Epidemiologic Reviews
Vol. 40, 2018
DOI: 10.1093/epirev/mxx013
Advance Access publication:
April 7, 2018

Parental Incarceration and Child Health in the United States

Christopher Wildeman*, Alyssa W. Goldman, and Kristin Turney

*Correspondence to Dr. Christopher Wildeman, College of Human Ecology, Department of Policy Analysis and Management, Cornell University, 137 Martha Van Rensselaer Hall, Ithaca, NY 14853 (e-mail: cjw279@cornell.edu).

Accepted for publication October 16, 2017.

Mass incarceration has profoundly restructured the life courses of not only marginalized adult men for whom this event is now so prevalent but also their families. We examined research published from 2000 to 2017 on the consequences of parental incarceration for child health in the United States. In addition to focusing on specific health outcomes, we also considered broader indicators of child well-being because there has been little research on the association between parental incarceration and objectively measured child health outcomes. Our findings support 4 conclusions. First, paternal incarceration is negatively associated—possibly causally so—with a range of child health and well-being indicators. Second, although some research has suggested a negative association between maternal incarceration and child health, the evidence on this front is mixed. Third, although the evidence for average effects of paternal incarceration on child health and well-being is strong, research has also suggested that some key factors moderate the association between paternal incarceration and child health and well-being. Finally, because of the unequal concentration of parental incarceration and the negative consequences this event has for children, mass incarceration has increased both intracountry inequality in child health in the United States and intercountry inequality in child health between the United States and other developed democracies. In light of these important findings, investment in data infrastructure—with emphasis on data sets that include reliable measures of parental incarceration and child health and data sets that facilitate causal inferences—is needed to understand the child health effects of parental incarceration.

child health; health disparities; mass incarceration; parental incarceration

Abbreviations: FFCW, Fragile Families and Child Well-Being Study; NSCH, National Survey of Children's Health.

INTRODUCTION

Incarceration is now common for American adults: 6.6% of the population is expected to ever experience prison incarceration and many more experience lower levels of criminal justice contact such as jail incarceration (1). Imprisonment is also concentrated, with 11.3% of men, 32.2% of African-American men, and 60.5% of African-American men who did not finish high school expected to experience this event (1, 2). These high risks of imprisonment are historically extreme within the context of the United States and comparatively extreme relative to other democracies (3).

Because incarceration is concentrated among men, much research has been focused on the health consequences of incarceration for men (4, 5). But incarceration may also be consequential for the health of women and children attached to the men in minority groups who disproportionately experience it. Estimates indicate that 44% of African-American women have an imprisoned family member at any point in time (6). Furthermore, 25.1% and 3.3% of African-American children will experience paternal imprisonment and maternal imprisonment, respectively (7).

In this article, we provide a systematic review of the health consequences of parental incarceration for children in the United States to provide insight into how the historically high and dramatically unequal distribution rates of parental incarceration may affect the American children for whom this event is now so common. Whereas prior reviews have discussed the implications of parental incarceration for certain aspects of child well-being (8–13) or provided a meta-analysis of effects on antisocial behavior, mental health, drug use, and educational performance (8), this review represents, to our knowledge, the first systematic and comprehensive assessment of the research on the consequences of parental incarceration for child health and well-being.

Our focus on research conducted within the United States also distinguishes this review from prior work that has a more global reach. A heavy emphasis on the United States is appropriate for 3

reasons. First, given the historical and comparative novelty of American incarceration, the children of incarcerated parents represent a uniquely vulnerable group, and focused attention on them will best inform public health interventions. Second, the consequences of parental incarceration may differ, especially at the macro level, between the United States and other developed democracies (14, 15). Third, the number of studies on the health implications of parental incarceration for American children has substantially expanded since 2000. Although many of the recent reviews on the consequences of parental incarceration are only approximately 5 years old, the empirical research on the health consequences for children has expanded rapidly, as evidenced by the fact that approximately two-thirds of the studies reviewed in this article were published in 2012 or later. Thus, a systematic review on this topic is needed within this context to synthesize key findings and consider directions for future research.

This review also emphasizes studies that used research designs well-suited to estimate causal effects of parental incarceration. Strong research designs are important because the populations most likely to experience parental incarceration are also likely to experience other circumstances associated with poor child health. As such, studies that do not more fully adjust for selection into incarceration will find negative associations between parental incarceration and child health virtually all the time, leading us to be overly confident about the effects of parental incarceration on child health. This is especially unfortunate because the data usually used to examine parental incarceration tend to provide researchers with information on few of the selection factors that would be ideal to include in any model predicting child health as a function of parental incarceration. Yet, even studies in which investigators adjusted for the broadest range of observed factors are unlikely to yield causal estimates in this area, because of unobserved selection processes.

We consider 3 types of analyses to be particularly strong in strengthening causal inference with observational data: 1) those that relied on exogenous shifts in the risk of parental incarceration, 2) those that relied on comparisons of similar children who experienced parental incarceration right before or after a health outcome was measured, and 3) those that focused on within-individual shifts in health as a result of parental incarceration. In many cases, we also discuss studies that may not have used these designs but, nevertheless, examined an otherwise-understudied, yet important, facet of this area (e.g., perinatal health). This is especially true when examining the consequences of maternal incarceration, where we did not identify studies that use the aforementioned methods. In other cases, we draw attention to non–US-based studies that, despite their unclear generalizability to the United States, had exceptionally rigorous research designs and high validity. Whereas findings from US-based studies tended to have high external validity, the data sources often made rigorous research designs more problematic than data infrastructure available in other countries.

Because there has been little research in which investigators were able to distinguish between parental prison incarceration (usually, although not always, indicating a parent has been convicted and sentenced to more than 1 year of prison incarceration) and parental jail incarceration (usually, although not always, indicating a parent has received a shorter sentence or is awaiting trial), we do not focus on this difference. However, future research must better interrogate the differential effects of parental prison and jail incarceration.

Our review has 4 sections. First, we summarize existing research on the consequences of parental incarceration for children's health. In this section, we focus not only on core health indicators, such as infant and child mortality, but also on 1) broader measures of child well-being, such as mental health and behavioral problems; 2) institutional contacts that may shape later health; and 3) risky health behaviors in adolescence and early adulthood. Much of the empirical literature on the consequences of parental incarceration has examined outcomes that might fall squarely in the areas of health and medical sciences, as well as a range of behaviors and consequences that have important implications for a child's health in adulthood. Therefore, we refer to a child's "health and well-being" throughout the review to reflect the range of indicators (i.e., health, behavioral, institutional, and criminological) that may be affected by parental incarceration and have important indirect effects on children's long-term health. These indirect effects may operate, for instance, by shaping children's access to resources that could benefit health or via exposure to stressors, such as children's own criminal justice contact, that could damage health. Second, we discuss the mediators that may drive the association between parental incarceration and child health, with attention to empirical studies that provide evidence of mediation. Third, we discuss moderators of the associations between parental incarceration and child health. Fourth, we describe how mass incarceration could contribute to intra- and intercountry child health inequalities, and suggest the need for greater research in this area.

