SUPPLEMENTAL MATERIAL

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Supplemental Figure 2. Log Hazard Ratios (95% CIs) of Cardiovascular Disease Events by Baseline Cardiovascular Health Score

Supplemental Figure 3. Distribution of Cardiovascular Health Scores

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Supplemental Table 3. Characteristics of White and Black Men Aged Less Than 40 and 60 or More Years Included in the Cardiovascular Lifetime Risk Pooling Project by Cardiovascular Health Score Groups
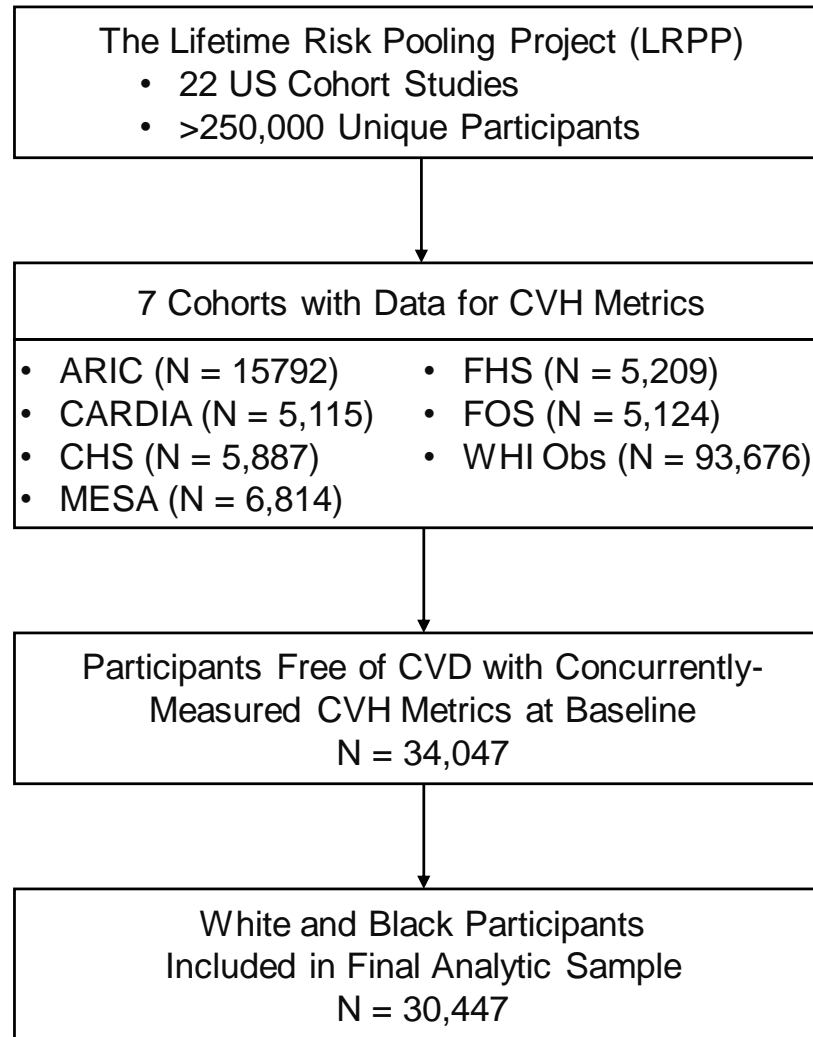
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Supplemental Table 5. Distribution of Cardiovascular Health Metrics among White and Black Men Included in the Cardiovascular Lifetime Risk Pooling Project by Index Age Group

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Supplemental Table 7. Proportion of First Myocardial Infarction, Stroke, and Heart Failure Events by Age, Sex, Race, and Cardiovascular Health Score Groups

Supplemental Figure 1. Analytic Sample Selection Flowchart

The Lifetime Risk Pooling Project (LRPP)
- 22 US Cohort Studies
- >250,000 Unique Participants

