

SUPPLEMENTAL MATERIAL

Table S1. Definition of Life's Simple 7 health factors at baseline (1987-1989).

	Ideal	Intermediate	Poor
Smoking	Never smoker	Former smoker	Current smoker
Body mass index	<25 kg/m ²	25-29.9 kg/m ²	≥30 kg/m ²
Physical activity	≥150 min/week moderate or ≥75 min/week vigorous or ≥150 min/week moderate + vigorous activity	1-149 min/week moderate or 1- 74 min/week vigorous or 1-149 min/week moderate + vigorous activity	None
Diet score*	4-5 components	2-3 components	0-1 components
Total cholesterol	<5.2 mmol/L and not treated	5.2-6.1 or treated to <5.6 mmol/L	≥6.2 mmol/L
Blood pressure	SBP<120 and DBP<80 mmHg and not treated	SBP 120-139 or DBP 80-88 or treated to SBP <120 and DBP<80 mmHg	SBP ≥140 or DBP ≥90 mmHg
Fasting glucose	<5.6 mmol/L and not treated	5.6-6.9 or treated to <5.6 mmol/L	7.0 mmol/L

SBP indicates systolic blood pressure; DBP, diastolic blood pressure

* Meets criteria: Fruits and vegetables ≥4.5 servings/day, Fish ≥two 3-5 oz/week, Fiber-rich whole grains ≥3 servings/day, Sodium <1500mg/day, and sugar-sweetened beverages ≤4 glasses/week

Table S2. Baseline characteristics for study population according to score of Life's Simple 7, N=13,079.

	Score of Life's Simple 7				
	Total (N=13,079)	0-3 (N=374)	4-6 (N=3,137)	7-9 (N=6,042)	≥10 (N=3,526)
Age, years	54.5 (5.7)	55.1 (5.6)	55.1 (5.6)	54.6 (5.8)	53.5 (5.7)
Female	56.2%	62.8%	53.8%	52.4%	64.2%
Blacks	24.4%	59.4%	38.7%	22.4%	11.3%
Health insurance (yes)	91.1%	75.9%	86.4%	91.7%	95.8%
Family income for the past 12 months					
≥\$25,000	62.5%	28.7%	49.4%	63.5%	76.0%
Highest education					
≥12 years	78.5%	54.3%	67.4%	70.4%	89.3%
Body mass index, kg/m ²	27.5 (5.2)	33.1 (5.1)	30.2 (5.5)	27.4 (4.8)	24.5 (3.4)
Systolic blood pressure, mmHg	120.6 (18.3)	139.1 (20.4)	129.7 (19.8)	120.5 (16.7)	110.8 (13.0)
Diastolic blood pressure, mmHg	73.5 (11.0)	82.0 (12.5)	78.1 (11.9)	73.4 (10.3)	68.8 (8.8)
Fasting glucose, mmol/L	5.9 (1.8)	7.9 (3.5)	6.6 (2.6)	5.7 (1.4)	5.3 (0.8)
Total cholesterol, mmol/L	5.5 (1.1)	6.5 (1.0)	6.0 (1.1)	5.5 (1.0)	5.1 (0.9)
HDL cholesterol, mmol/L	1.4 (0.4)	1.2 (0.4)	1.3 (0.4)	1.3 (0.4)	1.5 (0.5)
LDL cholesterol, mmol/L	3.5 (1.0)	4.5 (1.0)	3.9 (1.1)	3.6 (1.0)	3.1 (0.8)
Life's Simple 7					
Smoking status					
Intermediate	31.8%	29.7%	32.4%	34.0%	27.8%
Ideal	43.2%	15.0%	29.4%	40.7%	62.8%
Body mass index					
Intermediate	39.7%	17.4%	38.5%	46.4%	31.5%
Ideal	34.5%	2.7%	13.3%	30.5%	63.6%
Physical activity					
Intermediate	4.1%	2.1%	3.6%	4.7%	3.7%
Ideal	59.8%	2.9%	26.7%	62.8%	90.1%
Healthy diet					
Intermediate	44.0%	15.5%	32.5%	45.0%	55.6%
Ideal	6.3%	0.8%	2.0%	4.7%	13.4%
Total cholesterol					
Intermediate	36.1%	27.0%	35.6%	39.8%	31.1%
Ideal	39.4%	4.8%	23.1%	37.3%	61.0%
Blood pressure					
Intermediate	42.2%	38.8%	50.9%	47.6%	25.4%
Ideal	41.5%	3.5%	16.7%	39.0%	71.7%
Glucose					
Intermediate	35.6%	47.6%	50.7%	38.6%	15.9%
Ideal	56.8%	11.8%	31.7%	57.0%	83.5%

HDL indicates high-density lipoprotein; LDL, low-density lipoprotein

Table S3. Risk of incident myocardial infarction by Life's Simple 7 Health Factors, N=13,079.

