## **Supplementary Online Content**

Abdalla SM, Yu S, Galea S. Trends in cardiovascular disease prevalence by income level in the United States. *JAMA Netw Open*. 2020;3(9):e2018150. doi:10.1001/jamanetworkopen.2020.18150

**eTable 1.** Model 1: Multivariable Analysis of the Association Between Congestive Heart Failure and Demographics, 1999-2016

**eTable 2.** Model 1: Multivariable Analysis of the Association Between Angina and Demographics, 1999-2016

**eTable 3.** Model 1: Multivariable Analysis of the Association Between Heart Attack and Demographics, 1999-2016

**eTable 4.** Model 1: Multivariable Analysis of the Association Between Stroke and Demographics, 1999-2016

**eTable 5.** Model 2: Multivariable Analysis of the Association Between Congestive Heart Failure, Demographics, and CVD Risk Factors, 1999-2016

**eTable 6.** Model 2: Multivariable Analysis of the Association Between Angina, Demographics, and CVD Risk Factors, 1999-2016

**eTable 7.** Model 2: Multivariable Analysis of the Association Between Heart Attack, Demographics, and CVD Risk Factors, 1999-2016

**eTable 8.** Model 2: Multivariable Analysis of the Association Between Stroke, Demographics, and CVD Risk Factors, 1999-2016

This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** Model 1: Multivariable Analysis of the Association Between Congestive Heart Failure and Demographics, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value	
Age			
40-59 vs. 20-39	6.70 (4.64, 9.66)	< 0.0001	
60+ vs. 20-39	28.42 (19.12, 42.24)	< 0.0001	
Gender			
female vs. male	0.69 (0.61, 0.79)	< 0.0001	
Race/Ethnicity			
White vs. Black	0.83 (0.72, 0.97)	0.02	
Hispanic/Mexican vs. Black	0.58 (0.45, 0.75)	< 0.0001	
Other vs. Black	0.82 (0.56, 1.20)	0.31	
Marital status			
married vs. not married	0.74 (0.65, 0.86)	< 0.0001	
Education			
High school graduate vs. no high school diploma	0.63 (0.52, 0.76)	< 0.0001	
Some college vs. no high school diploma	0.62 (0.51, 0.75)	< 0.0001	
College graduate or above vs. no high school diploma	0.39 (0.29, 0.51)	< 0.0001	
Citizenship status			
Non-US citizen vs. US citizen	0.55 (0.39, 0.76)	0.0004	
Survey cycle and income group interaction			
Trend among richest 20%	0.9 (0.82, 0.99)	0.03	
Trend among poorest 80%	1.02 (1.00, 1.05)	0.08	

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Congestive heart failure data missing for 132 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. The Richest 20% cut-off was defined by income-to-poverty $\geq$  5 in NHANES datasets.

**eTable 2.** Model 1: Multivariable Analysis of the Association Between Angina and Demographics, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value	
Age	Age		
40-59 vs. 20-39	8.19 (5.72, 11.73)	< 0.0001	
60+ vs. 20-39	26.23 (18.02, 38.17)	< 0.0001	
Gender			
female vs. male	0.70 (0.61, 0.81)	< 0.0001	
Race/Ethnicity			
White vs. Black	1.71 (1.42, 2.07)	< 0.0001	
Hispanic/Mexican vs. Black	1.27 (0.99, 1.62)	0.06	
Other vs. Black	1.49 (1.01, 2.20)	0.04	
Marital status			
married vs. not married	0.91 (0.77, 1.08)	0.27	
Education			
High school graduate vs. no high school diploma	0.76 (0.62, 0.92)	0.0053	
Some college vs. no high school diploma	0.83 (0.66, 1.04)	0.1016	
College graduate or above vs. no high school diploma	0.58 (0.46, 0.72)	< 0.0001	
Citizenship status			
Non-US citizen vs. US citizen	0.45 (0.32, 0.65)	< 0.0001	
Survey cycle and income group interaction			
Trend among richest 20%	0.80 (0.73, 0.87)	< 0.0001	
Trend among poorest 80%	0.95 (0.92, 0.99)	0.0072	

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Angina data missing for 145 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. The Richest 20% cut-off was defined by income-to-poverty  $\geq$  5 in NHANES datasets.

