American Journal of Epidemiology Advance Access published January 14, 2011

American Journal of Epidemiology

DOI: 10.1093/aje/kwq420

Invited Commentary

Invited Commentary: (Mass) Imprisonment and (Inequities in) Health

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Initially submitted September 29, 2010; accepted for publication October 4, 2010.

The US imprisonment rate has increased dramatically since the mid-1970s, precipitating tremendous interest in the consequences of having ever been imprisoned for the marginal men for whom contact with prisons and jails has become commonplace. The article by Spaulding et al. in this issue of the *Journal* (*Am J Epidemiol*. 2010;000(00):000–000) makes a substantial contribution to research in this area by demonstrating for the first time that the small short-term benefits of imprisonment with regard to mortality risk are far outweighed by the much larger long-term mortality costs of having ever been imprisoned. Yet it remains unclear whether contact with the penal system *causes* the associations therein. In this commentary, the author addresses some of the obstacles to causal inference that exist in this research area and highlights one way to overcome them. He then suggests that future research might focus on 1) the consequences of mass imprisonment for health inequities among adult men and 2) the spillover effects of mass imprisonment for persons who are also affected by the penal system—the families, friends, and communities prisoners leave behind.

cause of death; health status disparities; hepatitis C; mortality; prisons; prisoners; survival analysis

Abbreviation: STI, sexually transmitted infection.

Massive increases in US imprisonment have fueled interest in the effects of imprisonment on men's life chances (1). Although effects on employment outcomes among ever-imprisoned men have generated the most interest (2–5), a burgeoning body of literature considers the health effects of coming into contact with the penal system (4, 6–13). It is into this literature that the excellent article by Spaulding et al. (14) fits. In this commentary, I focus on 2 findings that greatly enhance knowledge and then discuss future research directions.

The major contribution of this study is that it shows for the first time that having ever been imprisoned is associated with elevated mortality risk in the long term, even after adjustment for the (small) protective effects of current imprisonment (14). Prior research has been unable to provide such insight, because all prior studies have included information on current or former prisoners—never both (6, 9–11). The findings from this study also provide another key point of comparison for the estimated associations between current imprisonment, prior imprisonment, and mortality risk shown in previous research. On 2 counts, agreement between this article and previous research is substantial. Like others, this study shows that white male former prisoners are at higher mortality risk than other white men (11, 14) and that black male prisoners are at lower mortality risk than other black men (9, 10, 14). Findings diverge from prior research in one regard, however: The mortality rates observed immediately upon release from prison in this study were much lower (relative to the general population) than those in other studies (6, 14).

Based on my reading, it would be difficult to argue that Spaulding et al. (14) have not made a key contribution to knowledge about the mortality costs and benefits of imprisonment. Below, I provide some thoughts for future research in this area. In so doing, I focus on 2 pressing issues: causal inference and broad effects on health inequities.

DOES CONTACT WITH THE PENAL SYSTEM *AFFECT* HEALTH?

Being in prison might diminish the mortality risk of criminally active men—especially those on the margins of society who receive little medical care and are at elevated risk of

mortality due to homicide, drug overdose, and other preventable causes (6, 9–11, 14, 15). Likewise, the stigma, exposure to infectious disease, and stress associated with serving time might imperil the health of the ever-imprisoned (7, 8, 12, 13). However, existing research offers only weak evidence that current imprisonment (9, 10, 14) or release from prison (6, 11, 14) *causes* favorable or adverse health outcomes. Basic covariate adjustment—controlling for age, sex, race, and education—takes us part of the way toward dealing with confounding, yet even a model with extensive controls for factors endogenous to health and imprisonment (such as criminality or drug use) takes us but part of the way toward establishing causal relations between imprisonment, release, and health.

So what should we do? One possibility would be to use methods such as propensity-score (8) and fixed-effects (12) models. These methods take us further, but both are still limited. Propensity-score models, for instance, yield less biased estimates than traditional regression-based models only if there are no relevant, unobserved differences between the ever-imprisoned and the never-imprisoned, which is unlikely because of unobserved but possibly substantial differences between these groups in their levels of social marginalization, criminal activity, and drug use. What about fixed-effects models? We are also likely to experience frustration on this front. Fixed-effects models control all bias due to unobserved factors, provided they are stable; yet many changes that precede incarceration might also predict health outcomes. Since fixed-effects models only diminish concern about bias due to stable characteristics, they cannot address concerns about such changes and still yield biased estimates under this scenario.

