

**Associations of Clinical and Social Risk Factors with Racial Differences in Premature Cardiovascular Disease**

**Supplemental Material**

## Supplemental Methods

### *Detailed/Supplemental Methods for Clinical Risk Factors*

Weight was measured with a calibrated scale, height was measured using a vertical ruler, and waist circumference was recorded as the mean of two measurements midway between the xiphoid process and iliac crest. Fasting glucose was measured at baseline using the hexokinase ultraviolet method and at follow-up exams using hexokinase coupled to glucose-6-phosphate dehydrogenase, with values standardized across examinations. Systolic blood pressure was measured with a random-zero sphygmomanometer at baseline through year 15, and with an automated oscillometric monitor thereafter which were standardized across examinations to the sphygmomanometric measure. Fasting lipids total and high-density lipoprotein cholesterol were measured from ethylene-diaminetetraacetic acid plasma, with HDL quantified after precipitation with dextran sulfate-magnesium chloride. Forced vital capacity was measured using an 8-L water-sealed spirometer and a microprocessor.

### *Detailed/Supplemental Methods for Lifestyle Factors*

Participants who reported regular consumption of alcohol over the preceding week were categorized by habitual consumption amounts.<sup>36</sup> Dietary intake for the preceding 28 days was assessed by a diet questionnaire at baseline and years 7 and 20, which included 1,609 unique food items, and supplied food serving size models for reference.<sup>37,38</sup>

*Detailed Description of Multiple Imputation Procedures*

**Supplemental Methods Table. Detailing of the fully conditional specification of the multiple imputation procedure**

Variable	CARDIA Exam Year								
	Y0	Y2	Y5	Y7	Y10	Y15	Y20	Y25	Y30
Age <sup>a</sup>	M								
Sex <sup>b</sup>	M								
Participant education <sup>a</sup>	M	M	M	M	M	M	M	M	M
Marital status <sup>b</sup>	M	M	M	M	M	M	M	M	M
Financial status <sup>b</sup>	M	M	I	M	M	M	M	M	M
Employment status <sup>b</sup>	M	I	M	M	M	M	M	M	M
Medical care access <sup>b</sup>	B	B	B	M	M	M	M	M	M
Maximum parental education <sup>a</sup>	M								
G statistic for census tract-level racial segregation <sup>a</sup>	M	I	I	M	M	M	M	M	I
Percentage of population living in poverty <sup>a</sup>	M	I	I	M	M	M	M	M	I
CES-D Depression score <sup>a</sup>	B	B	M	I	M	M	M	M	M
Smoking <sup>b</sup>	M	M	M	M	M	M	M	M	M
Daily alcohol intake <sup>a</sup>	M	M	M	M	M	M	M	M	M
Physical activity <sup>a</sup>	M	M	M	M	M	M	M	M	M
Diet quality <sup>b</sup>	M	I	I	M	I	I	M	I	I
Fasting glucose <sup>a</sup>	M	I	I	M	M	M	M	M	M
Diabetes medication use <sup>b</sup>	M	M	M	M	M	M	M	M	M
Body Mass Index <sup>a</sup>	M	M	M	M	M	M	M	M	M
Waist circumference <sup>a</sup>	M	M	M	M	M	M	M	M	M
Systolic blood pressure <sup>a</sup>	M	M	M	M	M	M	M	M	M
Antihypertensive medication use <sup>b</sup>	M	M	M	M	M	M	M	M	M
Total cholesterol <sup>a</sup>	M	M	M	M	M	M	M	M	M
HDL cholesterol <sup>a</sup>	M	M	M	M	M	M	M	M	M
Forced vital capacity <sup>a</sup>	M	M	M	I	M	I	M	M	I

- M: Variable measured at this exam. Participants with non-response were imputed.
- I: Variable was not measured at this exam. Carry-forwards imputation from the last scheduled exam record was used. Data were imputed if the record from the last scheduled exam was not available.
- B: Variable was not measured at this exam. Carry-backwards imputation from the first scheduled exam record was used. Data were imputed if the record from the first scheduled exam was not available.
- Blank entries – this variable at this year was not included in the multiple imputation

<sup>a</sup>These variables were imputed using linear regression models. All variables were assumed to be normally distributed.

<sup>b</sup>These variables were imputed using logistic regression (binary outcome) or ordinal logistic regression (ordinal categorical with >2 levels) models.