↓

7 Cohorts with Data for CVH Metrics
- ARIC (N = 15792)
- CARDIA (N = 5,115)
- CHS (N = 5,887)
- MESA (N = 6,814)
- FHS (N = 5,209)
- FOS (N = 5,124)
- WHI Obs (N = 93,676)

↓

Participants Free of CVD with Concurrently-Measured CVH Metrics at Baseline
N = 34,047

↓

White and Black Participants
Included in Final Analytic Sample
N = 30,447

ARIC indicates Atherosclerosis Risk in Communities Study; CARDIA, Coronary Artery Risk Development in Young Adults; CHS, Cardiovascular Health Study; CVD, cardiovascular disease; CVH, cardiovascular health; LRPP, Lifetime Risk Pooling Project; MESA, Multi-Ethnic Study of Atherosclerosis; FHS, Framingham Heart Study; FOS, Framingham Offspring Study; WHI, Women's Health Initiative Observational Study

Supplemental Figure 2. Log Hazard Ratios (95% CIs) of Cardiovascular Disease Events by Baseline Cardiovascular Health Score
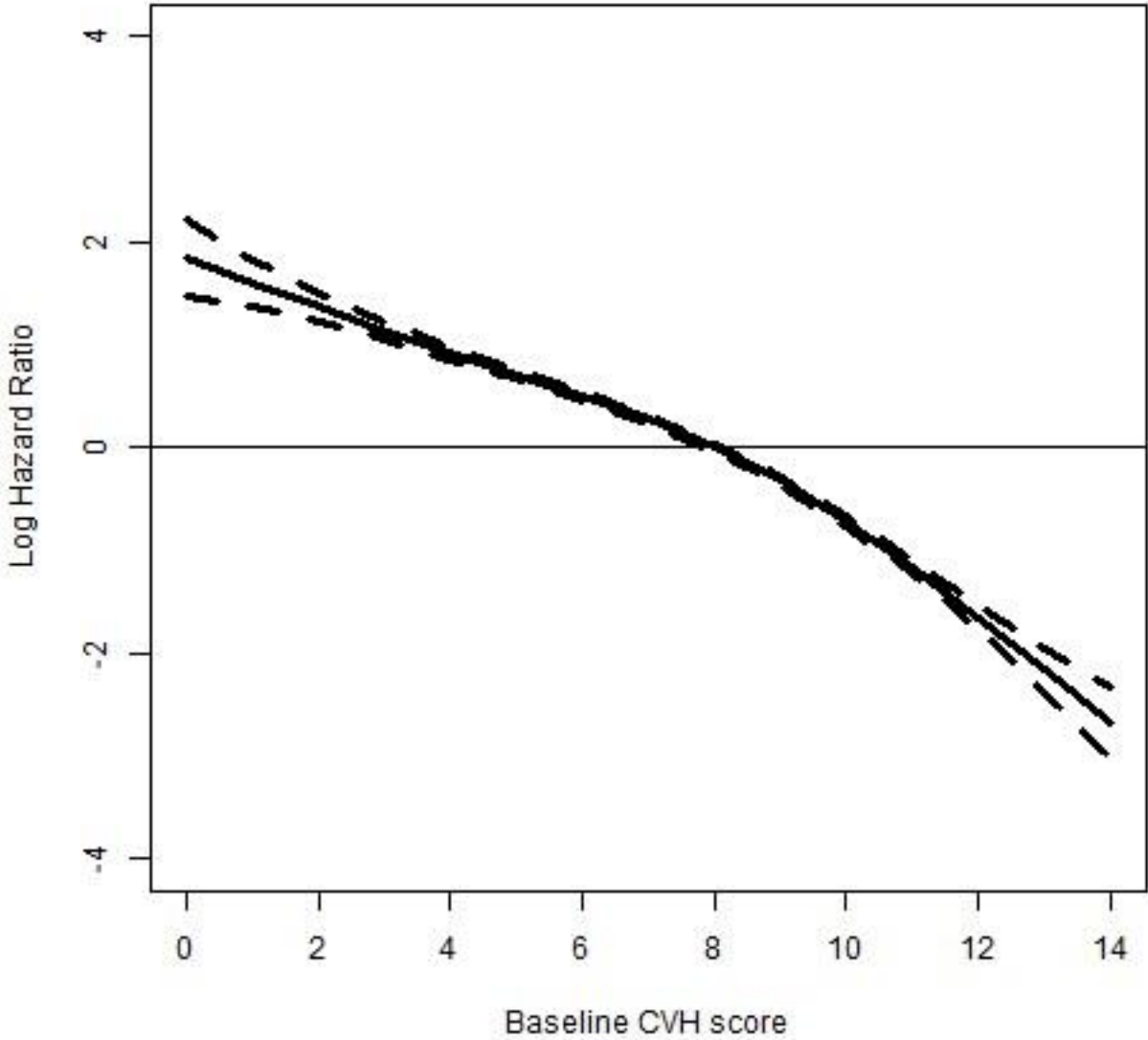
CHV indicates cardiovascular health

