Supplemental eMethods

Pack years of smoking: The concept of pack years is intended to quantify the total amount of smoking a person has engaged in over time. Two pieces of information are needed to determine participants’ pack-year history: (1) The number of packages of cigarettes smoked daily (N); (2) The number of years of smoking (T). Those numbers can be plugged into the following formula to determine pack years of smoking (PY): $N \times T = PY$. Specifically, ‘N’ is calculated by dividing the number of cigarettes smoked per day by 20. And ‘T’ is calculated by subtracting the age at which smoking began from the age at which it ceased.

Alcohol consumption: Participants were first asked whether they currently consuming alcohol (Never/ previous/ current). Next, they were roughly asked how frequently they consumed alcohol (daily or almost daily/3-4 times a week/1-2 times a week/ 1-3 times a month/special occasions only/never), and, based on whether they drank more than one or three times a month, and finally then asked to report their consumption for each drink either per week (more than 1-3 times/month) or per month (1-3 times/months or less). British measurements for each type of alcohol were listed as follows: 1 pint of beer or cider=16g, 1 standard glass of white/red wine=16.8g, 1 glass of fortified wine=14.08g, 1 shot of spirits or liquor=8g, 1 glass of other alcohol drinks (i.e. alcopops) = 12g [1, 2]. We aggregated this data to construct the alcohol consumption variable (grams per day).

Diet score: The diet score was constructed to reflect the diet pattern based on the
frequency of consumption of fruits, vegetables, fish, processed meat, unprocessed red meat, whole grains, and refined grains, with higher scores indicating a healthier diet pattern [3]. We assigned 1 point for a healthy level and 0 points for an unhealthy level. The healthy standards for each dietary component were listed: (1) fruit: ≥ 3 servings/day; (2) vegetables: ≥ 3 servings/day; (3) fish: ≥ 2 servings/week; (4) processed meat: ≤ 1 serving/week; (5) unprocessed red meat: ≤ 1.5 servings/week; (6) whole grains: ≥ 3 servings/day; (7) refined grains: ≤ 1.5 servings/day. The total diet score ranged from 0 to 7, with higher scores indicating a healthier dietary pattern.

**Sleep score:** The sleep behaviors analyzed were self-reported and included the sleep duration, chronotype preference, insomnia disorder, snoring, daytime sleepiness, difficulty in getting up, and nap during day as in previous studies [4]. Sleep duration was recorded as the total numbers of hours of slept within a 24-hour period. Chronotype preference was ascertained by responding to the inquiry: “Do you consider yourself to be 1) definitely a ‘morning’ person; 2) more a ‘morning’ person than ‘evening’ person; 3) more an ‘evening’ person than a ‘morning’ person; or 4) definitely an ‘evening’ person.” Insomnia disorder was assessed by asking if the individual had difficulty falling asleep or waking up during the night with response options of never/rarely, sometimes, or usually. Snoring was assessed by asking if the participant’s partner, close relative or friend complains about their snoring (yes or no). Daytime sleepiness was evaluated by asking how likely they are to doze off during the daytime when not intending to (never/rarely; sometimes; often; and all of the time). Participants reported the level of difficulty of getting up in morning by
selecting answers ranging from “not at all easy” to “very easy.” Participants also reported their frequency of daytime napping by selecting from the options of never/rarely, sometimes, or usually.

**Physical activity:** It was a self-reported variable representing the total metabolic equivalent task (MET) minutes per week for all activity including walking, moderate and vigorous activity.

**Social health score:** The social health score is defined by three domains, including the frequency of friend and family visits, participation in leisure and social activities, and able to confide. Each domain was assigned a score 0-2 based on the frequency of activity reported, with total social health scores ranging from 0 to 6.

**Time spent on work:** Participants reported the duration of their current employment via a touchscreen questionnaire, with the unit of time being measured in years.

**Greenspace interaction:** This variable was self-reported and calculated as the percentage of participants’ home location buffer classified as ‘Greenspace’ in relation to all land-use types, with a 300m buffer radius applied to the home location data.

**References:**

1. **Alcohol units**

   [https://www.nhs.uk/live-well/alcohol-advice/calculating-alcohol-units/]

2. **What Is Fortified Wine? Types, Benefits, and Downsides**