Racial Disparity in Healthcare Expenditure Among Older Adults With Cardiovascular Diseases

#HPR19

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ABSTRACT

BACKGROUND: Cardiovascular disease (CVD) is a leading cause of morbidity and healthcare expenditure in the US, particularly among older adults. Despite the high prevalence and costs associated with CVD, racial and ethnic disparities in healthcare expenditures persist, highlighting the need to understand and address these inequities.

METHODS: We analyzed 2014–2021 data from the Medical Expenditure Panel Survey (MEPS) to compare healthcare expenditures among Hispanic, non-Hispanic Black (NHB), and non-Hispanic White (NHW) adults 65+ with CVD. Multivariable models adjusted for biological and socioeconomic factors assessed disparities in total healthcare expenditure.

RESULTS: Out of 8,585 participants, Hispanics had 26% lower healthcare expenditure compared to NHWs (p<.001), with no significant differences between NHB and NHW. Lower expenditure among Hispanics was linked to being female, lower education, having physical/cognitive limitations, low income, sole reliance on public insurance, and residing in certain regions.

CONCLUSIONS: Targeted interventions are needed to reduce healthcare disparities and promote equity for older Hispanic adults with CVD.

BACKGROUND

Understanding health behavior among patients with CVD is essential for enhancing treatment strategies and improving treatment outcomes. CVD continues to be a primary cause of morbidity and mortality worldwide, highlighting the need for a thorough research into the factors influencing patient outcomes. Healthcare expenditures in CVD is the highest in the United States.

OBJECTIVE

To evaluate the factors contributing to racial and ethnic disparities in total healthcare expenditure among older adults with CVD.

METHODS

Data source and study design:

- Using data from the MEPS spanning 2014–2021, the total healthcare expenditure was compared among Hispanic, non-Hispanic Black (NHB), and non-Hispanic White (NHW) individuals 65 years and beyond with at least one CVD diagnosis during their lifetime.
- Total healthcare expenditure included office-based visits, outpatient visits, hospitalizations, emergency room visits, and prescription medications.

Data analysis:

- Descriptive analysis was followed by a log transformation of the total healthcare expenditure values and linear regression models.
- A multivariable model adjusted for biological factors [sex, age at first CVD diagnosis, CVD severity scale (Zghebi SS et al, 2021), and Elixhauser comorbidity score] was used to evaluate any racial disparity in total healthcare expenditure among the cohorts.
- Another multivariable model adjusted for all factors in the study (biological factors, educational attainment, physical limitations, cognitive limitations, income, insurance status, geographical region, and year of data collection) was used for evaluation of the association of demographic and socioeconomic factors with total healthcare expenditure among different racial/ethnic cohorts.
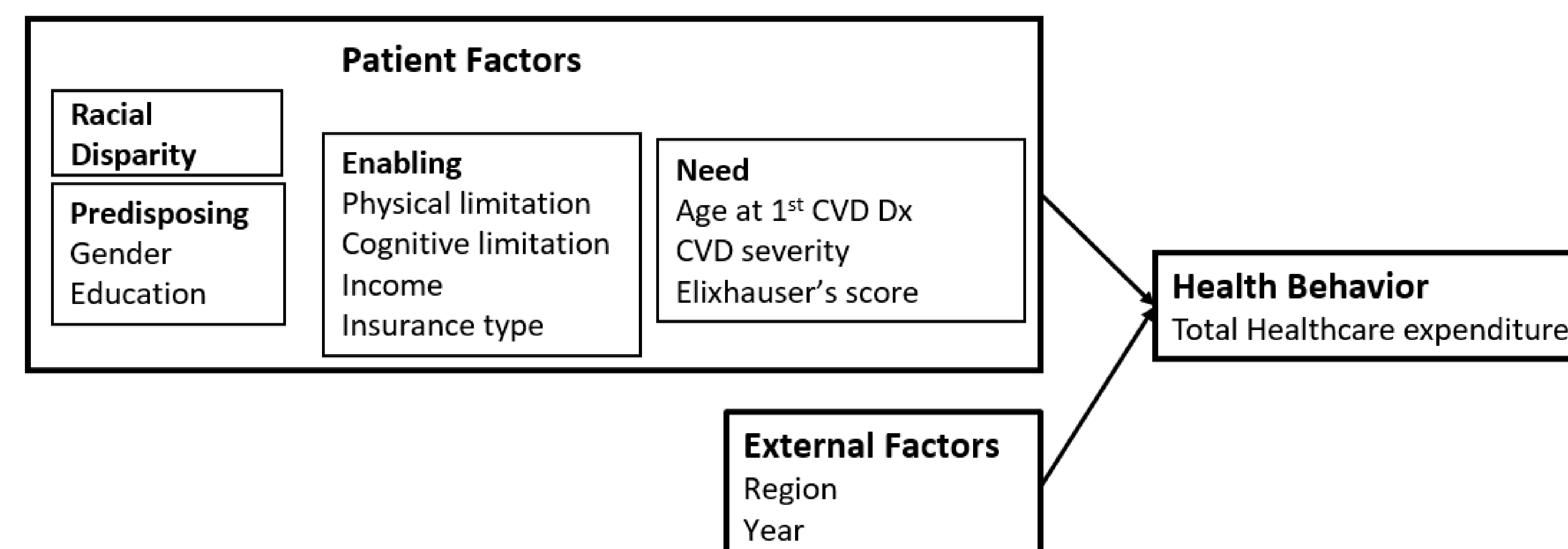
Figure 1. Proposed conceptual model based on the Andersen Behavioral Model