METHODS

Search strategy

In systematically compiling our sample of relevant studies, we aimed to consider the full breadth and depth of child health outcomes considered by prior research. Search tools included PubMed, Scopus, and Web of Science to compile a comprehensive list of publications appearing in peer-reviewed journals. We also consulted Google Scholar for highly cited, supplementary literature, including government reports and book chapters, as necessary and appropriate for inclusion.

We entered the following search terms to capture a range of relevant outcomes: (*incarcerat**, or *imprison**, or *jail*, or *prison*) and (*parent**, or *paternal*, or *maternal*, or *father*, or *mother*) and (*child**, or *young adult**, or *intergeneration**, or *family*, or *prenatal*) and (*health*, or *physical*, or *mental*, or *well-being*, or *outcome*, or *development*, or *behavior*, or *crim**, or *substance*, or *drug*, or *achieve*, or *educ**, or *grad**, or *disease*, or *social*, or *stigma*).

Inclusion criteria

Inclusion criteria were as follows:

- Studies published in English and undertaken in the United States.

- Studies published 2000–2017, because this period corresponds most closely to the time frame when children are most likely to experience parental incarceration.
- Studies focused explicitly on parental incarceration and health-specific or health-relevant outcomes for children or young adults. In addition to physical and/or mental health, we also consider outcomes related to overall well-being and future health, including risky health behaviors and institutional contact.
- Empirical studies published in peer-reviewed journals that are well-regarded in their respective fields, including medical, health, and other sociological and criminological outlets, or that have been exceptionally influential in shaping the research field (although they were not published in peer-reviewed outlets).
- Studies that used a rigorous research design and/or extensive covariate adjustment to account for issues of selection and unobserved heterogeneity. In certain cases, we include studies that may be less analytically sophisticated but that represent significant and otherwise less examined outcomes for child health.

After removing duplicates, this search yielded an initial 1,449 references. After reviewing titles and abstracts, 361 articles were considered topically relevant. We subsequently excluded 122 studies that focused only peripherally on child health or other child outcomes. We eliminated an additional 36 articles focused on interventions or program evaluations, or that were otherwise not empirical. Of the remaining 203 articles, we eliminated 14 that focused on non-US samples. We made a few exceptions for studies that used international samples with exceptionally rigorous research designs (e.g., quasi-experimental) and those that considered objectively measured health outcomes. These studies represent important research advances on this topic and provide useful benchmarks for future data infrastructure and study design in the US context.

Finally, our search results were further refined to focus on 62 studies that we thought used a particularly rigorous research design, appeared in well-regarded journals, considered appropriate outcomes, and did not use particularly small or convenience samples (Figure 1). Although we included results from studies that represent a bounded geographic area if they provided excellent detail unavailable in other studies (e.g., the Project on Human Development in Chicago Neighborhoods, the Pittsburgh Youth Study), we also tried to emphasize studies that are representative of the entire population of children or a large subset of it.

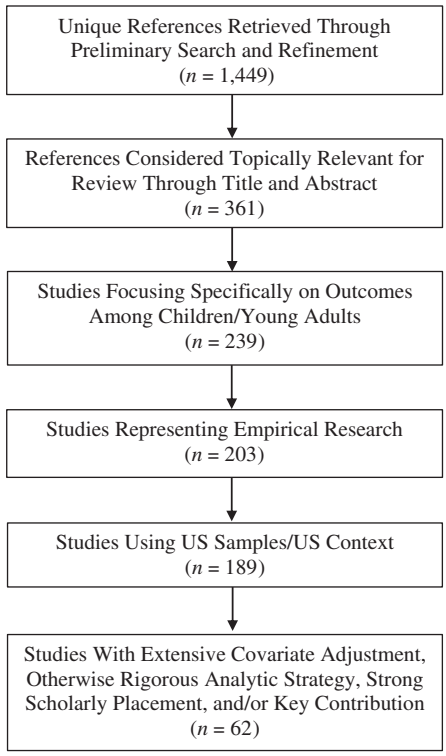

Figure 1. Flow chart of the literature search and screening process.

RESULTS

Average effects of parental incarceration on children

As we discuss later in this article, and as discussed elsewhere (5), a core limitation of research in this area is that few studies were well-situated to look at associations with objectively measured health indicators or provide plausibly causal estimates of effects of parental incarceration. Given these limitations, the core section of our review focuses on effects of parental incarceration on child well-being, with emphasis on self-reported health indicators and health behaviors, behavioral and mental health problems, and institutional contacts.

Physical health

Research on the physical health consequences of parental incarceration provides evidence of associations with prenatal health, infant and child mortality, self-reported health, and obesity.

Prenatal health. According to a study that used data from the Pregnancy Risk Assessment and Monitoring System (PRAMS), parental incarceration is consequential for the intrauterine environment, with parental incarceration associated with a lower likelihood of beginning prenatal care in the first trimester; it is also associated with a greater likelihood of having fewer than 9 prenatal visits and of experiencing partner abuse and other stressors that could indirectly stress fetal health (16). Although the PRAMS data make it impossible to differentiate between paternal and maternal incarceration, clinical experiences suggest that incarceration during pregnancy may be protective for women and their infants because of better health care access, better nutrition, better housing stability, and lower exposure to alcohol, drugs, and cigarettes during incarceration (17). Nevertheless, because theory around the potential benefits of incarceration for prenatal health is based largely on a 2011 article by Clarke and Adashi (17) that included few data, additional empirical work is necessary to validate these findings. Indeed, surveys of prenatal care practices in US jails and state prisons emphasize the generally substandard conditions for

pregnant inmates, including high rates of shackling, poor nutrition, and minimal psychosocial support, which could cause trauma for mothers and children (18, 19).

Infant and child mortality. Based on studies using the PRAMS data (20) and Danish registry data (21), the latter of which include complete information on all incarceration experiences and mortality in Denmark, researchers suggested that parental incarceration is associated with a higher mortality risk for children. Using the PRAMS data, Wildeman (20) showed that parental incarceration is associated with a 30% increase in the odds of parent-reported infant mortality. In an analysis of Danish registry data, Wildeman et al. (21) showed that paternal incarceration is associated with increased risks of child mortality for boys. Taken together, these analyses indicate an association between parental incarceration and child mortality, but this relationship merits additional attention.

