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Oral Defense for MiM Degree Thesis

Thursday, 29th June 2023

ACCESS TO CARE AND SERVICE UTILIZATION AMONGST MEDICARE BENEFICIARIES

Race/ethnicity-related discrepancies, a comparison between 2013 and 2020 MCBS Publicly available data

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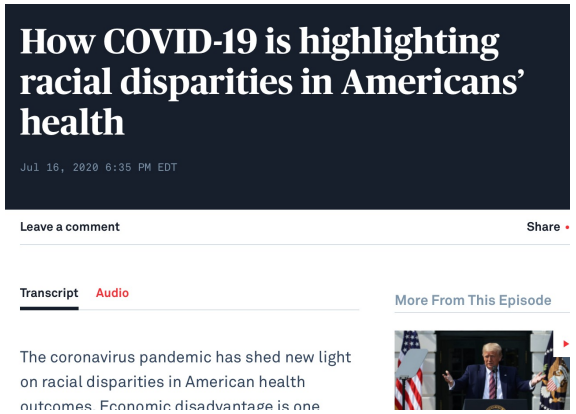
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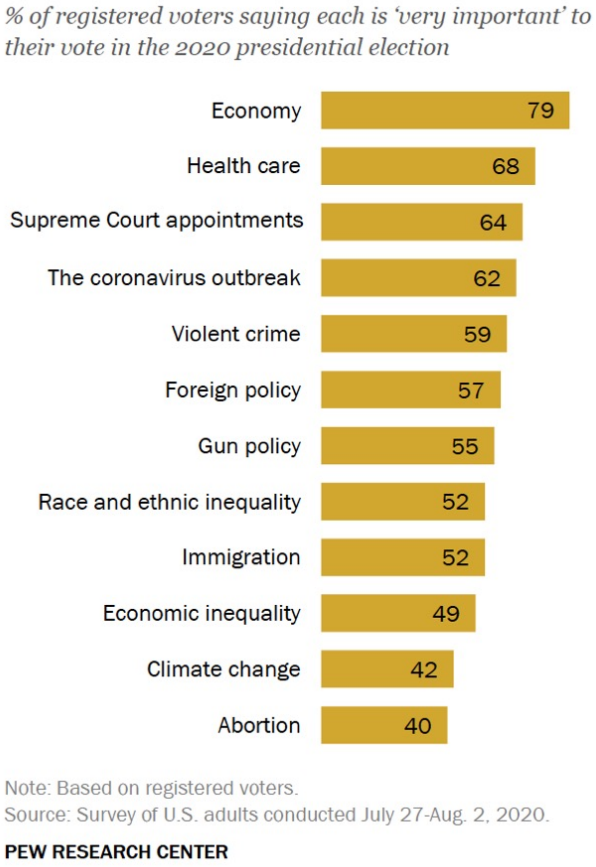
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Introduction : Why choose this topic ?

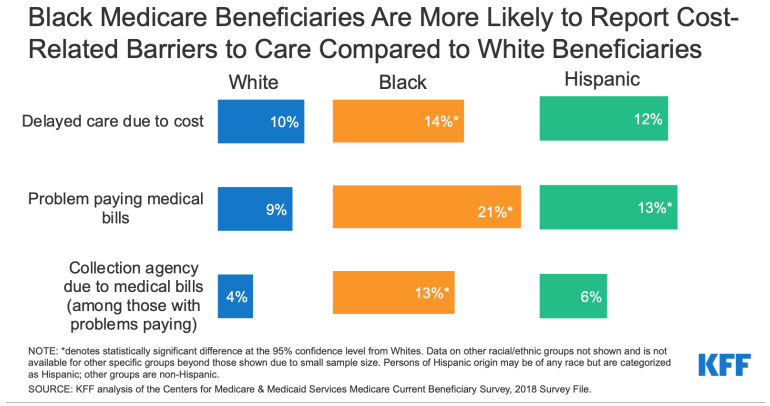
Healthcare inequalities : a growing political and socio-economical issue in the US…