Thus, most commonly used methods are unlikely to yield causal estimates in this area. In light of this, future researchers might try blending quasi-experimental techniques with excellent administrative data like those used by Spaulding et al. (14). An example may be in order here. Criminologists are acutely interested in whether sentence length influences recidivism, but estimating such effects using observational data is difficult because sentence length and recidivism are probably both endogenous to individual traits. One way to bypass this problem is to find a source of variation in sentence length that is exogenous—unrelated to the characteristics of the persons sentenced. Using that exogenous variation, the analyst can then estimate a causal relation between sentence length and imprisonment. In 1 recent exemplar, Green and Winik (16) used variation in sentencing decisions made by different judges to estimate the effects of sentence length on recidivism. Since the estimates therein were uncontaminated by endogeneity bias (16), the authors derived more reliable causal estimates than were obtained in previous research—and thereby extend knowledge of the effects of sentence length on recidivism (and hence better inform public policy).

I point out this design because epidemiologists have much of the data required to conduct such studies already at hand. In the Spaulding et al. study (14), for instance, all the authors need is exogenous variation in sentence length to generate estimates of the effects of sentence length on mortality risk. Of course, there are also obstacles to research in this area—concerns about external validity (or population representativeness) are perhaps the most important—and finding exogenous variation in sentencing often requires much work. Nonetheless, epidemiologists are uniquely positioned to leverage existing connections with administrative agencies, thereby providing better estimates of the effects of incarceration on health than any other discipline.

WHAT MIGHT IT MEAN FOR HEALTH INEQUITIES?

One reason to care about whether these associations represent causal relations is because, if they do, mass imprisonment may have effects on health inequities. But how large could effects on health inequities be? To obtain an idea of their possible magnitude, Western and Wildeman (17) calculated estimates of changes in the lifetime risks of imprisonment for adult men. As Table 1 shows, more than 1 in 5 black men born in the United States since the late 1960s can expect to be imprisoned at some point by their early 30s. For white men, the risk has yet to reach 1 in 30. Consider also the dramatic change in the absolute difference in the risks of imprisonment for black men who dropped out of high school and white men with any college attendance. For men born between 1945 and 1949, the gap in this risk was 14% (14.7 − 0.7). Fast-forward 30 years, and the gap had increased to 67.8% (69.0 − 1.2). These estimates imply that mass imprisonment could have greatly increased health inequities among men—provided that having ever gone to prison actually compromises health.

Unfortunately, estimating the magnitude of the effects of mass imprisonment on health inequities among adult men requires more than just estimates of 1) changes in the lifetime risk of imprisonment for adult men and 2) effects of imprisonment and release on health. Since changes in levels of imprisonment may influence the health not only of ever-imprisoned men but also of never-imprisoned men, researchers must also understand how changes in levels of imprisonment influence the health and well-being of men who never go to prison. Given a host of likely countervailing positive and negative effects, this is a difficult task. Consider just 2 examples. Most scholars agree that imprisonment (somewhat) diminishes rates of violent crime (18). Since violent interactions tend to be between people who are similar to one another in key ways (19), increases in imprisonment may improve the health of never-imprisoned men by decreasing their homicide mortality risk. Since incarceration rates also increase community-level prevalence rates of sexually transmitted infections (STIs) (7, 20), however, increases in the incarceration rate might increase STI prevalence rates among men who never enter the system. Given such countervailing influences, scholars interested in health inequities might try using macro-level data when considering the effects of mass imprisonment on health inequities among men. Although epidemiologists are often (correctly, I think) loathe to consider such macro-level effects because of the ecologic inference problem, I propose that future research in this area utilize macro-level data in order to consider the effects of mass imprisonment on population health because of the complex

Table 1. Cumulative Risk (%) of Imprisonment by Ages 30–34 Years for US Men Born Between 1945–1949 and 1975–1979, by Race and Education[a]