RESULTS

Table 1. Characteristics of Adults 65 years and older with CVD (n=8,585): MEPS 2014-2021

		Non-Hispanic Black (n=1,328)	Non-Hispanic White (n=6,371)	Hispanic (n=886)	
		Weighted frequency (%)			p-value
Gender	Male	497,434 (46.93)	5,318,120 (55.46)	374,697 (49.08)	<.0001
	Female	562,622 (53.07)	4,270,980 (44.54)	388,716 (50.92)	
Education	≤HS graduate	734,569 (69.30)	5,418,432 (56.51)	571,679 (74.88)	<.0001
	1-3 Y of college	195,615 (18.45)	1,797,625 (18.75)	120,750 (15.82)	
	≥4 Y of college	129,871 (12.25)	2,373,044 (24.75)	70,983 (9.30)	
Physical limitation	Yes	563,570 (53.16)	4,355,294 (45.42)	372,861 (48.84)	<.0001
	No	496,485 (46.84)	5,233,807 (54.58)	390,552 (51.16)	
Cognitive limitation	Yes	274,657 (25.91)	1,648,522 (17.19)	192,940 (25.27)	<.0001
	No	785,399 (74.09)	7,940,579 (82.81)	570,473 (74.73)	
Insurance type	Any private	385,841 (36.40)	5,167,792 (53.89)	197,531 (25.87)	<.0001
	Only public	674,214 (63.60)	4,421,309 (46.11)	565,882 (74.13)	
Poverty (Income)	Poor/ Near poor	322,546 (30.43)	1,244,227 (12.98)	231,131 (30.28)	<.0001
	Low	205,082 (19.35)	1,572,354 (16.40)	171,962 (22.52)	
	Middle	285,911 (26.97)	2,900,106 (30.24)	218,934 (28.68)	
	High	246,516 (23.26)	3,872,414 (40.38)	141,447 (18.53)	
Region	Northeast	185,854 (17.53)	1,888,746 (19.70)	162,924 (21.34)	<.0001
	Midwest	220,575 (20.81)	2,436,882 (25.41)	79,044 (10.35)	
	South	567,982 (53.58)	3,569,595 (37.23)	266,238 (34.87)	
	West	85,645 (8.08)	1,693,878 (17.66)	255,206 (33.43)	
Year	2014	147,283 (13.89)	1,335,297 (13.93)	93,572 (12.26)	.98
	2015	144,095 (13.59)	1,328,763 (13.86)	101,755 (13.33)	
	2016	136,972 (12.92)	1,258,337 (13.12)	102,631 (13.44)	
	2017	123,931 (11.69)	1,094,757 (11.42)	94,879 (12.43)	
	2018	124,728 (11.77)	1,257,530 (13.11)	99,216 (13.00)	
	2019	131,211 (12.38)	1,254,176 (13.08)	98,049 (12.84)	
	2020	110,555 (10.43)	894,414 (9.33)	68,474 (8.97)	
	2021	141,280 (13.33)	1,165,826 (12.16)	104,837 (13.73)	
Continuous variables		mean(SE)			
Total expenditure		19,419 (937)	18,500 (356)	20,044 (1,569)	
Age at CVD diagnosis		61.15 (0.60)	62.91 (0.30)	62.71 (0.79)	
CVD severity score		3.70 (0.05)	3.57 (0.03)	3.75 (0.09)	
Elixhauser's score		3.30 (0.08)	3.50 (0.04)	3.38 (3.38)	

