**Table S1. Covariates associated with unhealthy sleep pattern**

| Variables | Univariate logistic regression | Multivariate logistic regression | Multivariate logistic regression additionally adjusted for energy |
| --- | --- | --- | --- |
| OR (95% CI) | *P* | OR (95% CI) | *P* | OR (95% CI) | *P* |
| Age |  |  |  |  |  |  |
|  <65 | Ref |  | Ref |  | Ref |  |
|  ≥65 | 0.58 (0.45-0.76) | <0.001 | 0.65 (0.49-0.88) | 0.005 | 0.66 (0.49-0.88) | 0.005 |
| Gender |  |  |  |  |  |  |
|  Male | Ref |  |  |  |  |  |
|  Female | 1.22 (0.93-1.61) | 0.151 |  |  |  |  |
| Race |  |  |  |  |  |  |
|  Non-Hispanic Black | Ref |  | Ref |  | Ref |  |
|  Non-Hispanic White | 0.64 (0.46-0.89) | 0.010 | 0.57 (0.39-0.84) | 0.005 | 0.57 (0.39-0.84) | 0.005 |
|  Mexican American | 0.71 (0.42-1.21) | 0.200 | 0.59 (0.33-1.06) | 0.078 | 0.59 (0.33-1.06) | 0.078 |
|  Other | 1.00 (0.55-1.82) | 1.000 | 0.93 (0.50-1.73) | 0.815 | 0.93 (0.50-1.73) | 0.816 |
| PIR |  |  |  |  |  |  |
|  ≤1.01 | Ref |  | Ref |  | Ref |  |
|  >1.01 | 0.37 (0.25-0.55) | <0.001 | 0.43 (0.29-0.65) | <0.001 | 0.43 (0.29-0.65) | <0.001 |
|  Unknown | 0.44 (0.26-0.75) | 0.003 | 0.53 (0.32-0.87) | 0.013 | 0.53 (0.32-0.87) | 0.013 |
| Marital status |  |  |  |  |  |  |
| Married/living with partner | Ref |  |  |  |  |  |
|  Spinsterhood/divorced/widowed/separated | 1.32 (0.94-1.85) | 0.106 |  |  |  |  |
| Education level |  |  |  |  |  |  |
|  High school and below | Ref |  |  |  |  |  |
|  Above high school | 0.81 (0.57-1.14) | 0.220 |  |  |  |  |
| BMI |  |  |  |  |  |  |
|  <25 | Ref |  |  |  |  |  |
|  [25, 30) | 0.82 (0.61-1.12) | 0.210 |  |  |  |  |
|  ≥30 | 1.24 (0.94-1.64) | 0.119 |  |  |  |  |
| Physical work |  |  |  |  |  |  |
|  <600 | Ref |  |  |  |  |  |
|  ≥600 | 0.95 (0.74-1.23) | 0.717 |  |  |  |  |
| Sedentary time |  |  |  |  |  |  |
|  <480 | Ref |  |  |  |  |  |
|  ≥480 | 1.08 (0.84-1.40) | 0.529 |  |  |  |  |
| Smoking |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Former | 1.08 (0.81-1.45) | 0.589 |  |  |  |  |
|  Now | 1.56 (1.06-2.30) | 0.024 |  |  |  |  |
| Drinking |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Light | 1.19 (0.84-1.69) | 0.317 |  |  |  |  |
|  Moderate | 0.92 (0.65-1.30) | 0.616 |  |  |  |  |
|  Heavy | 0.85 (0.55-1.34) | 0.488 |  |  |  |  |
|  Unknown | 1.28 (0.88-1.86) | 0.196 |  |  |  |  |
| Hypertension |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Yes | 0.98 (0.75-1.28) | 0.892 |  |  |  |  |
| DM |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Yes | 0.99 (0.73-1.35) | 0.968 |  |  |  |  |