**eTable 3.** Model 1: Multivariable Analysis of the Association Between Heart Attack and Demographics, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value	
Age			
40-59 vs. 20-39	9.13 (6.62, 12.58)	< 0.0001	
60+ vs. 20-39	33.06 (24.20, 45.18)	< 0.0001	
Gender	· · ·		
female vs. male	0.44 (0.38, 0.50)	< 0.0001	
Race/Ethnicity			
White vs. Black	1.32 (1.14, 1.54)	0.0003	
Hispanic/Mexican vs. Black	0.79 (0.64, 0.97)	0.03	
Other vs. Black	1.48 (1.07, 2.04)	0.02	
Marital status			
married vs. not married	0.74 (0.65, 0.85)	< 0.0001	
Education			
High school graduate vs. no high school diploma	0.71 (0.61, 0.84)	< 0.0001	
Some college vs. no high school diploma	0.59 (0.51, 0.68)	< 0.0001	
College graduate or above vs. no high school diploma	0.44 (0.36, 0.53)	< 0.0001	
Citizenship status			
Non-US citizen vs. US citizen	0.45 (0.28, 0.72)	0.001	
Survey cycle and income group interaction			
Trend among richest 20%	0.91 (0.86, 0.97)	0.0025	
Trend among poorest 80%	0.99 (0.97, 1.02)	0.063	

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Heart attack data missing for 71 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. The Richest 20% cut-off was defined by income-to-poverty  $\geq$  5 in NHANES datasets.

**eTable 4.** Model 1: Multivariable Analysis of the Association Between Stroke and Demographics, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value	
Age	Age		
40-59 vs. 20-39	4.93 (3.53, 6.89)	< 0.0001	
60+ vs. 20-39	18.08 (13.58, 24.08)	< 0.0001	
Gender	Gender		
female vs. male	1.02 (0.89, 1.18)	0.75	
Race/Ethnicity			
White vs. Black	0.81 (0.70, 0.93)	0.004	
Hispanic/Mexican vs. Black	0.61 (0.49, 0.76)		
Other vs. Black	1.10 (0.83, 1.47)	< 0.0001	
Marital status			
married vs. not married	0.73 (0.63, 0.84)	< 0.0001	
Education			
High school graduate vs. no high school diploma	0.76 (0.65, 0.88)	0.0003	
Some college vs. no high school diploma	0.59 (0.49, 0.72)	< 0.0001	
College graduate or above vs. no high school diploma	0.55 (0.44, 0.69)	< 0.0001	
Citizen status			
Non-US citizen vs. US citizen	0.49 (0.33, 0.72)	0.0004	
Survey cycle and income group interaction			
Trend among richest 20%	0.97 (0.90, 1.05)	0.43	
Trend among poorest 80%	1.02 (0.99, 1.04)	0.21	

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Stroke data missing for 57 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. The Richest 20% cut-off was defined by income-to-poverty  $\geq$  5 in NHANES datasets.

**eTable 5.** Model 2: Multivariable Analysis of the Association Between Congestive Heart Failure, Demographics, and CVD Risk Factors, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value
Age		
40-59 vs. 20-39	7.05 (4.64, 10.72)	< 0.0001
60+ vs. 20-39	28.91 (18.51, 45.14)	< 0.0001
Gender		
female vs. male	0.64 (0.54, 0.74)	< 0.0001
Race/Ethnicity		
White vs. Black	0.83 (0.69, 1.00)	0.05
Hispanic/Mexican vs. Black	0.60 (0.45, 0.81)	0.0008
Other vs. Black	0.85 (0.54, 1.35)	0.49
Marital status		
married vs. not married	0.78 (0.66, 0.91)	0.003
Citizenship status		
Non-US citizen vs. US citizen	0.61 (0.42, 0.89)	0.01
Body Mass Index (BMI)		
Obese vs. not obese	1.86 (1.58, 2.21)	< 0.0001
Systolic blood pressure (SBP)		
Has high SBP vs. does not have high		0.21
SBP	0.92 (0.79, 1.08)	0.31
Education and income group interaction		
High school graduate vs. no high school diploma among the richest 20%	0.52 (0.24, 1.38)	0.10
Some college vs. no high school diploma among the richest 20%	0.29 (0.14, 0.61)	0.001
College graduate or above vs. no high school diploma among the richest 20%	0.15 (0.07, 0.32)	<0.0001
High school graduate vs. no high school diploma among poorest 80%	0.61 (0.48, 0.76)	<0.0001
Some college vs. no high school diploma among poorest 80%	0.61 (0.48, 0.76)	<0.0001
College graduate or above vs. no high school diploma among the poorest 80%	0.48 (0.35, 0.65)	<0.0001
Survey cycle and income group interaction		
Trend among the richest 20%	0.91 (0.81, 1.01)	0.07
Trend among the poorest 80%	1.03 (1.00, 1.06)	0.07

