Chronic Inequities

Race/Ethnicity Differences in Disease Cost Burden Among Older Adults in the U.S.

A Health and Retirement Study Analysis

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he National Council on Aging (NCOA) and the LeadingAge LTSS Center @UMass Boston developed a method to identify and classify older adults in terms of their overall health risk based on a combined measure of health indicators. We improved upon existing methods of assessing disease burden by differentially weighting the impact of the most common chronic conditions among older adults using a common denominator across conditions. By developing this economic cost burden associated with a disease, we created an overall health cost burden measure. This measure can more precisely identify individuals most at risk for high disease burdens. Moreover, this measure allowed us to segment the older population into health risk quartiles, providing a deeper understanding of the association between health risk and economic trajectories as well as economic security in later life.

Purpose

In our initial work, we found that there were significant racial and ethnic differences in disease cost burden. Specifically, those with the highest cost burden were disproportionately non-Hispanic Black and Hispanic people; those with the lowest cost burdens were disproportionately non-Hispanic white people. These findings highlighted the need for further exploration of the magnitude of these disparities and their implications as people age. Thus, we delved deeper into the examination of race/ethnicity differences in the relationship between high-risk disease burden and economic characteristics in later life and also develop population estimates of health cost burden by disease type, segmented by race and ethnicity.

Method

We analyzed data from the 2018 wave of the nationally representative Health and Retirement Study (HRS) for people 60 years of age and older segmented by race/ethnicity groups: non-Hispanic white (N=6,111), non-Hispanic Black (N= 2,241), and Hispanic (N=1,605). The HRS provides comprehensive information on various demographic, health, and economic variables. More specifically, the HRS contains self-reported data on whether an individual has any of these nine chronic conditions: hypertension, diabetes, cancer, lung disease, heart disease, stroke, arthritis, Alzheimer's disease/dementia, and depression.

According to the Centers for Disease Control (2018),¹ six of these chronic conditions (diabetes, cancer, lung disease, heart disease, stroke, and Alzheimer's disease/dementia) are among the top 10 leading causes of death among older adults across race/ethnic groups. Of the other three chronic conditions, hypertension and arthritis are among the top 10 most prevalent diseases in later life across race/ethnic groups, and depression is the most common mental health problem among older adults.² By focusing on these conditions, we can classify the vast majority of the population, because most people will have at least one of these conditions over their lives.

¹ Centers for Disease Control (2018). Older American Health. https://www.cdc.gov/nchs/fastats/older-americanhealth.htm

² https://www.cdc.gov/aging/pdf/mental_health.pdf

In order to weight the impact levels of these chronic conditions and combine them into a single quantitative measure, we focused on the yearly per-person cost associated with each condition provided by the Milken Institute (2018),³ which estimated lost wage costs (i.e., number of missed work days due to illness) and health treatment costs for each illness (see Table 1). The Milken Institute cost estimates were provided for 2016, so we adjusted the cost estimates to reflect 2018 values by accounting for inflation and medical cost changes reflected in the Consumer Price Index (2018).⁴ Then, using the 2018 HRS data, we created a disease cost burden profile for each participant by assigning the adjusted Milken Institute estimates to the corresponding HRS chronic conditions. For individuals with multiple chronic conditions, we summed the costs for all of their conditions. To maintain cost accuracy, we only applied lost wage costs of chronic conditions to participants who were still in the workforce (i.e., not fully retired) or who reported they had retired because their health issues prevented them from working. Table 1 reflects the annual costs by chronic diseases that were used for this study.

TABLE 1. 2018 Estimated Yearly Per Person Costs of Chronic Disease in the U.S.				
Chronic Condition	2018 Yearly Average Total Per Person Cost (Treatment + Lost Wage Costs)	2018 Yearly Average Per Person Treatment Cost	2018 Yearly Average Per Person Lost Wage Cost	
Alzheimer's/Dementia	\$48,701	\$33,746	\$14,955	
Cancer	\$30,028	\$17,697	\$12,331	
Diabetes	\$20,137	\$7,251	\$12,886	
Depression	\$16,967	\$6,548	\$10,419	
Hypertension	\$13,531	\$860	\$12,671	
Stroke	\$12,303	\$6,070	\$6,233	
Heart Disease	\$12,063	\$4,416	\$7,647	
Lung Disease	\$10,858	\$6,254	\$4,604	
Arthritis	\$7,384	\$2,115	\$5,268	

Health treatment costs for chronic conditions are primarily paid through health insurance. In order to capture the full costs of disease burden, we also accounted for the lost wage cost burden (which reflects lost economic productivity) among the older adult population. Such costs are typically not covered by insurance. Thus, in the analyses that follow, we segment each stratified sample into quartiles based on their lost wage cost burden. In some cases, we also compare the quartiles to those with only treatment cost burden (i.e., no lost wage cost burden). Quartile 1 represents the lowest 25% of the sample in terms of lost wage burden, followed by the 25–50% of the sample in Quartile 2, the 50–75% of the sample in Quartile 3, and the 75–100% of the sample in Quartile 4. We then measured the following demographic, health, and economic characteristics for each lost wage burden quartile:

 Demographic measures: age, gender, race/ethnicity, marital status, education, live alone status, residence type

³ Milken Institute (2018). The Cost of Chronic Disease in the U.S. https://milkeninstitute.org/sites/default/files/reports-pdf/ChronicDiseases-HighRes-FINAL.pdf

⁴ https://www.bls.gov/news.release/archives/cpi_01112019.pdf

- Health measures: chronic conditions count, self-reported health, activities of daily living limitations (ADLs), instrumental activities of daily living limitations (IADLs), cognitive impairment, and out-ofpocket medical expenditures
- Economic measures: household income, net total wealth, net financial assets (non-property), value of primary residence, net value of primary residence, retirement status, federal poverty level status

Findings

Figure 1 shows the 2018 chronic condition prevalence for our age 60 and older sample by race/ethnicity. Compared to non-Hispanic white older adults, older people of color are more likely to have hypertension, diabetes, Alzheimer's/dementia, and depression. Conversely, older non-Hispanic white adults have a significantly higher prevalence of heart disease and cancer than do their non-Hispanic Black and Hispanic counterparts.



Table 2 presents the average yearly per-person health cost burden for 2018 by race/ethnicity. On average, older people of color have about \$4,000 more in total yearly health cost burden than their older white counterparts—a roughly 25% higher cost. Older people of color have a 15% higher average treatment cost burden, indicating greater chronic illness and/or costlier chronic illness. Further, among those with lost wage costs, older people of color have upwards of \$3,000 more in average yearly lost wage costs than white older adults—a 21% higher burden. This suggests that older people of color are more likely to experience job interruptions due to chronic illness compared to older white people.

The results in Table 2 are particularly striking when looking at the percentages of older adults who have any lost wage cost burden. We found that 16.6% of non-Hispanic white older adults had any lost wage costs compared to 39% of non-Hispanic Black and 38.8% of Hispanic older adults, more than twice as high. Thus, not only are older people of color more likely to have lost wages due to illnesses that keep them from working, but they are also more likely to incur higher average lost wage costs, compared to white older adults. Because health treatment costs for chronic conditions are primarily paid through health insurance, this greater wage cost burden actually reflects lost economic productivity.

TABLE 2. 2018 Average Yearly Health Cost Burden by Race/Ethnicity				
	Annual Average Total Per Person Cost (Treatment + Lost Wages)	Annual Average Per Person Treatment Cost	Annual Average Per Person Lost Wage Cost	
Non-Hispanic White	\$15,792	\$11,727	\$19,929	
Non-Hispanic Black	\$20,011	\$13,960	\$24,672	
Hispanic	\$19,471	\$13,102	\$23,624	
Ratio of costs (People of Color / Non-Hispanic White)	1.25	1.15	1.21	

Similar to our previous work, we segmented each racial/ethnic group into quartiles based on yearly lost wage cost burden (i.e., lowest burden, moderate burden, high burden, and highest burden) and compared the quartiles to those who had no lost wage burden. We examined demographic, health, and economic characteristics within quartiles and identified differences by race/ethnicity.

First, we observed that older non-Hispanic white people with lost wage costs had a mean age of 73 compared to their non-Hispanic black and Hispanic counterparts, who both had a mean age of 65. This significant difference in age implies that older people of color have greater chronic illness at younger ages, which affects their ability to work, than do older white adults, making them more likely to experience job interruptions that lead to higher lost wage cost burden. As seen in Figure 2, the number of chronic conditions for each quartile of lost wage cost burden is substantially similar across racial/ethnic groups. Given this similarity, it is likely that the higher lost wage cost burden observed among older people of color stems primarily from experiencing greater illness during working years and/or more severe illnesses. Severity differences are reflected in part by the fact that the pattern of disease prevalence varies greatly by race and ethnicity (noted in Table 1).



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Figure 3 presents differences in mean household income by lost wage burden for race/ethnic groups. The disparities in household income among those with lost wage costs are both stark and troubling. Older non-Hispanic Black and Hispanic individuals have less than half the household income of their non-Hispanic white counterparts. Further, older people of color with the highest lost wage burden have just over a third of the income of older white people with the same level of burden.



Even more striking are the race/ethnicity differences in mean total net wealth among those with lost wage burden (Figure 4). Non-Hispanic Black older adults have the lowest mean total net wealth among those with and without lost wage burden. Across quartiles, non-Hispanic Black older adults have only about 13% - 18% the net total wealth that non-Hispanic white people do. Similarly, older Hispanic adults have anywhere from 20% - 29% the total net wealth that non-Hispanic white people do across quartiles. Taken together with the other findings, it is clear that older people of color are incurring higher lost wage costs and have fewer available financial resources to combat their lost economic productivity. The implication is that such individuals are particularly dependent on social safety net programs to assure their ability to live in their communities.



