



Dying Too Soon: County-level Disparities in Premature Death by Rurality, Race, and Ethnicity

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Key Findings

- Counties with a majority of non-Hispanic Black and American Indian/Alaskan Native residents had significantly higher premature death rates (defined as years of potential life lost before age 75 per 100,000 people) than counties with a majority of non-Hispanic White residents, regardless of rural-urban location.
- Comparing counties with similar racial and ethnic compositions, rural counties had higher rates of premature death than urban counties.
- The highest rates of premature death were observed in rural counties where a majority of residents was non-Hispanic Black or American Indian/Alaskan Native.

Purpose

In this brief, we examined county-level differences in premature death (years of potential life lost before age 75 per 100,000 people) by county-level racial and ethnic composition, across rural and urban counties. We also calculated whether there were rural-urban disparities in mortality within counties with similar racial and ethnic compositions.

Background and Policy Context

Many rural communities in the United States have long been home to people of color (defined as Black, Asian, Hispanic – also called Latinx, and mixed-race individuals) and American Indians/Alaskan Natives (also called Indigenous people). Also, in recent decades rural America has become increasingly diverse, with a growth in immigrant populations.^{1,2} Currently, 1 in 5 rural residents is a person of color or an American Indian/Alaskan Native. There are 10 million rural residents who identify as Black, Hispanic American Indian/Alaskan Native, Asian, or mixed-race.¹⁻³

Recent publications by the Centers for Disease Control and Prevention have highlighted several key public health concerns regarding disparities by rurality and race and ethnicity: rates of premature death, all-cause mortality, and poor health outcomes are greater among rural vs. urban residents, and for people of color compared with people who identify as non-Hispanic White.⁴ The literature on social determinants of health has definitively established the importance of community context in shaping all aspects of health, including mortality. This analysis examined county-level data on premature death (defined as years of potential life lost before age 75), looking at how this public health problem affects communities based on their geography and racial and ethnic composition.

Approach

Data for this brief came from the 2017 County Health Rankings (CHR) on all U.S. counties and county-like equivalents (in states that do not have counties, i.e., Louisiana, Alaska, and Virginia) for this analysis. The CHR are a collection of county-level data compiled by the University of Wisconsin Population Health Institute, with funding from the Robert Wood Johnson Foundation.⁵ We used the CHR to compare county-level rates of premature death, which is an age-adjusted measure defined as years of potential life lost before age 75 per 100,000 people.⁵ This measure calculates productive years of life lost due to premature death. So, for example, an individual, who was expected to live up to 75 years but dies at age 55, would have 20 years of potential life lost. This measure originally came from the National Center for Health Statistics Mortality Files.

Estimates of race and ethnicity came from the U.S. Census Bureau’s Population Estimates Program, which provides updated information on the racial and ethnic composition of counties each year, building on data collected in the decennial census using data on births, deaths, and migration in the years following the census.

We used data on county-level race and ethnicity to categorize counties by which racial or ethnic group was the majority (>50% of the population), using the following categories: majority non-Hispanic White, majority non-Hispanic Black, majority Hispanic, and majority American Indian/Alaskan Native. In no county were the majority of residents Asian. We also created a category for those counties where no racial or ethnic group represented >50% of the population. To define rurality, we used Urban Influence Codes from the USDA Economic Research Service to classify counties as metropolitan or rural (including micropolitan and noncore counties).⁶

To examine differences in county-level premature death rates, we first compared all U.S. counties by race and ethnicity, using t-tests and counties with a majority of non-Hispanic White residents as the referent, regardless of rurality. We then compared differences by rural and

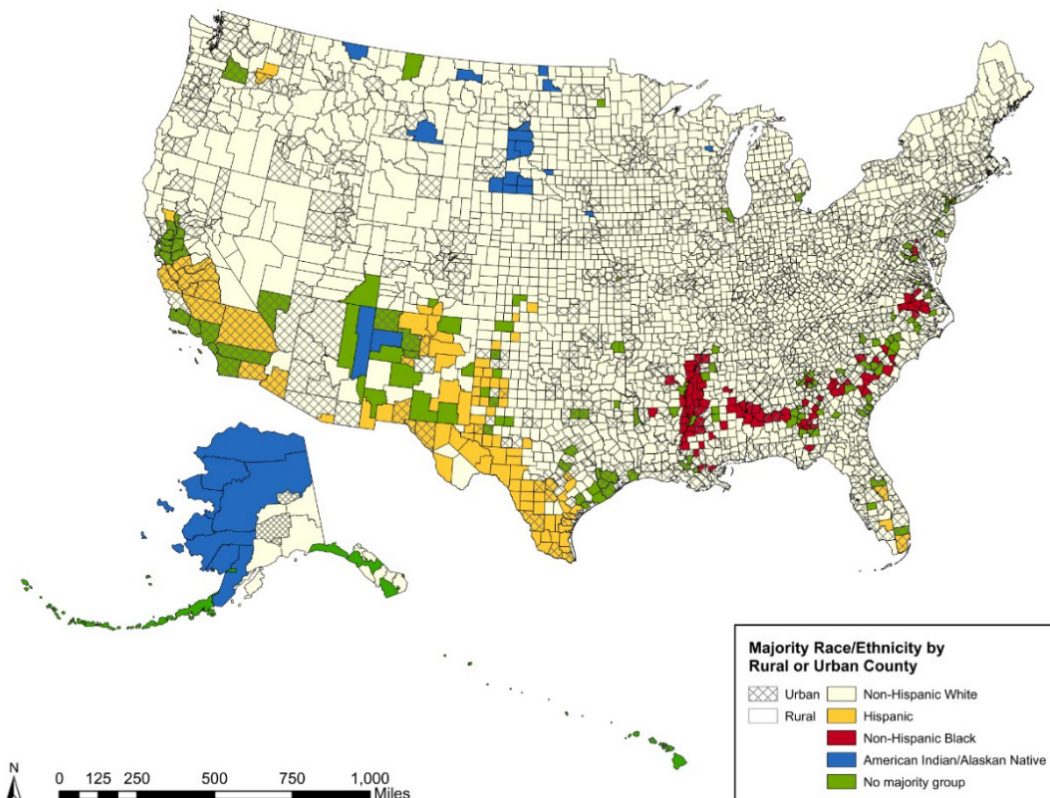
urban location within each racial and ethnic group, again using t-tests to test for significant differences.