Life's Simple 7 factors	Poor	Intermediate	Ideal
Smoking status			
N (%)	3,272 (25.0)	4,156 (31.8)	5,651 (43.2)
Cases	433	416	428
HR (95%CI)	1 (ref.)	0.50 (0.43-0.57)	0.44 (0.39-0.51)
Body mass index			456
N (%)	3,377 (25.8)	5,190 (40.0)	4,512 (34.5)
Cases	385	551	341
HR (95%CI)	1 (ref.)	0.91 (0.79-1.04)	0.78 (0.67-0.92)
Physical activity			
N (%)	4,726 (36.1)	533 (4.1)	7,820 (59.8)
Cases	511	53	713
HR (95%CI)	1 (ref.)	1.05 (0.79-1.39)	0.85 (0.75-0.96)
Healthy diet			
N (%)	6,498 (49.7)	5,759 (44.0)	822 (6.3)
Cases	649	560	68
HR (95%CI)	1 (ref.)	0.98 (0.87-1.09)	0.89 (0.69-1.14)
Total cholesterol			
N (%)	3,211 (24.6)	4,718 (36.1)	5,150 (39.4)
Cases	429	478	370
HR (95%CI)	1 (ref.)	0.78 (0.69-0.89)	0.56 (0.49-0.65)
Blood pressure			
N (%)	2,142 (16.4)	5,514 (42.2)	5,423 (41.5)
Cases	310	608	359
HR (95%CI)	1 (ref.)	0.73 (0.63-0.84)	0.48 (0.41-0.56)
Fasting glucose			
N (%)	993 (7.6)	4,662 (35.6)	7,424 (56.8)
Cases	207	482	588
HR (95%CI)	1 (ref.)	0.43 (0.36-0.50)	0.40 (0.34-0.47)

CI indicates confidence interval; HR, hazard ratio

*Adjusted for age, sex, race and each of Life's Simple 7 health factors

Table S4. Hazard ratio (95% CI) of adverse outcomes after incident myocardial infarction according to score of Life's Simple 7 among myocardial infarction patients after adjusting socioeconomic status and myocardial infarction severity.

