**Twin Research and Human Genetics**

**Supplementary material**

**Association of Educational Level and Marital Status With Obesity: A Study of Chinese Twins**

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Table S1

Sensitivity Analysis for BMI, Overweight, Obesity by Educational Level and Marital Status Treating Twins as Individualsa

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | BMI |  | Overweight |  | Obesity |
| Gender | Predictor | β | 95% CI |  | *OR* | 95% CI |  | *OR* | 95% CI |
| Male | Educational level |  |  |  |  |  |  |  |  |
|  |  Primary school (reference level) |  |  |  |  |  |  |  |  |
|  |  Secondary school | 0.28 | 0.12, 0.44 |  | 1.23 | 1.05, 1.43 |  | 1.20 | 0.88, 1.63 |
|  |  Tertiary school | 0.33 | 0.14, 0.53 |  | 1.34 | 1.11, 1.62 |  | 1.20 | 0.83, 1.74 |
|  | Marital status |  |  |  |  |  |  |  |  |
|  |  Not married (reference level) |  |  |  |  |  |  |  |  |
|  |  Married | 0.73 | 0.61, 0.86 |  | 1.97 | 1.72, 2.25 |  | 2.32 | 1.78, 3.02 |
|  |  Live apart | 0.32 | 0.03, 0.61 |  | 1.48 | 1.05, 2.10 |  | 1.74 | 0.93, 3.26 |
|  |  Widowed or divorced | 0.14 | -0.35, 0.63 |  | 1.10 | 0.62, 1.96 |  | 0.90 | 0.22, 3.69 |
| Female | Educational level |  |  |  |  |  |  |  |  |
|  |  Primary school (reference level) |  |  |  |  |  |  |  |  |
|  |  Secondary school | -0.57 | -0.80, -0.33 |  | 0.57 | 0.45, 0.71 |  | 0.45 | 0.30, 0.67 |
|  |  Tertiary school | -1.21 | -1.47, -0.95 |  | 0.37 | 0.28, 0.48 |  | 0.29 | 0.18, 0.47 |
|  | Marital status |  |  |  |  |  |  |  |  |
|  |  Not married (reference level) |  |  |  |  |  |  |  |  |
|  |  Married | 0.57 | 0.42, 0.72 |  | 1.71 | 1.36, 2.15 |  | 2.02 | 1.24, 3.28 |
|  |  Live apart | 0.25 | -0.10, 0.61 |  | 0.74 | 0.40, 1.38 |  | 0.84 | 0.24, 2.96 |
|  |  Widowed or divorced | 0.21 | -0.35, 0.77 |  | 0.68 | 0.29, 1.59 |  | 0.34 | 0.04, 2.67 |

Note: BMI = body mass index; CI = confidence interval; *OR* = odds ratio.

aAll regression models were adjusted for age, region and zygosity.

Table S2

Sensitivity Analysis for BMI, Overweight or Obesity by Educational Level and Marital Status in MZ Twins Treating Twins as Pairs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | BMI |  | Overweight or Obesity |
| Gender | Predictor | β | 95% CI |  | *OR* | 95% CI |
| Male | Educational level |  |  |  |  |  |
|  | Primary school (reference level) |  |  |  |  |  |
|  | Secondary school | 0.10 | -0.16, 0.36 |  | 1.05 | 0.73, 1.52 |
|  | Tertiary school | 0.35 | 0.32, 0.66 |  | 1.20 | 0.77, 1.88 |
|  | Marital status |  |  |  |  |  |
|  | Not married (reference level) |  |  |  |  |  |
|  | Married | 0.25 | 0.10, 0.41 |  | 1.02 | 0.79, 1.32 |
|  | Live apart | -0.06 | -0.39, 0.27 |  | 0.86 | 0.51, 1.45 |
|  | Windowed or divorced | -0.12 | -0.65, 0.42 |  | 1.02 | 0.35, 3.01 |
| Female | Educational level |  |  |  |  |  |
|  | Primary school (reference level) |  |  |  |  |  |
|  | Secondary school | 0.26 | -0.17, 0.69 |  | 0.93 | 0.55, 1.59 |
|  | Tertiary school | 0.24 | -0.24, 0.72 |  | 0.88 | 0.45, 1.69 |
|  | Marital status |  |  |  |  |  |
|  | Not married (reference level) |  |  |  |  |  |
|  | Married | 0.48 | 0.29, 0.68 |  | 1.58 | 1.03, 2.43 |
|  | Live apart | 0.45 | 0.04, 0.87 |  | 1.35 | 0.57, 3.17 |
|  | Widowed or divorced | 0.25 | -0.40, 0.89 |  | 2.02 | 0.69, 5.96 |

Note: BMI = body mass index; CI = confidence interval; *OR* = odds ratio.

Table S3

Best Fitting Models for All Phenotypes in Univariate Genetic Models in Both Sexesa

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gender | Phenotype | Model | A | 95% CI | C | 95% CI | E | 95% CI |
| Male | BMI  | ACE | 0.562 | 0.509, 0.618 | 0.269 | 0.213, 0.321 | 0.169 | 0.161, 0.177 |
|  | Educational level  | ACE | 0.143 | 0.105, 0.185 | 0.79 | 0.750, 0.827 | 0.066 | 0.059, 0.076 |
|  | Marital status | ACE | 0.069 | 0.021, 0.121 | 0.847 | 0.797, 0.890 | 0.085 | 0.072, 0.099 |
| Female | BMI  | ACE | 0.363 | 0.297, 0.436 | 0.432 | 0.360, 0.496 | 0.205 | 0.193, 0.218 |
|  | Educational level  | ACE | 0.12 | 0.078, 0.170 | 0.828 | 0.780, 0.868 | 0.052 | 0.045, 0.060 |
| 　 | Marital status | CE | - |  | 0.91 | 0.894, 0.925 | 0.09 | 0.075, 0.106 |

Note: A = Additive genetic; C = common environment; E = unique environment.

BMI = body mass index; CI = confidence interval.

aModels were adjusted for age, region, smoking status, drinking status, educational level and marital status for variance component of BMI.