**Table S1. Imputed and observed data for CARDIA study exams at Years 0 and 30**

	<b>Imputed Year 0</b>	<b>Observed Year 0</b>	<b>Imputed Year 30</b>	<b>Observed Year 30</b>
<b>Socioeconomic</b>				
Education, years, mean (SD)	13.8 (2.3)	13.8 (2.3)	15.0 (2.8)	15.2 (2.6)
Married, %	22.2%	22.2%	50.5%	52.9%
Poor financial status, %	35.0%	35.0%	24.2%	21.2%
Employed full-time, %	56.3%	56.3%	60.7%	62.7%
Usual source of medical care, %	86.3%	86.8%	91.4%	93.9%
<b>Neighborhood</b>				
G-statistic Black segregation, mean (SD)	3.3 (3.6)	3.3 (3.6)	1.0 (2.6)	1.0 (2.6)
Pct census tract in poverty, %, mean (SD)	18.7 (12.6)	18.7 (12.6)	14.0 (12.0)	14.0 (12.0)
<b>Psychosocial</b>				
CES-Depression score, mean (SD)	11.4 (8.2)	11.2 (8.1)	10.0 (8.8)	8.8 (7.9)
<b>Lifestyle</b>				
Smoking, %				
Never	55.9%	56.3%	58.0%	63.4%
Former	13.5%	13.3%	28.9%	23.0%
Current	30.6%	30.4%	13.1%	13.6%
Daily alcohol intake, %				
None	38.8%	39.0%	30.4%	44.0%
Moderate	48.6%	48.6%	42.7%	41.6%
Heavy	12.6%	12.4%	26.9%	14.4%
Physical activity, exercise units, mean (SD)	420 (301)	420 (301)	319 (279)	326 (273)
Diet quality, %				
High	12.1%	12.1%	10.2%	10.5%
Intermediate	55.1%	55.1%	67.0%	68.8%
Poor	32.8%	32.8%	22.8%	20.7%
<b>Clinical</b>				
Fasting glucose, mg/dL, mean (SD)	83 (16)	83 (16)	104 (33)	102 (31)
Diabetes medication use, %	0.3%	0.3%	13.8%	10.0%
Body mass index, kg/m <sup>2</sup> , mean (SD)	24.5 (5.1)	24.5 (5.0)	30.6 (7.4)	30.4 (7.2)
Waist circumference, cm, mean (SD)	78 (11)	78 (11)	97 (17)	96 (16)
Systolic BP, mmHg, mean (SD)	110 (11)	110 (11)	122 (17)	121 (17)
Antihypertensive medication use, (%)	2.2%	2.2%	33.9%	31.1%
Total cholesterol, mg/dL, mean (SD)	177 (33)	177 (33)	192 (39)	192 (37)
HDL cholesterol, mg/dL, mean (SD)	53 (13)	53 (13)	61 (19)	60 (19)
Forced vital capacity, L, mean (SD)	4.3 (1.0)	4.3 (1.0)	3.9 (1.0)	3.9 (1.0)

BP: Blood pressure, CES-D: Center for Epidemiologic Studies-Depression, CVD: Cardiovascular disease, HDL: High density lipoprotein, SD: Standard deviation. Maximum parental education was assumed to be time-invariant across the study. The Year 0 imputed dataset included all 5,112 baseline CARDIA participants. Participants who died or were censored due to a CVD event were removed from imputed and observed analyses at follow-up exams.

**Table S2. Hazard ratios for incident cardiovascular disease in Black versus White participants and percent reduction in parameter estimates using baseline-only factor data in the imputed dataset**

