Changes in county jail incarceration rates are associated with changes in county mortality rates in the United States from 1987-2016

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OBJECTIVE

To evaluate the association between county jail incarceration rates (as a community-level exposure) and county mortality—an essential indicator of community health—across the country.

Motivation: Mass incarceration is hypothesized to have collateral health consequences not only for current and formerly incarcerated individuals, but also their families and communities.

However, most research has operationalized incarceration as an individual-level exposure. Few studies have considered mass incarceration as a community-level contextual exposure.

Primary research question: *Is change in county jail incarceration rate associated with change in county mortality rate after adjusting for confounders?*

Secondary research question: *Is the association more pronounced among younger individuals?*

METHODS

Design: Retrospective longitudinal

Unit of Analysis: County-year (N=29,241)

Setting: 1,884 US Counties

Time Period: 1987-2016

Exposure: Jail average daily population rate (source: BJS Annual Survey of Jails and Census of Jails)

Outcome: Total all-cause mortality; age-specific all-cause mortality (source: CDC WONDER)

To control for unmeasured stable county characteristics and measured time-varying confounders, we fit one-year-lagged quasi-Poisson fixed effects models.

Figure 1. Directed acyclic graph depicting time-lag approach

Two sets of within-county analyses:

Total mortality: 3 models (shown below), modeling change in jail average daily population rate as a continuous exposure and as quartiles

Age-specific mortality: Fully adjusted model (Model 3) with quartile change in jail incarceration rate as exposure and age-specific mortality rates as outcomes

Model 1

- Jail average daily population rate, survey year, county fixed effects

Model 2

- Model 1 + median county age, crime rate, poverty rate, black residents as % of total population

Model 3

- Model 2 + county unemployment rate, state incarceration rate, party control of state legislature

RESULTS

Figure 2. Mean county jail incarceration rate and mean county crude mortality rate for 1,884 counties in analysis, 1987-2016

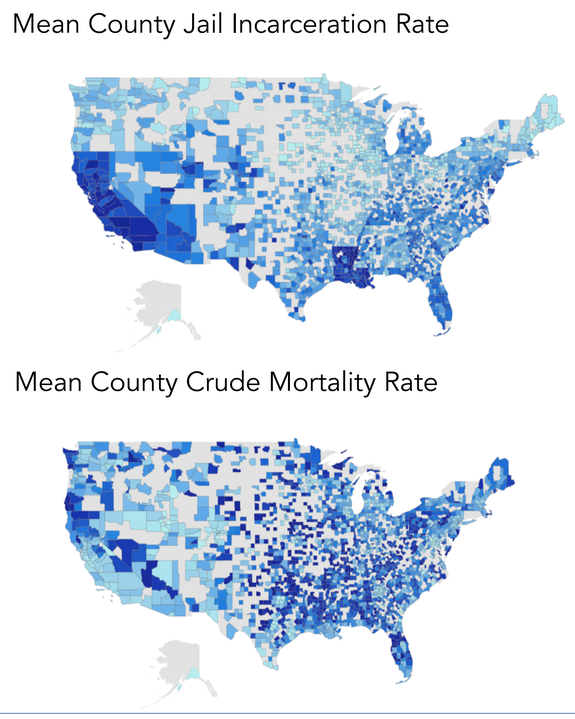
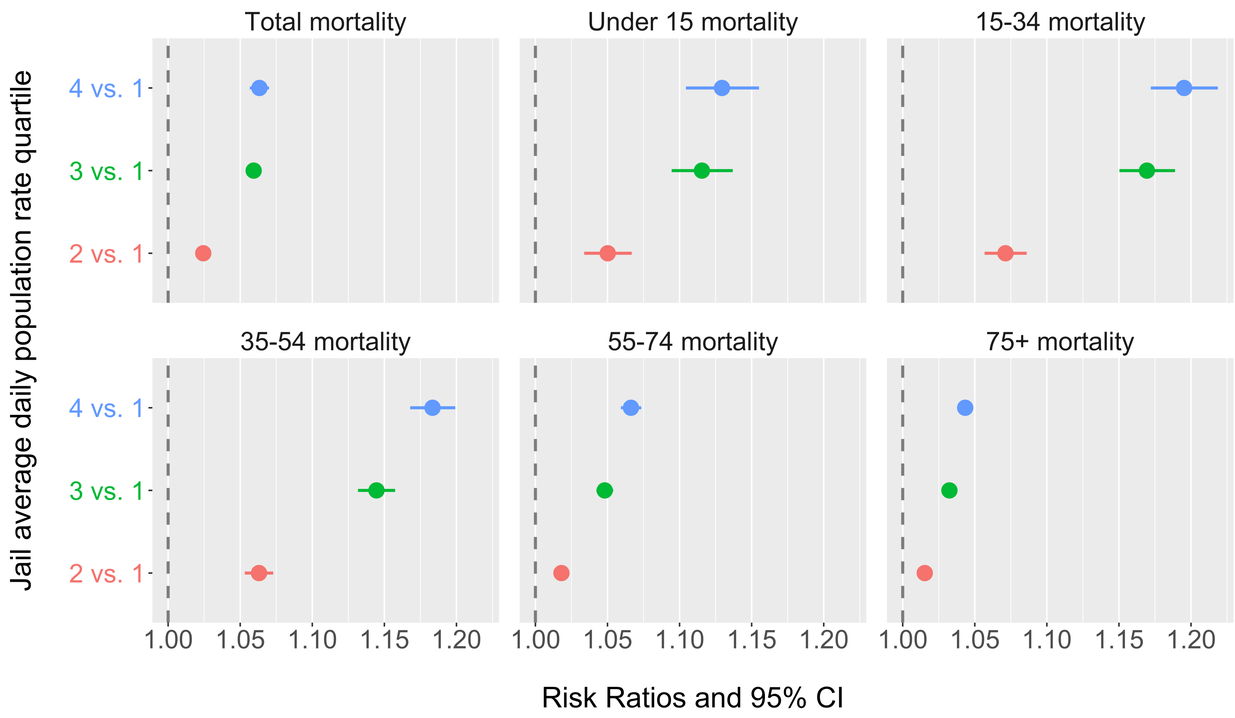


Figure 3. Associations between quartile change in county jail incarceration rate and change in county mortality rates, 1987-2016 (fully adjusted models)



CONCLUSIONS & IMPLICATIONS

- Increases in county jail incarceration rate are associated with increases in county mortality rates.
- Association is stronger among individuals < 75 years old.
- Large increases in jail incarceration may be important driver of premature mortality at the community level.
- Findings provide further empirical evidence of wide-reaching harms of current criminal justice policy.
- Given inequitable distribution of incarceration, negative community-level effects of incarceration may exacerbate community-level health inequities.
- Findings can be leveraged by criminal justice reform and decarceration movements as they develop strategies and interventions to end mass incarceration.