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Angina data missing for 145 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. BMI missing from 2,779 participants, and systolic blood pressure missing from 6,416 participants. Obesity was defined as BMI of greater than or equal to 30 kg/m<sup>2</sup>. High SBP was defined as SBP greater than or equal to 130 mm Hg. The Richest 20% cut-off was defined by income-to-poverty  $\geq 5$  in NHANES datasets.

**eTable 6.** Model 2: Multivariable Analysis of the Association Between Angina, Demographics, and CVD Risk Factors, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value
Age		
40-59 vs. 20-39	8.76 (5.74, 13.38)	< 0.0001
60+ vs. 20-39	29.06 (18.94, 44.60)	< 0.0001
Gender		
female vs. male	0.66 (0.56, 0.78)	< 0.0001
Race/Ethnicity		
White vs. Black	1.59 (1.26, 1.99)	0.0001
Hispanic/Mexican vs. Black	1.26 (0.95, 1.68)	0.11
Other vs. Black	1.63 (1.06, 2.52)	0.03
Marital status	1	
married vs. not married	0.87 (0.70, 1.00)	0.17
Citizenship status		•
Non-US citizen vs. US citizen	0.51 (0.34, 0.76)	0.001
Body Mass Index (BMI)		
Obese vs. not obese	1.78 (1.53, 2.07)	< 0.0001
Systolic blood pressure (SBP)		
Has high SBP vs. does not have high SBP	0.84 (0.70, 1.00)	0.04
Education and income group interac	tion	
High school graduate vs. no high school diploma among the richest 20%	1.25 (0.49, 3.16)	0.64
Some college vs. no high school diploma among the richest 20%	1.22 (0.47, 3.16)	0.69
College graduate or above vs. no high school diploma among the richest 20%	0.99 (0.43, 2.28)	0.98
High school graduate vs. no high school diploma among poorest 80%	0.71 (0.58, 0.86)	0.0008
Some college vs. no high school diploma among poorest 80%	0.75 (0.58, 0.97)	0.03
College graduate or above vs. no high school diploma among the poorest 80%	0.55 (0.39, 0.75)	0.0003
Survey cycle and income group interaction		
Trend among the richest 20%	0.79 (0.72, 0.86)	< 0.0001
Trend among the poorest 80%	0.95 (0.91, 0.98)	0.005

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Angina data missing for 145 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. BMI missing from 2,779 participants, and systolic blood pressure missing from 6,416 participants. Obesity was defined as BMI of greater than or equal to 30 kg/m<sup>2</sup>. High SBP was defined as SBP greater than or equal to 130 mm Hg. The Richest 20% cut-off was defined by income-to-poverty  $\geq 5$  in NHANES datasets.

