**Additional file 1**

Simple linear regressions for overall school competence (OSC) and each covariate

|  |  |  |
| --- | --- | --- |
| Variates | Regression coefficients (ꞵ) | R2 |
| **Height z-score** |  | **0.0042** |
| ≤ -2 | -1.154\* |  |
|  -2< z-score <2 | 0.000 |  |
|  ≥ 2 | 0.687 |  |
|  *p* for trend | 0.010 |  |
| **Gender** |  | **0.0278** |
|  Boys | 0.000 |  |
|  Girls | 1.002\*\*\* |  |
| **Grade** |  | **0.0090** |
|  Grade 1 | 0.000 |  |
|  Grade 2 | -0.019 |  |
| Grade 3 | -0.037 |  |
|  Grade 4 | 0.045 |  |
|  Grade 5 | -0.566\* |  |
|  Grade 6 | -0.753\* |  |
|  *p* for trend | 0.006 |  |
| **Region** |  | **0.0134** |
|  Hakka | -0.565 |  |
|  Mountain areas | -1.576\*\*\* |  |
|  Eastern | -0.468 |  |
| Penghu | -0.641 |  |
|  Northern 1 | -0.891\* |  |
|  Northern 2 | -0.571 |  |
|  Northern 3 | -0.938\* |  |
|  Central 1 | 0.00 |  |
|  Central 2 | -1.104\*\* |  |
|  Central 3 | -0.117 |  |
|  Southern 1 | -0.221 |  |
|  Southern 2 | -0.641\* |  |
|  Southern 3 | -0.919\* |  |
| **Father’s ethnicity** |  | **0.0062** |
|  Fukienese | 0.000 |  |
|  Hakka | -0.088 |  |
|  Mainlander | 0.677\*\* |  |
|  Indigenous | -0.822\* |  |
| **Mother’s education** |  | **0.0783** |
|  Primary and below | 0.000 |  |
|  Junior high school | 0.785\* |  |
|  Senior high school | 1.728\*\*\* |  |
|  University and above | 2.932\*\*\* |  |
|  *p* for trend | <0.001 |  |
| **Father’s education** |  | **0.0966** |
|  Primary and below | 0.000 |  |
|  Junior high school | -0.055 |  |
|  Senior high school | 1.155\*\* |  |
|  University and above | 2.381\*\*\* |  |
|  *p* for trend | <0.001 |  |
| **Household income** |  | **0.0500** |
|  0-30,000 NTD/month | 0.000 |  |
|  30,000-50,000 | 0.838\* |  |
|  50,000-80,000 | 1.441\*\*\* |  |
|  ≥80,000 | 2.164\*\*\* |  |
|  *p* for trend | <0.001 |  |
| **YHEI-TW (continuous)** | **0.043\*\*\*** | **0.0117** |
| **Lower birth weight** |  | **0.0023** |
|  Yes | -0.670 |  |
|  No | 0.000 |  |
| **BMI** |  | **0.0031** |
|  Underweight | 0.000 |  |
|  Normal weight | 0.063 |  |
|  Overweight or obese | -0.311 |  |
|  *p* for trend | 0.097 |  |
| **Physical activity** |  | **0.0044** |
|  0 min/day | 0.000 |  |
|  <30 min/day | 0.400 |  |
|  <60 min/day | 0.625 |  |
|  ≥60 min/day | -0.002 |  |
|  *p* for trend | 0.952 |  |

**Additional file 2**

Multiple linear regressions for overall school competence (OSC), inability to learn (IL) and HAZ in indigenes

|  |  |  |
| --- | --- | --- |
|  | Regression coefficients (ꞵ) for HAZ |  |
| OSC | ≤ -2 | -2< HAZ <2 | ≥ 2 | *p* for trend |
| Boys |  |  |  |  |
|  Crude Model | -1.450 | 0.00 (Ref.) | -0.969\*\* | 0.208 |
|  Model 1 | -2.120 | 0.00 | -1.101\* | 0.093 |
|  Model 2 | -2.435 | 0.00 | -0.424 | 0.075 |
|  Model 3 | -2.042 | 0.00 | 0.112 | 0.119 |
|  Model 4 | -1.629 | 0.00 | 0.760 | 0.180 |
|  Model 5 | -2.015 | 0.00 | 0.794 | 0.157 |
|  Model 6 | -1.954 | 0.00 | 0.785 | 0.050 |
|  Girls |  |  |  |  |
|  Crude Model | -2.932 | 0.00 | 2.585\*\*\* | 0.004 |
|  Model 1 | -2.138 | 0.00 | 2.032\*\*\* | 0.024 |
|  Model 2 | -2.194 | 0.00 | 1.757\*\* | 0.103 |
|  Model 3 | -1.695 | 0.00 | 0.951 | 0.286 |
|  Model 4 | -1.629 | 0.00 | 2.184 | 0.227 |
|  Model 5 | -1.480 | 0.00 | 2.371 | 0.516 |
|  Model 6 | -1.157 | 0.00 | 2.232 | 0.399 |
| Inability to learn (IL) |  |  |  |  |
| Boys |  |  |  |  |
|  Crude Model | 0.752 | 0.00 (Ref.) | 0.633 | 0.250 |
|  Model 1 | 1.700\*\* | 0.00 | 1.037 | 0.013 |
|  Model 2 | 1.851 | 0.00 | 0.984 | 0.076 |
|  Model 3 | 1.666 | 0.00 | 0.716 | 0.121 |
|  Model 4 | 1.680 | 0.00 | 0.007 | 0.142 |
|  Model 5 | 1.449 | 0.00 | 0.026 | 0.489 |
|  Model 6 | 1.556 | 0.00 | 0.108 | 0.194 |
|  Girls |  |  |  |  |
|  Crude Model | 4.701\* | 0.00 | -2.676\*\*\* | 0.002 |
|  Model 1 | 3.936 | 0.00 | -1.772\*\*\* | 0.032 |
|  Model 2 | 2.319 | 0.00 | -0.757 | 0.161 |
|  Model 3 | 2.056 | 0.00 | -0.349 | 0.289 |
|  Model 4 | 1.967 | 0.00 | -1.201 | 0.209 |
|  Model 5 | 1.798 | 0.00 | -1.432 | 0.575 |
|  Model 6 | 1.646 | 0.00 | -0.858 | 0.325 |

Model 1: adjusted for grade

Model 2: Model 1 + household income

Model 3: Model 2 + YHEI-TW

Model 4: Model 3 + physical activity

Model 5: Model 4 + Low birth weight (yes or no)

Model 6: Model 5 + BMI (underweight, normal, and overweight or obese)