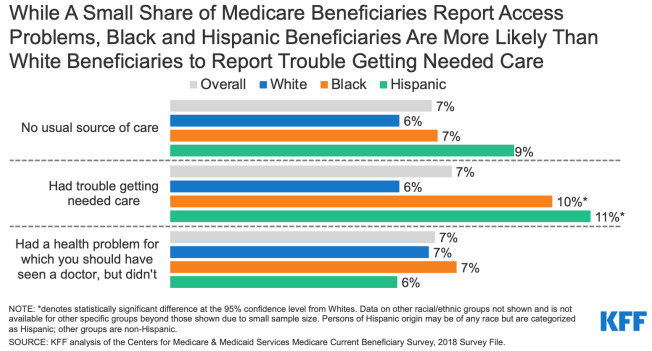






…but which existed long before COVID 19 struck





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https://www.pbs.org/newshour/show/how-covid-19-is-highlighting-racial-disparities-in-americans-health
https://files.kff.org/attachment/Report-Racial-and-Ethnic-Health-Inequities-and-Medicare.pdf
https://www.ft.com/content/7b0db882-a369-4e32-a86a-eb7fda2a0da0
https://www.pewresearch.org/politics/2020/08/13/important-issues-in-the-2020-election/

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Research Question

“Race/ethnicity-related discrepancies in access to care and service utilization amongst Medicare beneficiaries: a comparison between 2013 and 2020 MCBS Publicly available data”

Goal of study : look into race-related discrepancies in access to medication and service utilization for the year 2013 and 2020, and compare results to see what has changed before the beginning of the pandemic

Scope: This study focuses exclusively on Medicare-aged Americans (>65) and adjusts for a variety of socio-economic characteristics

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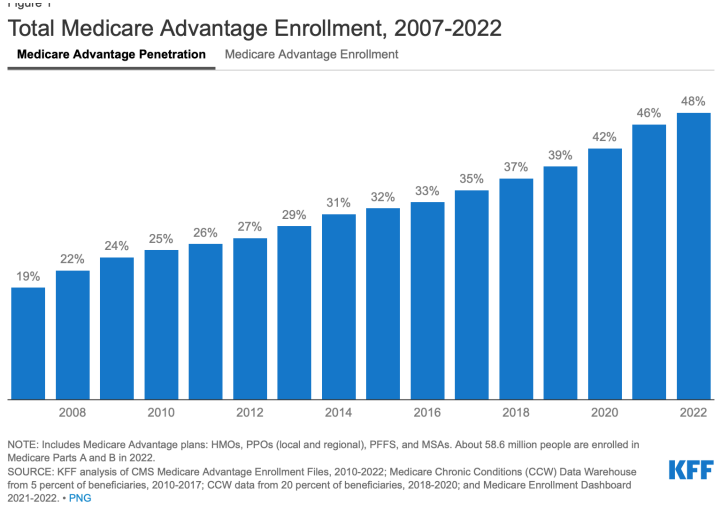
Introduction : Core Concepts (1/2)

What is Medicare ?

- **Federal health insurance** program for **65+ year old** americans and/or with certain disabilities.
- Structured in **three main parts** :
  - **Part A** (included in Medicare Fee For Service) : covers inpatient hospital stays, care in skilled nursing facility and some home health care, no monthly premium
  - **Part B** (included in Medicare FFS) : covers certain forms of outpatient care, medical supplies.., monthly premium
  - **Part D** (not included in Medicare FFS) : covers part of the cost of prescription drugs (including vaccines), need to join a Medicare approved plan that offers drug coverage

Medicare Advantage (Part C)

- Only available for those eligible for Part A and B
- Offered by **Medicare-approved private companies** that follow the rules set by Medicare
- May sometimes Include Part D
- Created with the Balanced Budget Act of 1997 (known as **Medicare + Choice** before the MMA of 2003)