Self-reported health. Most research on the consequences of parental incarceration for child health has been based on data from 2 broadly representative studies that included many high-quality, although self-reported, indicators of child health: the National Survey of Children's Health (NSCH) (22) and the National Survey of Adolescent Health (hereafter referred to as Add Health) (23). According to these studies, parental incarceration is associated with health in childhood (22) and in young adulthood (23), and, in some cases, with especially harmful health outcomes. For example, among 0- to 17-year-old children, parental incarceration was found to be associated with fair or poor overall health, learning disabilities, developmental delays, speech or other language problems, asthma, obesity, activity limitations, and an array of mental health problems, including attention deficit disorder/attention deficit hyperactivity disorder, depression, anxiety, and behavioral or conduct problems (22). In addition, researchers suggested that paternal incarceration is associated with high cholesterol levels, asthma, migraines, depression, posttraumatic stress disorder, anxiety, human immunodeficiency virus/acquired immunodeficiency syndrome, and fair or poor overall health in young adulthood. This research also suggested that maternal incarceration is associated with depression (23). In a study using Add Health data, maternal incarceration was more strongly associated with a child's incarceration than was paternal incarceration (24). Although a child's incarceration is not itself a health outcome, it is nevertheless worth noting, given the significant association between one's own incarceration experience and adverse health outcomes (25–27).

Although these studies covered an impressive range of outcomes, they were limited in several ways. First, the NSCH measures residential parent incarceration, missing nearly half of children who experience parental incarceration (28). Therefore, in the study using data from the NSCH (22), the association between parental incarceration and child health may be overestimated because, according to prior research, the effects of paternal incarceration may be smaller for children of nonresident fathers (29). Second, the health measures used in the NSCH and Add Health are likely underreported because those measures rely on self- or parent-reported health problems and do not use objective health measures. Underreporting may result from respondents' inaccurate recollections, undiagnosed conditions, and/or social desirability. Likewise, some studies rely on young adults' recollections of parental incarceration during childhood (23, 24). Parental incarceration may be underreported in these studies because the risk of experiencing parental incarceration is greatest in early childhood. Young adults may not recollect these experiences or may not report them for social desirability reasons. It is difficult to discern how underreporting parental incarceration may bias these results.

Studies using self-reported health measures yield important insights about the association between parental incarceration and child health and well-being; however, few studies use objective health indicators to study physical health consequences of parental incarceration—a key limitation of research in this area. To our knowledge, a single study has linked paternal incarceration with elevated levels of C-reactive protein (a key marker of inflammation and predictor of mortality) in adolescent girls (30), and administrative data were used in a Danish study to consider the effect of parental incarceration on child mortality (21). As we discuss further below, additional research using objective health measures is important going forward.

Obesity. Research using the Add Health data also indicates that parental incarceration is associated with elevated body mass index levels among young women (31). The 0.92-unit increase in body mass index for those women experiencing parental incarceration represents 18.4% of the 4.9 body mass index–unit disparity between African-American and non-Hispanic white women aged 20–39 years old. This study (31) is uniquely strong because it used change-score models to consider how additional spells of paternal incarceration changed the risk of being obese for children of incarcerated fathers. In research related to the issue of obesity, investigators using Fragile Families and Child Well-Being Study (FFCW) found a significant association between paternal incarceration and food insecurity among 5-year-old children living with their fathers before the father's incarceration (32).

Behavioral and mental health problems

Much of the research on the effects of parental incarceration on behavioral and mental health problems is based on data from the FFCW or the Project on Human Development in Chicago Neighborhoods (PHDCN), each of which provides an opportunity to link changes in paternal incarceration to changes in children's outcomes. Much of this research makes a sharp distinction between paternal incarceration and maternal incarceration (9). In a series of studies that relied on rigorous methods, including lagged dependent variables, fixed effects, and placebo regressions, researchers using the FFCW showed that paternal incarceration was linked to increases in children's physically aggressive behaviors (33) and problematic externalizing behaviors (29, 34). In another study that used the FFCW data, researchers found that children whose parents were living together before a father's incarceration were more likely to be exposed to harsher parenting and maternal neglect (35), which may compound behavior problems.

Research using a similar set of strategies and data from the PHDCN, which includes both younger children (as does the FFCW) and teenage children, found strong associations with both externalizing and internalizing behavioral problems, suggesting that the consequences of paternal incarceration for children's

internalizing behavioral problems may be as salient as the association between paternal incarceration and externalizing behavioral problems but that the former appear later (36).

The link between maternal incarceration and children's behavioral and mental health problems is less clear than the link between paternal incarceration and these outcomes. In a study that considered the consequences of maternal incarceration for children's mental health and behavioral problems and that used strong data and methods, researchers found small, statistically insignificant consequences of maternal incarceration for 21 measures of behavioral and mental health problems (37). This stands in stark contradistinction to the findings in the work of Lee et al. (23), in which they suggested that maternal incarceration may be more damaging for child health and well-being, specifically in regard to depression, than is paternal incarceration. Because these studies differed in the outcomes considered, the age of the children, and the extent of the covariates included to control for selection, it remains unclear whether the effects of maternal incarceration only appear for some outcomes, later in the life course, or when adjustment for selection into incarceration is minimal.

Institutional contacts: schools and foster care

Institutional contacts are important for children's later health because of the multiplying effects that both positive (e.g., completing high school) and negative contacts (e.g., being placed in foster care) have on health. In this section, we focus on 2 institutional contacts that could be shaped by paternal incarceration: contacts with 1) schools and 2) the child welfare system. In studies spanning multiple disciplines, researchers have established the indirect benefits of education on health. Higher educational attainment is associated with better physical health functioning, lower disease incidence, and is strongly predictive of longevity (38–40). Likewise, contact with the child welfare system (specifically, foster care placement) is associated with continued environmental instability among an already vulnerable population of youth and has been linked with several mental health problems among children, including depression and posttraumatic stress disorder (41, 42). Poor educational outcomes and foster care placement that result from parental incarceration may therefore represent indirect pathways to numerous adverse health outcomes for children.

Schools. There is a large and rapidly growing research base on the consequences of paternal and maternal incarceration for children's school outcomes. As with some research on the behavioral and mental health consequences of parental incarceration, much of the research on school outcomes has suggested a sharp differentiation between the consequences of paternal and maternal incarceration. For paternal incarceration, the consequences are clearly negative. Children with incarcerated fathers start school less behaviorally prepared for that institutional context (43). They then go on to struggle with a host of problems after starting school, ranging from poor teacher evaluations to higher levels of grade retention (44) to lower grade-point averages and lower levels of school success more broadly, including lower probabilities of transitioning from high school to college (45, 46). There is, in short, uniform evidence that paternal incarceration imperils children's educational experiences.