	Score of Life's Simple 7				P for trend
	0-3 (N=77)	4-6 (N=445)	7-9 (N=593)	≥10 (N=162)	
Composite outcome					
Cases	71	345	421	81	
Model 3 (N=1,250)	1 (ref.)	0.80 (0.61-1.05)	0.75 (0.56-0.99)	0.55 (0.38-0.79)	0.002
Model 4 (N=890)	1 (ref.)	0.95 (0.69-1.31)	0.84 (0.60-1.18)	0.54 (0.34-0.83)	0.002
Model 5	1 (ref.)	0.80 (0.62-1.05)	0.74 (0.56-0.97)	0.53 (0.37-0.76)	0.01
All-cause mortality					
Cases	57	273	287	44	
Model 3 (N=1,250)	1 (ref.)	0.81 (0.60-1.10)	0.54 (0.39-0.74)	0.33 (0.21-0.51)	<0.001
Model 4 (N=890)	1 (ref.)	0.93 (0.65-1.34)	0.53 (0.36-0.78)	0.29 (0.17-0.50)	<0.001
Model 5	1 (ref.)	0.79 (0.58-1.06)	0.52 (0.38-0.70)	0.32 (0.21-0.49)	<0.001
Cardiovascular mortality					
Cases	32	112	104	10	
Model 3 (N=1,250)	1 (ref.)	0.81 (0.53-1.24)	0.59 (0.38-0.93)	0.31 (0.14-0.67)	<0.001
Model 4 (N=890)	1 (ref.)	0.76 (0.47-1.23)	0.48 (0.29-0.82)	0.24 (0.09-0.63)	<0.001
Model 5	1 (ref.)	0.79 (0.52-1.19)	0.56 (0.36-0.88)	0.28 (0.13-0.60)	<0.001
Recurrent MI					
Cases	24	113	131	24	
Model 3 (N=1,250)	1 (ref.)	0.91 (0.57-1.44)	0.79 (0.49-1.27)	0.59 (0.31-1.11)	0.065
Model 4 (N=890)	1 (ref.)	1.00 (0.59-1.69)	0.76 (0.44-1.31)	0.66 (0.32-1.35)	0.058
Model 5	1 (ref.)	0.91 (0.57-1.43)	0.77 (0.48-1.23)	0.58 (0.31-1.07)	0.040
Heart failure					
Cases	53	211	254	53	
Model 3 (N=1,250)	1 (ref.)	0.73 (0.53-1.01)	0.71 (0.51-0.99)	0.66 (0.43-1.02)	0.122
Model 4 (N=890)	1 (ref.)	0.75 (0.51-1.09)	0.72 (0.49-1.07)	0.55 (0.32-0.94)	0.066
Model 5	1 (ref.)	0.73 (0.53-1.00)	0.69 (0.50-0.96)	0.61 (0.40-0.94)	0.049
Stroke					
Cases	7	55	58	9	
Model 3 (N=1,250)	1 (ref.)	1.74 (0.78-3.91)	1.52 (0.66-3.48)	1.17 (0.40-3.40)	0.821
Model 4 (N=890)	1 (ref.)	1.13 (0.49-2.60)	1.02 (0.43-2.41)	0.49 (0.13-1.81)	0.328
Model 5	1 (ref.)	1.77 (0.79-3.96)	1.49 (0.65-3.37)	1.19 (0.38-3.16)	0.644

CI indicates confidence interval; MI, myocardial infarction

Model 3: Adjusted for Model 1 + year of school completed (≤ 12 and > 12 years) and family income for the past 12 months ($< \$35,000$ and $\geq \$35,000$) at baseline

Model 4: Adjusted for Model 1 + MI severity

