

LOSING YEARS DOING TIME: INCARCERATION EXPOSURE AND ACCELERATED BIOLOGICAL AGING AMONG AFRICAN AMERICAN ADULTS

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RESEARCH PROBLEM & DATA

Does incarceration exposure accelerate the speed of epigenetic aging among African American adults, and is this effect amplified by exposure to prison violence?

Mass incarceration is a public health challenge, particularly among marginalized groups. Not only do prisons and jails serve as vectors for the transmission of infectious diseases, but the carceral experience also heightens risk for stress-related illnesses and premature mortality. Several important challenges confront this research. First, few studies account for selection effects resulting from preexisting health and behavioral propensities. Second, it is unclear whether hostile social interactions experienced while incarcerated affect the biological health of individuals. Third, this research often relies on self-reported indices rather than objective biomarkers. Self-reports suffer from biases of memory and do not assess predisease processes.

The study used data from a longitudinal sample of 410 African American adults in the Family and Community Health Study. Aging was assessed using an epigenetic clock known as the GrimAge index. The pace of aging was calculated based on the discrepancy between the individual's epigenetic age and chronological age. This approach captured whether individuals were biologically older or younger than their calendar age. Regression models using treatment weights assessed the effects of incarceration exposure on the pace of aging. We tested whether experiences with violence, both direct and secondary encounters, during incarceration moderated the association between exposure and accelerated aging.

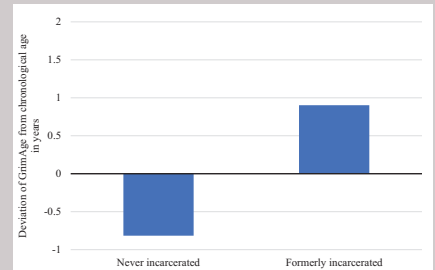
KEY FINDINGS

- Incarceration exposure predicts accelerated biological aging among African American adults. Formerly incarcerated individuals had, on average, a faster pace of biological aging than those who had never been incarcerated (see Figure 1).
- Exposure to violence during incarceration amplifies the association between incarceration exposure and the speed of biological aging. Those who experienced violence while incarcerated were more than 2 years older than their calendar age (see Figure 2).
- The timing and frequency of incarceration spells did not moderate the effects of incarceration exposure on the speed of epigenetic aging. Nor did these effects vary by gender.

POLICY IMPLICATIONS

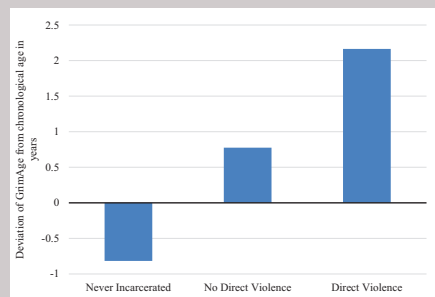
With many Americans cycling through prisons and jails each year, the public health toll of the carceral experience should be subject to scientific investigation. That we uncovered evidence of incarceration's contributions to the pace of biological aging among African American adults is important. Research shows that accelerated aging is a critical predisease process linked to morbidity and mortality. Epigenetic aging may be a pathway through which incarceration leaves individuals vulnerable to poor health. Policymakers should consider incarceration as a potential source of population health inequalities. Furthermore, it would be wise for correctional practitioners to recognize the lasting effects of prison violence on the health of correctional populations. Policies should be designed to improve the environments of prisons and jails to reduce experience with hostile interactions.

Figure 1. Speed of GrimAge by Incarceration Exposure.



Note: $N = 410$.

Figure 2. Speed of GrimAge by Incarceration Exposure and experiences with violence during Incarceration.



Note: $N = 410$.