	Women		Men	
	Race HR (95% CI)	Reduction in $\beta$ , %	Race HR (95% CI)	Reduction in $\beta$ , %
<b>Sequential adjustment</b>				
Model 1: age and field center	2.44 (1.71 – 3.49)	[Reference]	1.59 (1.20 – 2.10)	[Reference]
Model 2: model 1 + clinical <sup>a</sup>	1.77 (1.14 – 2.74)	36% (35% - 37%)	1.47 (1.04 – 2.06)	17% (16% - 17%)
Model 3: model 2 + lifestyle <sup>b</sup>	1.76 (1.11 – 2.79)	37% (36% - 38%)	1.28 (0.91 – 1.82)	46% (45% - 47%)
Model 4: model 3 + depression <sup>c</sup>	1.69 (1.07 – 2.69)	41% (40% - 42%)	1.25 (0.88 – 1.79)	51% (50% - 53%)
Model 5: model 4 + socioeconomic <sup>d</sup>	1.77 (1.12 – 2.82)	36% (34% - 38%)	1.16 (0.81 – 1.67)	68% (66% - 70%)
Model 6: model 5 + neighborhood <sup>e</sup>	2.29 (1.36 – 3.86)	7% (5% - 9%)	1.33 (0.87 – 2.02)	38% (36% - 40%)
<b>Individual adjustment</b>				
Model 1: age and field center	2.44 (1.71 – 3.49)	[Reference]	1.59 (1.20 – 2.10)	[Reference]
Model 1 + clinical <sup>a</sup>	1.76 (1.14 – 2.74)	36% (35% - 37%)	1.47 (1.05 – 2.06)	17% (16% - 17%)
Model 1 + lifestyle <sup>b</sup>	2.19 (1.47 – 3.26)	12% (12% - 12%)	1.36 (1.01 – 1.81)	34% (34% - 34%)
Model 1 + depression <sup>c</sup>	2.21 (1.55 – 3.17)	11% (10% - 12%)	1.50 (1.13 – 2.00)	12% (11% - 13%)
Model 1 + socioeconomic <sup>d</sup>	2.04 (1.38 – 3.01)	20% (19% - 22%)	1.21 (0.90 – 1.64)	58% (56% - 59%)
Model 1 + neighborhood <sup>e</sup>	2.85 (1.84 – 4.39)	*	1.68 (1.21 – 2.35)	*
<b>Leave-out adjustment</b>				
Model 1: age and field center	2.44 (1.71 – 3.49)	[Reference]	1.59 (1.20 – 2.10)	[Reference]
Model 6 – clinical <sup>a</sup>	2.38 (1.49 – 3.81)	3% (2% - 4%)	1.25 (0.87 – 1.79)	52% (50% - 53%)
Model 6 – lifestyle <sup>b</sup>	2.20 (1.33 – 3.66)	11% (9% - 13%)	1.40 (0.92 – 2.11)	28% (26% - 30%)
Model 6 – depression <sup>c</sup>	2.35 (1.40 – 3.95)	4% (2% - 6%)	1.34 (0.89 – 2.03)	36% (35% - 38%)
Model 6 – socioeconomic <sup>d</sup>	2.22 (1.31 – 3.76)	10% (9% - 12%)	1.41 (0.93 – 2.12)	26% (25% - 28%)
Model 6 – neighborhood <sup>e</sup>	1.78 (1.12 – 2.82)	36% (34% - 38%)	1.16 (0.81 – 1.67)	68% (66% - 70%)

CI: Confidence interval, HR: Hazard ratio. Hazard ratios are adjusted for baseline-only risk factor levels in young adulthood. \*Percent reduction in  $\beta < 0$  not reported.

<sup>a</sup>Clinical factors: Fasting glucose, diabetes medication use, body mass index, waist circumference, systolic blood pressure, antihypertensive medication use, total cholesterol, HDL cholesterol, and forced vital capacity.

<sup>b</sup>Lifestyle factors: Smoking, alcohol intake, physical activity, diet score

<sup>c</sup>Depression factor: Center for Epidemiologic Studies-Depression score

<sup>d</sup>Socioeconomic factors: Participant and parental educational attainment, marital status, financial status, employment status

<sup>e</sup>Neighborhood factors: *G* statistic for census tract-level racial segregation and percentage of population living in poverty

**Table S3. Description of participant characteristics at baseline (1985-1986) by sex and race in the complete-case dataset**

