



BACKGROUND

A. Cardiovascular Diseases (CVD) in United States

Costs of CVD in the US

- 2022 \$378 billion/ year
- By 2030 \$818 billion/ year

#1

Leading cause of death for in the US

18.2M

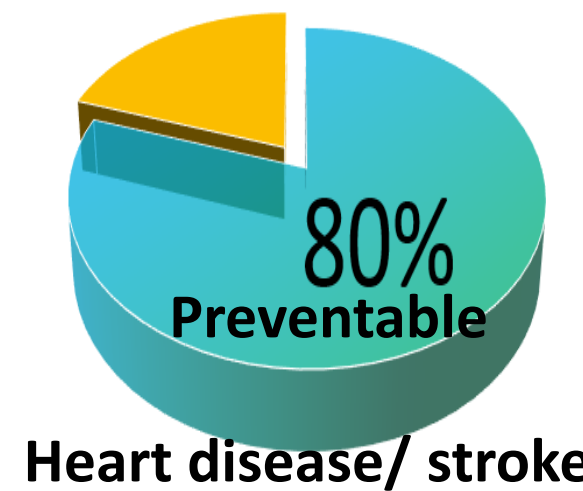
Americans aged 20 & older have CHD

647K

Americans die from heart disease /year

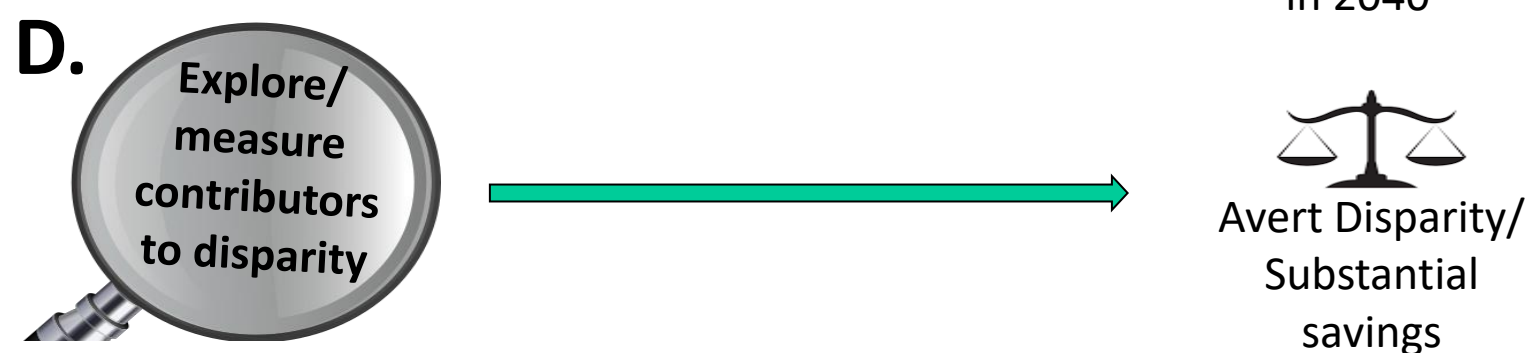
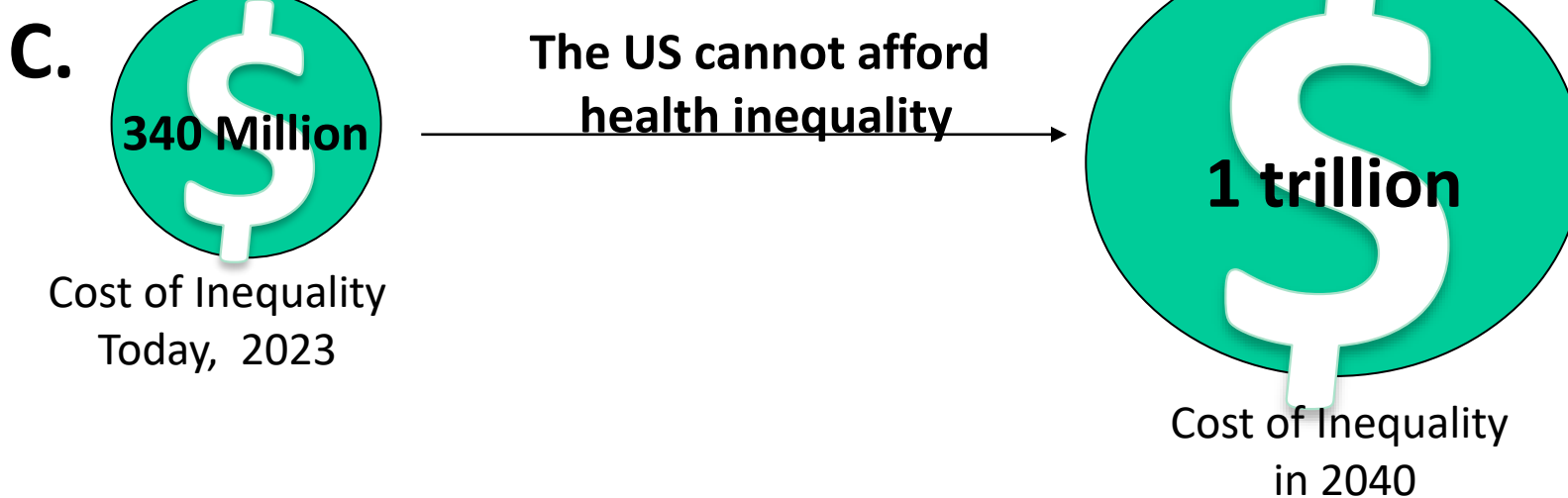
20%