For children who experience maternal incarceration, the picture is less clear. In an excellent study, Hagan and Foster (47) showed that maternal incarceration has both direct (for children who experience maternal incarceration) and indirect (for children who go to schools that have a high rate of maternal incarceration) negative effects on educational outcomes. Although the findings from Hagan and Foster's study are compelling, in a second set of studies using linked administrative data from Illinois, Cho (48, 49) showed that maternal prison incarceration (relative to a few days in jail) is associated with no noticeable shift in children's test scores and may lead to lower rates of grade retention. It is interesting that this divergence in findings regarding the consequences of maternal incarceration holds for educational outcomes along the same lines as it does for behavioral and mental health problems, indicating that there are 2 possibilities for explaining this difference: either maternal incarceration does not have negative effects on children's health and well-being, or the negative effects of maternal incarceration appear only later in life.

Foster care placement. For many incarcerated adults and their families, contact with the Child Protective Services system is common (50) and may result in a child's foster care placement. Results from descriptive research using the Survey of Inmates in State and Federal Correctional Facilities suggest that a small yet notable proportion of inmates' children live in foster care or another type of agency or institution, with approximately 8% of children of mothers and just greater than 1% of children of fathers residing in these circumstances in 1997 (51). According to more recent reports of children entering foster care in 2007–2009, approximately 30,000 children (nearly 5% of all children entering care that year) entered foster care as a result of parental incarceration (52). Approximately 1 in 200 US children is in foster care on any given day (53, 54); this means that children of incarcerated mothers are about 12 times more likely to be in foster care as other children, and children of incarcerated fathers are about twice as likely to be in foster care as other children. In other research on this topic, children who entered foster care as a result of parental incarceration were found to remain in foster care for significantly longer than children who entered for other reasons (55).

Unfortunately, to our knowledge, no individual-level research that has tested the consequences of maternal incarceration on children's risk of foster care placement was conducted with a rigorous research design capable of detecting causal effects. Despite this, results of an excellent state-level analysis indicated that increases in female imprisonment explained 30% of the large increase in foster care caseloads in the United States between 1985 and 2000 (54). In light of this strong macro-level relationship, there is likely a large individual-level relationship between maternal incarceration and children's risk of foster care placement.

Less research has considered the consequences of paternal incarceration for children's risk of foster care placement; this is reasonable because the mechanisms linking paternal incarceration and foster care placement are less obvious. Nonetheless, in a study using Danish data and a policy shock that made many convicted fathers eligible for probation instead of incarceration, paternal incarceration sharply increased the risk of a child's foster care placement after his/her father's incarceration (56). Unfortunately, the small number of incarcerated mothers in Denmark

makes it impossible to consider the effects of maternal incarceration on children's risk of foster care placement.

Risky behavior and criminal justice contact

Given the great emphasis in criminology on the intergenerational transmission of criminality (57, 58), it is unsurprising that much research on parental incarceration has considered children's engagement in risky (health-related) behaviors, as well as criminal activity and criminal justice contact. According to studies using the Add Health data, parental incarceration is associated with elevated risks of drug use and abuse (59), criminality, and delinquency among adolescents (60, 61). In other longitudinal work using a series of propensity score models with the Pittsburgh Youth Study (PYS), investigators found that parental incarceration is associated with an increase in theft among boys (62). The fact that the dependent variables in this study measured change in criminal activity makes this study exceptionally rigorous, providing a far stronger research design than many studies in this area. These findings, coupled with those linking parental incarceration with adolescent obesity (31), suggest that even if the immediate health consequences of parental incarceration are scant (and research strongly indicates they are not), parental incarceration would likely seriously imperil health later in the life course.

As with other institutional contacts discussed in this article, effects on criminal justice involvement are consequential for health because of the well-known long-term consequences of incarceration for health (4, 5). Little of the research in this area has tested the consequences of maternal incarceration for children's risk of criminal justice contact (63), though maternal incarceration may be associated with a greater risk of young adults' own experience of incarceration compared with those who experience paternal incarceration (24). The results of substantial research on the consequences of paternal incarceration indicate this event increases the risk of criminality and criminal justice contact in adolescence (24), early adulthood (62, 64), and even in later life (65).

The strength of research designs in this area varies substantially, with some studies using covariate adjustment (61), others using synthetic regression models (60), and others using difference-in-difference techniques to estimate the effects of policy shocks (64). Nevertheless, the highly consistent findings across these different data sets and methodological approaches indicate that there is a strong, and likely causal, relationship between paternal incarceration and children's risk of criminal justice contact, and that this relationship persists across the entire life course.

DISCUSSION

Mediators

Having established what the average effects of parental incarceration are on child health and well-being, we now turn to a broader consideration of the mediators and moderators of parental incarceration's effects to provide broad insight into the topic. Theoretical perspectives on the relationship between parental incarceration and child health and well-being tend to focus on 3 sets of mediators: 1) selection, 2) strain and stress, and 3) stigma (9, 66). Despite the prominence of these mechanisms, it is important to note that other researchers have considered, albeit indirectly, how infectious disease transmission facilitated by parental exposure to the prison and jail system may affect the health of children (14, 26, 67, 68). According to other work on the association of paternal incarceration with child delinquency, relations with parents and peers after parental incarceration may account for approximately half of this association (62).

Selection. The selection perspective suggests that the same factors that lead to parental incarceration (e.g., race/ethnicity, poverty, living in a poor neighborhood, mental health and substance abuse disorders, criminal activity) drive the negative relationship between parental incarceration and child health and well-being (4, 8–13). The magnitude of the association between parental incarceration and child health and well-being varies across outcomes, but the evidence consistently indicates that selection explains one-third to two-thirds of the association between paternal incarceration and child health and well-being (29, 33), and one-half to all of the association between maternal incarceration and child health and well-being (37, 47).

Strain and stress. Criminological accounts often focus on the role of strain in explaining the association between parental incarceration and child health and well-being; sociological and demographic accounts often focus on stress and intergenerational stress proliferation as explanations of this association (22, 66). Strain and stress associated with parental incarceration could involve the trauma (69, 70), resultant economic instability (71–75), and resultant disruptions in family structure and parenting (76–79). As with selection, these mechanisms explain a substantial share of the parental incarceration–child health association, with estimates suggesting that these factors explain one-third to two-thirds of the portion of the relationship that is not explained by selection factors (80).