Supplemental Figure 3. Distribution of Cardiovascular Health Scores
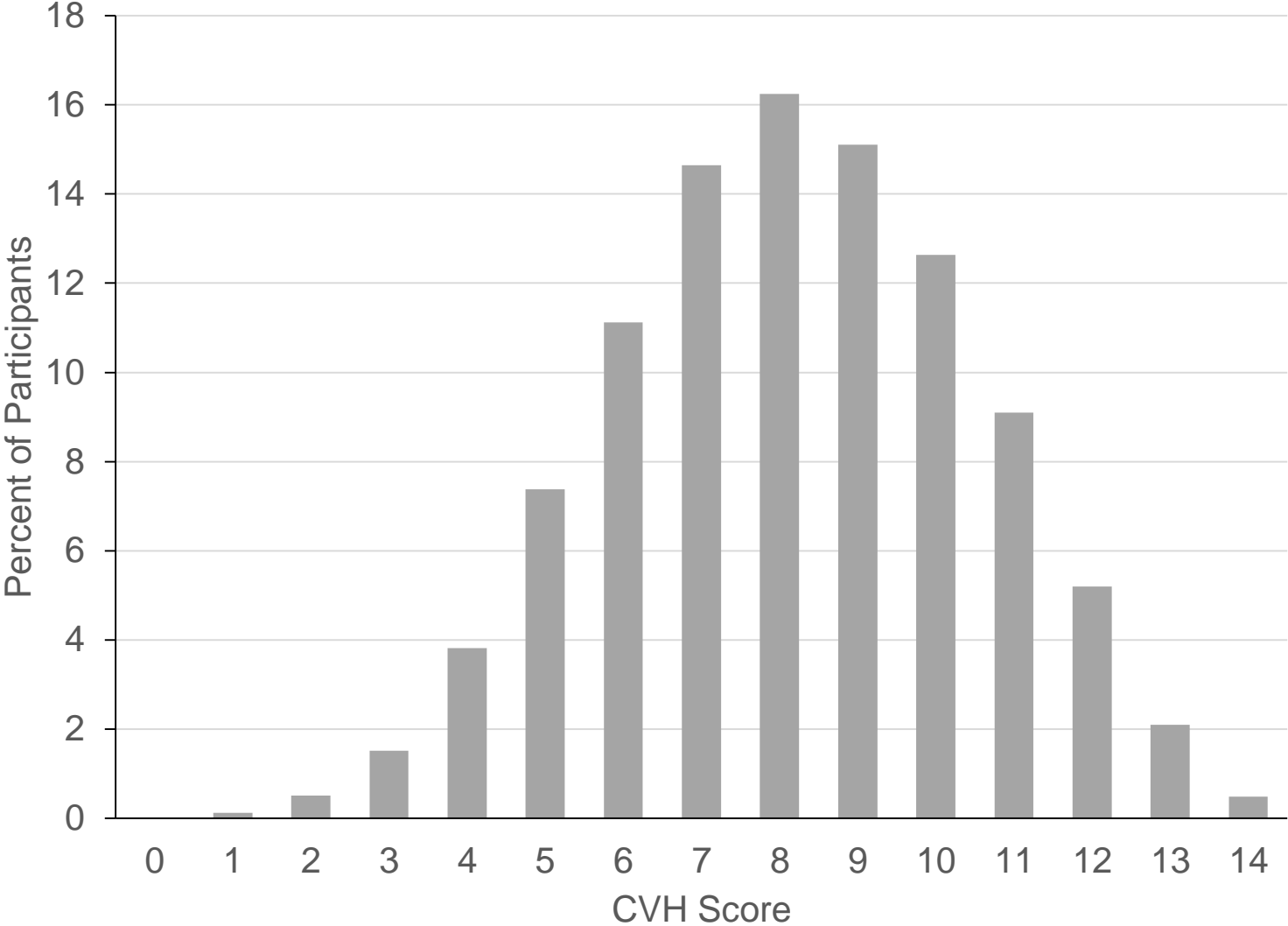
CVH indicates cardiovascular health