Race and Education	Birth Cohort						
	1945–1949	1950–1954	1955–1959	1960–1964	1965–1969	1970–1974	1975–1979
White men							
High school dropouts	4.2	7.2	8.0	8.0	10.5	14.8	15.3
High school only	0.7	2.0	2.1	2.5	4.0	3.8	4.1
All noncollege[b]	1.8	2.9	3.2	3.7	5.1	5.1	6.3
Any college	0.7	0.7	0.6	0.8	0.7	0.9	1.2
All white men	1.2	1.9	2.0	2.2	2.8	2.8	3.3
African-American men							
High school dropouts	14.7	19.6	27.6	41.6	57.0	62.5	69.0
High school only	10.2	11.3	9.4	12.4	16.8	20.3	18.0
All noncollege	12.1	14.1	14.7	19.9	26.7	30.9	35.7
Any college	4.9	3.5	4.3	5.5	6.8	8.5	7.6
All African-American men	9.0	10.6	11.5	15.2	20.3	22.8	20.7

[a] Source: Western and Wildeman (17, p. 231).
[b] High school graduates plus high school dropouts.

and countervailing effects of changes in the imprisonment rate on never-imprisoned men.

The influence of incarceration rates on STI prevalence brings me to another issue that future researchers might consider: the *broader* health effects of mass imprisonment. Some research exists in this area, as the aforementioned authors and a host of others have considered the effects of mass imprisonment on STI rates (7, 20). What I would suggest, however, is that more future research consider the effects of imprisonment on a broader range of health outcomes not limited to infectious disease and that the social groups considered be expanded from the romantic partners of prisoners and former prisoners to their parents, children, friends, and communities. Since the risk of parental imprisonment for US children has increased in lockstep with the risk of imprisonment for adult men (21), these broader effects may be even more severe—especially since the health benefits of having a family member imprisoned are unlikely to outweigh the costs given the stigma (22), loss of income (23), and added expenses (24) that come along with having a family member imprisoned. The broader health consequences of mass imprisonment need not be restricted to family members, however. Some research suggests that very high levels of imprisonment have broadly negative consequences for community life (25), so the negative effects on community health may not end with STIs. Yet mass imprisonment may be important for health inequities at even higher levels of aggregation. In fact, given drastic inequities in imprisonment between US states and other wealthy democracies (4), mass imprisonment might have even more far-reaching consequences for health inequities (26).

Of these broader effects of mass imprisonment on population health, relatively few have been tested to date. As I noted above, there has been some work on disparities in STI rates at the individual and community levels. Yet aside from STIs, we have little sense of what the broader health consequences of mass imprisonment may be (26–28). It is for this reason that I suggest not only further investigation of the effects of incarceration on persons connected to ever-imprisoned men and women—their children, partners, parents, and friends—but also of the macro-level effects of mass imprisonment on health inequities among communities, states, and even nations.

CONCLUSION

Research shows that the lifetime risk of imprisonment for adult men has increased dramatically in the United States in the last 35 years (1, 4, 17) and that having ever been imprisoned is associated with poor life chances (2–6, 8, 11–15). In the second of these areas, the article by Spaulding et al. (14) is an exemplar. These are important initial steps, for sure, but research must push beyond descriptions and associations that may (or may not) be causal in order to understand the implications of mass imprisonment for health inequities. In this commentary, I have suggested 2 such steps. First, researchers might try relying on research designs that are more likely to yield causal estimates of the health effects of incarceration. Second, researchers might consider moving beyond individual (former) prisoners in 2 ways: by considering health effects on persons in their social networks and by testing for macro-level effects on health inequities.

As with any area of research, there are substantial obstacles to these analyses. Nonetheless, the countervailing effects of mass imprisonment on the health of men who never experience imprisonment and broader spillover effects imply that the effects of mass imprisonment on health inequities may extend far beyond ever-imprisoned men. Thus, researchers must test those relations in order to know the magnitude of the effects of mass imprisonment on population health and health inequities.

ACKNOWLEDGMENTS

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Conflict of interest: none declared.

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