Of heart attacks are silent



B. ACA relies on preventive services to cut down Healthcare cost

Preventive care uptake remains Low: Only 8% US Adults
Racial/ ethnicity disparity implicated



OBJECTIVE

This study aimed to explore factors influencing racial and ethnicity disparities in receiving clinical preventive health services for cardiovascular diseases among adults in the united Stated.

METHOD

- A retrospective cohort study using data from the 2018 household component of the Medical Expenditure Panel Survey (MEPS).
- All adults 18 years and above with no established CVD (including coronary artery disease, angina, heart attacks, arrhythmias and heart failure
- Multivariable logistic regression and Blinder Oaxaca decomposition statistical methods were performed to elucidate Information about the use of clinical preventive health services for CVD.
- Blinder Oaxaca (BO) Decomposition was used to identify the percentage of contribution of the predisposing, enabling, and need factors in explaining the existing racial/ethnic disparity in the use of CVD preventive services.

RESULTS

Table 1. Patient demographics by race

	Total, N = 180,943,781 (100%)	Whites, N = 123901972 (68.5%)	Blacks, N = 19730608 (10.9%)	Hispanics, N = 22427819 (12.4%)	Others, N = 14883383 (8.22%)
Independent variables					
Predisposing characteristics					
Age, years					
18-44	37.7	23.6	4.4	5.9	3.7
45-64	36.5	25	4.1	4.5	2.9
≥ 65	25.8	19.7	2.3	2.1	1.7
Gender					
Male	43.1	30.4	4.2	5.1	3.5
Female	56.9	38.1	6.7	7.3	4.7
Marital status					
Married	54.3	39.9	3.8	6.3	4.3
Unmarried	45.7	28.6	7.1	6.1	3.9
Education					
No High School	13.3	6.7	1.8	3.7	1.1
High School	40.4	27.6	5.3	4.8	2.8
Bachelor or Higher	45.8	33.9	3.9	3.7	4.2
Enabling characteristics					
Income					
low income	25.2	13.9	4.4	4.7	2.2
middle income	28	18.8	3.3	3.9	1.9
high income	46.8	35.8	3.2	3.8	4.1
Health Insurance					
Uninsured	3.8	1.7	0.5	1.3	0.3
Any private	70.5	51.2	6.7	7	5.6
Public only	25.7	15.6	3.7	4.1	2.3
Usual source of care					
Yes	82.2	57.8	8.5	9.5	6.4
No	16.8	10.2	2.2	2.7	1.7
Region					
Northeast	17.7	12.7	1.7	1.8	1.5
Midwest	22.1	17.7	1.9	1.2	1.3
South	37.5	24.2	6.5	4.6	2.2
West	22.8	14.0	0.9	4.8	3.2
Need characteristics					
CVD risk					
Low risk	15.6	11	1.1	2.2	1.3
Moderate risk	54.9	36.8	6	7.3	4.8
High risk	29.5	19.2	4.6	3.4	2.3
Health status					
Excellent/very good/ good	84.5	58.9	8.9	9.9	6.8
Fair/ poor	15.2	9.3	2	2.5	1.4

RESULTS CONTINUED

Table 2. CVD preventive service use rate and unadjusted bivariate analysis

Independent variables	N=74,881,420 Received CVD preventive services, wt. %	N=105,689,914 Did not Receive CVD preventive services, wt. %	Unadjusted OR (95% CI)	P-value
Predisposing Characteristics				
Age (yrs), Mean (SE)	57.7 (0.30)	47.1 (0.26)	1.04 (1.03-1.04)	<0.0001
Age group, y:				
18-44	10.3	27.4	[Reference]	
45-64	14.9	21.7	1.81(1.64 - 2.02)	<0.0001
≥ 65	16	9.8	4.33(3.96 - 4.85)	<0.0001
Race				
Whites	28.5	40	[Reference]	
Blacks	5.3	5.7	1.30 (1.16-1.47)	<0.0001
Hispanics	5	7.4	0.95 (0.84-1.06)	0.3252
Others	2.7	5.5	0.69 (0.60-0.80)	<0.0001
Gender				
Male	19.1	24.0	[Reference]	
Female	22.4	34.5	0.82(0.75 - 0.89)	<0.0001
Marital status				
Married	23.2	31.1	[Reference]	
Unmarried	18.2	27.4	0.89 (0.82 - 0.98)	0.0126
Education				
No High School	6.1	7.2	[Reference]	
High School	17.6	22.8	0.92 (0.82 - 1.03)	0.1555
Bachelor or Higher	17.6	28.22	0.74 (0.66 - 0.83)	<0.0001
Enabling Characteristics				
Income				
Low income	11.3	13.9	[Reference]	
Middle income	11.6	16.3	0.88 (0.79 - 0.97)	0.0124
High-income	18.6	28.3	0.81 (0.74 - 0.89)	<0.0001
Health Insurance				
Uninsured	1	2.8	[Reference]	
Any private	27.1	43.5	1.79(1.44 - 2.24)	<0.0001
Public only	13.4	12.3	3.16(2.51 - 3.98)	<0.0001
Usual source of care				
Yes	37.1	45.1	[Reference]	
No	4	12.8	2.63(2.32 - 2.99)	<0.0001
Region				
Northeast	7.4	10.2	[Reference]	
Midwest	9	13.1	0.95 (0.82-1.09)	0.4478
South	16.3	21.2	1.06 (0.93-1.22)	0.3183
West	8.8	14	0.86 (0.74-1.00)	0.0555
Need Characteristics				
CVD risk				
Low risk	2.5	13.1	[Reference]	
Moderate risk	18.7	36.2	2.69 (2.20 - 3.28)	<0.0001
High risk	17.5	12.1	7.5 (6.05 - 9.32)	<0.0001
Health status				
Excellent/ v. good/ good	33.1	51.3	[Reference]	
Fair/ poor	8.1	7.1	1.78(1.59 - 1.99)	<0.0001

