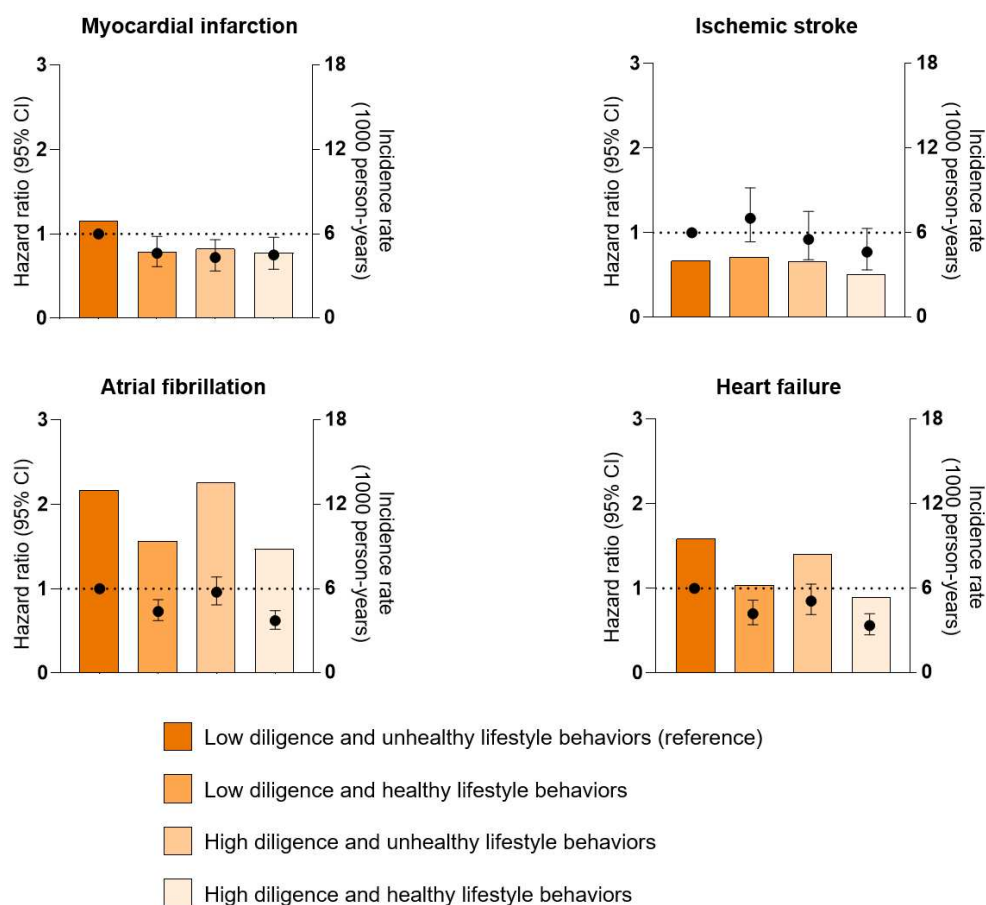


Supplemental Figure 1. Risks for myocardial infarction, ischemic stroke, atrial fibrillation, and heart failure according to each personality trait

The risks of each cardiovascular disease subtype are presented according to each personality trait (sociability, warmth, diligence, curiosity, and nervousness). Individuals with score of 0 served as a reference group for all analyses. Hazard ratios with 95% confidence intervals (CIs) are displayed as dot and whisker plots, after adjusted for covariates. The incidence rates are represented by bars. Covariates include age, sex, previous history of hypertension, dyslipidemia, chronic

kidney disease, cancer, and other personality traits except the personal trait of interest.

CI, confidence interval; CVD, cardiovascular disease



Supplemental Figure 2. Risks of incident myocardial infarction, ischemic stroke, atrial fibrillation, and heart failure according to diligence scores and lifestyle behaviors

The dots present hazard ratios, and the whiskers present 95% confidence intervals (CIs), after adjusted for covariates. The incidence rates for each cardiovascular event are denoted by bars. Covariates include age, sex, previous history of hypertension, dyslipidemia, chronic kidney disease, cancer, and other personality traits except the personal trait of interest.