Supplemental Table 1. Cardiovascular Health Metrics and Definitions among Participants Included in the Lifetime Risk Pooling Project

Health Metric	Cardiovascular Health (CVH)		
	Ideal (2 points)	Intermediate (1 point)	Poor (0 points)
Smoking	Never or quit >12 months	Former, quit ≤12 months	Current
Body mass index	<25 kg/m^2	25–29.99 kg/m^2	≥30 kg/m^2
Physical activity [*]	Fourth quartile	Third and second quartiles	First quartile
Healthy diet score [†]	Fifth and fourth quintiles	Third and second quintiles	First quintile
Total cholesterol	<200 mg/dL, without medication	200-239 mg/dL or treated to <200 mg/dL	≥240 mg/dL
Blood pressure	<120/<80 mm Hg, without medication	SBP 120–139 or DBP 80–89 mm Hg or treated to <120/<80 mm Hg	SBP ≥140 or DBP ≥90 mm Hg
Fasting glucose	<100 mg/dL, without medication	100–125 mg/dL or treated to <100 mg/dL	≥126 mg/dL

DBP indicates diastolic blood pressure; SBP, systolic blood pressure

[*] Z-scores were calculated from the distribution of physical activity scores in each individual cohort, measured using different metrics, and quartiles were computed

[†] The Alternate Healthy Eating Index (AHEI-2010) was calculated in each individual cohort and quintiles were computed

Supplemental Table 2. Distribution of Follow-up Time in the Cardiovascular Lifetime Risk Pooling Project by Index Age Group, Sex, and Race

Age and Race	Men, Follow-up Time, Years				Women, Follow-up Time, Years			
	Mean (SD)	Median (IQR)	Minimum	Maximum	Mean (SD)	Median (IQR)	Minimum	Maximum
Index Age <40 years								
White	27.5 (5.7)	29.7 (29.1, 30.3)	1.04	31.3	28.3 (4.5)	29.8 (29.3, 30.4)	3.15	31.3
Black	27.5 (5.8)	29.5 (29.0, 30.1)	1.10	31.2	28.7 (4.0)	29.7 (29.2, 30.2)	0.48	31.3
Index Age 40-59 years								
White	16.7 (5.4)	18.0 (14.3, 21.8)	0.01	23.1	17.8 (4.7)	20.2 (16.6, 23.1)	0.01	23.1
Black	15.3 (6.1)	14.6 (10.4, 18.7)	0.01	23.0	14.8 (5.2)	13.8 (9.7, 17.9)	0.003	23.1
Index Age ≥60 years								
White	12.2 (6.2)	12.9 (8.2, 17.6)	0.07	22.9	14.0 (6.0)	14.0 (9.3, 18.7)	0.09	23.1
Black	11.4 (5.4)	12.5 (9.5, 15.6)	0.24	23.0	11.5 (4.5)	12.4 (10.3, 14.6)	0.03	22.8

Supplemental Table 3. Characteristics of White and Black Men Aged Less Than 40 and 60 or More Years Included in the Cardiovascular Lifetime Risk Pooling Project by Cardiovascular Health Score Groups