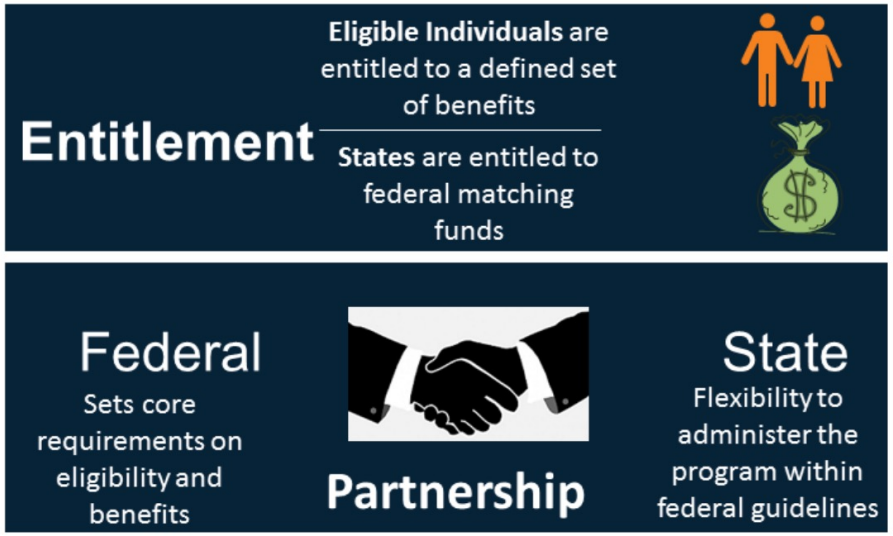
Sources :
https://www.medicare.gov/health-drug-plans/health-plans/your-coverage-options
https://www.kff.org/medicare/issue-brief/medicare-advantage-in-2022-enrollment-update-and-key-trends/

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Introduction : Core Concepts (2/2)

Medicaid

- Joint federal and state program to help cover healthcare costs for low-income Americans
- It tends to be more extensive than Medicare and present low level of copayments
- Most medicaid enrollees eligile for Medicare benefit from dual enrollment



Medigap (or supplemental private insurance)

- Extra insurance you can buy from a private health insurance company to help pay OOP costs linked to Medicare
- Requires the beneficiary to be eligible to Medicare Part A and B

Medicare and the issue of copayments



The Medicine Is a Miracle, but Only if You Can Afford It

A wave of new treatments have cured devastating diseases. When the costs are too much, even for the insured, patients hunt for other ways to pay.

Give this article 653

Sources :
https://www.kff.org/medicaid/issue-brief/10-things-to-know-about-medicaid-setting-the-facts-straight/
https://www.nytimes.com/2023/02/07/health/medicine-insurance-payments.html/