Model 5: Adjusted for Model 1 + aspirin use

Table S5. Adjusted hazard ratio (95% CI) * of adverse outcomes after incident myocardial infarction according to score of Life's Simple 7 among myocardial infarction patients after excluding those who died within 14 days after myocardial infarction (N=1,245).

	Score of Life's Simple 7				P for trend
	0-3 (N=76)	4-6 (N=428)	7-9 (N=583)	≥10 (N=158)	
Composite outcome					
Cases	68	318	384	70	
Model1	1 (ref.)	0.75 (0.57-0.98)	0.61 (0.46-0.81)	0.43 (0.30-0.63)	<0.001
Model2a	1 (ref.)	0.75 (0.57-0.99)	0.62 (0.47-0.82)	0.44 (0.31-0.64)	<0.001
Model2b (N=1,159)	1 (ref.)	0.73 (0.54-1.00)	0.63 (0.46-0.87)	0.46 (0.31-0.69)	<0.001
All-cause mortality					
Cases	56	256	278	40	
Model1	1 (ref.)	0.75 (0.55-1.01)	0.51 (0.37-0.69)	0.29 (0.19-0.45)	<0.001
Model2a	1 (ref.)	0.75 (0.55-1.01)	0.51 (0.37-0.70)	0.29 (0.19-0.46)	<0.001
Model2b (N=1,159)	1 (ref.)	0.80 (0.56-1.14)	0.59 (0.41-0.86)	0.32 (0.19-0.52)	<0.001
Cardiovascular mortality					
Cases	32	109	100	10	
Model1	1 (ref.)	0.69 (0.45-1.05)	0.42 (0.27-0.66)	0.21 (0.10-0.44)	<0.001
Model2a	1 (ref.)	0.69 (0.46-1.06)	0.42 (0.27-0.66)	0.21 (0.10-0.45)	<0.001
Model2b (N=1,159)	1 (ref.)	0.69 (0.42-1.16)	0.50 (0.29-0.86)	0.23 (0.10-0.54)	<0.001
Recurrent MI					
Cases	24	112	131	24	
Model1	1 (ref.)	0.91 (0.58-1.44)	0.80 (0.50-1.27)	0.60 (0.32-1.11)	0.061
Model2a	1 (ref.)	0.92 (0.59-1.46)	0.82 (0.51-1.31)	0.62 (0.33-1.16)	0.093
Model2b (N=1,159)	1 (ref.)	1.04 (0.59-1.81)	0.92 (0.52-1.64)	0.75 (0.37-1.53)	0.255
Heart failure					
Cases	40	145	169	37	
Model1	1 (ref.)	0.57 (0.40-0.83)	0.46 (0.32-0.67)	0.43 (0.26-0.71)	0.001
Model2a	1 (ref.)	0.57 (0.40-0.83)	0.46 (0.32-0.67)	0.44 (0.26-0.72)	0.001
Model2b (N=1,159)	1 (ref.)	0.54 (0.35-0.82)	0.47 (0.31-0.73)	0.48 (0.28-0.83)	0.021
Stroke					
Cases	6	50	47	7	
Model1	1 (ref.)	1.88 (0.79-4.46)	1.39 (0.57-3.38)	0.94 (0.29-3.02)	0.326
Model2a	1 (ref.)	1.90 (0.80-4.54)	1.36 (0.56-3.32)	0.92 (0.29-2.96)	0.280
Model2b (N=1,159)	1 (ref.)	1.96 (0.69-5.60)	1.78 (0.61-5.18)	1.23 (0.33-4.53)	0.838