	White Men, CVH			Black Men, CVH		
	High	**Moderate**	**Low**	**High**	**Moderate**	**Low**
Age <40 years						
Number	297	578	207	93	463	211
Age, years	26.6 (3.5)	26.4 (4.0)	27.8 (4.6)	24.8 (3.1)	25.0 (3.1)	26.1 (3.3)
High school education or greater, %	99.7	94.4	89.3	97.8	89.0	84.4
Current alcohol drinking, %	80.1	74.6	73.9	61.3	64.8	77.3
Antihypertensive medication use, %	0.3	1.6	5.8	0.0	1.5	6.2
Lipid-lowering medication use, %	0.0	0.0	0.5	0.0	0.0	0.0
History of diabetes, %	0.0	0.2	0.5	0.0	0.0	1.0
Body mass index, kg/m^2	22.9 (2.0)	24.5 (3.4)	27.5 (4.7)	22.9 (2.2)	24.1 (3.6)	27.0 (5.0)
Physical activity, z-score	0.77 (1.03)	0.21 (0.92)	-0.13 (1.02)	1.03 (1.12)	0.36 (1.08)	-0.27 (0.85)
Healthy diet score, aHEI score	58.0 (11.5)	46.4 (10.8)	39.7 (8.8)	51.8 (15.2)	42.3 (10.1)	36.9 (8.6)
Total cholesterol, mg/dL	164.2 (23.8)	176.7 (32.0)	201.7 (37.7)	164.9 (24.8)	175.8 (31.7)	192.3 (40.7)
HDL cholesterol, mg/dL	49.8 (10.5)	46.2 (10.4)	42.9 (12.6)	55.1 (12.8)	53.1 (13.0)	52.9 (15.8)
Systolic blood pressure, mmHg	111.2 (8.3)	114.7 (9.9)	120.3 (11.9)	110.5 (8.8)	115.6 (9.8)	121.3 (11.0)
Diastolic blood pressure, mmHg	69.6 (7.6)	70.9 (9.1)	75.1 (11.3)	69.7 (7.7)	70.8 (9.5)	75.0 (10.7)
Fasting glucose, mg/dL	84.1 (7.3)	85.8 (10.3)	88.3 (16.5)	81.2 (6.8)	83.4 (8.0)	85.9 (14.9)
Age ≥60 years						
Number	100	1169	2373	16	166	536
Age, years	68.1 (5.8)	67.8 (5.6)	67.3 (5.4)	68.1 (5.6)	67.8 (5.6)	66.1 (5.2)
High school education or greater, %	93.0	84.3	76.4	87.5	79.5	58.3
Current alcohol drinking, %	69.0	66.5	59.8	87.5	50.9	43.7
Antihypertensive medication use, %	9.0	26.1	40.3	18.8	46.4	54.9
Lipid-lowering medication use, %	3.0	7.6	8.3	0.0	8.4	12.6
History of diabetes, %	0.0	1.7	5.3	6.7	5.1	19.1
Body mass index, kg/m^2	24.0 (2.4)	25.7 (3.0)	28.0 (3.7)	24.1 (2.7)	25.7 (3.9)	28.3 (4.7)
Physical activity, z-score	1.01 (0.99)	0.61 (1.11)	0.08 (1.05)	1.21 (2.15)	0.25 (1.22)	-0.22 (0.88)
Healthy diet score, aHEI-2010 score	62.6 (9.8)	52.6 (11.8)	44.9 (10.1)	65.0 (8.2)	55.1 (12.3)	46.4 (11.1)

Total cholesterol, mg/dL	175.9 (23.9)	190.5 (30.9)	208.9 (38.8)	180.9 (24.9)	176.0 (33.6)	200.2 (40.1)
HDL cholesterol, mg/dL	46.8 (12.1)	46.8 (12.8)	44.6 (12.7)	57.8 (15.0)	50.2 (15.5)	50.3 (15.2)
Systolic blood pressure, mmHg	114.8 (11.2)	123.9 (17.9)	136.1 (19.7)	115.3 (11.7)	126.3 (18.4)	137.9 (19.8)
Diastolic blood pressure, mmHg	67.7 (7.9)	70.9 (9.4)	74.8 (10.3)	72.8 (7.7)	74.8 (8.4)	79.5 (11.7)
Fasting glucose, mg/dL	89.3 (8.0)	96.0 (14.6)	114.6 (37.6)	87.8 (8.6)	92.4 (20.2)	114.8 (42.5)