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Literature Review

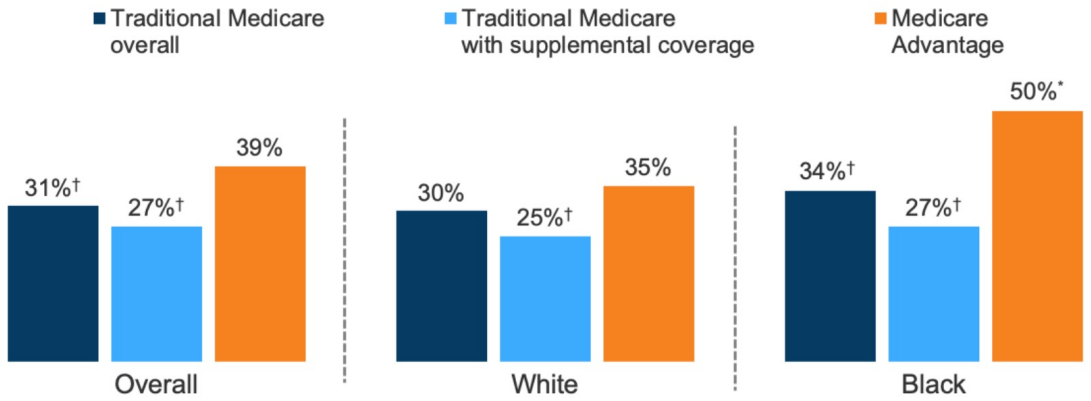
Racial inequalities in access to health

And the impact of other socio-economic factors on health outcomes

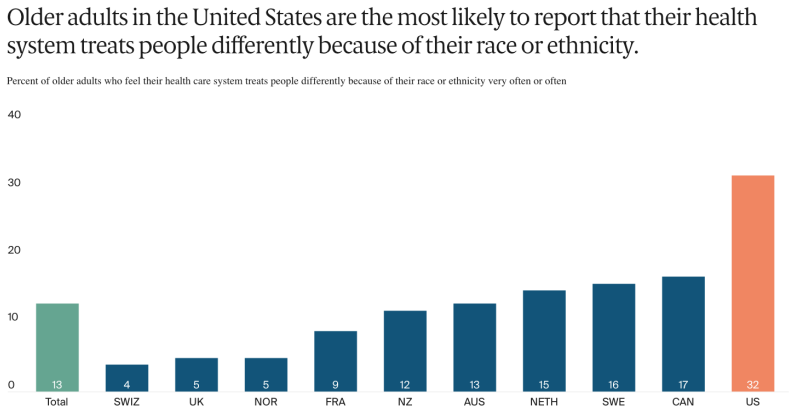
Overview

- Race inequalities in the US are far from a recent phenomenon
- They tend to be intimately tied to health outcomes (E.Gornick, 1994) and are often reinforced by other socio-economic factors such as income or Gender (J. Song, 2006)
- Besides, belonging to a minority is often associated with a poorer socio-economic condition compared to white Americans (D.R. Williams, 2016)
- This divide was made clear during the COVID pandemic (A.Khanijahani, 2021)
- These inequalities are perceived, in the US more than in any other country, as being systemic (M.M.Doty, 2022)

Some Key Metrics



Percent of beneficiaries in fair/poor health reporting cost-related problems with their health insurance plan



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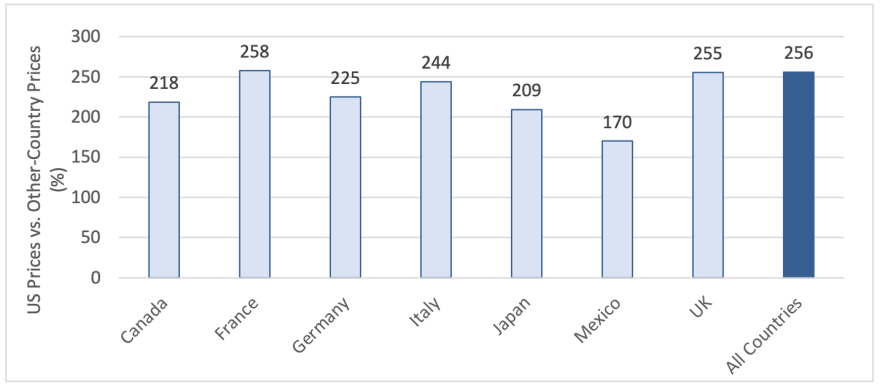
The issue of prescription drugs

Overview

- Example of prescription drugs : Lisinopril (blood pressure), Atorvastatin and Metformin (Diabetes)
- Prescription drugs in the US are significantly pricier than in any other developed country (see right)
- Access to drugs has a key role in improving the outcomes of patients with chronic conditions (Frech, 2004)
- Problem : Studies have found that race was strongly associated with differences in access to medication, including access to life saving drugs (D.A.Taira, 2017)

Some Key Metrics

Figure S.1. U.S. Prescription Drug Prices as a Percentage of Prices in Selected Other Countries, All Drugs, 2018



SOURCE: Author analysis of IQVIA MIDAS sales and volume data for calendar year 2018 (run date October 28, 2019).
NOTE: "All Countries" refers to all 32 OECD comparison countries combined. Other-country prices are set to 100. Only some presentations sold in each country contribute to bilateral comparisons.