As could be expected based on the higher health cost burdens and lower economic resources among older people of color, non-Hispanic Black and Hispanic older adults have disproportionately higher poverty levels, whether or not they have lost wage burden (Figure 5). Looking across the quartiles of those with lost wage burden, poverty among older people of color ranges from 7 to 16 times higher than that of older white people. Across all groups, higher levels of lost wage burden are also associated with increasing proportions of individuals living below the federal poverty level.



These findings regarding poverty status further underscore the detrimental impact of having a higher health cost burden and low financial resources for older people of color.

In order to understand the magnitude of disparity differences in health cost burden, we estimated total annual cost burden by each chronic condition for the 73 million Americans age 60 and older⁵ based on the disease prevalence observed in the race/ethnicity groups for the 2018 HRS sample. Figures 6 through 8 summarize results across the three primary racial/ethnic groups. As shown in Figure 6, cancer is the costliest illness among non-Hispanic white older adults. For non-Hispanic Black and Hispanic older adults, diabetes is the costliest illness (Figures 7 and 8). This finding is consistent with the literature, showing racial/ethnic differences in the prevalence of diabetes, with minority populations far more likely to suffer from this illness.⁶ Across all groups, the top three most cost burdensome illnesses are hypertension, diabetes, and cancer. Taken together with other findings, the two costliest illnesses in terms of lost wage burden for non-Hispanic Black and Hispanic older adults are hypertension and diabetes. Of particular note is that the costs of depression and Alzheimer's/dementia are higher for older people of color than for older white people, despite the fact that older people of color make up a far smaller percentage of the total U.S. population.

⁵ https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2019ProfileOlderAmerica ns508.pdf

⁶ Spanakis EK, Golden SH. Race/ethnic difference in diabetes and diabetic complications. Curr Diab Rep. 2013;13(6):814-823. doi:10.1007/s11892-013-0421-9







Conclusions

Estimating the cost burden associated with poor health and focusing on lost wage costs that are more likely to have a financial impact on individuals (arrayed along burden quartiles) is a novel and valuable way to examine disparities in U.S. disease burden and the relationship to overall economic status. Our results are in line with those in the existing health status literature, namely that across race/ethnicity groups, older adults who have more chronic conditions tend to have poorer overall health⁷ as well as lower economic resources to cope with higher health care costs.^{8,9} Older adults of color have higher lost wage cost burden than their white counterparts. One reason for this is the earlier onset of chronic conditions and/or type and severity of chronic conditions, leading to greater lost wages among Hispanic and Non-Hispanic Black older adults. Racial/ethnic disparities in chronic diseases can have a dampening effect on lifetime earnings. Moreover, people of color are more likely to work in occupations that require on-site manual labor — such as production, transportation, construction, maintenance, and the service industry — which is harder to perform when feeling ill than those who have professional white-collar or desk jobs.¹⁰

Our analysis of disparities in a new and novel way to lend additional support to other findings related to racial inequalities prevalent in our health care system. Older people of color not only have higher disease

⁷ Ralph, N. L., Mielenz, T. J., Parton, H., Flatley, A. M., & Thorpe, L. E. (2013). Multiple chronic conditions and limitations in activities of daily living in a community-based sample of older adults in New York City, 2009. *Preventing chronic disease*, 10, E199. https://doi.org/10.5888/pcd10.130159

⁸ Buttorff, C., Ruder T. & Bauman, M. (2017). Multiple Chronic Conditions in the United States. RAND Corporation, Santa Monica, CA. https://www.rand.org/pubs/tools/TL221.html

⁹ Tucker-Seeley, R.D., Li, Y., Sorensen, G. et al. Lifecourse socioeconomic circumstances and multimorbidity among older adults. BMC Public Health 11, 313 (2011). https://doi.org/10.1186/1471-2458-11-313

¹⁰ https://www.bls.gov/opub/reports/race-and-ethnicity/2018/home.htm

cost burden overall than older white people, but their risk of adverse impacts from chronic conditions is compounded by having far fewer financial means to help cope with these higher health costs. Segmenting the population in this manner can also help policymakers target programs and resources to those most in need. The analysis can provide an important baseline from which to monitor how future changes in health care policies affect the patterns found in our research.

This body of work shows how chronic disease affects economic security in the form of lost wages. It also demonstrates the interrelationship between health and wealth over the lifespan and the detrimental impact of racial/ethnic disparities.

About NCOA

The National Council on Aging (NCOA) is the national voice for every person's right to age well. NCOA empowers individuals with trusted solutions to improve their own health and economic security—and protects and strengthens federal programs that people depend on as they age. Working with a nationwide network of partners, NCOA's goal is to improve the lives of 40 million older adults by 2030. Learn more at **ncoa.org** and @NCOAging.

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The LeadingAge LTSS Center @UMass Boston conducts research to help our nation address the challenges and seize the opportunities associated with a growing older population. Established in 2017, the LTSS Center is the first organization of its kind to combine the resources of a major research university with the expertise and experience of applied researchers working with providers of long-term services and supports (LTSS). Learn more at **www.ltsscenter.org**.

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