	Women		Men	
	Black (N=842)	White (N=956)	Black (N=647)	White (N=875)
Age, years, mean (SD)	24.5 (3.9)	25.6 (3.4)	24.5 (3.7)	25.6 (3.3)
<b>Socioeconomic</b>				
Education, years, mean (SD)	13.4 (1.8)	14.7 (2.2)	13.2 (2.0)	14.8 (2.4)
Married, N (%)	177 (21%)	279 (29%)	127 (20%)	200 (23%)
Poor financial status, N (%)	314 (37%)	292 (31%)	245 (38%)	220 (25%)
Employed full-time, N (%)	423 (50%)	600 (63%)	371 (57%)	604 (69%)
Usual source of medical care, N (%)	769 (91%)	869 (91%)	534 (83%)	706 (81%)
Maximum parental education, years, mean (SD)	12.8 (2.8)	14.8 (3.2)	12.9 (3.1)	15.0 (3.0)
<b>Neighborhood</b>				
G statistic of Black segregation, mean (SD)	4.6 (3.0)	1.6 (3.2)	4.7 (3.2)	1.6 (3.4)
Percentage of census tract living in poverty, %, mean (SD)	23 (12)	13 (10)	23 (13)	13 (10)
<b>Depression</b>				
CES-Depression score, mean (SD)	13.2 (9.3)	10.2 (7.9)	11.1 (7.3)	9.3 (7.0)
<b>Lifestyle</b>				
Smoking, N (%)				
Never	517 (62%)	523 (55%)	377 (58%)	542 (62%)
Former	70 (8%)	193 (20%)	62 (10%)	131 (15%)
Current	255 (30%)	240 (25%)	208 (32%)	202 (23%)
Daily alcohol intake, N (%)				
None	479 (57%)	356 (37%)	220 (34%)	198 (23%)
Moderate	309 (37%)	454 (48%)	350 (54%)	545 (62%)
Heavy	54 (6%)	146 (15%)	77 (12%)	132 (15%)
Physical activity, exercise units, mean (SD)	291 (235)	410 (255)	535 (358)	519 (298)
Diet quality, N (%)				
High	74 (9%)	244 (26%)	27 (5%)	120 (14%)
Intermediate	500 (59%)	568 (59%)	326 (50%)	485 (55%)
Poor	268 (32%)	144 (15%)	294 (45%)	270 (31%)
<b>Clinical</b>				
Fasting glucose, mg/dL, mean (SD)	80 (15)	81 (12)	83.6 (10.6)	84.8 (10.0)
Diabetes medication use, N (%)	3 (0.3%)	3 (0.3%)	2 (0.3%)	1 (0.1%)
Body mass index, kg/m <sup>2</sup> , mean (SD)	26.1 (6.5)	23.1 (4.3)	24.8 (4.2)	24.2 (3.4)
Waist circumference, cm, mean (SD)	77 (13)	72 (10)	81 (10)	83 (9)
Systolic blood pressure, mmHg, mean (SD)	109 (10)	105 (9)	116 (10)	114 (10)
Antihypertensive medication use, N (%)	30 (4%)	7 (1%)	16 (2.5%)	14 (2%)
Total cholesterol, mg/dL, mean (SD)	179 (34)	176 (31)	178 (35)	177 (34)
HDL cholesterol, mg/dL, mean (SD)	56 (13)	56 (13)	54 (13)	48 (11)
Forced vital capacity, L, mean (SD)	3.4 (0.5)	4.0 (0.5)	4.6 (0.7)	5.5 (0.8)

CES-D: Center for Epidemiologic Studies-Depression, CVD: Cardiovascular disease, HDL: High density lipoprotein, SD: Standard deviation

**Table S4. Baseline characteristics of included participants (complete-case data) versus those excluded for missing data**