CI, confidence interval

Supplemental Table 1. UK Biobank variables for Big Five proxies

	Variables in UK biobank	Data-field
Sociability (extraversion)	Frequency of friend/family visit (> once a month)	1031
	Guilty feelings (no)	2030
	Frequency of tiredness/lethargy in last 2 weeks	2080
	Leisure/social activities	6160
Warmth (agreeableness)	Able to confide to (> once a month)	2110
	Irritability	1940
	Mood swings	1920
	Tense / 'highly strung'	1990
	Nervous feelings	1970
Diligence (conscientiousness)	Frequency of enthusiasm/disinterest in last 2 weeks	2060
	Fed-up feelings	1960
	Risk taking	2040
	Worry too long after embarrassment	2000
Curiosity (openness)	Loneliness, isolation	2020
	Suffer from 'nerves'	2010
	Frequency of tenseness/restlessness in last 2 weeks (> several days)	2070
	Risk taking	2040
Nervousness (neuroticism)	Tense / 'highly strung'	1990
	Irritability	1940

Frequency of enthusiasm/disinterest in last 2 weeks (> several days)	2060
Mood swings	1920
Sensitivity/hut feelings	1950

Supplemental Table 2. Definitions of comorbidities and outcomes

ICD-10 codes	
Comorbidities	
Hypertension	I10-I13, I15
Dyslipidemia	E78
Chronic kidney disease	N18, N19
Cancer	C00-C97
Chronic kidney disease	N18, N19
Outcomes	
Myocardial infarction	I21, I22
Ischemic stroke	I63, I64
Atrial fibrillation	I48
Heart failure	I50

ICD-10, international classification of diseases, Tenth Revision

Supplemental table 3. Clinical characteristics of matched individuals without T2DM

Variables	Subjects (n=8,794)
Demographic data	
Age, years	60.3 ± 6.7
Male, %	5,554 (63.2%)
Body mass index, kg/m ²	
Body mass index < 25.0 kg/m ²	899 (10.2)
Body mass index 25.0—29.9 kg/m ²	3232 (36.8)
Body mass index ≥ 30.0 kg/m ²	4,663 (53.0)
Past medical history, %	
Hypertension	3,099 (35.2)
Dyslipidemia	1,458 (16.6)
Chronic kidney disease	119 (1.4)
Cancer	891 (10.1)
Smoking history, %	
Never smoker	4,440 (50.5)
Ex-smoker	3,690 (42.0)
Current smoker	664 (7.6)
Regular physical activity, %	6,900 (78.5)
Healthy lifestyle behaviors, %	7,304 (83.1)
Healthy lifestyle behaviors, score	2.1 ± 1.5
Physical examination	
Systolic blood pressure, mmHg	144.1 ± 18.0
Diastolic blood pressure, mmHg	85.3 ± 9.7
Personality trait score, score	
Sociability (extraversion)	2.9 ± 0.9
Warmth (agreeableness)	3.8 ± 1.3
Diligence (conscientiousness)	2.2 ± 0.8
Curiosity (openness)	2.6 ± 0.9
Nervousness (neuroticism)	1.5 ± 1.4

Values are presented as mean ± standard deviation or number (percentage)

Supplemental table 4. Clinical characteristics of subjects according to sociability (extraversion)

Variables	Score 0 (n=94)	Score 1 (n=901)	Score 2 (n=2,628)	Score 3 (n=3,306)	Score 4 (n=1,865)	P-value
Demographic data						
Age, years	56.8 ± 6.9	57.6 ± 7.2	59.2 ± 7.0	60.7 ± 6.6	61.5 ± 6.3	<0.001
Male, %	65 (69.1)	504 (55.9)	1,530 (58.2)	2,123 (64.2)	1,296 (69.5)	<0.001
BMI, kg/m ²	33.2 ± 6.3	32.3 ± 6.2	32.0 ± 6.0	31.3 ± 5.8	30.2 ± 5.0	<0.001
BMI < 25.0 kg/m ² , %	6 (6.4)	80 (8.9)	234 (8.9)	325 (9.8)	246 (13.2)	<0.001
BMI 25.0—29.9 kg/m ² , %	26 (27.7)	257 (28.5)	818 (31.1)	1,158 (35.0)	726 (38.9)	
BMI ≥ 30.0 kg/m ² , %	62 (66.0)	564 (62.6)	1,576 (60.0)	1,823 (55.1)	893 (47.9)	
Past medical history, %						
Hypertension	62 (65.9)	606 (67.2)	1,739 (66.2)	2,163 (65.4)	1,161 (62.2)	0.040
Dyslipidemia	50 (53.2)	414 (45.9)	1,185 (45.1)	1,453 (44.0)	805 (43.2)	0.219
Chronic kidney disease	4 (3.8)	39 (4.3)	125 (4.8)	147 (4.5)	62 (3.6)	0.212
Cancer	7 (7.4)	88 (9.8)	279 (10.6)	370 (11.1)	181 (9.7)	0.353
Smoking history, %						
Never smoker	33 (35.1)	400 (44.4)	1,153 (43.9)	1,483 (44.9)	896 (48.9)	<0.001
Ex-smoker	47 (50.0)	359 (39.8)	1,150 (43.8)	1,504 (45.5)	827 (44.3)	