Values are expressed as mean (standard deviation) or number (%).

aHEI-2010 indicates adjusted Healthy Eating Index 2010; CVH, cardiovascular health; DBP, diastolic blood pressure; HDL, high-density lipoprotein; SBP, systolic blood pressure

Supplemental Table 4. Characteristics of White and Black Women Aged Less Than 40 and 60 or More Years Included in the Cardiovascular Lifetime Risk Pooling Project by Cardiovascular Health Score Groups

	White Women, CVH			Black Women, CVH		
	High	**Moderate**	**Low**	**High**	**Moderate**	**Low**
Age <40 years						
Number	481	588	164	121	672	361
Age, years	26.8 (3.8)	26.8 (4.0)	26.6 (4.2)	25.1 (3.3)	25.1 (3.3)	26.0 (3.3)
High school education or greater, %	98.7	95.1	84.7	95.9	91.7	85.6
Current alcohol drinking, %	67.2	64.0	58.5	41.3	43.8	49.0
Antihypertensive medication use, %	0.2	1.9	2.4	0.0	2.5	8.6
Lipid-lowering medication use, %	0.0	0.0	0.0	0.0	0.0	0.0
History of diabetes, %	0.0	0.3	2.4	0.0	0.3	0.8
Body mass index, kg/m^2	21.7 (2.3)	23.2 (4.1)	28.1 (6.7)	22.4 (2.5)	24.9 (5.8)	29.7 (7.4)
Physical activity, z-score	0.39 (0.89)	-0.24 (0.73)	-0.63 (0.58)	0.27 (0.82)	-0.48 (0.69)	-0.82 (0.51)
Healthy diet score, aHEI score	61.4 (9.5)	51.0 (10.5)	41.5 (9.9)	56.0 (11.2)	44.6 (10.1)	40.5 (8.1)
Total cholesterol, mg/dL	168.6 (24.8)	178.9 (31.2)	191.4 (34.0)	168.1 (24.8)	174.9 (30.2)	189.8 (38.8)
HDL cholesterol, mg/dL	58.5 (11.9)	57.0 (13.4)	47.9 (13.4)	58.4 (11.4)	56.9 (12.8)	51.6 (12.5)
Systolic blood pressure, mmHg	103.1 (7.8)	105.1 (9.8)	109.4 (11.0)	104.8 (8.1)	106.9 (9.0)	112.1 (11.1)
Diastolic blood pressure, mmHg	65.2 (7.1)	66.6 (8.6)	68.0 (9.4)	66.0 (7.5)	66.6 (8.6)	70.2 (10.5)
Fasting glucose, mg/dL	81.0 (6.6)	81.5 (12.0)	86.6 (27.8)	77.8 (7.8)	79.2 (15.2)	85.4 (31.2)
Age ≥60 years						
Number	183	1437	2987	57	726	2029
Age, years	67.4 (5.6)	67.6 (5.5)	68.1 (5.4)	65.8 (4.6)	66.9 (5.3)	66.5 (5.0)
High school education or greater, %	93.4	85.4	76.9	92.3	92.1	78.5
Current alcohol drinking, %	59.0	53.8	45.1	50.0	52.1	40.5
Antihypertensive medication use, %	10.4	25.5	45.9	14.0	39.7	58.9
Lipid-lowering medication use, %	6.0	7.1	9.1	8.8	14.7	18.4
History of diabetes, %	0.0	0.5	4.1	0.0	3.2	16.2
Body mass index, kg/m^2	22.6 (2.3)	24.3 (3.4)	28.0 (4.9)	23.6 (3.3)	26.8 (4.7)	31.2 (6.1)
Physical activity, z-score	0.92 (1.27)	0.24 (0.95)	-0.25 (0.77)	0.80 (1.27)	0.26 (0.96)	-0.20 (0.97)
Healthy diet score, aHEI-2010 score	63.3 (10.9)	53.6 (12.8)	45.1 (11.1)	65.5 (8.6)	61.3 (10.7)	51.8 (11.1)