	<b>Excluded (N=1792)</b>	<b>Included (N=3320)</b>
Age, years, mean (SD)	24.4 (3.7)	25.1 (3.6)
Female, N (%)	987 (55%)	1798 (54.2%)
Black, N (%)	1148 (64%)	1489 (44.8%)
<b>Socioeconomic</b>		
Education, years, mean (SD)	13.2 (2.1)	14.1 (2.3)
Married, N (%)	354 (20%)	783 (23.6%)
Poor financial status, N (%)	717 (40%)	1071 (32.3%)
Employed full-time, N (%)	879 (49%)	1998 (60.2%)
Usual source of medical care, N (%)	640 (87%)	2878 (86.7%)
Maximum parental education, years, mean (SD)	13.4 (3.0)	14.0 (3.2)
<b>Neighborhood</b>		
G-statistic of Black segregation, mean (SD)	3.8 (3.6)	3.0 (3.5)
Percentage of census tract living in poverty, %, mean (SD)	21 (13)	17.6 (12.1)
<b>Psychosocial</b>		
CES-Depression score, mean (SD)	12.4 (8.3)	10.9 (8.0)
<b>Lifestyle</b>		
Smoking, N (%)		
Never	933 (52%)	1959 (59%)
Former	220 (13%)	456 (14%)
Current	639 (36%)	905 (27%)
Daily alcohol intake, N (%)		
None	753 (42%)	1253 (38%)
Moderate	815 (46%)	1658 (50%)
Heavy	224 (13%)	409 (12%)
Physical activity, exercise units, mean (SD)	397 (301)	433 (300)
Diet quality, N (%)		
High	154 (9%)	465 (14%)
Intermediate	938 (53%)	1879 (57%)
Poor	700 (39%)	976 (29%)
<b>Clinical</b>		
Fasting glucose, mg/dL, mean (SD)	83 (22)	82 (12)
Diabetes medication use, N (%)	5 (0.3%)	9 (0.3%)
Body mass index, kg/m <sup>2</sup> , mean (SD)	24.5 (5.3)	24.5 (4.9)
Waist circumference, cm, mean (SD)	78 (12)	78 (11)
Systolic blood pressure, mmHg, mean (SD)	110 (11)	111 (11)
Antihypertensive medication use, N (%)	48 (3%)	67 (2%)
Total cholesterol, mg/dL, mean (SD)	176 (34)	177 (33)
HDL cholesterol, mg/dL, mean (SD)	53 (14)	53 (13)
Forced vital capacity, L, mean (SD)	4.2 (1.0)	4.4 (1.0)

CES-D: Center for Epidemiologic Studies-Depression, CVD: Cardiovascular disease, HDL: High density lipoprotein, SD: Standard deviation

**Table S5. Adjusted hazard ratios for incident cardiovascular disease per unit increment of covariates in the complete-case data**

	<b>Women</b>	<b>Men</b>
Black race	0.92 (0.48 – 1.75)	1.16 (0.72 – 1.88)
Age, per 1 year	1.03 (0.96 – 1.10)	1.13 (1.06 – 1.19)
<b>Site</b>		
Birmingham, Alabama	[Reference]	[Reference]
Chicago, Illinois	1.40 (0.71 – 2.79)	1.23 (0.73 – 2.05)
Minneapolis, Minnesota	1.11 (0.53 – 2.30)	1.00 (0.61 – 1.62)
Oakland, California	0.76 (0.38 – 1.56)	0.63 (0.36 – 1.10)
<b>Socioeconomic</b>		
Participant education, per 1 year	0.98 (0.88 – 1.10)	0.95 (0.88 – 1.03)
Marital status		
Not married	[Reference]	[Reference]
Married	0.73 (0.45 – 1.20)	1.08 (0.73 – 1.60)
Financial status		
Adequate (Not hard to pay for basics)	[Reference]	[Reference]
Poor (Hard to pay for basics)	0.83 (0.50 – 1.39)	1.21 (0.80 – 1.83)
Employment		
Not employed full-time	[Reference]	[Reference]
Employed full-time	0.56 (0.35 – 0.91)	0.82 (0.54 – 1.25)
Medical care		
Does not have usual source of care	[Reference]	[Reference]
Has usual source of care	0.71 (0.32 – 1.57)	0.99 (0.56 – 1.73)
Maximum parental education, per 1 year	1.10 (1.01 – 1.20)	1.04 (0.99 – 1.09)
<b>Neighborhood</b>		
G-statistic of Black segregation, per 1 unit	1.00 (0.90 – 1.11)	0.92 (0.84 – 1.01)
Percentage of census tract living in poverty, per 1%	0.99 (0.97 – 1.02)	1.03 (1.00 – 1.04)
<b>Depression</b>		
CES-Depression score, per 1 point	1.03 (1.00 – 1.05)	1.01 (0.99 – 1.04)
<b>Lifestyle</b>		
Smoking		
Never	[Reference]	[Reference]
Former	1.39 (0.77 – 2.51)	0.58 (0.30 – 1.14)
Current	2.08 (1.16 – 3.72)	2.40 (1.59 – 3.64)
Daily alcohol intake		
None	[Reference]	[Reference]
Moderate	1.29 (0.78 – 2.11)	0.80 (0.54 – 1.20)
Heavy	0.47 (0.18 – 1.25)	0.99 (0.57 – 1.70)
Physical activity, per 100 exercise units	1.01 (0.90 – 1.13)	0.98 (0.92 – 1.05)
Diet quality		
High	[Reference]	[Reference]
Intermediate	0.98 (0.49 – 1.96)	0.72 (0.39 – 1.32)
Poor	1.05 (0.47 – 2.36)	0.92 (0.48 – 1.76)
<b>Clinical</b>		
Fasting glucose, per 10 mg/dL	1.07 (1.02 – 1.12)	0.99 (0.93 – 1.05)
Diabetes medication (not using medication)	[Reference]	[Reference]
Using medication	1.97 (0.94 – 4.14)	1.85 (0.93 – 3.68)
Body mass index, per 1 kg/m <sup>2</sup>	1.00 (0.94 – 1.06)	0.98 (0.91 – 1.05)
Waist circumference, per 1 cm	1.01 (0.98 – 1.04)	1.02 (0.99 – 1.05)
Systolic blood pressure, per 10 mmHg	1.40 (1.26 – 1.55)	1.21 (1.10 – 1.34)
Antihypertensive medication (not using medication)	[Reference]	[Reference]
Using medication	2.01 (1.15 – 3.50)	1.93 (1.24 – 2.99)