Current smoker	14 (14.9)	142 (15.8)	325 (12.4)	319 (9.6)	142 (7.6)	
Regular physical activity, %	55 (58.5)	561 (62.3)	1,817 (69.1)	2,515 (76.1)	1,567 (84.0)	<0.001
Healthy lifestyle behaviors, %	36 (38.3)	417 (46.3)	1,365 (51.9)	1,892 (57.2)	1,231 (66.0)	<0.001
Healthy lifestyle behaviors, score	1.7 ± 0.9	1.6 ± 0.9	1.5 ± 0.9	1.3 ± 0.9	1.2 ± 0.8	<0.001
Physical examination						
Systolic blood pressure, mmHg	135.7 ± 15.1	139.0 ± 17.4	140.0 ± 17.1	142.5 ± 16.7	143.8 ± 16.8	<0.001
Diastolic blood pressure, mmHg	80.7 ± 8.6	81.8 ± 9.6	81.2 ± 9.6	81.4 ± 9.4	81.5 ± 9.3	0.818
Personality trait score, score						
Warmth	1.8 ± 1.3	2.6 ± 1.5	3.3 ± 1.4	3.8 ± 1.2	4.3 ± 1.0	<0.001
Diligence	1.8 ± 0.8	2.1 ± 1.0	2.2 ± 1.0	2.5 ± 0.9	2.7 ± 0.8	<0.001
Curiosity	1.9 ± 0.9	2.0 ± 0.9	2.1 ± 0.8	2.2 ± 0.7	2.2 ± 0.6	<0.001
Nervousness	3.8 ± 1.3	3.0 ± 1.5	2.2 ± 1.5	1.5 ± 1.3	0.9 ± 1.0	<0.001

BMI, body mass index

Supplemental table 5. Clinical characteristics of subjects according to warmth (agreeableness)

Variables	Score 0 (n=191)	Score 1 (n=600)	Score 2 (n=984)	Score 3 (n=1,719)	Score 4 (n=2,490)	Score 5 (n=2,810)	P-value
Demographic data							
Age, years	58.0 ± 7.5	58.2 ± 7.2	59.0 ± 7.2	59.5 ± 7.2	60.4 ± 6.8	61.0 ± 6.3	<0.001
Male, %	121 (63.4)	357 (59.5)	634 (64.4)	1,107 (64.3)	1,552 (62.3)	1,747 (62.1)	0.529
Body mass index, kg/m ²	30.9 ± 5.6	31.7 ± 6.2	31.7 ± 5.6	31.6 ± 5.8	31.4 ± 5.8	31.1 ± 5.6	0.008
BMI < 25.0 kg/m ² , %	19 (9.9)	64 (10.7)	90 (9.1)	159 (9.2)	253 (10.2)	306 (10.9)	0.026
BMI 25.0—29.9 kg/m ² , %	51 (26.7)	198 (33.0)	315 (32.0)	555 (32.3)	846 (34.0)	1,020 (36.2)	
BMI ≥ 30.0 kg/m ² , %	121 (63.4)	338 (56.3)	579 (58.8)	1,005 (58.4)	1,391 (55.9)	1,484 (52.8)	
Past medical history, %							
Hypertension	135 (70.6)	401 (66.8)	674 (68.5)	1,136 (66.1)	1,612 (64.7)	1,773 (63.1)	0.014
Dyslipidemia	108 (56.5)	289 (48.2)	486 (49.4)	760 (44.2)	1,085 (43.6)	1,179 (42.0)	<0.001
Chronic kidney disease	10 (5.2)	24 (4.0)	48 (4.9)	77 (4.5)	105 (4.2)	113 (4.0)	0.843
Cancer	21 (11.0)	60 (10.0)	77 (7.8)	182 (10.6)	264 (10.6)	321 (11.4)	0.068
Smoking history, %							
Never smoker	80 (41.9)	252 (42.0)	391 (39.7)	770 (44.8)	1,168 (46.9)	1,304 (46.4)	0.001