Sources :
https://aspe.hhs.gov/sites/default/files/documents/ca08ebf0d93dbc0faf270f35bbecf28b/international-prescription-drug-price-comparisons.pdf

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The issue of service utilization

Overview

- Service utilization is a powerful indicator of both health outcomes and access to health
- Studies have identified that ethnic minorities faced far greater rates of covid-related hospitalizations (Yuan Y., 2021)
- Besides hospitalization rate, outpatient service utilization also varies greatly depending on the ethnic group (Boehmer, 2022) and is likely to be emphasized by other SES variables like income
- Service utilization is also interesting insomuch as it is closely associated with the type of health insurance plan of a beneficiary (M. Keane, 2015) through adverse selection and moral hazard



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Methodology of the study

Database structure and variables used

Independent variables

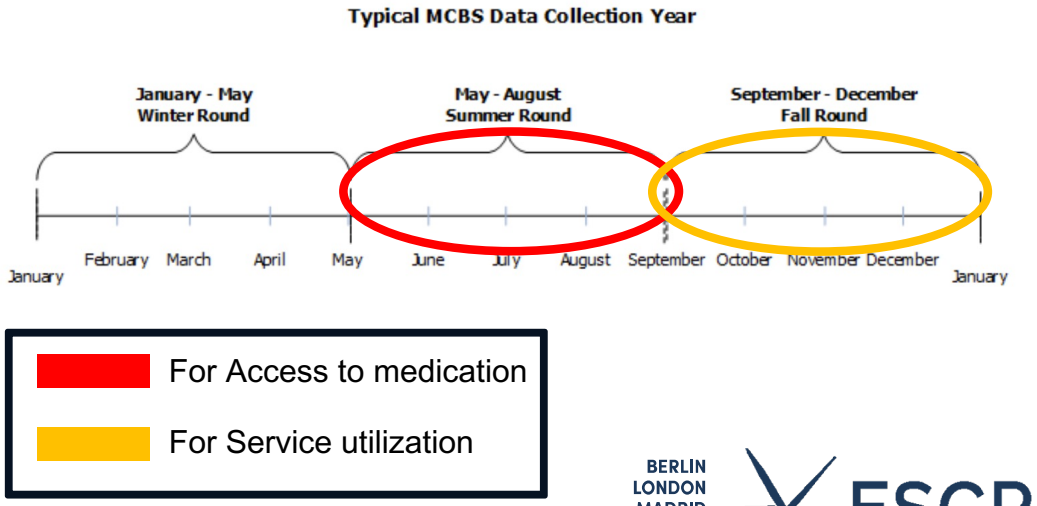
SES variables	Health variables	HI Plan
• Ethnicity • Age • Gender • Income • Education	• Health status • High Blood Pressure • Heart disease • Heart failure Cancer Diabetes • Depression • COPD • High Cholesterol	• Medicare Advantage • Private plan (self or employer-sponsored) • Part D • Medicaid • No prescription drug coverage

Dependent variables

Access to medication	Service Utilization
• Amount Satisfaction • Drug List Satisfaction • Finding Pharmarcy Satisfaction • No Fill • Cost-coping behaviors	• SNF use • Inpatient service use • Outpatient service use

About the MCBS database

- The Database used for this study is the Medicare Current Beneficiary Survey (MCBS)
- Continuous survey of a nationally representative sample of the Medicare population conducted by the Centers for Medicare & Medicaid services (CMS)
- Total nb of respondents : 13,916
- Edited as early as 1991



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Statistical analysis and replication

Replication of the 2013 study to test the reliability of the model

- Chi-square tests
- Multivariable regression

Comparison of unadjusted results :