CI indicates confidence interval; MI, myocardial infarction

Model 1: Adjusted for age at MI, sex, race and calendar year of incident MI (<1995, 1995-2004, and ≥2005), history of heart failure, stroke, coronary artery bypass graft, peripheral artery disease, kidney dysfunction, hypertension, diabetes, and current smoking at admission

Model 2a: Adjusted for Model 1+ health insurance at baseline

Model 2b: Adjusted for Model 1 + health insurance at admission

Table S6. Adjusted hazard ratio (95% CI) * of adverse outcomes after restricting follow-up time after incident myocardial infarction according to score of Life's Simple 7 among myocardial infarction patients.

	Score of Life's Simple 7				P for trend
	0-3	4-6	7-9	≥10	
1 year	N=55	N=377	N=488	N=146	
Composite outcome					
Cases	31	143	179	41	
Model 2b	1 (ref.)	0.75 (0.50-1.13)	0.75 (0.50-1.14)	0.69 (0.41-1.16)	0.311
All-cause mortality					
Cases	12	59	53	11	
Model 2b	1 (ref.)	0.78 (0.40-1.50)	0.48 (0.24-0.96)	0.39 (0.16-0.96)	0.003
Cardiovascular mortality					
Cases	3	24	18	3	
Model 2b	1 (ref.)	1.62 (0.46-5.65)	0.99 (0.27-3.66)	0.79 (0.14-4.38)	0.259
Recurrent MI					
Cases	2	23	30	4	
Model 2b	1 (ref.)	1.99 (0.46-8.64)	2.06 (0.47-9.09)	0.93 (0.16-5.51)	0.707
Heart failure					
Cases	25	111	129	35	
Model 2b	1 (ref.)	0.80 (0.51-1.26)	0.78 (0.49-1.25)	0.92 (0.52-1.63)	0.867
Stroke					
Cases	3	13	15	3	
Model 2b	1 (ref.)	0.79 (0.21-2.93)	0.92 (0.24-3.60)	0.90 (0.15-5.31)	0.888
3 years	N=53	N=350	N=439	N=131	
Composite outcome					
Cases	30	163	201	38	
Model 2b	1 (ref.)	0.77 (0.51-1.16)	0.76 (0.50-1.14)	0.71 (0.42-1.20)	0.316
All-cause mortality					
Cases	15	85	77	15	
Model 2b	1 (ref.)	0.76 (0.42-1.39)	0.57 (0.31-1.06)	0.62 (0.27-1.40)	0.058
Cardiovascular mortality					
Cases	6	36	27	5	
Model 2b	1 (ref.)	1.20 (0.46-3.09)	0.66 (0.23-1.86)	1.06 (0.27-4.19)	0.253
Recurrent MI					
Cases	6	41	45	3	
Model 2b	1 (ref.)	0.83 (0.34-2.06)	0.76 (0.29-1.98)	0.31 (0.07-1.36)	0.175
Heart failure					
Cases	24	120	128	31	
Model 2b	1 (ref.)	0.79 (0.50-1.25)	0.80 (0.50-1.29)	0.93 (0.51-1.68)	0.999
Stroke					
Cases	3	18	26	5	
Model 2b	1.00	1.06 (0.30-3.79)	0.80 (0.20-3.16)	1.55 (0.30-7.91)	0.944
5 years	N=49	N=314	N=392	N=112	
Composite outcome					
Cases	32	155	198	39	
Model 2b	1 (ref.)	0.89 (0.60-1.34)	0.95 (0.63-1.43)	0.79 (0.47-1.33)	0.684
All-cause mortality					
Cases	16	86	87	16	
Model 2b	1 (ref.)	0.98 (0.55-1.74)	0.69 (0.38-1.24)	0.58 (0.26-1.28)	0.023
Cardiovascular mortality					
Cases	5	38	31	6	
Model 2b	1 (ref.)	0.78 (0.28-2.17)	0.49 (0.16-1.47)	0.80 (0.20-3.21)	0.251
Recurrent MI					
Cases	7	46	53	10	
Model 2b	1 (ref.)	0.66 (0.29-1.52)	0.62 (0.26-1.49)	0.29 (0.10-0.89)	0.047
Heart failure					
Cases	25	110	118	29	
Model 2b	1 (ref.)	0.95 (0.59-1.51)	1.01 (0.62-1.64)	1.11 (0.60-2.05)	0.580
Stroke					
Cases	4	21	33	4	
Model 2b	1 (ref.)	0.75 (0.24-2.36)	0.73 (0.22-2.38)	1.20 (0.25-5.68)	0.936