Ex-smoker	84 (44.0)	269 (44.8)	478 (48.6)	762 (44.3)	1,049 (42.1)	1,245 (44.3)	
Current smoker	27 (14.1)	79 (13.2)	115 (11.7)	187 (10.9)	274 (11.0)	261 (9.3)	
Regular physical activity, %	120 (62.8)	402 (67.0)	695 (70.6)	1,245 (72.4)	1,861 (74.7)	2,192 (78.0)	<0.001
Healthy lifestyle behaviors, %	91 (47.6)	312 (62.0)	490 (59.8)	938 (54.6)	1,424 (57.2)	1,686 (60.0)	<0.001
Healthy lifestyle behaviors, score	1.6 ± 0.9	1.5 ± 0.9	1.5 ± 0.9	1.4 ± 0.9	1.3 ± 0.9	1.3 ± 0.9	<0.001
Physical examination							
Systolic blood pressure, mmHg	140.0 ± 16.4	140.7 ± 17.0	140.2 ± 17.7	141.1 ± 16.8	141.9 ± 16.8	142.5 ± 17.0	<0.001
Diastolic blood pressure, mmHg	82.3 ± 9.9	81.6 ± 9.7	81.7 ± 9.5	81.4 ± 9.2	81.3 ± 9.6	81.3 ± 9.3	0.103
Personality trait score, score							
Sociability	1.6 ± 0.9	1.9 ± 0.9	2.3 ± 1.0	2.5 ± 0.9	2.8 ± 0.9	3.1 ± 0.8	<0.001
Diligence	1.9 ± 0.8	2.0 ± 0.9	2.1 ± 1.0	2.2 ± 1.0	2.4 ± 0.9	2.7 ± 0.8	<0.001
Curiosity	1.7 ± 0.8	1.8 ± 0.9	2.1 ± 0.9	2.2 ± 0.9	2.2 ± 0.7	2.3 ± 0.6	<0.001
Nervousness	4.7 ± 0.5	4.3 ± 0.8	3.3 ± 0.9	2.5 ± 0.9	1.3 ± 0.9	0.4 ± 0.5	<0.001

BMI, body mass index

Supplemental table 6. Clinical characteristics of subjects according to diligence (conscientiousness)

Variables	Score 0 (n=243)	Score 1 (n=1,232)	Score 2 (n=3,043)	Score 3 (n=3,368)	Score 4 (n=908)	P-value
Demographic data						
Age, years	57.4 ± 7.5	58.3 ± 7.3	59.4 ± 7.1	61.1 ± 6.3	61.5 ± 6.0	<0.001
Male, %	187 (77.0)	843 (68.4)	1,963 (64.5)	2,041 (60.5)	484 (53.3)	<0.001
Body mass index, kg/m ²	32.5 ± 5.8	32.3 ± 6.0	31.8 ± 5.8	30.9 ± 5.5	30.5 ± 5.7	<0.001
BMI < 25.0 kg/m ² , %	20 (8.2)	101 (8.2)	256 (8.4)	390 (11.6)	124 (13.7)	<0.001
BMI 25.0—29.9 kg/m ² , %	60 (24.7)	355 (28.8)	1,011 (33.2)	1,222 (36.3)	337 (37.1)	
BMI ≥ 30.0 kg/m ² , %	163 (67.1)	776 (63.0)	1,776 (58.4)	1,756 (52.1)	447 (49.2)	
Past medical history, %						
Hypertension	163 (67.1)	798 (64.8)	1,967 (64.6)	2,212 (65.7)	591 (65.1)	0.872
Dyslipidemia	101 (41.6)	574 (46.6)	1,382 (45.4)	1,448 (43.0)	402 (44.3)	0.128
Chronic kidney disease	11 (4.5)	57 (4.6)	128 (4.2)	147 (4.4)	34 (3.7)	0.890
Cancer	28 (11.5)	135 (11.0)	292 (9.6)	363 (10.8)	107 (11.8)	0.282
Smoking history, %						
Never smoker	84 (34.6)	515 (41.8)	1,324 (43.5)	1,584 (47.0)	458 (50.4)	<0.001