- Chi-square tests for 2013 and 2020
- Focus on P-values

Comparison of adjusted results

- Multivariable regression for each dependent variable for both 2013 and 2020
- Focus on confidence intervals

Interaction effect analysis and comparison

- Looks at interaction effect coefficients using multivariable regression for 2013 and 2020

All in relation to race

Replication Results

- **Study replicated** : Deborah A. Taira et al., "Access to medications for Medicare enrolees related to race/ethnicity: Results from the 2013 Medicare Current Beneficiary Survey
- **Differences observed :**
  - **Unadjusted :** difference for "No Fill" and "Skipped Dose" (significant in original study only)
  - **Adjusted :** significant differences observed for some of the dependent variables for Diabetes and and Income

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Study results

Unadjusted Results

	variables	status in 2013	evolution
SES	Age	-	=
	Gender	=	=
	Income	-	=
	Education	-	=
Health	Health Status	-	=
	HBP	+	=
	Heart disease	=	+
	Heart Failure	=	-
	Cancer	-	+
	Diabetes	+	=
	Depression	-/+	+
	COPD	-	+
	HC	=	-
Insurance Plan	MA	+	=
	Private	-	+
	Part D	-	=
	Medicaid	+	=
	No Coverage	-	+
ATM	Amount Satisfaction	-	=
	Drug list Satisfaction	-/+	=
	Pharmacy Satisfaction	-	=
	No Fill	+	=
	Cost-Coping Behaviors	-/+	-
SU	SNF use	-	=
	Inpatient use	=	-
	Outpatient use	-	=

Key Takeaways

- **SES :** Beneficiaries from a minority still tend to lag behind their white counterparts with very limited evolution
- **Health variables** : minority beneficiaries still report a worse health situation than others, but the gap across ethnic groups appears to be receding
- **Insurance Plan** : the wide majority of Medicare advantage and Medicaid beneficiaires remains from minorities. Though the existing gap for private insurance is scaling back gradually.
- **Access to medication :** Levels of satisfaction have risen across the board but existing divides have not shrunken
- **Service utilization** : A similar observation can be made, although the divide in inpatient service use worsened

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Adjusted Results (1/2)

Access to medication

	Amount Satisfaction	Drug list Satisfaction	Pharmacy Satisfaction	No Fill	Cost-Coping Behaviors
Age					
Gender					
Hispanic	-	-	-		
Non-Hispanic Black		+			
Income					
Highschool					
Less Than high-school					
HBP					+
HC				+	
Diabetes					-
Heart Diseases	+	+			-
COPD				-	+
Heart Failure			+	-	
Depression					
Cancer					
Very good					
Good					
Fair					+
poor					+
Private			+	+	
Medicare Advantage	+	+			
Part D		ND	ND	-	+
Medicaid					

Key Takeaways

- Hispanics show a negative evolution across all satisfaction variables
- Conversely, Non-Hispanic blacks tend to be less associated with lower levels of satisfaction
- Cost-coping behaviors are dwindling, and existing gaps for this variable tend to be shrinking
- Having a Medicare advantage plans has less influence on satisfaction level than before

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Adjusted Results (2/2)

Service utilization

	Inpatient service use	Outpatient Service Use	SNF use
Age			
Gender			+
Hispanic	+		
Non-Hispanic Black	+		+
Income			-
Highschool			
Less Than high-school		-	
HBP			
HC			
Diabetes			
Heart Diseases		-	
COPD	+	+	+
Heart Failure			+
Depression	+		
Cancer			
Very good			
Good			
Fair			
poor			
Private			
Medicare Advantage			
Medicaid			

Key Takeaways

- **Inpatient service** use shows a **positive evolution** across the board with existing gaps being gradually bridged, including for minorities
- Conversely, **outpatient service** use shows **increasing divides**, notably when considering people suffering from heart disease
- SNF use shows **a positive evolution** for most SES and health-related variables, though **income** appears to be **more relevant than before**