Table 4. Nonlinear Blinder Oaxaca Decomposition (BOD) of CVD preventive service use between whites and Blacks

Probability of receiving CVD preventive services for whites	0.00285
Probability of receiving CVD preventive services for blacks	0.0005
Difference in CVD preventive service use	0.00235
Total explained by measurable characteristics (decomposition coefficient for all independent variables)	-0.0015
Percentage of disparity explained by observable characteristics	-63.8%

* Age, gender, educational status and marital status were factors in the decomposition model that significantly contributed to the disparity seen in the use of CVD preventive services among whites and blacks.

Table 3: Multivariable regression analysis of CVD preventive service use

Independent variables	Model with Predisposing Characteristics (Model A)	Model with Enabling Characteristics (Model B)	Model with Need Characteristics (Model C)
Predisposing Characteristics			
Race/ethnicity			
Whites	[Reference]	[Reference]	[Reference]
Blacks	1.50 (1.32 - 1.71)	1.46 1.28 1.67	1.35 (1.11 - 1.63)
Hispanics	1.09 (0.96 - 1.23)	1.14 (1.00 - 1.30)	1.09 (0.89 - 1.34)
Others	0.77 (0.65 - 0.90)	0.79 (0.67 - 0.94)	0.89 (0.71 - 1.12)
Age group, y			
18-44	[Reference]	[Reference]	[Reference]
45-64	1.787 1.604 1.991	1.63 1.458 1.820	0.99 (0.84 - 1.16
≥ 65	4.325 3.850 4.857	3.534 3.134 3.984	1.91 (1.62 - 2.25)
Gender (Female)			
	0.827 0.759 0.902	0.791 0.725 0.864	0.64 (0.51 - 0.70)
Marital status			
Married	[Reference]	[Reference]	[Reference]
Unmarried	0.921 0.839 1.011	0.907 0.824 0.999	1.00 (0.88 - 1.15)
Education			
No High School	[Reference]	[Reference]	[Reference]
High School	0.920 0.816 1.038	0.949 0.838 1.076	0.96 (0.82 - 1.12)
Bachelor or Higher	0.782 0.694 0.880	0.844 0.740 0.962	0.88 (0.74 - 1.05)
Enabling Characteristics			
Income			
Low income		[Reference]	[Reference]
Middle income		0.956 0.851 1.073	1.09 (0.94 - 1.27)
High-income		0.872 0.776 0.979	1.02 (0.87 - 1.20)
Health Insurance			
Uninsured		[Reference]	[Reference]
Any private		1.48 (1.197 1.838	1.07 (0.80 - 1.46)
Public only		1.75 (1.39 - 2.21)	1.26 (0.91 - 1.73)
Usual source of care			
No	Enabling and need Factors not included in this model	[Reference]	[Reference]
Yes		1.98 (1.73 - 2.26)	1.71 (1.43 - 2.06)
Region			
Northeast		[Reference]	[Reference]
Midwest		0.98 (0.86 - 1.12)	0.99 (0.82 - 1.19)
South		1.06 (0.93 - 1.22)	1.03 (0.87 - 1.22)
West		0.88 (0.75 - 1.03)	0.85 (0.69 - 1.06)
Need Characteristics			
CVD risk			
Low risk			[Reference]
Moderate risk		Need factors not included in this model	2.29 (1.86 - 2.81)
High risk			4.98 (3.95 - 6.28)
Health status			
Excellent/ v. good/ good			[Reference]
Fair/ poor			1.28 (1.09 - 1.50)

CONCLUSIONS

- This study revealed the existence of disparities, but the differences in the predisposing, enabling, and need characteristics of this cohort did not successfully explain the racial/ethnic disparity in CVD preventive service use.
- There is a need for further studies that examine the correlates of preventive services, including individual beliefs, behavioral patterns, and provider prescription patterns.