CI indicates confidence interval; MI, myocardial infarction

Model 2b: Adjusted for Model 1 + health insurance at admission

Table S7. Hazard ratios (95%CI)* for composite outcome according to the status of each individual Life's Simple 7 factor among those who had incident myocardial infarction during follow-up, N=1,277.

Life's Simple 7 factors	Poor	Intermediate	Ideal
Smoking status			
N (%)	433 (33.9)	416 (32.6)	428 (33.5)
Cases	326	299	293
Model 1	1 (ref.)	0.90 (0.74-1.10)	0.80 (0.65-0.97)
Model 2a	1 (ref.)	0.90 (0.74-1.10)	0.80 (0.65-0.98)
Model 2b (N=1,102)	1 (ref.)	0.96 (0.77-1.19)	0.85 (0.69-1.06)
Body mass index			
N (%)	385 (30.2)	551 (43.2)	341 (26.7)
Cases	309	386	223
Model 1	1 (ref.)	0.84 (0.72-0.99)	0.77 (0.63-0.93)
Model 2a	1 (ref.)	0.84 (0.72-0.99)	0.77 (0.63-0.93)
Model 2b (N=1,102)	1 (ref.)	0.87 (0.73-1.04)	0.77 (0.63-0.95)
Physical activity			
N (%)	511 (40.0)	53 (4.2)	713 (55.8)
Cases	389	40	489
Model 1	1 (ref.)	1.24 (0.89-1.73)	0.97 (0.84-1.11)
Model 2a	1 (ref.)	1.23 (0.89-1.72)	0.97 (0.84-1.12)
Model 2b (N=1,102)	1 (ref.)	1.18 (0.81-1.71)	0.97 (0.83-1.14)
Healthy diet			
N (%)	649 (50.8)	560 (43.9)	68 (5.3)
Cases	460	408	50
Model 1	1 (ref.)	1.05 (0.91-1.20)	1.23 (0.92-1.66)
Model 2a	1 (ref.)	1.05 (0.92-1.21)	1.24 (0.92-1.68)
Model 2b (N=1,102)	1 (ref.)	1.08 (0.93-1.26)	1.16 (0.84-1.62)
Total cholesterol			
N (%)	429 (33.6)	478 (37.4)	370 (29.0)
Cases	308	339	271
Model 1	1 (ref.)	1.06 (0.91-1.24)	1.18 (0.99-1.39)
Model 2a	1 (ref.)	1.07 (0.91-1.25)	1.18 (1.00-1.40)
Model 2b (N=1,102)	1 (ref.)	1.05 (0.88-1.25)	1.16 (0.97-1.40)
Blood pressure			
N (%)	310 (24.3)	608 (47.6)	359 (28.1)
Cases	262	429	227
Model 1	1 (ref.)	0.79 (0.68-0.94)	0.75 (0.61-0.92)
Model 2a	1 (ref.)	0.79 (0.68-0.93)	0.75 (0.61-0.92)
Model 2b (N=1,102)	1 (ref.)	0.80 (0.67-0.96)	0.71 (0.56-0.89)
Fasting glucose			
N (%)	207 (16.2)	482 (37.7)	588 (46.1)
Cases	190	341	387
Model 1	1 (ref.)	0.61 (0.50-0.74)	0.58 (0.47-0.73)
Model 2a	1 (ref.)	0.61 (0.50-0.74)	0.59 (0.47-0.73)
Model 2b (N=1,102)	1 (ref.)	0.66 (0.53-0.82)	0.68 (0.53-0.87)

