## Electronic supplementary material

ESM Table 1. ICD codes for specific causes of death

| Condition                                      | ICD10                              |
|------------------------------------------------|------------------------------------|
| All - CVD                                      | I00-I09, I11, I13, I20-I51, I60-I69|
| Heart disease                                  | I00-I09, I11, I13, I20-I51         |
| Stroke                                         | I60-I69                            |
| All cancer                                     | C00-C97                            |
| Chronic lower respiratory diseases             | J40-J47                            |
| Alzheimer's disease                            | G30                                |
| Diabetes mellitus                              | E10-E14                            |
| Influenza and pneumonia                        | J09-J18                            |
| Nephritis, nephrotic syndrome and nephrosis    | N00-N07, N17-N19, N25-N27          |

Reference. The 113 underlying cause of death recode were used to regroup the specific mortality according to the NCHS.
ESM Table 2. Baseline characteristics among non-diabetes population according to sleep duration.

| Baseline Characteristics | Sleep duration (h/d) | ≤ 5 | 6 | 7 | 8 | 9 | ≥10 |
|--------------------------|----------------------|-----|---|---|---|---|-----|
| Sample size              |                      | 20,676 (7.8) | 52,316 (20.8) | 75,182 (31.0) | 79,669 (32.2) | 11,131 (4.6) | 9,661 (3.8) |
| Mean age, (years)        |                      | 46.49 | 45.63 | 45.47 | 46.68 | 48.86 | 52.14 |
| Sex (%)                  |                      |                  |                  |                  |                  |                  |                  |
| Male                     |                      | 8,760 (46.9) | 23,563 (49.3) | 34,671 (49.9) | 34,595 (47.0) | 4,505 (43.3) | 4,010 (45.5) |
| Female                   |                      | 11,916 (53.1) | 28,753 (50.7) | 40,511 (50.2) | 45,074 (53.0) | 6,808 (56.7) | 5,651 (54.5) |
| Race (%)                 |                      |                  |                  |                  |                  |                  |                  |
| Hispanic                 |                      | 3,278 (12.2) | 8,381 (12.5) | 12,526 (12.8) | 15,956 (15.7) | 2,052 (14.3) | 1,668 (13.9) |
| Non-Hispanic White       |                      | 11,887 (66.0) | 31,418 (68.1) | 48,787 (72.6) | 48,295 (68.6) | 7,238 (71.4) | 5,585 (65.8) |
| Non-Hispanic Black       |                      | 4,342 (16.8) | 8,989 (13.4) | 8,781 (8.9) | 10,808 (10.5) | 1,497 (10.0) | 1,996 (16.5) |
| Non-Hispanic Other       |                      | 1,169 (5.0) | 3,528 (6.0) | 5,088 (5.7) | 4,610 (5.2) | 562 (4.4) | 412 (3.8) |
| Education level (%)      |                      |                  |                  |                  |                  |                  |                  |
| Less than high school degree |                  | 4,059 (17.6) | 7,524 (12.7) | 9,409 (10.9) | 14,437 (15.8) | 2,363 (18.2) | 2,854 (27.9) |
| High school degree       |                      | 6,014 (30.4) | 13,878 (27.1) | 17,926 (24.1) | 21,876 (28.1) | 3,362 (31.4) | 3,187 (34.3) |
| More than high school degree |                  | 10,510 (51.5) | 30,727 (59.8) | 47,504 (64.4) | 42,878 (55.4) | 5,540 (50.0) | 3,529 (36.8) |
| Income (%)               |                      |                  |                  |                  |                  |                  |                  |
| Low                      |                      | 4,780 (18.1) | 8,327 (12.0) | 9,647 (9.5) | 13,504 (12.9) | 2,236 (15.4) | 2,589 (21.7) |
| Middle                   |                      | 10,805 (52.6) | 26,392 (49.2) | 35,816 (45.6) | 40,262 (49.0) | 6,072 (52.4) | 5,374 (56.7) |
| High                     |                      | 5,091 (29.4) | 17,597 (38.8) | 29,719 (44.9) | 1,763 (38.1) | 3,005 (32.1) | 1,698 (21.6) |
| BMI (kg/m2 ) (%)         |                      |                  |                  |                  |                  |                  |                  |
| Normal weight/Underweight, <25 kg/m2 |         | 6,773 (32.3) | 18,612 (35.4) | 29,923 (39.5) | 32,057 (40.9) | 4,722 (43.0) | 3,917 (42.1) |
| Pre-obesity, 25-30 kg/m2  |                      | 6,768 (33.0) | 17,959 (34.6) | 26,589 (35.5) | 27,361 (34.3) | 3,712 (32.1) | 2,885 (29.6) |
| Obesity, >30 kg/m2       |                      | 6,577 (32.0) | 14,358 (27.5) | 16,658 (22.3) | 17,918 (21.9) | 2,600 (22.5) | 2,586 (25.9) |
| Physical activity (meeting,%) |                  | 7,870 (39.9) | 23,200 (45.6) | 36,057 (49.3) | 24,296 (44.9) | 4,530 (41.9) | 2,605 (28.7) |
| Smoking status (%)       |                      |                  |                  |                  |                  |                  |                  |
| Never                    |                      | 10,284 (49.0) | 29,730 (56.1) | 46,796 (62.0) | 48,893 (61.4) | 6,467 (57.6) | 4,846 (50.0) |
| Former smoker            |                      | 4,001 (19.5) | 10,635 (20.6) | 15,425 (20.7) | 16,242 (20.4) | 2,590 (22.2) | 2,386 (23.7) |
| Current smoker           |                      | 6,365 (31.4) | 11,871 (23.2) | 12,827 (17.1) | 14,334 (17.9) | 2,245 (20.2) | 2,407 (26.1) |
| Hypertension (%)         |                      | 7,003 (31.5) | 14,443 (25.7) | 17,598 (22.1) | 20,343 (23.3) | 3,482 (27.6) | 3,604 (33.4) |
| CHD (%)                  |                      | 1,086 (4.7) | 1,809 (3.1) | 2,170 (2.7) | 2,858 (3.3) | 567 (4.6) | 786 (7.6) |
| Stroke (%)               |                      | 737 (3.2) | 1,109 (1.8) | 1,089 (1.2) | 1,718 (1.8) | 423 (3.4) | 779 (7.5) |
| Cancer (%)               |                      | 1,818 (8.4) | 3,682 (6.7) | 4,953 (6.4) | 6,066 (7.2) | 1,152 (9.6) | 1,231 (12.1) |

