

## Solitary confinement, post-release health, and the urgent need for further research



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People who experience incarceration have an increased risk of poor health outcomes and death following their release from prison.<sup>1</sup> Understanding the causal and mitigating factors of these outcomes is made difficult by the intersection of multiple risk factors for both poor health outcomes and incarceration. Additionally, the effects of the conditions of incarceration are not well understood.

Solitary confinement is one of the most controversial environments of incarceration discussed in the health literature. Although the physical conditions of solitary confinement vary across and within jurisdictions, it generally refers to people being held in cells for 22–24 hours a day, with little or no contact with others. The United Nations Standard Minimum Rules for the Treatment of Prisoners, known as the Nelson Mandela Rules, prohibit prolonged solitary confinement (rule 43.1b), defined as exceeding 15 consecutive days.<sup>2</sup> A growing body of research is shaping our understanding of the acute physical, psychological, and emotional effects of solitary confinement at the individual and population levels.<sup>3,4</sup> Currently, there is little research investigating the lasting effects of solitary confinement after people leave prison. Experience of solitary confinement during recent incarceration has been found to be associated with post-traumatic stress disorder symptoms after release<sup>5</sup> and with increased likelihood of reincarceration.<sup>6</sup> In *The Lancet Public Health*, Christopher Wildeman and Lars Andersen make an important new contribution to this literature with their study examining the association between the experience of solitary confinement and mortality after release.<sup>7</sup>

In their study, Wildeman and Andersen used data from Danish administrative registers and from the Danish Prison and Probation Service to examine the records of all 13776 people who served a prison sentence in Denmark that started and ended in 2006–11.<sup>7</sup> The authors followed each person for up to 5 years after release. A higher proportion of people who had been placed in solitary confinement (4.5%) than of people who had not been placed in solitary confinement (2.8%) died during this follow-up period ( $p < 0.0001$ ). Statistical analyses showed that those who had been placed in

solitary confinement versus those who hadn't were more likely to die during the 5 years after release (hazard ratio for death by any cause 1.599, 95% CI 1.268–2.017). They found that this difference was largely driven by non-natural deaths which were higher among those who had been placed in solitary confinement. The authors note substantial differences between those who experienced solitary confinement and those who did not. Those who were placed in solitary confinement were younger, had lower educational attainment, were more likely to be identified as having a background that is an ethnic minority in Denmark, and served longer sentences and a higher proportion of them were convicted of violent crimes and held in high security facilities. The authors found that controlling for these covariates strengthened the association between solitary confinement, all-cause mortality, and mortality from unnatural causes.

These findings are corroborated by a recent study by Brinkley-Rubinstein and colleagues, who found an association between solitary confinement and increased risk of all-cause mortality, suicide, homicide and opioid-related overdose after release from prison in North Carolina, USA.<sup>6</sup> Additionally, Brinkley-Rubinstein and colleagues reported a dose–response relationship; individuals with multiple exposures to solitary confinement (two or more episodes) and those who experienced longer episodes (more than 14 days) had elevated risk of all-cause mortality, suicide, and homicide in the first year after release. In this study, most (68%) of episodes of solitary confinement lasted more than 14 days.

By contrast, Wildeman and Andersen's study showed that even short exposure to solitary confinement is a marker of increased risk of mortality.<sup>7</sup> They reported that 1662 (12%) of 13776 people experienced solitary confinement during the incarceration included in their study and the median time spent in solitary confinement was 5 days. Most people (75%) experienced solitary confinement once during their sentence, and 93% once or twice. This study's results should be cause for concern in jurisdictions which use solitary confinement both more frequently and for longer periods of time (months

or even years). Although the authors are rightly cautious in their interpretation and do not suggest that a causal determination can be made from these data, the association between relatively little exposure to solitary confinement and increased risk of death indicates an urgent need for further research into the effects of the conditions of confinement on outcomes after release.

This study also highlights gaps in our understanding about the use and experience of solitary confinement in other settings. Globally, millions of people are incarcerated<sup>8</sup> for much longer periods of time than are common in the Danish model. This study's sobering results highlight the need for more research to understand the use and effects of solitary confinement as well as the mechanisms through which solitary confinement might affect health and wellness in the short and long term.

We declare no competing interests.

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