| Dyslipidemia |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Yes | 0.92 (0.64-1.32) | 0.636 |  |  |  |  |
| CVD |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Yes | 0.98 (0.77-1.26) | 0.896 |  |  |  |  |
| COPD |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
|  Yes | 1.42 (1.02-1.97) | 0.039 |  |  |  |  |
| Cancer site |  |  |  |  |  |  |
| Urinary | Ref |  | Ref |  | Ref |  |
| Reproductive | 2.11 (1.27-3.52) | 0.005 | 1.33 (0.77-2.30) | 0.304 | 1.33 (0.78-2.27) | 0.284 |
| Respiratory | 1.38 (0.81-2.35) | 0.230 | 1.15 (0.65-2.05) | 0.623 | 1.16 (0.65-2.04) | 0.612 |
| Skin | 1.83 (1.18-2.84) | 0.008 | 1.86 (1.20-2.88) | 0.007 | 1.86 (1.20-2.88) | 0.007 |
| Digestive | 2.14 (1.13-4.08) | 0.021 | 2.01 (1.07-3.81) | 0.032 | 2.02 (1.06-3.83) | 0.033 |
| Others | 1.62 (1.00-2.62) | 0.050 | 1.47 (0.85-2.57) | 0.167 | 1.47 (0.85-2.57) | 0.167 |
| ≥2 sites | 1.77 (1.02-3.06) | 0.043 | 1.57 (0.86-2.88) | 0.140 | 1.58 (0.85-2.91) | 0.144 |
| Unknown | 1.85 (1.08-3.17) | 0.025 | 1.30 (0.75-2.25) | 0.339 | 1.30 (0.75-2.28) | 0.343 |
| Cancer duration |  |  |  |  |  |  |
| ≤1 | Ref |  |  |  |  |  |
| (1, 3] | 1.25 (0.71-2.22) | 0.433 |  |  |  |  |
| (3, 5] | 0.79 (0.44-1.44) | 0.441 |  |  |  |  |
| >5 | 1.16 (0.76-1.78) | 0.478 |  |  |  |  |
| Unknown | 1.21 (0.64-2.28) | 0.550 |  |  |  |  |
| Antineoplastic agents |  |  |  |  |  |  |
|  No | Ref |  |  |  |  |  |
| Antimetabolite | 1.22 (0.62-2.38) | 0.559 |  |  |  |  |
|  Other antineoplastic agents | 1.05 (0.68-1.62) | 0.821 |  |  |  |  |
| Painkiller |  |  |  |  |  |  |
|  No | Ref |  | Ref |  | Ref |  |
|  Yes | 2.05 (1.36-3.09) | 0.001 | 1.89 (1.21-2.96) | 0.006 | 1.89 (1.21-2.96) | 0.006 |
| ASH |  |  |  |  |  |  |
|  No | Ref |  | Ref |  | Ref |  |
|  Yes | 7.82 (4.43-13.80) | <0.001 | 7.04 (3.55-13.95) | <0.001 | 7.04 (3.55-13.96) | <0.001 |
| Antidepressant |  |  |  |  |  |  |
|  No | Ref |  | Ref |  | Ref |  |
|  Yes | 2.37 (1.45-3.88) | 0.001 | 2.00 (1.23-3.25) | 0.006 | 2.00 (1.23-3.25) | 0.006 |
| Total energy intake | 1.04 (0.92-1.18) | 0.522 |  |  | 1.01 (0.88-1.15) | 0.932 |
| WBC | 1.20 (1.02-1.42) | 0.030 |  |  |  |  |
| Lymphocyte | 1.16 (0.94-1.44) | 0.164 |  |  |  |  |
| Neutrophil | 1.13 (0.99-1.28) | 0.063 |  |  |  |  |
| eGFR |  |  |  |  |  |  |
|  <60 | Ref |  |  |  |  |  |
|  ≥60 | 1.07 (0.73-1.57) | 0.735 |  |  |  |  |

OR: odds ratio, CI: confidence interval, Ref: reference, PIR: poverty income ratio, BMI: body mass index, DM: diabetes mellitus, CVD: cardiovascular disease, COPD: chronic obstructive pulmonary disease, ASH: anxiolytics, sedatives and hypnotics, WBC: white blood cell, eGFR: estimated glomerular filtration rate.