

County Level Comparison Of Geographic ADRD Disparity By Population Source

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INTRODUCTION

- Using population prevalence estimates based off estimation from a single urban study may not correctly capture Alzheimer's disease and related dementias (ADRD) prevalence disparities based on geography. Applying urban models to rural areas may systematically over/underestimate ADRD prevalence.
- We sought to compare county-level geographic disparities between a single population-based estimate and claims-based ADRD prevalences in the US.
- We hypothesize that ADRD prevalence is systematically underestimated in claims data.

OBJECTIVE

- To investigate the potential mismatch of estimates of ADRD prevalence in the US.

METHODS

- 2020 national county-level ADRD prevalence estimates from the Chicago Healthy Aging Project (CHAP) ADRD Mapping Tool and Centers for Medicare and Medicaid Services estimates from the 2018 Chronic Conditions Warehouse geographic variation public use file (CMS) were considered.
- Prevalence estimates were compared using linear regression models containing source (CHAP or CMS), geographic variation (rural and Appalachian designations), and their interaction, both unadjusted and adjusted for county-level distributions of sex, race, age >85, life expectancy, and area deprivation index (ADI).
- Value of interest is the difference in disparity measures (e.g., rural vs. urban) rather than the individual estimates themselves.

RESULTS

- CMS estimated ADRD prevalence for 73% of 3198 US counties, ranging from 0.00% to 32.1% and CHAP estimated ADRD prevalence for all counties, ranging from 5.6% to 18.4% (Figure 1).
- There was not a rural/urban disparity in ADRD prevalence, and it did not vary within either CHAP or CMS (Figure 2).
- However, the direction of the Appalachian/non-Appalachian county prevalence disparity differs between CHAP and CMS (Figure 3).
- CMS ADRD prevalence estimates are higher in Appalachian counties than CHAP estimates ($p=0.000$).

CONCLUSIONS

The Appalachian vs non-Appalachian disparity is more prominent using the CHAP data, even after adjustment. Driven by lower estimation of prevalence in Appalachian counties compared to CMS. CHAP flips the direction of the disparity which can suggest 2 things:

- (1) Age, race, and sex (used for CHAP estimates) do not alone account for good estimation of ADRD in counties where other risk factors like education or social factors might be disproportionately lower; and
- (2) diagnostic prevalence of ADRD (as estimated by CMS measures) in Appalachian areas might not be as underestimated as previously thought.

Figure 1. US County-level estimated ADRD prevalence using (A) Chicago Healthy Aging Project or (B) Centers for Medicare and Medicaid Services

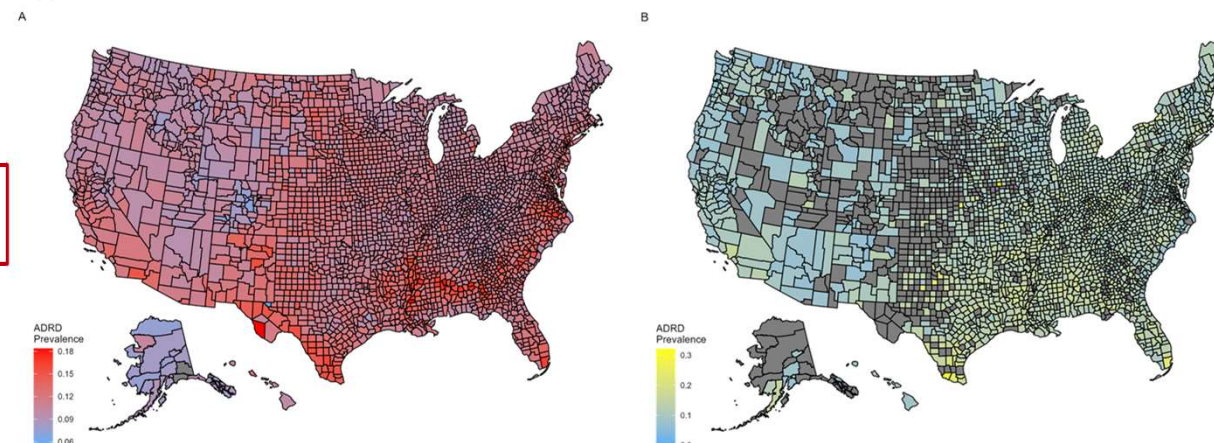


Figure 2. Rural vs. Urban County ADRD prevalence: CMS vs. CHAP

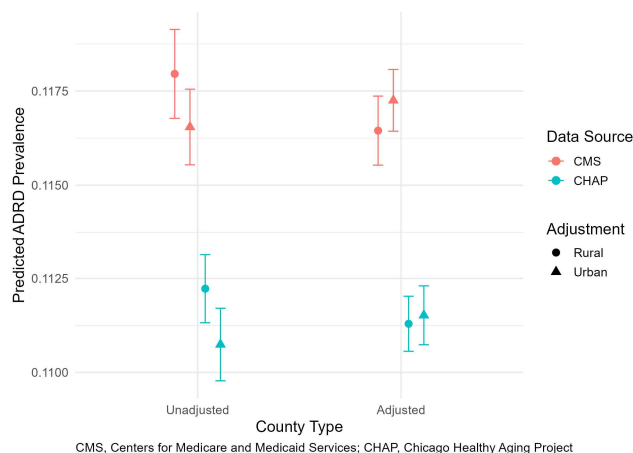
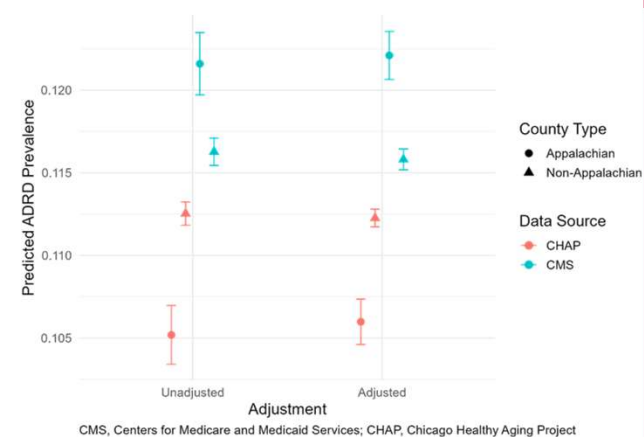


Figure 3. Appalachian vs. non-Appalachian County ADRD prevalence: CMS vs. CHAP



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