Table 2. Linear Regression Outcomes Relative to Total Healthcare Expenditure of Adults 65 and older with CVD (n=8,585), MEPS 2014-21

Parameters	Categories		Estimate	SE	Exp (est)%	Pr > |t|
Race (ref=Non-Hispanic White)	Non-Hispanic Black		0.074	0.133	107.72	.58
	Hispanic		0.010	0.176	100.97	.96
Sex (ref=Male)	Female		0.015	0.030	101.49	.62
Race*sex	Non-Hispanic Black	Female	-0.088	0.072	91.62	.22
	Hispanic	Female	0.278	0.088	132.00	<.01
Education (ref= ≤HS graduate)	1-3 years of college		0.023	0.040	102.37	.56
	≥4 years of college		0.102	0.038	110.73	<.01
Race*Education	Non-Hispanic Black	1-3 years of college	-0.132	0.101	87.65	.19
		≥4 years of college	0.053	0.124	105.40	.67
	Hispanic	1-3 years of college	0.208	0.138	123.16	.13
		≥4 years of college	0.039	0.163	104.01	.81
Physical Limitations	Yes (ref=no)		0.426	0.033	153.07	<.0001
Race*Physical limitations	Non-Hispanic Black	Yes	0.163	0.077	117.66	<.05
	Hispanic	Yes	0.268	0.095	130.76	<.01
Cognitive Limitations	Yes (ref=no)		0.174	0.071	119.00	<.05
Race*Cognitive Limitations	Non-Hispanic Black	Yes	0.252	0.088	128.67	<.01
	Hispanic	Yes	0.006	0.104	100.60	.95
Insurance (ref: any private)	Only Public		-0.081	0.030	92.25	<.01
Race* Insurance	Non-Hispanic Black	Only Public	-0.127	0.080	88.12	.11
	Hispanic	Only Public	-0.080	0.111	92.32	.47
Income (ref=high)	Poor		-0.103	0.046	90.21	<.05
	Low		-0.132	0.045	87.67	<.05
	Middle		-0.088	0.037	91.55	<.05
Race*Income	Non-Hispanic Black	Poor	-0.035	0.115	96.53	.76
		Low	0.061	0.121	106.32	.61
		Middle	0.017	0.111	101.70	.88
	Hispanic	Poor	0.015	0.147	101.53	.92
		Low	0.067	0.157	106.92	.67
		Middle	-0.027	0.149	97.31	.85
Region (ref=Northeast)	Midwest		-0.035	0.044	96.53	.42
	South		-0.055	0.041	94.69	.19
	West		0.021	0.047	102.17	.65
Race*Region	Non-Hispanic Black	Midwest	-0.089	0.121	91.48	.46
		South	-0.192	0.101	82.49	.06
		West	-0.340	0.154	71.16	<.05
	Hispanic	Midwest	-0.402	0.164	66.92	<.05
		South	-0.273	0.120	76.15	<.05
		West	-0.456	0.124	63.40	<.001
Age at CVD diagnosis			0.003	0.001	100.30	<.01
CVD severity score			0.068	0.012	106.99	<.0001
Elixhauser's score			0.189	0.009	120.81	<.0001

- After adjusting for biological factors, the Hispanics but not the NHBs had 26% lower total healthcare expenditure (p < .001) compared to the NHW.
- Key predictors included female sex, lower education, physical or cognitive limitations, lower income, sole reliance on public insurance, and living in the West, Midwest, and South regions.

CONCLUSIONS

This study highlights the need for targeted interventions to address healthcare disparities and promote health equity among older Hispanic adults with CVD.