**eTable 7.** Model 2: Multivariable Analysis of the Association Between Heart Attack, Demographics, and CVD Risk Factors, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value
Age	•	
40-59 vs. 20-39	9.96 (6.95, 14.27)	< 0.0001
60+ vs. 20-39	37.36 (26.45, 52.78)	< 0.0001
Gender	•	
female vs. male	0.40 (0.35, 0.47)	< 0.0001
Race/Ethnicity		
White vs. Black	1.28 (1.09, 1.52)	0.004
Hispanic/Mexican vs. Black	0.85 (0.68, 1.06)	0.15
Other vs. Black	1.83 (1.31, 2.57)	0.0005
Marital status		
married vs. not married	0.75 (0.64, 0.87)	0.0002
Citizenship status	· · · · · · · · · · · · · · · · · · ·	
Non-US citizen vs. US citizen	0.44 (0.29, 0.68)	0.0002
Body Mass Index (BMI)		
Obese vs. not obese	1.57 (1.38, 1.78)	<0/0001
Systolic blood pressure (SBP)		
Has high SBP vs. does not have high SBP	0.87 (0.76, 1.00)	0.04
Education and income group interaction		
High school graduate vs. no high school diploma among the richest 20%	0.78 (0.42, 1.43)	0.42
Some college vs. no high school diploma among the richest 20%	0.56 (0.31, 1.00)	0.05
College graduate or above vs. no high school diploma among the richest 20%	0.44 (0.26, 0.73)	0.002
High school graduate vs. no high school diploma among poorest 80%	0.69 (0.57, 0.83)	< 0.0001
Some college vs. no high school diploma among poorest 80%	0.52 (0.42, 0.65)	< 0.0001
College graduate or above vs. no high school diploma among the poorest 80%	0.43 (0.33, 0. 57)	<0.0001
Survey cycle and income group interaction		
Trend among the richest 20%	0.91 (0.85, 0.96)	0.002
Trend among the poorest 80%	1.00 (0.97, 1.03)	0.96

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Heart attack data missing for 71 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. BMI missing from 2,779 participants, and systolic blood pressure missing from 6,416 participants. Obesity was defined as BMI of greater than or equal to 30 kg/m<sup>2</sup>. High SBP was defined as SBP greater than or equal to 130 mm Hg. The Richest 20% cut-off was defined by income-to-poverty  $\geq$  5 in NHANES datasets.

**eTable 8.** Model 2: Multivariable Analysis of the Association Between Stroke, Demographics, and CVD Risk Factors, 1999-2016

Variables	Odds ratio (95% CI)	<i>p</i> -value
Age		
40-59 vs. 20-39	4.41 (3.12, 6.23)	< 0.0001
60+ vs. 20-39	15.19 (11.15, 20.68)	< 0.0001
Gender		
female vs. male	1. 03 (0.86, 1.25)	0.74
Race/Ethnicity	·	
White vs. Black	0.80 (0.68, 0.93)	0.004
Hispanic/Mexican vs. Black	0.61 (0.48, 0.78)	0.0001
Other vs. Black	1.20 (0.86, 1.66)	0.28
Marital status		
married vs. not married	0.76 (0.66, 0.89)	0.0007
Citizenship status		
Non-US citizen vs. US citizen	0.52 (0.32, 0.82)	0.005
Body Mass Index (BMI)		
Obese vs. not obese	1.25 (1.06, 1.47)	0.008
Systolic blood pressure (SBP)		
Has high SBP vs. does not have high SBP	1.04 (0.88, 1.22)	0.64
Education and income group interac	tion	
High school graduate vs. no high school diploma among the richest 20%	1.09 (0.43, 2.74)	0.85
Some college vs. no high school diploma among the richest 20%	0.66 (0.29, 1.48)	0.31
College graduate or above vs. no high school diploma among the richest 20%	0.66 (0.31, 1.41)	0.28
High school graduate vs. no high school diploma among poorest 80%	0.74 (0.61, 0.89)	0.002
Some college vs. no high school diploma among poorest 80%	0.58 (0.46, 0.72)	< 0.0001
College graduate or above vs. no high school diploma among the poorest 80%	0.54 (0.40, 0.74)	0.0001
Survey cycle and income group interaction		
Trend among the richest 20%	0.98 (0.89, 1.06)	0.58
Trend among the poorest 80%	1.03 (1.00, 1.07)	0.04

Data are from the National Health and Nutrition Examination Survey (NHANES) between 1999-2016 (N=44,986). Stroke data missing for 57 participants. Marital status missing from 488 participants, education missing from 56 participants, citizenship status missing from 55 participants. BMI missing from 2,779 participants, and systolic blood pressure missing from 6,416 participants. Obesity was defined as BMI of greater than or equal to 30 kg/m<sup>2</sup>. High SBP was defined as SBP greater than or equal to 130 mm Hg. The Richest 20% cut-off was defined by income-to-poverty  $\geq$  5 in NHANES datasets.