Interaction effects

Dependent variable	Interaction term	Ratio of odds ratio	P-value
Satisfaction with finding pharmacy	HBP x Hispanic	0.59	0.03
	HBP x NonHispanicBlack	2.25	0.04
	Age x Hispanic	0.58	0.03
	Cancer x Hispanic	0.61	0.05
	MA x Hispanic	1.61	0.02
Cost-coping behaviors	Depression x Hispanic	5.32	0.01
Inpatient service use	Diabetes x NonHispanicBlacl	2.77	0.02
	HBP x NonHispanicBlack	0.34	0.05
Outpatient service use	HBP x Hispanic	0.54	0.02
	MA x Hispanic	0.39	<0.001

Key Takeaways

- **Chronic conditions :** There exists significant interaction effects between ethnicity and conditions like high blood pressure. For Instance, being Hispanic has a negative impact on the odds ratio for the latter, for “satisfaction for finding pharmacy”
- **Type of plan :** When considering outpatient service use, being Hispanic is strongly associated with a lower odds ratio for Medicare advantage.

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Discussion

Policy implications (1/2)

Plan selection discrepancies

- This study shows that discrepancies linked to drug plan satisfaction have increased
- Previous studies have found that minorities struggle to have access to information regarding HI plans
- Additional efforts must be put in raising awareness of the intricacies of the US medical system amongst these communities

Cost-related barriers to health

- On the whole, cost-driven discrepancies appear to be declining.
- However this decline is still slow despite higher levels of insurance coverage overall.
- This can be linked both to plan selection issues and to pre-existing socio-economic discrepancies that still prevail in the US
- Reevaluating copayment levels could be one way to remedy this issue but is likely to put a strain on Medicare's financial viability

Systemic Biases

- As seen with interaction effect analyses, chronic conditions tend to have a stronger impact on minorities than on WASP communities.
- Potential explanations could be difference in treatment due to systemic biases, or/and limited access to life-saving medications due to cost.
- Improving the situation could require government to strengthen existing entitlement programs such as Medicaid and to encourage the recruitment of doctors from these minorities

Study Limitations (2/2)



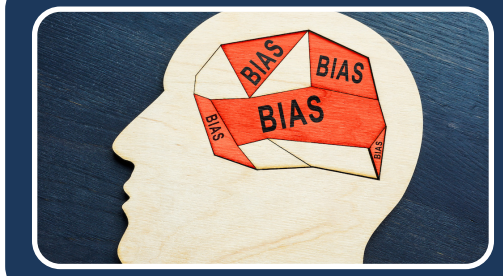
Correlation is not Causation :

- This study only covers links of association.
- Figuring out the reasons for this evolution would require more in depth studies, such as conducting extensive survey amongst US health professionals.



Differences beyond differences :

- This study does not cover existing differences within ethnics groups which may also have a significant impact.
- Geographical discrepancies across states are not covered in this study as such data is not available to the general public (MCBS LDS)



Problems with surveys :

- Biases in reporting may have an influence on results as this survey results from a self evaluation by respondents.
- This is problematic since some conditions can be hard to diagnose. A problem that is only worsened by systemic biases in the US health system.

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Conclusion

Looking at adjusted results for both Access to Medication and Service utilization, most of the evolutions noticed appear to be positive.

Nonetheless, while the situation appears to have improved across all ethnic groups, some of the most concerning existing divides are still present.

Hispanics appear to be an exception to this overall positive evolution with the divide between them and WASP communities widening when it comes to Access to medication variables.

Discrepancies in outpatient service use appear to have increased, notably for beneficiaries certain chronic conditions, and there remains a real gap between minorities and others in relation to physician access etc...

These discrepancies are likely to reflect systemic inequalities baked in the US healthcare system, and which partly stem from an overcomplicated system where access to information is key to avoid severe cost disadvantages.

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Thank you for your attention!

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