**Supplementary Table 2.** Baseline characteristics of study participants by free T4 category

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Characteristics | Overall | free T4 category | | | P value |
| Low | Normal | High |
| Number | 517,996 | 9,812 | 499,493 | 8,691 |  |
| Age (years)a | 39.1 (10.4) | 42.5 (12.2) | 39.0 (10.4) | 37.1 (9.4) | <0.001 |
| BMI (kg/m2) | 23.4 (3.3) | 23.5 (3.4) | 23.4 (3.3) | 23.1 (3.0) | <0.001 |
| Seoul center (%) | 67.4 | 63.2 | 67.6 | 60.4 | <0.001 |
| Male (%) | 53.7 | 26.9 | 53.9 | 71.2 | <0.001 |
| Obesity (%)c | 28.8 | 30.4 | 28.8 | 25.7 | <0.001 |
| Current smoker (%) | 24.4 | 12.9 | 24.5 | 30.6 | <0.001 |
| Alcohol intake (%)d | 18.3 | 10.2 | 18.4 | 22.8 | <0.001 |
| Regular exercise (%)e | 15.0 | 15.7 | 15.0 | 13.1 | <0.001 |
| High education level (%)f | 72.5 | 59.4 | 72.7 | 77.3 | <0.001 |
| Diabetes (%) | 3.9 | 4.7 | 3.9 | 4.2 | <0.001 |
| Hypertension (%) | 15.0 | 16.2 | 15.0 | 15.6 | 0.001 |
| Family history of cancer (%) | 22.8 | 22.8 | 22.8 | 21.7 | 0.042 |
| Viral hepatitis (%) | 3.8 | 6.5 | 3.8 | 2.2 | <0.001 |
| Fatty liver (%) | 26.6 | 25.1 | 26.7 | 23.7 | <0.001 |
| Liver cirrhosis (%) | 0.0 | 0.3 | 0.0 | 0.0 | <0.001 |
| Systolic BP (mmHg)a | 112.4 (14.3) | 110.8 (16.1) | 112.4 (14.3) | 114.4 (13.7) | <0.001 |
| Diastolic BP (mmHg)a | 72.2 (10.2) | 70.5 (11.0) | 72.2 (10.2) | 73.2 (9.9) | <0.001 |
| Glucose (mg/dl) | 94.7 (16.4) | 93.5 (17.1) | 94.7 (16.3) | 95.4 (19.1) | <0.001 |
| Total cholesterol (mg/dL)a | 194.0 (34.9) | 202.6 (39.8) | 194.0 (34.7) | 185.7 (36.5) | <0.001 |
| LDL-C (mg/dl)a | 115.4 (31.1) | 118.7 (33.7) | 115.4 (31.0) | 110.4 (32.1) | <0.001 |
| HDL-C (mg/dl)a | 57.1 (14.0) | 59.8 (15.7) | 57.1 (14.0) | 55.5 (13.2) | <0.001 |
| Triglycerides (mg/dL)b | 96 (67-144) | 103 (71-157) | 96 (67-144) | 95 (67-140) | <0.001 |
| ALT (U/L)b | 19 (14-29) | 19 (13-28) | 19 (14-29) | 23 (16-34) | <0.001 |
| GGT (U/L)b | 19 (12-34) | 15 (10-28) | 19 (12-34) | 24 (16-40) | <0.001 |
| hsCRP (mg/L)b | 0.4 (0.2-1.0) | 0.5 (0.2-1.3) | 0.4 (0.2-1.0) | 0.4 (0.2-0.9) | <0.001 |
| Fib-4a | 0.81 (0.47) | 1.00 (0.82) | 0.81 (0.46) | 0.74 (0.39) | <0.001 |

Data are amean (standard deviation), bmedian (interquartile range), or percentage.

Abbreviations: ALT, alanine aminotransferase; BMI, body mass index; BP, blood pressure; FBG, fasting blood glucose; GGT, gamma-glutamyl transferase; HOMA-IR, homeostasis model assessment of insulin resistance; hsCRP, high-sensitivity C-reactive protein

cBMI ≥ 25kg/m2; d ≥ 20 g/day; e ≥ 3 times/week; f ≥ College graduate.