05(-0.20 to 0.11) |  |
| Child normally wears hat whilst out in the sun |  |  |  |  |
| Always | 0.06(-0.03 to 0.15) | 0.28 | 0.06(-0.02 to 0.15) | 0.20 | -0.09(-0.18 to 0.00) | 0.03 |
| Usually | -0.08(-0.19 to 0.03) |  | -0.08(-0.19 to 0.03) |  | 0.07(-0.04 to 0.18) |  |
| Sometimes | -0.04(-0.15 to 0.07) |  | -0.09(-0.20 to 0.02) |  | 0.09(-0.02 to 0.19) |  |
| Never | -0.18(-0.37 to 0.00) |  | -0.06(-0.25 to 0.12) |  | 0.23(0.05 to 0.42) |  |
|  |  |  |  |  |  |
| Always | -0.06(-0.16 to 0.04) | 0.25 | 0.00(-0.10 to 0.10) | 0.57 | -0.02(-0.12 to 0.08) | 0.95 |
| Usually | 0.07(-0.05 to 0.18) |  | 0.01(-0.10 to 0.13) |  | 0.00(-0.11 to 0.12) |  |
| Sometimes/Never | 0.08(-0.04 to 0.19) |  | -0.02(-0.14 to 0.10) |  | 0.01(-0.11 to 0.12) |  |
| Child normally uses sunblock whilst out in the sun |  |  |  |  |
| Always | 0.01(-0.04 to 0.07) | 0.65 | 0.00(-0.05 to 0.05) | 0.88 | -0.02(-0.07 to 0.03) | 0.54 |
| Usually | -0.03(-0.12 to 0.05) |  | -0.02(-0.10 to 0.07) |  | -0.02(-0.10 to 0.07) |  |
| Sometimes/Never | -0.01(-0.13 to 0.11) |  | 0.00(-0.12 to 0.12) |  | 0.06(-0.06 to 0.18) |  |
| Child normally avoids midday sun |  |  |  |  |
| Always | -0.05(-0.15 to 0.05) | <0.001 | -0.02(-0.11 to 0.08) | <0.001 | -0.06(-0.16 to 0.04) | 0.62 |
| Usually | 0.03(-0.08 to 0.15) |  | 0.01(-0.11 to 0.12) |  | 0.06(-0.05 to 0.18) |  |
| Sometimes | 0.09(-0.02 to 0.21) |  | 0.02(-0.10 to 0.13) |  | 0.03(-0.09 to 0.14) |  |
| Never | 0.01(-0.16 to 0.18) |  | 0.04(-0.13 to 0.20) |  | 0.07(-0.09 to 0.24) |  |
| Time spent outdoors in summer during school weekdays >3h/day | 0.01(-0.07 to 0.09) | 0.78 | 0.05(-0.03 to 0.12) | 0.23 | -0.01(-0.09 to 0.06) | 0.72 |
| Time spent outdoors in summer during weekends >3h/day | 0.03(-0.10 to 0.16) | 0.61 | 0.06(-0.07 to 0.19) | 0.33 | -0.10(-0.23 to 0.03) | 0.13 |
| Time spent outdoors in summer during holidays >3h/day | 0.07(-0.06 to 0.19) | 0.28 | 0.00(-0.12 to 0.13) | 0.93 | -0.06(-0.18 to 0.07) | 0.36 |
| Family history of depression/schizophrenia |  |  |  |  |
| None | -0.02(-0.30 to 0.27) | 0.65 | -0.04(-0.33 to 0.24) | 0.24 | 0.05(-0.24 to 0.33) | 0.21 |
| Depression | -0.04(-0.12 to 0.05) |  | -0.03(-0.11 to 0.05) |  | 0.05(-0.03 to 0.14) |  |
| Schizophrenia | 0.08(-0.20 to 0.37) |  | -0.18(-0.47 to 0.10) |  | 0.06(-0.22 to 0.35) |  |
| Puberty stage at serum measurement |  |  |  |  |
| 1 | -0.01(-0.07 to 0.04) | 0.18 | -0.05(-0.11 to 0.00) | 0.003 | -0.03(-0.08 to 0.03) | 0.82 |
| 2 | -0.01(-0.09 to 0.08) |  | 0.05(-0.04 to 0.13) |  | 0.04(-0.05 to 0.13) |  |
| 3 | 0.07(-0.04 to 0.17) |  | 0.11(0.01 to 0.21) |  | 0.02(-0.09 to 0.12) |  |
| 4-5 | 0.08(-0.09 to 0.25) |  | 0.21(0.04 to 0.38) |  | -0.08(-0.25 to 0.09) |  |