Stigma. The substantial stigma attached to criminal justice contact affects the individual who experiences the event (81–84) and their family members (70, 71). Researchers have found evidence of the stigma of maternal incarceration (85), while in another experimental study, researchers found evidence that there is stigma attached to paternal incarceration as well (86). There are strong reasons to expect the stigma attached to parental incarceration to affect child health both directly and indirectly (87). Still, no research has yet tested how much stigma mediates the parental incarceration–child health relationship in any fashion, with studies usually attributing the portion of the relationship not explained by selection, strain, or stress to the stigma attached to parental incarceration (29, 33).

Moderators

Although much of the research in this area has focused on estimating the average association between parental incarceration and child health and well-being, a substantial body of research, much of which is qualitative, has focused on the moderators of this association (88, 89). Much of this research has been driven by the insight from criminology that because parents who experience incarceration were (nearly always) involved in criminal activity, there may be cases in which the positive effect of removing a parent from the home outstrips the negative effect of doing so (10, 90). To date, 6 moderators

have been tested: 1) domestic violence, 2) crime type, 3) propensity for the parent to experience incarceration, 4) residential status, 5) child's sex, and 6) child's race.

Although the evidence is far from definitive, in the few existing studies in which investigators considered whether domestic violence moderated this relationship, strong evidence was found that it does, with many of these findings suggesting there is no significant association between paternal incarceration and child health and well-being among children whose fathers were abusive (8, 20, 33). There is also evidence that children may suffer less when fathers convicted of violent crimes are incarcerated (33), although, according to recent research, behavior in the home may be more important than crime type when considering the consequences of parental incarceration (91). Findings from a growing body of work indicate that the higher the propensity for the parent to be incarcerated, the less negative the effects; thus, children unlikely to experience parental incarceration may suffer the most (80, 92). This perspective is consistent with earlier criminological insights indicating the incarceration of an extremely antisocial, dangerous parent is likely to benefit child health and well-being.

Some researchers have also considered how paternal residential status before incarceration and race/ethnicity may moderate this association. Evidence for the moderating role of residential status is strong, with associations 3 times as large for children whose fathers were living with them before incarceration, though children with nonresident fathers also experience a significant increase in some behavioral and mental health problems after the father's incarceration (29). For many outcomes, researchers have found that child's sex may moderate the paternal incarceration–child health association, with boys often, but not always, experiencing more negative associations (29, 31, 33).

Other researchers have reported that child's race/ethnicity may moderate the association between paternal incarceration and children's cognitive capacities (93), with white children appearing to suffer more negative consequences than other children. This is surprising in some regards and merits further investigation. One explanation is that parental incarceration is more shocking and less of a normalized occurrence for populations that are less likely to face this event, thereby leading to more significant consequences for whites than for African Americans. This idea may be supported by results from other work in which investigators found the association between paternal incarceration and child behavioral problems to be more significant for those children with lower risks of experiencing paternal incarceration (80). Nevertheless, in studies of the body mass index of young adults, parental incarceration–child health associations were not found to vary by race, suggesting that race may only moderate the association between parental incarceration and certain child outcomes at certain stages of the life course or within a certain time frame after parental incarceration (23, 31).

Consequences for Disparities in Child Health and Well-Being

Because parental incarceration is unevenly distributed across the population of American children, there are likely significant implications of mass incarceration for racial/ethnic disparities in child health and well-being (90). In addition, because American children are much more likely to experience this event than are children from other countries, there may be even broader effects on inequality. Results from research on the macro-level consequences of mass incarceration for 1) racial disparities in child health and well-being within the United States or 2) cross-national disparities in child health and well-being between the United States and other democracies suggested profound consequences.

In the United States, only 4 studies, to our knowledge, have tested the implications of mass incarceration for racial disparities in child health and well-being (20, 36, 90, 94). According to the results of these studies, mass incarceration increased racial disparities in children's behavioral and mental health problems by 15% to 25% for externalizing behavioral problems and by 24% to 46% for internalizing behavioral problems (36, 90). Disparities between African-American and white infant mortality rates would have been 10% lower in the absence of mass incarceration (20, 94), which suggests large, macro-level effects.

For cross-national inequality, little existing research indicates that mass incarceration has caused the United States to lag increasingly behind other developed democracies on core indicators of population health like infant mortality. For example, a recent analysis indicated that the US infant mortality rate would have decreased nearly 40% more since 1983 without increases in the incarceration rate, with clear implications for cross-national child health disparities (15).

Provocative though they are, most studies of the macro-level implications of mass incarceration for child health disparities have been conducted by a small team of researchers, relied on similar methods, and used similar outcomes (33, 90, 95). Thus, more research is needed.

Conclusion, Limitations, and Next Steps

The relatively small volume of literature on the consequences of parental incarceration for children's health and well-being that we have reviewed in this article provides support for 4 broad conclusions on this topic. In addition, we present a discussion of 4 key limitations of the research on the consequences of parental incarceration for children's health and well-being.

First, research shows a consistent negative association between paternal incarceration and children's health and well-being. Although the rigor of the research designs used to test this relationship has varied across outcomes and data sets, strong associations have been found in studies in which stronger methods were used; thus, these associations may even represent causal effects (33, 36). However, for us to be certain of causal effects, analyses of natural experiments within the US context are needed.

Second, maternal incarceration is inconsistently associated with child health and well-being, with positive effects reported in some studies (17), negative effects in others (47), and null effects in still others (37). As a result, it is unclear whether maternal incarceration has a causal effect on child health and well-being. Although there is debate about the consequences of maternal incarceration for children, it is uniformly recognized that the children of incarcerated mothers are a high-risk group in serious need of public health interventions.

Third, although there is consistent evidence regarding the average effects of paternal incarceration on child health and well-being, there is also evidence of significant heterogeneity in effects across a host of moderators. Some of these moderators, such as child's sex and race/ethnicity (29, 93), suggest effect heterogeneity on time-invariant traits, whereas others, such as domestic violence and the propensity to experience incarceration (33, 80), provide more specific guidance in terms of policy.

Fourth, because of the concentration of parental incarceration among US children from historically marginalized groups and the substantial consequences of paternal incarceration on child health and well-being, mass incarceration has almost certainly exacerbated disparities in child health. Although the literature on the implications of mass incarceration for intracountry (33, 36, 90, 95) and intercountry (15, 96) disparities in child health is sparse, the existing research in this domain provides strong, consistent, if preliminary, evidence.