Total cholesterol, mg/dL	190.8 (24.7)	209.2 (32.0)	229.4 (38.9)	193.8 (29.3)	207.6 (36.1)	227.1 (44.3)
HDL cholesterol, mg/dL	64.2 (14.4)	62.0 (16.6)	56.1 (16.1)	62.9 (13.3)	61.4 (15.1)	56.8 (14.7)
Systolic blood pressure, mmHg	114.9 (14.0)	124.5 (18.8)	136.2 (20.5)	116.3 (9.7)	126.7 (16.9)	137.7 (20.1)
Diastolic blood pressure, mmHg	64.8 (7.9)	67.5 (9.6)	71.0 (10.5)	70.0 (7.3)	73.6 (9.2)	76.9 (10.3)
Fasting glucose, mg/dL	88.0 (7.9)	92.1 (11.5)	108.0 (32.6)	88.3 (8.2)	90.7 (13.9)	110.5 (42.6)

Values are expressed as mean (standard deviation) or number (%).
aHEI indicates adjusted Healthy Eating Index 2010; CVH, cardiovascular health; DBP, diastolic blood pressure; HDL, high-density lipoprotein; SBP, systolic blood pressure

Supplemental Table 5. Distribution of Cardiovascular Health Metrics among White and Black Men Included in the Cardiovascular Lifetime Risk Pooling Project by Index Age Group

Health Metric	White Men, %			Black Men, %		
	Age <40 years (n=1,082)	Age 40-59 years (n=4,621)	Age ≥60 years (n=3,642)	Age <40 years (n=767)	Age 40-59 years (n=1,178)	Age ≥60 years (n=718)
Smoking						
Ideal	58.6	34.0	34.6	54.4	32.5	29.3
Intermediate	16.0	41.9	53.1	9.9	31.1	48.5
Poor	25.4	24.1	12.4	35.7	36.4	22.3
Body mass index						
Ideal	61.9	25.8	29.1	60.1	25.8	28.6
Intermediate	30.6	50.2	51.0	29.3	44.6	42.8
Poor	7.5	24.0	19.9	10.6	29.6	28.7
Physical activity						
Ideal	36.4	34.9	34.4	34.3	21.9	19.1
Intermediate	50.7	47.2	48.8	48.0	50.9	52.5
Poor	12.9	17.9	16.9	17.7	27.2	28.4
Healthy diet score						
Ideal	20.2	13.0	12.0	8.5	11.5	15.7
Intermediate	41.4	35.4	37.5	32.3	31.8	37.2
Poor	38.5	51.7	50.5	59.2	56.7	47.1
Total cholesterol						
Ideal	76.2	41.4	45.0	75.1	48.3	49.0
Intermediate	19.0	40.6	40.5	19.7	32.7	38.9
Poor	4.8	17.9	14.5	5.2	19.0	12.1
Blood pressure						
Ideal	63.4	45.8	21.1	56.7	26.8	13.2
Intermediate	33.3	43.1	47.8	38.7	43.3	46.8
Poor	3.3	11.1	31.1	4.6	29.9	40.0
Fasting glucose						
Ideal	95.0	52.7	48.1	97.4	54.8	49.6
Intermediate	4.3	41.7	40.6	2.2	35.0	35.7
Poor	0.7	5.6	11.3	0.4	10.3	14.8

Percentages may not add up to exactly 100.0% due to rounding

DBP indicates diastolic blood pressure; SBP, systolic blood pressure

Supplemental Table 6. Distribution of Cardiovascular Health Metrics among White and Black Women Included in the Cardiovascular Lifetime Risk Pooling Project by Index Age Group