Ex-smoker	109 (44.9)	518 (42.0)	1,350 (44.4)	1,506 (44.7)	404 (44.5)	
Current smoker	50 (20.6)	199 (16.2)	369 (12.1)	278 (8.3)	46 (5.1)	
Regular physical activity, %	169 (69.5)	851 (69.1)	2,191 (72.0)	2,602 (77.3)	702 (77.3)	<0.001
Healthy lifestyle behaviors, %	108 (44.4)	587 (47.6)	1,643 (54.0)	2,032 (60.3)	571 (62.9)	<0.001
Healthy lifestyle behaviors, score	1.6 ± 0.8	1.5 ± 0.8	1.4 ± 0.9	1.3 ± 0.9	1.3 ± 0.9	<0.001
Physical examination						
Systolic blood pressure, mmHg	139.5 ± 16.1	139.9 ± 16.4	141.0 ± 17.2	142.4 ± 16.7	143.4 ± 18.9	<0.001
Diastolic blood pressure, mmHg	82.7 ± 10.3	81.8 ± 9.2	81.6 ± 9.7	81.0 ± 9.3	81.2 ± 9.2	<0.001
Personality trait score, score						
Sociability	2.2 ± 0.8	2.3 ± 0.9	2.6 ± 1.0	2.9 ± 0.9	2.8 ± 0.9	<0.001
Warmth	2.9 ± 1.1	3.0 ± 1.3	3.4 ± 1.4	4.0 ± 1.2	4.0 ± 1.1	<0.001
Curiosity	2.9 ± 0.7	2.5 ± 0.8	2.2 ± 0.9	2.0 ± 0.6	1.9 ± 0.5	<0.001
Nervousness	3.2 ± 1.0	2.8 ± 1.4	2.0 ± 1.6	1.1 ± 1.2	1.3 ± 1.0	<0.001

BMI, body mass index

Supplemental table 7. Clinical characteristics of subjects according to curiosity (openness)

Variables	Score 0 (n=139)	Score 1 (n=1,317)	Score 2 (n=4,689)	Score 3 (n=2,333)	Score 4 (n=316)	P-value
Demographic data						
Age, years	59.0 ± 7.4	59.4 ± 7.2	60.5 ± 6.6	59.8 ± 7.0	58.4 ± 7.3	0.261
Male, %	67 (48.2)	700 (53.2)	2,802 (59.8)	1,697 (72.7)	247 (78.2)	<0.001
Body mass index, kg/m ²	32.1 ± 5.9	31.8 ± 6.2	31.3 ± 5.7	31.3 ± 5.6	31.5 ± 5.6	0.003
BMI < 25.0 kg/m ² , %	14 (10.1)	158 (12.0)	478 (10.2)	213 (9.1)	28 (8.9)	0.003
BMI 25.0—29.9 kg/m ² , %	43 (30.9)	382 (29.0)	1,613 (34.4)	837 (35.9)	110 (34.8)	
BMI ≥ 30.0 kg/m ² , %	82 (59.0)	777 (59.0)	2,598 (55.4)	1,283 (55.0)	178 (56.3)	
Past medical history, %						
Hypertension	89 (64.0)	891 (67.7)	3,087 (65.8)	1,473 (63.1)	191 (60.4)	0.018
Dyslipidemia	61 (43.9)	590 (44.8)	2,102 (44.8)	1,021 (43.8)	133 (42.1)	0.825
Chronic kidney disease	5 (3.6)	70 (5.3)	197 (4.2)	92 (3.9)	13 (4.1)	0.363
Cancer	10 (7.2)	132 (10.0)	520 (11.1)	228 (9.8)	35 (11.1)	0.279
Smoking history, %						
Never smoker	58 (41.7)	640 (48.6)	2,164 (46.2)	986 (42.3)	117 (37.0)	<0.001