Existing research is limited though. We focus here on 4 limitations. First, more research is needed to understand the relationship between parental incarceration and family violence—one of the most detrimental consequences for children (97). Exposure to family violence is common in households in which a parent experiences incarceration, with mothers of children whose fathers have been recently incarcerated being 3 to 6 times more likely to be exposed to domestic partner violence than other women (3). Early work from the Adverse Childhood Experience Study has shown that among children exposed to the imprisonment of a household member, between 25.4% and 40.5% are also exposed to psychological, physical, or sexual abuse (98). A similar pattern has been reported in other studies. Children exposed to maternal incarceration were more than 3 times as likely to report paternal domestic violence (37) than their counterparts, and children exposed to paternal incarceration, compared with those not exposed, were more than twice as likely to report being slapped, kicked, or hit by a parent more than 5 times by age 10 years (61). Still, to our knowledge, no research has tested the degree to which parental incarceration affects the level of family violence to which children are exposed. Much of the evidence that does consider this topic is based on higher risk samples, such as the FFCW (33). Additional studies using a broader sample of youth and more detailed measures of perpetration may be especially well suited to advance research in this area.

Second, little research on parental incarceration and child health and well-being has been done to investigate how facility type (e.g., local jail, state or federal prison) or conditions of confinement (e.g., having a parent in solitary confinement) moderates these effects. Third, objectively measured indicators of child health have not been used in much of the research on this topic, leading to possibly substantial measurement error and few health outcomes. Fourth, there has been little research in this area in which investigators used designs that could produce causal estimates, which suggests the need for more research using such strong designs.

Some of these calls for future research can be satisfied with existing data, but many cannot, and that is why public and private funding is needed to build better data infrastructure around this issue. Linked administrative data could be helpful in addressing the latter 2 concerns. Administrative health records could allow researchers to examine the association between parental incarceration and a broad range of physical health outcomes and include a considerably larger sample size with far lower attrition rates than most surveys. In these ways, administrative data are likely to yield sufficient statistical power for researchers to use strong research designs to examine the relationship between parental incarceration and rare yet significant health conditions such as human immunodeficiency virus infection, tuberculosis, autism, and mortality, while also avoiding many of the challenges of survey nonresponse. Large samples of linked administrative data also afford researchers the opportunity to better understand the magnitude of the consequences of maternal incarceration, given that survey data include far fewer instances of this less common event.

This is not to say, however, that administrative data are without limitations, 3 of which we note here. First, unlike survey data, it is difficult to test mechanisms using administrative data because of the limited information on possible mediators. Second, and maybe more importantly for epidemiologists, whereas objective measures of physical health are superior to survey data, mental health measures are often of lower quality. Finally, using administrative data to link fathers, especially those who are not named on their children's birth certificates, with their children is difficult and could lead to rates of paternal missingness that rival those often found in longitudinal studies.

Despite these limitations of administrative data, without significant investments in data infrastructure that include high-quality information on criminal justice contacts and child health, it is unlikely that research in this area will significantly advance in the coming years. As the number of children who ever experience parental incarceration in the United States continues to increase, progress in this area is essential to address the breadth and severity of associated outcomes that hinder the well-being of an already disadvantaged youth population.

ACKNOWLEDGMENTS

Author affiliations: Department of Policy Analysis and Management, College of Human Ecology, Cornell University, Ithaca, New York (Christopher Wildeman); Department of Sociology, College of Arts and Sciences, Cornell University, Ithaca, New York (Alyssa W. Goldman); and Department of Sociology, School of Social Sciences, University of California, Irvine, Irvine, California (Kristin Turney).

C.W. was supported by the Institute for the Social Sciences at Cornell University. K.T. was supported by the Foundation for Child Development and the William T. Grant Foundation.

Conflict of interest: none declared.

REFERENCES

1. Bureau of Justice Statistics. *Prevalence of Imprisonment in the US Population, 1974–2001*. Washington, DC: Bureau of Justice Statistics; 2003.