CI indicates confidence interval; MI, myocardial infarction

Model 1: Adjusted for age at MI, sex, race and calendar year of incident MI (<1995, 1995-2004, and ≥2005), history of heart failure, stroke, coronary artery bypass graft, peripheral artery disease, kidney dysfunction, hypertension, diabetes, and current smoking at admission

Model 2a: Adjusted for Model 1 + health insurance at baseline

Model 2b: Adjusted for Model 1 + health insurance at admission

Figure S1. Study design.

Analysis 1: The association of Life's Simple 7 with Incident MI in the entire study population

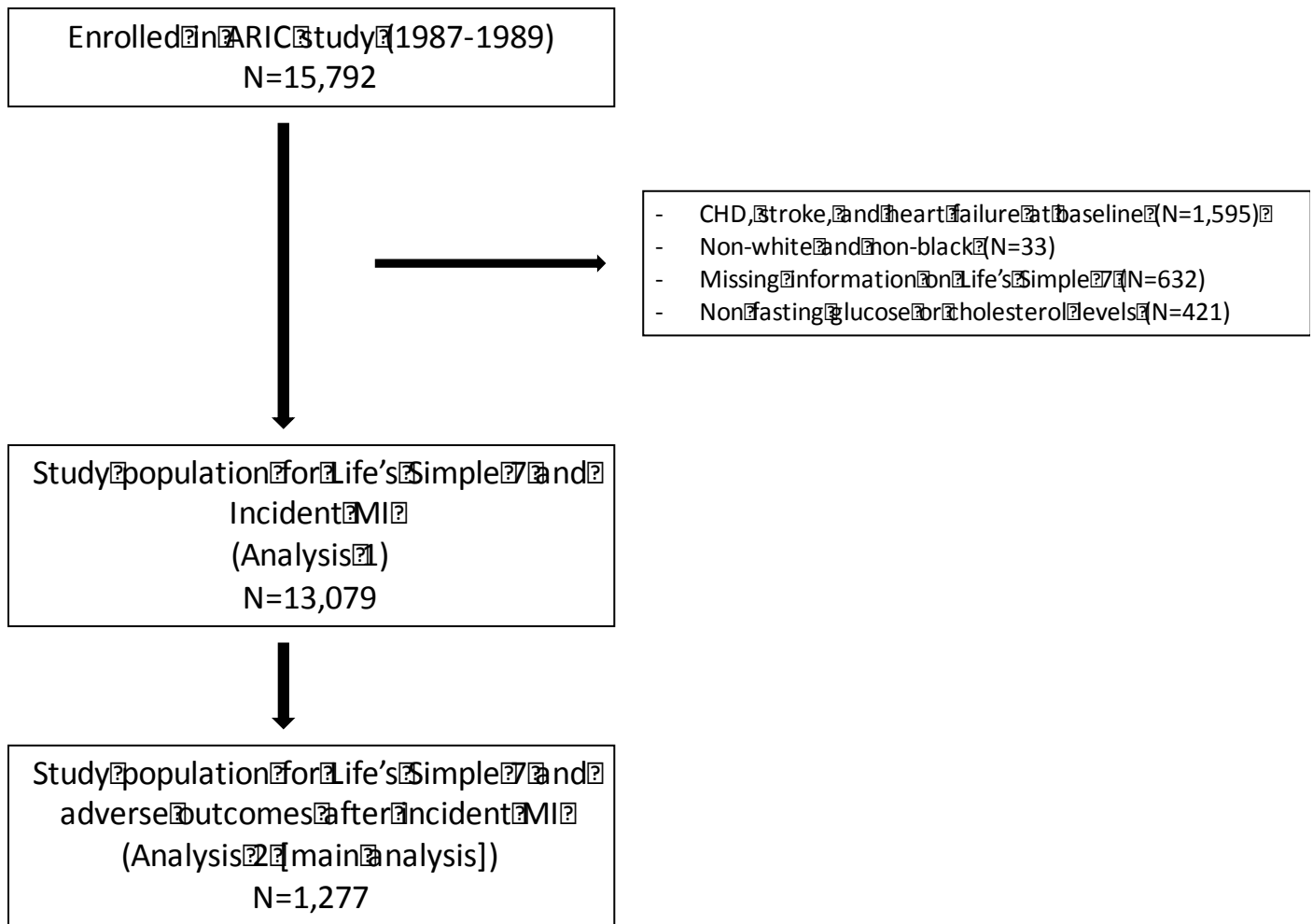


Analysis 2: The association of Life's Simple 7 with adverse outcomes after Incident MI



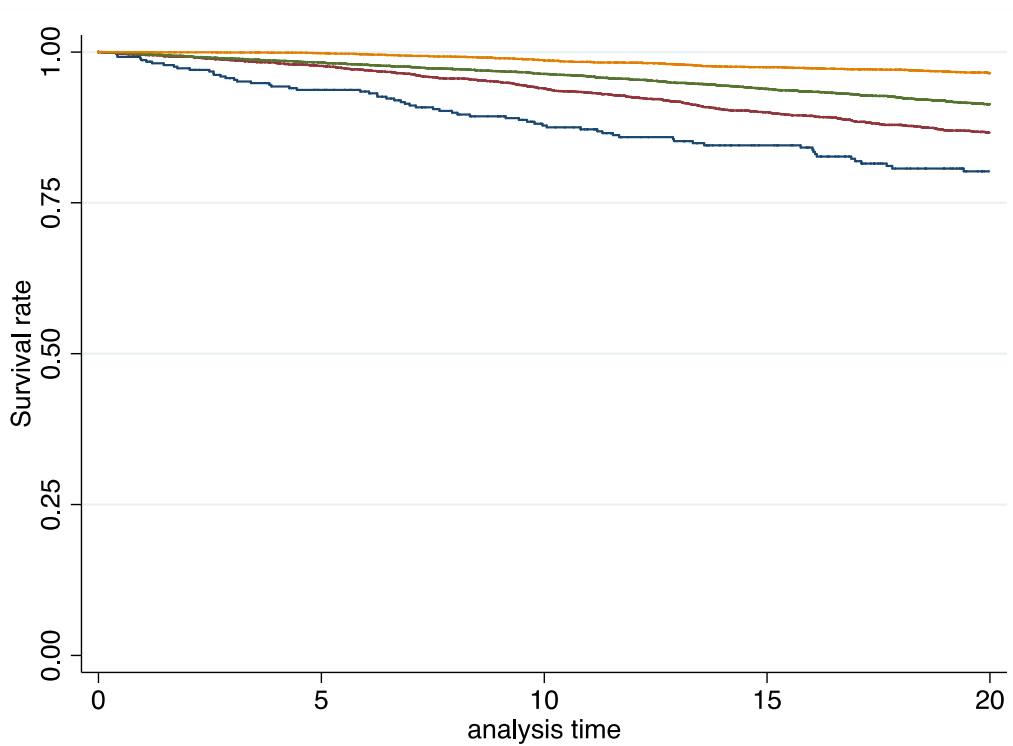
MI indicates myocardial infarction.

Figure S2. Flow chart of study population.