Ex-smoker	67 (48.2)	527 (40.0)	2,099 (44.8)	1,041 (44.6)	153 (48.4)	
Current smoker	14 (10.1)	150 (11.4)	426 (9.1)	306 (13.1)	46 (14.6)	
Regular physical activity, %	100 (71.9)	915 (69.5)	3,483 (74.3)	1,778 (76.2)	239 (75.6)	<0.001
Healthy lifestyle behaviors, %	74 (53.2)	717 (54.4)	2,668 (56.9)	1,314 (56.3)	168 (53.2)	0.370
Healthy lifestyle behaviors, score	1.5 ± 0.8	1.4 ± 0.9	1.4 ± 0.9	1.4 ± 0.9	1.4 ± 0.9	0.516
Physical examination						
Systolic blood pressure, mmHg	139.7 ± 15.8	140.2 ± 17.0	142.5 ± 17.1	140.9 ± 16.8	139.8 ± 16.1	0.810
Diastolic blood pressure, mmHg	80.1 ± 8.4	81.3 ± 9.8	81.4 ± 9.3	81.5 ± 9.5	82.6 ± 9.7	0.034
Personality trait score, score						
Sociability	2.3 ± 0.9	2.3 ± 1.0	2.8 ± 0.9	2.8 ± 0.9	2.4 ± 0.9	<0.001
Warmth	2.6 ± 1.3	2.8 ± 1.5	3.8 ± 1.3	3.7 ± 1.2	3.3 ± 1.1	<0.001
Diligence	2.5 ± 0.7	2.5 ± 0.8	2.7 ± 0.9	1.9 ± 0.9	1.4 ± 0.9	<0.001
Nervousness	2.6 ± 1.3	2.5 ± 1.6	1.5 ± 1.4	1.6 ± 1.4	2.4 ± 1.4	<0.001

BMI, body mass index

Supplemental table 8. Clinical characteristics of subjects according to nervousness (neuroticism)

Variables	Score 0 (n=2,305)	Score 1 (n=2,169)	Score 2 (n=1,662)	Score 3 (n=1,336)	Score 4 (n=833)	Score 5 (n=489)	P-value
Demographic data							
Age, years	61.1 ± 6.3	61.1 ± 6.4	59.9 ± 6.7	59.2 ± 7.3	58.3 ± 7.3	56.7 ± 7.3	<0.001
Male, %	1,606 (69.7)	1,301 (60.0)	1,034 (62.2)	789 (59.1)	517 (62.1)	271 (55.4)	<0.001
Body mass index, kg/m ²	30.9 ± 5.6	31.1 ± 5.6	31.5 ± 5.8	31.9 ± 5.8	32.1 ± 5.8	32.0 ± 6.3	<0.001
BMI < 25.0 kg/m ² , %	262 (11.4)	233 (10.7)	168 (10.1)	113 (8.5)	74 (8.9)	40 (8.4)	<0.001
BMI 25.0—29.9 kg/m ² , %	854 (37.0)	772 (35.6)	551 (33.2)	419 (31.4)	246 (29.5)	143 (29.2)	
BMI ≥ 30.0 kg/m ² , %	1,189 (51.6)	1,164 (53.7)	943 (56.7)	804 (60.7)	513 (61.6)	305 (62.4)	
Past medical history, %							
Hypertension	1,475 (64.0)	1,386 (63.9)	1,080 (65.0)	901 (67.4)	554 (66.5)	335 (68.5)	0.107
Dyslipidemia	989 (42.9)	931 (42.9)	707 (42.5)	630 (47.2)	413 (49.6)	237 (48.5)	<0.001
Chronic kidney disease	87 (3.8)	96 (4.5)	75 (4.5)	61 (4.6)	34 (4.1)	24 (4.9)	0.764
Cancer	249 (10.8)	225 (11.1)	184 (11.1)	136 (10.2)	88 (10.6)	43 (8.8)	0.777
Smoking history, %							
Never smoker	1,098 (47.6)	997 (46.0)	771 (46.4)	551 (41.2)	343 (41.2)	206 (42.1)	<0.001