2. Pettit B, Western B. Mass imprisonment and the life course: race and class inequality in US incarceration. *Am Sociol Rev*. 2004;69(2):151–169.
3. Western B. *Punishment and Inequality in America*. New York, NY: Russell Sage Foundation; 2006.
4. Massoglia M, Pridemore WA. Incarceration and health. *Annu Rev Sociol*. 2015;41(1):291–310.
5. Wildeman C, Wang EA. Mass incarceration, public health, and widening inequality in the USA. *Lancet*. 2017;389(10077): 1464–1474.
6. Lee H, McCormick T, Hicken MT, et al. Racial inequalities in connectedness to imprisoned individuals in the United States. *Du Bois Rev*. 2015;12(2):269–282.
7. Wildeman C. Parental imprisonment, the prison boom, and the concentration of childhood disadvantage. *Demography*. 2009; 46(2):265–280.
8. Murray J, Farrington DP, Sekol I. Children's antisocial behavior, mental health, drug use, and educational performance after parental incarceration: a systematic review and meta-analysis. *Psychol Bull*. 2012;138(2):175–210.
9. Foster H, Hagan J. Punishment regimes and the multilevel effects of parental incarceration: intergenerational, intersectional, and interinstitutional models of social inequality and systemic exclusion. *Annu Rev Sociol*. 2015;41(1):135–158.
10. Hagan J, Dinovitzer R. Collateral consequences of imprisonment for children, communities and prisoners. In: Tonry M, Petersilla J, eds. *Crime and Justice: A Review of Research, Vol 26*. Chicago, IL: University of Chicago Press; 1999:121–162.
11. Johnson EI, Easterling B. Understanding unique effects of parental incarceration on children: challenges, progress, and recommendations. *J Marriage Fam*. 2012;74(2):342–356.
12. Travis J, Western B, Redburn S, eds. *The Growth of Incarceration in the United States: Exploring Causes and Consequences*. Washington, DC: The National Academies Press; 2014.
13. Wildeman C, Wakefield S, Turney K. Misidentifying the effects of parental incarceration? A comment on Johnson and Easterling (2012). *J Marriage Fam*. 2013;75(1):252–258.
14. Stuckler D, Basu S, McKee M, et al. Mass incarceration can explain population increases in TB and multidrug-resistant TB in European and central Asian countries. *Proc Natl Acad Sci USA*. 2008;105(36):13280–13285.
15. Wildeman C. Incarceration and population health in wealthy democracies. *Criminology*. 2016;54(2):360–382.
16. Dumont DM, Wildeman C, Lee H, et al. Incarceration, maternal hardship, and perinatal health behaviors. *Matern Child Health J*. 2014;18(9):2179–2187.
17. Clarke JG, Adashi EY. Perinatal care for incarcerated patients: a 25-year-old woman pregnant in jail. *JAMA*. 2011;305(9): 923–929.
18. Kelsey CM, Medel N, Mullins C, et al. An examination of care practices of pregnant women incarcerated in jail facilities in the United States. *Matern Child Health J*. 2017;21(6):1260–1266.
19. Ferszt GG, Clarke JG. Health care of pregnant women in US state prisons. *J Health Care Poor Underserved*. 2012;23(2): 557–569.
20. Wildeman C. Imprisonment and infant mortality. *Soc Probl*. 2012;59(2):228–257.
21. Wildeman C, Andersen SH, Lee H, et al. Parental incarceration and child mortality in Denmark. *Am J Public Health*. 2014; 104(3):428–433.
22. Turney K. Stress proliferation across generations? Examining the relationship between parental incarceration and childhood health. *J Health Soc Behav*. 2014;55(3):302–319.
23. Lee RD, Fang X, Luo F. The impact of parental incarceration on the physical and mental health of young adults. *Pediatrics*. 2013;131(4), e1188–e1195.
24. Lee RD, Fang X, Luo F. Parental incarceration and social exclusion: long-term implications for the health and well-being of vulnerable children in the United States. *Res Econ Inequal*. 2016;24:215–234.
25. Binswanger IA, Stern MF, Deyo RA, et al. Release from prison —a high risk of death for former inmates. *N Engl J Med*. 2007; 356(2):157–165.
26. Massoglia M. Incarceration as exposure: the prison, infectious disease, and other stress-related illnesses. *J Health Soc Behav*. 2008;49(1):56–71.
27. Schnittker J, Massoglia M, Uggen C. Out and down: incarceration and psychiatric disorders. *J Health Soc Behav*. 2012;53(4):448–464.
28. Bureau of Justice Statistics. *Parents in Prison and Their Minor Children*. Washington, DC: Bureau of Justice Statistics; 2008.
29. Geller A, Cooper CE, Garfinkel I, et al. Beyond absenteeism: father incarceration and child development. *Demography*. 2012;49(1):49–76.
30. Boch SJ, Ford JL. C-reactive protein levels among US adults exposed to parental incarceration. *Biol Res Nurs*. 2015;17(5): 574–584.
31. Roettger ME, Boardman JD. Parental incarceration and gender-based risks for increased body mass index: evidence from the National Longitudinal Study of Adolescent Health in the United States. *Am J Epidemiol*. 2012;175(7):636–644.
32. Turney K. Paternal incareration and children's food insecurity: a consideration of variation and mechanisms. *Soc Serv Rev*. 2015;89(2):335–367.
33. Wildeman C. Paternal incarceration and children's physically aggressive behaviors: evidence from the fragile families and child wellbeing study. *Soc Forces*. 2010;89(1):285–309.
34. Geller A, Garfinkel I, Cooper CE, et al. Parental incarceration and child wellbeing: implications for urban families. *Soc Sci Q*. 2009;90(5):1186–1202.
35. Turney K. The consequences of paternal incarceration for maternal neglect and harsh parenting. *Soc Forces*. 2014;92(4): 1607–1636.
36. Wakefield S, Wildeman C. Mass imprisonment and racial disparities in childhood behavioral problems. *Criminol Public Policy*. 2011;10(3):793–817.
37. Wildeman C, Turney K. Positive, negative, or null? The effects of maternal incarceration on children's behavioral problems. *Demography*. 2014;51(3):1041–1068.
38. Link BG, Phelan J. Social conditions as fundamental causes of disease. *J Health Soc Behav*. 1995;(Spec No):80–94.
39. Phelan JC, Link BG. Controlling disease and creating disparities: a fundamental cause perspective. *J Gerontol B Psychol Sci Soc Sci*. 2005;60(Spec No 2):S27–S33.
40. Lleras-Muney A. The relationship between education and adult mortality in the United States. *Rev Econ Stud*. 2005;72(1): 189–221.
41. Pecora PJ, White CR, Jackson LJ, et al. Mental health of current and former recipients of foster care: a review of recent studies in the USA. *Child Fam Soc Work*. 2009;14(2):132–146.
42. Bruskas D. Children in foster care: a vulnerable population at risk. *J Child Adolesc Psychiatr Nurs*. 2008;21(2):70–77.
43. Haskins AR. Unintended consequences: effects of paternal incarceration on child school readiness and later special education placement. *Sociol Sci*. 2014;1:141–158.
44. Turney K, Haskins AR. Falling behind? Children's early grade retention after paternal incarceration. *Sociol Educ*. 2014;87(4): 241–258.