Results

Most counties in the U.S. (n=2,767 counties; 88%) were majority non-Hispanic White (see Figure 1 for a map of counties by their majority racial or ethnic group.) Ninety-four counties (3%) were majority non-Hispanic Black, primarily in the Southeast; 99 counties (3%) were majority Hispanic, primarily in the Southwest; 26 counties (1%) were majority American Indian/Alaskan Native; and 150 counties (5%) had no majority racial or ethnic group. In each category, there were both rural and urban counties, although only one county classified as urban by USDA Economic Research Service was majority American Indian/Alaskan Native (Sioux County, ND).

Table 1 shows differences in premature death by racial and ethnic group. Counties with a majority of non-Hispanic Black and American Indian/Alaskan Native residents had significantly higher premature death rates than counties with a majority of non-Hispanic White residents (11,211 and 16,255 years lost before age 75 per 100,000 vs. 7,872, $p < 0.001$), regardless of rural or urban location.

Figure 1: Majority racial and ethnic group by county



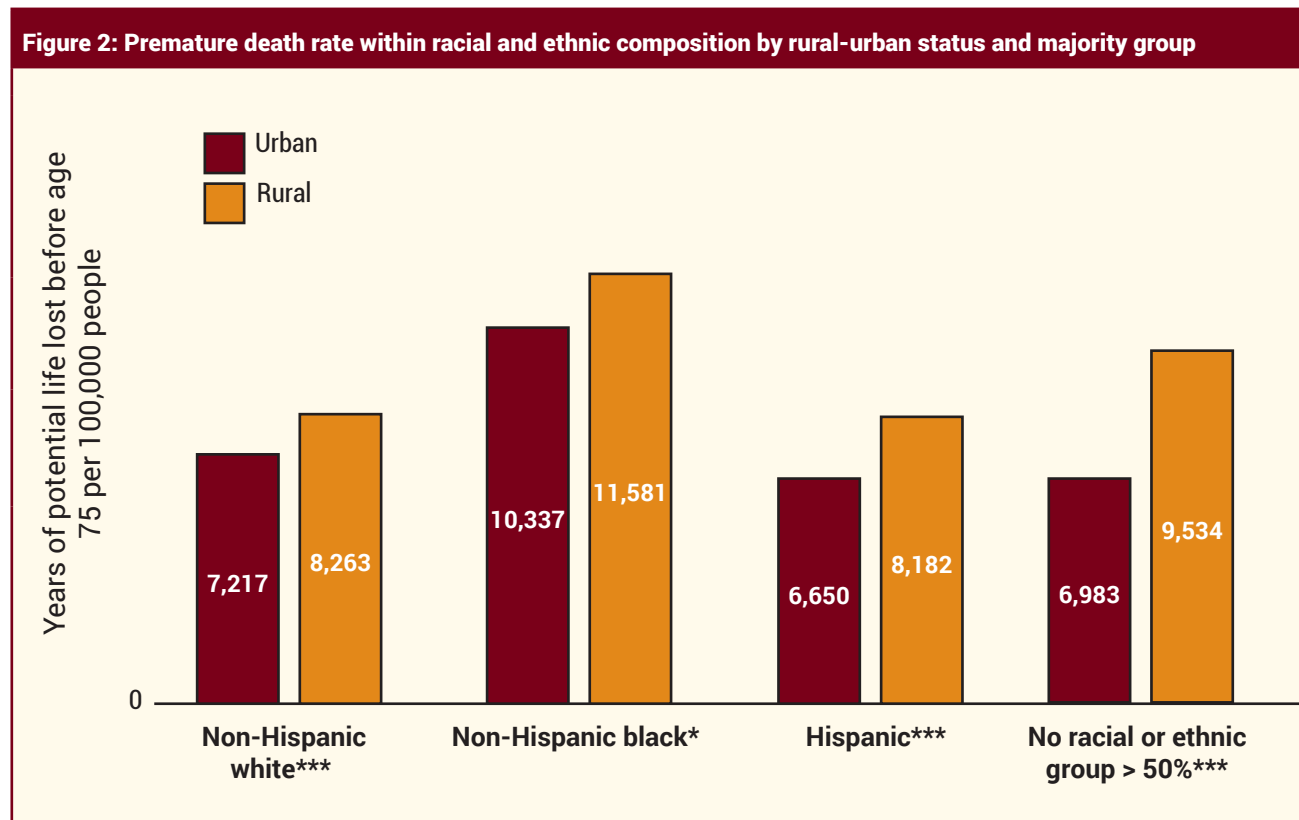
When comparing rural-urban differences within racial and ethnic groups, rural counties had significantly higher premature death rates across all county types (see Figure 2). Because there was only one urban county with a majority of American Indian/Alaskan Indian residents, we could not

