Mortality Inequality among Older Americans and the Opioid Crisis

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Background and research questions:

Approximately 110,000 Americans die from drug overdoses each year (Ahmad et al. 2024). The extent of the opioid crisis means that drug overdoses are now a leading cause of death, with many more overdose deaths annually than from traffic accidents (~47,000), liver disease (~57,000), breast cancer (~43,000), or prostate cancer (~33,000). The opioid crisis has also affected other aspects of people's lives, with it leading to many more seniors now caring for their grandchildren than previously (Buckles et al. 2022).

There are several reasons why it is important to understand how the opioid crisis has affected the mortality of older Americans. First, the number of drug overdose deaths at older ages is high, and has increased over time. For example, when Case and Deaton (2015) highlighted the rise of midlife mortality using data from 1999 to 2013, nearly 11,000 Americans aged 55 years or older had died of a drug overdose in 2013. That number is now nearly 30,000 deaths per year. Second, individuals aged in their 40s and 50s, who had high rates of drug addictions a couple of decades ago, are now in their 60s and 70s and may face elevated mortality risks. Third, the demographic composition of drug overdose deaths has changed, with a higher proportion occurring among non-white Americans than before. Fourth, there are large geographic differences in drug overdose death rates that have shifted over time. Figure 1 below shows states' opioid overdose rates in 2001, 2009 and 2017. In the first two panels, overdose rates are highest in Appalachia and the Southwest. By 2017, drug overdose rates are highest the Midwest and Northeast, primarily because fentanyl deaths have been concentrated in those regions (Moore et al. 2023).

As a result of all of these factors, we need a better understanding of recent mortality trends among older Americans and how they have affected their mortality differences across demographic groups and locations. The proposed research questions for this project are:

1. How have differences in mortality among Americans aged 50 years and over been directly affected by drug overdoses? How do overdose-related mortality differences vary by race, educational attainment and location, and to what extent do they reinforce mortality differences from other causes of death?
2. How have differences in mortality among Americans aged 50 years and over been affected by locations with high numbers of drug overdose deaths? How do these place-based mortality differences vary by race and educational attainment, and do they reinforce place-based differences from other causes of death?

Study aims and significance:

The primary aim of the study is to understand how mortality patterns among seniors are related to the opioid crisis and how it is affecting other inequalities in life expectancy.

A secondary aim is to understand whether non-drug-overdose causes of death appear to be affected by the opioid crisis. Comparing overall death rates in areas with high rates of overdose deaths to other areas allows some assessment of whether a broader set of causes of death have been affected by the opioid crisis. For example, the opioid crisis may increase older Americans' stress and care-giving demands, which may elevate mortality risks.

The study will help to understand how the opioid crisis is affecting mortality patterns and the extent of spillover effects to other causes of death. Furthermore, by being a well measured and nationally available outcome, the study can provide insights into the potential effects on other health outcomes. All of this will help develop further projects in this area.

Data and methods:

The primary data will be from the National Vital Statistics System's Multiple Cause of Death files, which include all deaths in the U.S. I plan to use a restricted-access version for 1999-2022 that identifies each decedent's county and state of residence. The data includes information on cause of death, as well as decedents' sex, race, age and place of residence. It will be supplemented with other data, including population and demographic data from the American Community Survey and Intercensal Estimates.

In addition to describing patterns in the data based on drug overdose rates, the mortality of older Americans will be assessed using factors documented as having affected the extent of opioid problems in different locations. One is the presence of "triplicate" pharmaceutical regulations in the 1990s, which affected the marketing of OxyContin and subsequent opioid problems (Alpert et al. 2022). Another factor thought to have affected OxyContin marketing and subsequent opioid problems is cancer mortality rates in the 1990s (Arteaga & Barone 2023). A more recent factor is local differences in international import activity, with higher imports associated with more fentanyl overdose deaths and related problems (Moore et al. 2023). All of these will be used to evaluate whether causes of death other than drug overdoses have affected the mortality of older Americans during the opioid crisis.

References:

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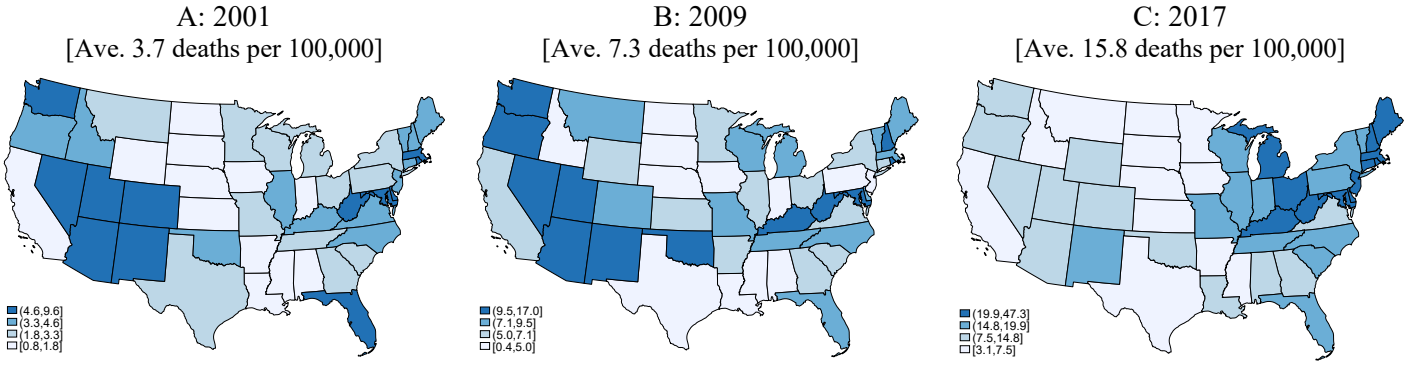
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Figure 1 The relative distribution of all opioid overdose deaths in 2001, 2009 and 2017



Notes: This shows the distribution of opioid overdose deaths per 100,000 state residents in the continental US in 2001, 2009 and 2017. Shading shows the rates in each year by quartiles, with darker shading indicating higher death rates.