Total cholesterol, per 10 mg/dL	1.03 (0.96 – 1.09)	1.09 (1.05 – 1.13)
HDL cholesterol, per 10 mg/dL	1.01 (0.88 – 1.16)	0.90 (0.78 – 1.03)
Forced vital capacity, per 1 L	0.69 (0.45 – 1.05)	0.83 (0.65 – 1.06)

CES-D: Center for Epidemiologic Studies-Depression, CVD: Cardiovascular disease, HDL: High density lipoprotein, SD: Standard deviation. Hazard ratios are adjusted for time-updated covariate measurements.

**Table S6. Hazard ratios for incident cardiovascular disease in Black versus White participants and percent reduction in parameter estimates using time-varying factor data in the complete-case dataset**

	Women		Men	
	Race HR (95% CI)	Reduction in $\beta$ , %	Race HR (95% CI)	Reduction in $\beta$ , %
<b>Sequential adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 2: model 1 + clinical <sup>a</sup>	0.94 (0.53 – 1.67)	106%	1.28 (0.91 – 2.09)	46%
Model 3: model 2 + lifestyle <sup>b</sup>	0.83 (0.46 – 1.51)	118%	1.16 (0.76 – 1.77)	75%
Model 4: model 3 + depression <sup>c</sup>	0.79 (0.44 – 1.43)	124%	1.15 (0.75 – 1.78)	76%
Model 5: model 4 + socioeconomic <sup>d</sup>	0.87 (0.57 – 1.61)	114%	1.11 (0.72 – 1.72)	82%
Model 6: model 5 + neighborhood <sup>e</sup>	0.92 (0.48 – 1.75)	109%	1.16 (0.72 – 1.88)	75%
<b>Individual adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 1 + clinical <sup>a</sup>	0.94 (0.53 – 1.67)	106%	1.38 (0.91 – 2.09)	46%
Model 1 + lifestyle <sup>b</sup>	2.21 (1.34 – 3.65)	18%	1.41 (0.98 – 2.03)	42%
Model 1 + depression <sup>c</sup>	2.32 (1.44 – 3.74)	13%	1.73 (1.21 – 2.47)	7%
Model 1 + socioeconomic <sup>d</sup>	2.30 (1.35 – 3.90)	14%	1.35 (0.92 – 1.99)	49%
Model 1 + neighborhood <sup>e</sup>	2.20 (1.28 – 3.76)	18%	1.71 (1.12 – 2.61)	9%
<b>Leave-out adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 6 – clinical <sup>a</sup>	2.05 (1.14 – 3.69)	26%	1.35 (0.86 – 2.12)	49%
Model 6 – lifestyle <sup>b</sup>	0.96 (0.51 – 1.81)	104%	1.26 (0.79 – 2.00)	62%
Model 6 – depression <sup>c</sup>	0.93 (0.49 – 1.77)	108%	1.15 (0.71 – 1.87)	76%
Model 6 – socioeconomic <sup>d</sup>	0.84 (0.45 – 1.56)	118%	1.17 (0.72 – 1.88)	74%
Model 6 – neighborhood <sup>e</sup>	0.87 (0.47 – 1.61)	115%	1.11 (0.72 – 1.73)	82%

CI: Confidence interval, HR: Hazard ratio. Hazard ratios are adjusted for baseline-only risk factor levels in young adulthood.