Ex-smoker	989 (42.9)	956 (44.1)	704 (42.4)	636 (47.6)	390 (46.8)	212 (43.4)	
Current smoker	219 (9.5)	216 (10.0)	187 (11.3)	149 (11.2)	100 (12.0)	71 (14.5)	
Regular physical activity, %	1,791 (77.7)	1,635 (75.4)	1,248 (75.1)	955 (71.5)	569 (68.3)	317 (64.8)	<0.001
Healthy lifestyle behaviors, %	1,400 (60.7)	1,263 (58.2)	944 (56.8)	687 (51.4)	405 (48.6)	242 (49.5)	<0.001
Healthy lifestyle behaviors, score	1.3 ± 0.9	1.3 ± 0.9	1.4 ± 0.8	1.5 ± 0.9	1.5 ± 0.8	1.6 ± 0.9	<0.001
Physical examination	1,791 (77.7)	1,635 (75.4)	1,248 (75.1)	955 (71.5)	569 (68.3)	317 (64.8)	<0.001
Systolic blood pressure, mmHg	143.3 ± 16.8	142.3 ± 17.3	140.9 ± 16.6	140.8 ± 16.6	139.1 ± 16.9	139.1 ± 16.8	<0.001
Diastolic blood pressure, mmHg	81.5 ± 9.4	81.1 ± 9.5	81.5 ± 9.5	81.5 ± 9.4	81.1 ± 9.4	82.0 ± 9.7	0.602
Personality trait score, score							
Sociability	3.2 ± 0.8	2.9 ± 0.9	2.6 ± 0.9	2.3 ± 0.9	2.1 ± 0.9	1.6 ± 0.8	<0.001
Warmth	4.8 ± 0.5	4.3 ± 0.7	3.5 ± 0.8	2.8 ± 0.9	1.8 ± 0.9	0.9 ± 0.7	<0.001
Diligence	2.8 ± 0.6	2.7 ± 0.9	2.4 ± 1.0	2.0 ± 1.0	1.8 ± 0.9	1.5 ± 0.6	<0.001
Curiosity	2.2 ± 0.6	2.2 ± 0.7	2.2 ± 0.8	2.1 ± 0.9	2.0 ± 0.9	1.8 ± 0.9	<0.001

BMI, body mass index

Supplemental Table 9. Cardiovascular diseases according to personality traits among individuals without diabetes

	Number	Event	IR*	Model 1**	P-value	Model 2***	P-value
Any CVD	8,794	1,299	11.02				
Sociability				1.02 (0.97-1.09)	0.422	0.96 (0.90-1.03)	0.220
Warmth				1.00 (0.96-1.04)	0.994	1.00 (0.92-1.09)	0.992
Diligence				0.94 (0.88-0.99)	0.030	0.94 (0.88-1.01)	0.095
Curiosity				1.07 (1.00-1.16)	0.043	1.03 (0.95-1.11)	0.533
Nervousness				0.99 (0.95-1.03)	0.527	1.02 (0.94-1.10)	0.685
Myocardial infarction	8,794	329	2.77				
Sociability				1.05 (0.93-1.18)	0.411	0.98 (0.86-1.12)	0.758
Warmth				1.00 (0.92-1.09)	0.969	0.95 (0.80-1.11)	0.510
Diligence				0.85 (0.76-0.96)	0.007	0.84 (0.73-0.97)	0.002
Curiosity				1.14 (0.99-1.31)	0.079	1.00 (0.85-1.17)	0.965
Nervousness				0.97 (0.90-1.05)	0.420	0.93 (0.80-1.09)	0.361
Ischemic stroke	8,794	185	1.54				
Sociability				1.22 (1.03-1.43)	0.019	1.15 (0.95-1.38)	0.144
Warmth				1.03 (0.91-1.15)	0.662	1.03 (0.83-1.29)	0.144
Diligence				1.10 (0.93-1.29)	0.263	1.10 (0.91-1.32)	0.340
Curiosity				1.05 (0.87-1.27)	0.630	1.07 (0.86-1.33)	0.549
Nervousness				0.97 (0.87-1.08)	0.569	1.11 (0.90-1.37)	0.312
Atrial fibrillation	8,794	831	7.16				
Sociability				1.01 (0.94-1.09)	0.729	0.94 (0.87-1.03)	0.172
Warmth				1.03 (0.98-1.09)	0.282	1.05 (0.94-1.17)	0.368