Values are n (percentage).
Abbreviation: BMI, body mass index, CHD, coronary heart disease
ESM Table 3. Sensitivity analysis excluding individuals with CHD, stroke and cancer for the association of sleep duration with all-cause and cause-specific mortality.

| Outcomes                  | N. of participants | N. of Deaths | Sleep duration (h/d) | 6 | 7 | 8 | 9 | ≥10 |
|---------------------------|--------------------|--------------|----------------------|---|---|---|---|-----|
| All-cause mortality       | 16,014             | 2,153        | 1.28 (1.06,1.55)     | 1.22 (1.03,1.45) | 1(ref.) | 1.04 (0.89,1.21) | 1.38 (1.11,1.70) | 1.73 (1.41,2.13) |
| Cancer mortality          | 16,014             | 456          | 1.40 (0.92,2.12)     | 1.11 (0.76,1.60) | 1(ref.) | 1.12 (0.82,1.53) | 1.26 (0.80,1.99) | 1.23 (0.77,1.97) |
| CVD mortality             | 16,014             | 387          | 1.25 (0.77,2.02)     | 1.45 (0.99,2.13) | 1(ref.) | 1.04 (0.70,1.54) | 1.54 (0.90,2.64) | 1.87 (1.20,2.92) |
| Heart disease mortality   | 16,014             | 299          | 0.91 (0.51,1.63)     | 1.30 (0.82,2.07) | 1(ref.) | 0.94 (0.60,1.47) | 1.58 (0.87,2.89) | 1.69 (1.01,2.82) |
| Stroke mortality          | 16,014             | 88           | 2.95 (1.15,7.61)     | 2.21 (0.95,5.14) | 1(ref.) | 1.51 (0.66,3.35) | 1.42 (0.41,4.96) | 2.70 (1.12,6.49) |
| Influenza and Pneumonia mortality | 16,014 | 44 | 1.54 (0.46,5.12) | 0.16 (0.02,1.30) | 1(ref.) | 1.24 (0.44,3.50) | 0.82 (0.22,3.12) | 0.92 (0.26,3.34) |
| Kidney disease mortality  | 16,014             | 68           | 1.94 (0.78,4.80)     | 2.07 (0.81,5.26) | 1(ref.) | 0.67 (0.27,1.64) | 1.94 (0.55,6.85) | 4.70 (0.95,23.22) |
| Alzheimer’s disease mortality | 16,014   | 35           | 2.58 (0.57,11.65)    | 1.11 (0.21,5.89) | 1(ref.) | 1.11 (0.23,5.45) | 1.94 (0.36,10.61) | 4.70 (0.95,23.22) |
| CLRD mortality            | 16,014             | 94           | 1.05 (0.35,3.13)     | 1.69 (0.73,3.95) | 1(ref.) | 2.23 (1.03,4.28) | 1.90 (0.66,5.47) | 3.26 (1.39,7.64) |

Values are HR (95% CI);
Abbreviation: CHD, coronary heart disease; CI, confidence interval; CLRD, chronic lower respiratory diseases; CVD, cardiovascular disease; HR, hazard ratio, N., number.