<sup>a</sup>Clinical factors: Fasting glucose, diabetes medication use, body mass index, waist circumference, systolic blood pressure, antihypertensive medication use, total cholesterol, HDL cholesterol, and forced vital capacity.

<sup>b</sup>Lifestyle factors: Smoking, alcohol intake, physical activity, diet score

<sup>c</sup>Depression factor: Center for Epidemiologic Studies-Depression score

<sup>d</sup>Socioeconomic factors: Participant and parental educational attainment, marital status, financial status, employment status

<sup>e</sup>Neighborhood factors: *G* statistic for census tract-level racial segregation and percentage of population living in poverty

**Table S7. Hazard ratios for incident cardiovascular disease in Black versus White participants and percent reduction in parameter estimates using baseline-only factor data in the complete-case dataset**

	Women		Men	
	Race HR (95% CI)	Reduction in $\beta$ , %	Race HR (95% CI)	Reduction in $\beta$ , %
<b>Sequential adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 2: model 1 + clinical <sup>a</sup>	1.63 (0.92 – 2.87)	50%	1.68 (1.11 – 2.55)	12%
Model 3: model 2 + lifestyle <sup>b</sup>	1.77 (0.99 – 3.18)	41%	1.45 (0.95 – 2.22)	37%
Model 4: model 3 + depression <sup>c</sup>	1.73 (0.96 – 3.11)	43%	1.42 (0.93 – 2.18)	41%
Model 5: model 4 + socioeconomic <sup>d</sup>	1.91 (1.05 – 3.47)	33%	1.33 (0.86 – 2.07)	51%
Model 6: model 5 + neighborhood <sup>e</sup>	1.83 (0.95 – 3.56)	37%	1.56 (0.94 – 2.57)	25%
<b>Individual adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 1 + clinical <sup>a</sup>	1.62 (0.92 – 2.87)	50%	1.68 (1.11 – 2.55)	12%
Model 1 + lifestyle <sup>b</sup>	2.65 (1.59 – 4.42)	*	1.53 (1.06 – 2.19)	29%
Model 1 + depression <sup>c</sup>	2.37 (1.47 – 3.83)	10%	1.73 (1.21 – 2.47)	7%
Model 1 + socioeconomic <sup>d</sup>	2.43 (1.46 – 4.06)	8%	1.36 (0.93 – 1.99)	48%
Model 1 + neighborhood <sup>e</sup>	2.22 (1.27 – 3.90)	17%	1.98 (1.31 – 2.98)	*
<b>Leave-out adjustment</b>				
Model 1: age and field center	2.62 (1.64 – 4.21)	[Reference]	1.81 (1.27 – 2.57)	[Reference]
Model 6 – clinical <sup>a</sup>	2.22 (1.21 – 4.07)	17%	1.43 (0.92 – 2.22)	40%
Model 6 – lifestyle <sup>b</sup>	1.64 (0.86 – 3.15)	49%	1.59 (0.97 – 2.61)	21%
Model 6 – depression <sup>c</sup>	1.86 (0.96 – 3.60)	36%	1.56 (0.95 – 2.57)	25%
Model 6 – socioeconomic <sup>d</sup>	1.67 (0.86 – 3.22)	47%	1.62 (0.99 – 2.64)	19%
Model 6 – neighborhood <sup>e</sup>	1.91 (1.05 – 3.47)	33%	1.33 (0.86 – 2.07)	51%

CI: Confidence interval, HR: Hazard ratio. Hazard ratios are adjusted for baseline-only risk factor levels in young adulthood. \*Percent reduction in  $\beta < 0$  not reported.

<sup>a</sup>Clinical factors: Fasting glucose, diabetes medication use, body mass index, waist circumference, systolic blood pressure, antihypertensive medication use, total cholesterol, HDL cholesterol, and forced vital capacity.

<sup>b</sup>Lifestyle factors: Smoking, alcohol intake, physical activity, diet score

<sup>c</sup>Depression factor: Center for Epidemiologic Studies-Depression score

<sup>d</sup>Socioeconomic factors: Participant and parental educational attainment, marital status, financial status, employment status

<sup>e</sup>Neighborhood factors: *G* statistic for census tract-level racial segregation and percentage of population living in poverty