Health Metric	White Women, %			Black Women, %		
	Age <40 years (n=1,233)	Age 40-59 years (n=5,568)	Age ≥60 years (n=4,607)	Age <40 years (n=1,154)	Age 40-59 years (n=3,065)	Age ≥60 years (n=2,812)
Smoking						
Ideal	52.5	49.6	57.2	58.2	53.3	51.9
Intermediate	21.0	26.2	28.6	9.6	27.2	36.9
Poor	26.5	24.3	14.3	23.2	19.5	11.2
Body mass index						
Ideal	75.9	47.4	42.33	54.6	17.4	20.6
Intermediate	16.4	30.4	35.5	22.6	33.6	36.3
Poor	7.7	22.2	22.2	22.8	49.0	43.1
Physical activity						
Ideal	23.2	23.1	20.7	10.0	18.7	22.6
Intermediate	55.5	50.7	53.3	45.0	49.5	45.5
Poor	21.3	26.2	26.0	45.1	31.8	31.9
Healthy diet score						
Ideal	36.1	19.9	16.0	10.3	22.7	27.6
Intermediate	42.7	44.2	35.3	40.9	39.7	44.7
Poor	21.2	35.9	48.6	48.8	37.6	27.7
Total cholesterol						
Ideal	79.2	40.1	25.6	73.6	38.1	26.0
Intermediate	17.8	38.6	45.1	21.6	36.5	43.4
Poor	2.9	21.3	29.3	4.9	25.4	30.6
Blood pressure						
Ideal	89.8	55.3	22.5	81.7	24.1	12.3
Intermediate	9.5	35.1	44.6	16.4	48.8	50.9
Poor	0.7	9.6	32.9	1.9	27.2	36.8
Fasting glucose						
Ideal	97.4	70.4	59.9	97.3	62.8	61.7
Intermediate	2.0	25.1	32.0	1.7	25.5	25.2
Poor	0.6	4.5	8.0	1.0	11.7	13.2

Percentages may not add up to exactly 100.0% due to rounding

DBP indicates diastolic blood pressure; SBP, systolic blood pressure

Supplemental Table 7. Proportion of First Myocardial Infarction, Stroke, and Heart Failure Events by Age, Sex, Race, and Cardiovascular Health Score Groups

Cardiovascular Health	White Participants, Proportion of Events			Black Participants, Proportion of Events		
	Myocardial Infarction	Stroke	Heart Failure	Myocardial Infarction	Stroke	Heart Failure
Men						
Age <40 years						
High CVH	100.0	0.0	0.0	50.0	50.0	0.0
Moderate CVH	86.7	10.0	3.3	37.1	28.6	34.3
Low CVH	67.6	11.8	20.6	47.4	21.1	31.6
Age 40-59 years						
High CVH	33.3	50.0	16.7	0.0	0.0	100.0
Moderate CVH	48.0	22.2	29.8	37.1	28.6	34.3
Low CVH	48.6	16.4	35.0	40.6	23.3	36.1
Age ≥60 years						
High CVH	44.4	25.9	29.6	66.7	33.3	0.0
Moderate CVH	46.1	19.7	34.2	36.4	27.3	36.4
Low CVH	43.0	19.3	37.8	48.3	17.7	33.9
Women						
Age <40 years						
High CVH	30.0	30.0	40.0	0.0	100.0	0.0
Moderate CVH	42.9	42.9	14.3	34.4	40.6	25.0
Low CVH	90.0	10.0	0.0	27.0	40.5	32.4
Age 40-59 years						
High CVH	33.3	20.0	46.7	- *	- *	- *
Moderate CVH	33.2	30.5	36.3	49.3	25.4	25.4
Low CVH	36.9	17.7	45.3	36.4	25.1	38.5
Age ≥60 years						
High CVH	44.7	18.4	36.8	50.0	50.0	0.0
Moderate CVH	36.8	29.3	33.9	46.8	26.1	27.0
Low CVH	39.0	23.5	37.4	46.3	22.0	31.7

*No events were observed during follow-up in this group

CVH indicates cardiovascular health