45. Foster H, Hagan J. The mass incarceration of parents in America: issues of race/ethnicity, collateral damage to children, and prisoner reentry. *Ann Am Acad Pol Soc Sci*. 2009; 623(1):179–194.
46. Hagan J, Foster H. Intergenerational educational effects of mass imprisonment in America. *Sociol Educ*. 2012;85(3):259–286.
47. Hagan J, Foster H. Children of the American prison generation: student and school spillover effects of incarcerating mothers. *Law Soc Rev*. 2012;46(1):37–69.
48. Cho RM. The impact of maternal imprisonment on children's educational achievement: results from children in Chicago public schools. *J Hum Resour*. 2009;44(3):772–797.
49. Cho RM. Impact of maternal imprisonment on children's probability of grade retention. *J Urban Econ*. 2009;65(1):11–23.
50. Berger LM, Cancian M, Cuesta L, et al. Families at the intersection of the criminal justice and child protective services systems. *Ann Am Acad Pol Soc Sci*. 2016;665(1):171–193.
51. Johnson EI, Waldfogel J. Parental incarceration: recent trends and implications for child welfare. *Soc Serv Rev*. 2002;76(3): 460–479.
52. US Government Accountability Office. *Child Welfare: More Information and Collaboration Could Promote Ties Between Foster Care Children and Their Incarcerated Parents*. Washington, DC: US Government Accountability Office; 2011. https://www.gao.gov/assets/590/585386.pdf. Accessed September 15, 2017.
53. US Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families Children's Bureau. *The AFCARS Report: Preliminary FY 2011 Estimates as of July 2012. No. 19*. https://www.acf.hhs.gov/sites/default/files/cb/afcarsreport19.pdf. Published July 2012. Accessed September 15, 2017.
54. Swann CA, Sylvester MS. The foster care crisis: what caused caseloads to grow? *Demography*. 2006;43(2):309–335.
55. Shaw TV, Bright CL, Sharpe TL. Child welfare outcomes for youth in care as a result of parental death or parental incarceration. *Child Abuse Negl*. 2015;42:112–120.
56. Andersen SH, Wildeman C. The effect of paternal incarceration on children's risk of foster care placement. *Soc Forces*. 2014;93(1):269–298.
57. Hagan J, Palloni A. The social reproduction of a criminal class in working-class London, circa 1950–1980. *AJS*. 1990;96(2): 265–299.
58. Sampson RJ, Laub JH. *Crime in the Making: Pathways and Turning Points Through Life*. Cambridge, MA: Harvard University Press; 1993.
59. Roettger ME, Swisher RR, Kuhl DC, et al. Paternal incarceration and trajectories of marijuana and other illegal drug use from adolescence into young adulthood: evidence from longitudinal panels of males and females in the United States. *Addiction*. 2011;106(1):121–132.
60. Porter LC, King RD. Absent fathers or absent variables? A new look at paternal incarceration and delinquency. *J Res Crime Delinq*. 2015;52(3):414–443.
61. Roettger ME, Swisher RR. Association of fathers' history of incarceration with sons' delinquency and arrest among Black, White, and Hispanic males in the United States. *Criminology*. 2011;49(4):1109–1147.
62. Murray J, Loeber R, Pardini D. Parental involvement in the criminal justice system and the development of youth theft, marijuana use, depression, and poor academic performance. *Criminology*. 2012;50(1):255–302.
63. Huebner BM, Gustafson R. The effect of maternal incarceration on adult offspring involvement in the criminal justice system. *J Crim Justice*. 2007;35(3):283–296.
64. Wildeman C, Andersen SH. Paternal incarceration and children's risk of being charged by early adulthood. *Criminology*. 2017;55(1):32–58.
65. Murray J, Farrington DP. Parental imprisonment: effects on boys' antisocial behaviour and delinquency through the life-course. *J Child Psychol Psychiatry*. 2005;46(12):1269–1278.
66. Foster H, Hagan J. Incarceration and intergenerational social exclusion. *Soc Probl*. 2007;54(4):399–433.
67. Hammett TM. HIV/AIDS and other infectious diseases among correctional inmates: transmission, burden, and an appropriate response. *Am J Public Health*. 2005;96(6):974–978.
68. Johnson RC, Raphael S. The effects of male incarceration dynamics on acquired immune deficiency syndrome infection rates among African American women and men. *J Law Econ*. 2009;52(2):251–293.
69. Arditti JA. Child trauma within the context of parental incarceration: a family process perspective. *J Fam Theory Rev*. 2012;4(3):181–219.
70. Comfort M. Punishment beyond the legal offender. *Annu Rev Law Soc Sci*. 2007;3(1):271–296.
71. Braman D. *Doing Time on the Outside: Incarceration and Family Life in Urban America*. Ann Arbor, MI: University of Michigan Press; 2004.
72. Geller A, Garfinkel I, Western B. Paternal incarceration and support for children in fragile families. *Demography*. 2011; 48(1):25–47.
73. Schwartz-Soicher O, Geller A, Garfinkel I. The effect of paternal incarceration on material hardship. *Soc Serv Rev*. 2011;85(3):447–473.
74. Turney K, Schneider D. Incarceration and household asset ownership. *Demography*. 2016;53(6):2075–2103.
75. Wildeman C. Parental incarceration, child homelessness, and the invisible consequences of mass imprisonment. *Ann Am Acad Pol Soc Sci*. 2014;651(1):74–96.
76. Lopoo LM, Western B. Incarceration and the formation and stability of marital unions. *J Marriage Fam*. 2005;67(3):721–734.
77. Turney K. The intergenerational consequences of mass incarceration: implications for children's co-residence and contact with grandparents. *Soc Forces*. 2014;93(1):299–327.
78. Turney K, Wildeman C. Redefining relationships: explaining the countervailing consequences of paternal incarceration for parenting. *Am Sociol Rev*. 2013;78(6):949–979.
79. Wildeman C, Schnittker J, Turney K. Despair by association? The mental health of mothers with children by recently incarcerated fathers. *Am Sociol Rev*. 2012;77(2):216–243.
80. Turney K. The unequal consequences of mass incarceration for children. *Demography*. 2017;54(1):361–389.
81. Massoglia M, Remster B, King RD. Stigma or separation? Understanding the incarceration-divorce relationship. *Soc Forces*. 2011;90(1):133–155.
82. Pager D. The mark of a criminal record. *Am J Sociol*. 2003; 108(5):937–975.
83. Pager D. *Marked: Race, Crime, and Finding Work in the Era of Mass Incarceration*. Chicago, IL: The University of Chicago Press; 2007.
84. Schnittker J, John A. Enduring stigma: the long-term effects of incarceration on health. *J Health Soc Behav*. 2007;48(2):115–130.
85. Dallaire DH, Ciccone A, Wilson LC. Teachers' experiences with and expectations of children with incarcerated parents. *J Appl Dev Psychol*. 2010;31(4):281–290.
86. Wildeman C, Scardamalai K, Walsh EG, et al. Paternal incarceration and teachers' expectations of students. *Socius*. 2017;3:1–14.
87. Phillips SD, Gates T. A conceptual framework for understanding the stigmatization of children of incarcerated parents. *J Child Fam Stud*. 2011;20(3):286–294.

88. Turanovic JJ, Rodriguez N, Pratt TC. The collateral consequences of incarceration revisited: a qualitative analysis of the effects of caregivers of children of incarcerated parents. *Criminology*. 2012;50(4):913–959.
89. Siegel JA. *Disrupted Childhoods: Children of Women in Prison*. New Brunswick, NJ: Rutgers University Press; 2011.
90. Wakefield S, Wildeman C. *Children of the Prison Boom: Mass Incarceration and the Future of American Inequality*. New York, NY: Oxford University Press; 2014.
91. Wakefield S, Lee H, Wildeman C. Tough on crime, tough on families? Criminal justice and family life in America. *Ann Am Acad Pol Soc Sci*. 2016;665(1):8–21.
92. Turney K, Wildeman C. Detrimental for some? Heterogeneous effects of maternal incarceration on child wellbeing. *Criminol Public Policy*. 2015;14(1):125–156.
93. Haskins AR. Beyond boys' bad behavior: paternal incarceration and cognitive development in middle childhood. *Soc Forces*. 2016;95(2):861–892.
94. Wildeman C. Imprisonment and (inequality in) population health. *Soc Sci Res*. 2012;41(1):74–91.
95. Wildeman C. Mass parental imprisonment, social policy, and the future of inequality in America. In: Eddy JM, Poehlmann J, eds. *Children of Incarcerated Parents: A Handbook for Researchers and Practitioners*. Washington, DC: Urban Institute Press; 2010:303–317.
96. Murray J, Bijleveld CCJH, Farrington DP, et al. *Effects of Parental Incarceration on Children: Cross-National Comparative Studies*. Washington, DC: American Psychological Association; 2014.
97. Gilbert R, Widom CS, Browne K, et al. Burden and consequences of child maltreatment in high-income countries. *Lancet*. 2009;373(9657):68–81.
98. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258.