Diligence				0.99 (0.92-1.07)	0.895	1.03 (0.94-1.12)	0.506
Curiosity				1.10 (1.01-1.20)	0.036	1.10 (0.99-1.22)	0.068
Nervousness				0.97 (0.93-1.02)	0.271	1.06 (0.96-1.16)	0.276
Heart failure	8,794	343	2.87				
Sociability				0.90 (0.81-1.01)	0.069	0.91 (0.80-1.03)	0.130
Warmth				0.93 (0.86-1.01)	0.103	0.96 (0.82-1.12)	0.599
Diligence				0.84 (0.75-0.94)	0.002	0.83 (0.73-0.95)	0.008
Curiosity				0.98 (0.85-1.12)	0.073	0.90 (0.77-1.05)	0.187
Nervousness				1.05 (0.98-1.13)	0.157	1.00 (0.86-1.15)	0.957

*Incidence rates were calculated as the number of observed incidence cases per 1,000 patient-years.

**Model 1 is the unadjusted analyses.

***Model 2 adjusts for age, sex, body mass index, hypertension, dyslipidemia, chronic kidney disease, cancer, and personality traits (scores of sociability, warmth, diligence, curiosity, and nervousness).

CVD, cardiovascular disease; IR, incidence rate

Supplemental table 10. The statistical fit of structural equation models

	SEM	Standard criteria
CFI	1.00	> 0.90
RMSEA	0.00	< 0.08
SRMSR	0.00	< 0.06

CFI, comparative fit index; RMSEA, root mean square error of approximation; SEM, structural equation modeling; SRMSR, standardized root mean square residual

Supplemental table 11. Structural equation models for personality traits, lifestyle behaviors, and cardiovascular diseases

Regressions	Standardized coefficient	Standardized error	Z-value	P-value
Lifestyle behaviors ~ sociability	0.123	0.012	10.429	<0.001
Lifestyle behaviors ~ warmth	-0.004	0.020	-0.221	0.825
Lifestyle behaviors ~ diligence	0.100	0.012	8.129	<0.001
Lifestyle score ~ curiosity	0.022	0.011	1.963	0.005
Lifestyle score ~ neuroticism	-0.016	0.021	-0.759	0.448
Any CVD ~ sociability	0.010	0.012	0.832	0.406
Any CVD ~ warmth	-0.022	0.020	-1.092	0.275
Any CVD ~ diligence	-0.037	0.013	-2.941	<0.001
Any CVD ~ curiosity	-0.009	0.012	-0.789	0.430
Any CVD ~ neuroticism	-0.045	0.022	-2.081	0.037
Any CVD ~ lifestyle behaviors	-0.086	0.011	-8.000	<0.001

CVD, cardiovascular disease

Supplemental Table 12. Cardiovascular diseases according to PHQ-9 and GAD-7

	Number	Event	IR*	HR (95% CI)**	P-value
Any CVD	2,391	465	15.1		
PHQ-9				1.03 (1.01-1.05)	0.001
GAD-7				1.00 (0.97-1.03)	0.980
Myocardial infarction	2,391	140	4.3		
PHQ-9				1.05 (1.02-1.08)	0.002
GAD-7				0.33 (0.99-1.08)	0.105
Ischemic stroke	2,391	84	2.7		
PHQ-9				1.03 (0.98-1.08)	0.221
GAD-7				0.99 (0.92-1.05)	0.707
Atrial fibrillation	2,391	263	8.6		
PHQ-9				1.02 (0.99-1.04)	0.236
GAD-7				1.01 (0.97-1.04)	0.754
Heart failure	2,391	170	5.53		
PHQ-9				1.07 (1.04-1.10)	<0.001
GAD-7				1.03 (0.99-1.07)	0.189

*Incidence rates were calculated as the number of observed incidence cases per 1,000 patient-years.

**Model adjusts for age, sex, body mass index, hypertension, dyslipidemia, chronic kidney disease, and cancer

CI, confidence interval; CVD, cardiovascular disease; GAD-7, generalized anxiety disorder-7; HR, hazard ratio; IR, incidence rate; PHQ-9, Patient Health Questionnaire-9