reliably test significant rural-urban differences and did not include those counties in these results. Rural counties with a majority of non-Hispanic Black residents had the highest rate of premature death in this sample (11,581 years of life lost per 100,000 people), and the difference between ru-

Table 1. Differences in premature death rate by county-level racial and ethnic composition

Majority Group	Number of Counties	Premature death rate per 100,000	P-value*
Non-Hispanic White	2,767 (88%)	7,872	Ref.
Non-Hispanic Black	94 (3%)	11,211	<0.001
Hispanic	99 (3%)	7,693	0.431
Asian	0 (0%)	N/A	N/A
American Indian/Alaskan Native	26 (1%)	16,255	<0.001
No racial or ethnic group > 50%	150 (5%)	7,944	0.702

Note: Data are from the 2017 County Health Rankings. * $P < 0.05$, *** $P < 0.001$ P-values were generated using t-tests, comparing each county group with counties that had a majority of non-Hispanic White residents. Majority was defined as having 50% or more of the county population belonging to any one racial or ethnic group.



ral and urban was most pronounced for counties with no majority racial and ethnic group (difference of 2,551 years per 100,000 people).

Discussion and Implications

We found that counties with a majority of non-Hispanic Black and American Indian/Alaskan Native residents had significantly higher premature mortality rates than counties with a majority of non-Hispanic White residents, regardless of rural-urban location. Understanding the factors that contribute to this disparity is important. One critical contributor to this finding that deserves further attention is the impact of structural racism (the macro-level systems, social forces, institutions, ideologies, and processes that interact with one another to generate and reinforce inequities among racial and ethnic groups) on health and premature death. As a fundamental cause of health inequity,⁷ structural racism may dictate how and if resources flow into certain communities based on racial and ethnic composition.

Another key finding was that rural counties had higher rates of premature death than urban counties, regardless of a county's racial and ethnic composition. It is well-established that rural communities have higher morbidity and mortality rates than urban communities,⁸ due to a number of both structural and individual risk factors that include higher rates of poverty and environmental risks, as well as more limited access to medical care and poorer health behaviors (e.g., lower seat belt use, higher smoking and alcohol use, lower physical activity).⁹ These disparities are occurring within the context of a growing epidemic of suicides and prescription drug overdoses, also known as "deaths of despair." Further research is needed to explore the extent to which rural, racial and ethnic minority residents may be disproportionately impacted by these trends.^{8,10-13}

This brief provides further evidence of the critical need for effective interventions to improve health and save lives in rural areas. Still, more research is needed to understand structural inequities in the causes of and risk for mortality by geography and race and ethnicity.

Interestingly, these findings also suggest that there may be a compounding effect of rurality with race and ethnicity. The highest rates of premature death were found in rural counties with a majority of non-Hispanic Black residents. Most of these counties, located in the southeastern U.S., have had non-Hispanic Black majority populations for hundreds of years, owing to the role of slavery in the policies and economy of the area.^{1,14}

In these communities, with a history of forced servitude, the effects of structural racism may be amplified by the resource constraints of rural environments. Today, rural people of color and American Indian/Native Alaskan people continue to face barriers constructed by structural racism in rural communities characterized by diminishing access to medical care and increasing levels of poverty.

These findings should be considered in the context of data limitations. We analyzed county-level data, and counties vary substantially by population and geographic size. These are aggregate data that do not reflect individual risk. There are many ways to measure racial and ethnic diversity, and this analysis uses a dichotomized measure of the race or ethnicity of the majority of a county's residents. There are also many ways to measure rurality, and again, we used a dichotomized measure here. Premature deaths are one important measure of health; the way the years of life lost measure is calculated weights infant mortality and early life mortality more heavily than premature mortality later in life. Causes of premature death are myriad, and multivariable analyses will also be needed to fully describe the nuance of risk based on geography and race and ethnicity.

Rural communities where the majority of residents are people of color or American Indian/Alaskan Native have the highest rates of premature mortality in America. Programs and policies to address premature death in the U.S. require attention to the intersection of race, ethnicity, and geography in order to effectively reduce risks. Effective interventions will be those that address not only individual risk, but also systemic inequities that lead to widespread disparities in health and mortality.

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