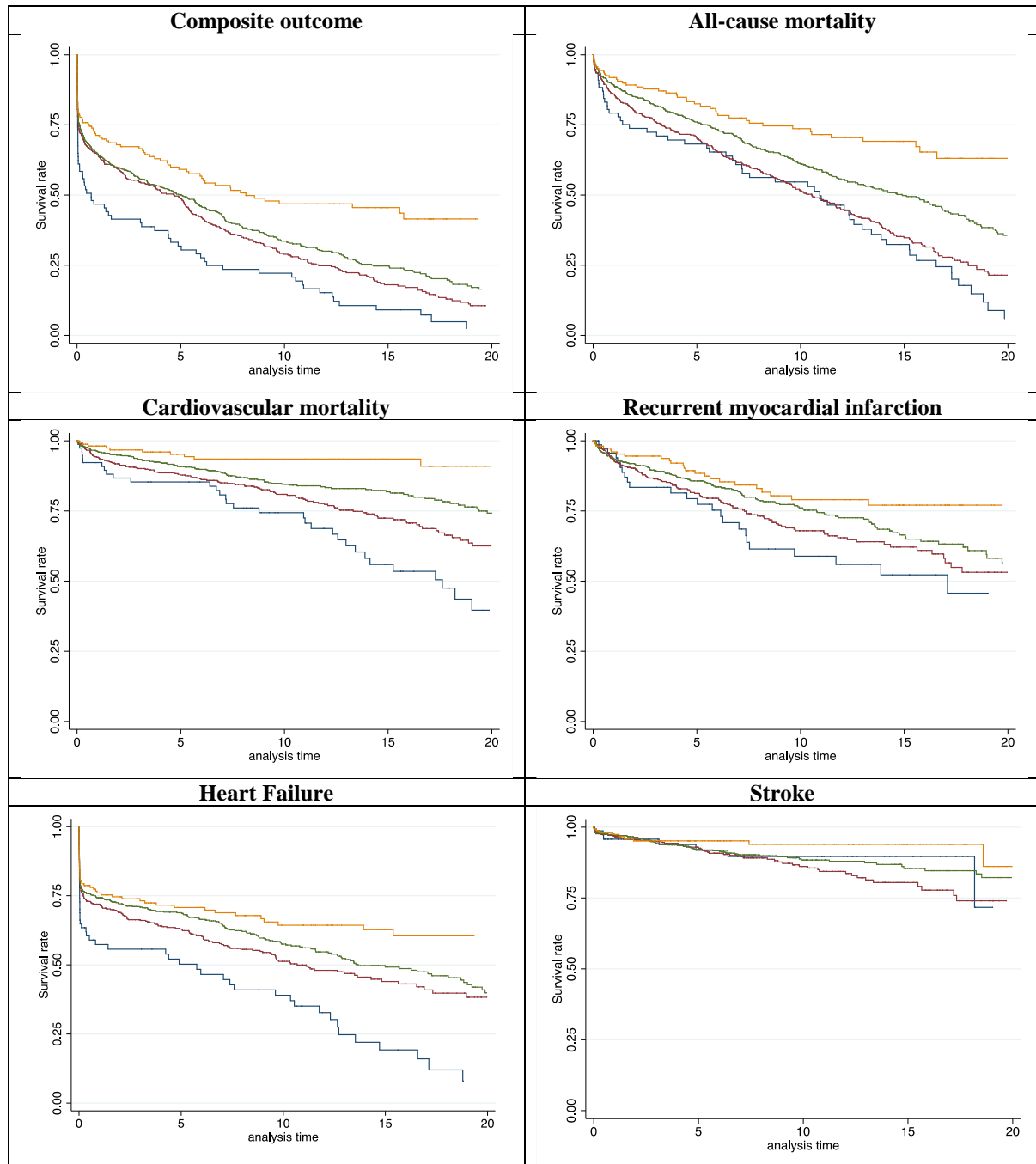
ARIC indicates the Atherosclerosis Risk in Communities Study; CHD, coronary heart disease; MI, myocardial infarction

Figure S3. Kaplan-Meier curves for incident myocardial infarction by the score of Life's Simple 7 in the entire study population.



The legend indicates the score of ideal Simple 7 metrics (blue: 0-3, red: 4-6, green: 7-9, orange: ≥ 10)

Figure S4. Kaplan-Meier curves for cardiovascular mortality, recurrent myocardial infarction, heart failure, and stroke by Life's simple 7 score among myocardial infarction patients.



The legend indicates the score of ideal Simple 7 metrics (blue: 0-3, red: 4-6, green: 7-9, orange: ≥ 10)