

Murray, J., & Farrington, D. P. (2008). The effects of parental imprisonment on children. In M. Tonry (Ed.), *Crime and justice: A review of research* (Vol. 37, pp. 133-206). Chicago, IL: University of Chicago Press.

*Joseph Murray and David P. Farrington*

# The Effects of Parental Imprisonment on Children

## ABSTRACT

The number of children experiencing parental imprisonment is increasing in Western industrialized countries. Parental imprisonment is a risk factor for child antisocial behavior, offending, mental health problems, drug abuse, school failure, and unemployment. However, very little is known about whether parental imprisonment causes these problems. Parental imprisonment might cause adverse child outcomes because of the trauma of parent-child separation, stigma, or social and economic strain. Children may have worse reactions to parental imprisonment if their mother is imprisoned or if parents are imprisoned for longer periods of time or in more punitive social contexts. Children should be protected from harmful effects of parental imprisonment by using family-friendly prison practices, financial assistance, parenting programs, and sentences that are less stigmatizing for offenders and their families.

Children of prisoners have been called the “forgotten victims” of crime (Matthews 1983), the “orphans of justice” (Shaw 1992*a*), the “hidden victims of imprisonment” (Cunningham and Baker 2003), “the Cinderella of penology” (Shaw 1987, p. 3), and the “unseen victims of the prison boom” (Petersilia 2005, p. 34). Given the strong evidence that crime runs in families (Farrington, Barnes, and Lambert 1996; Farrington et al. 2001), the long interest in “broken homes” and crime (Bowlby 1946; McCord, McCord, and Thurber 1962; Juby and Farrington 2001), and the large increase in rates of imprisonment in West-

Joseph Murray is a British Academy Postdoctoral Fellow at the Institute of Criminology and research fellow, Darwin College, University of Cambridge. David P. Farrington is professor of psychological criminology at the Institute of Criminology, University of Cambridge. We thank Terrie Moffitt, Friedrich Lösel, Christopher Wildeman, Martin Killias, Christopher Mumola, Marc Mauer, Holly Foster, and Michael Tonry for helpful comments, and Henara Costa for help producing the essay.

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0192-3234/2008/0037-0002\$10.00

ern industrialized countries, especially in the United States and the United Kingdom (Walmsley 2005), it is surprising that researchers and policy makers have largely neglected to consider the effects of parental imprisonment on children. As Shaw (1987) pointed out over 20 years ago, if we do not attend to the effects of imprisonment on children, we run the risk of punishing innocent victims, neglecting a seriously at-risk group, and possibly causing crime in the next generation.

Tonry and Petersilia (1999) argued that there are six kinds of collateral effects of imprisonment that should be studied: effects on prisoners while confined in prison, effects on prisoners' relationships and employment after release, effects on their physical and mental health, effects on ex-prisoners' criminal behavior, effects on prisoners' spouses or partners and their children, and effects of imprisonment on the larger community. Although only the first kind of collateral effect has a sizable literature, research is emerging on the collateral effects of imprisonment on employment (Fagan and Freeman 1999; Western, Kling, and Weiman 2001; Western 2002) and on the social fabric of communities (Clear, Rose, and Ryder 2001; Rose and Clear 2003; Lynch and Sabol 2004; Clear 2007). In some cases, research on the effects of imprisonment on prisoners has led to policy change. For example, awareness of increasing suicide rates in prisons generated large-scale research projects on this topic and implementation of improved suicide prevention strategies (Liebling 1999). The effects of imprisonment on children deserve similar research attention and large-scale programs to support this vulnerable population.

In volume 26 of *Crime and Justice*, Hagan and Dinovitzer (1999) reviewed theories about why imprisonment might harm families and communities and summarized some of the empirical research on these topics. They argued that the effects of parental imprisonment on children "may be the least understood and most consequential implication of the high reliance on incarceration in America" (Hagan and Dinovitzer 1999, p. 122). This essay builds upon their work by thoroughly evaluating the empirical evidence on the effects of parental imprisonment on children. In this essay, we investigate four key questions: Is parental imprisonment associated with adverse outcomes for children? Does parental imprisonment cause adverse outcomes for children? Why might parental imprisonment cause adverse outcomes for children? Why do some children have poor outcomes following parental imprisonment while others do not?

Unfortunately, there is little high-quality evidence on these topics, reflecting a lack of academic and public interest in the plight of prisoners' children (by contrast, see the extensive research on children of divorce; Amato and Keith 1991; Rodgers and Pryor 1998; Emery 1999). Where possible, we review evidence from large-scale longitudinal surveys. To provide further evidence of this type we present new results from the Cambridge Study in Delinquent Development. Where large-scale surveys are lacking, we review results from smaller-scale exploratory studies of prisoners' children and propose hypotheses that should be tested in future research.

We conclude that parental imprisonment is a strong risk factor (and possible cause) for a range of adverse outcomes for children, including antisocial behavior, offending, mental health problems, drug abuse, school failure, and unemployment. Parental imprisonment might cause these outcomes through several processes: the trauma of parent-child separation, children being made aware of their parent's criminality, family poverty caused by the imprisonment, strained parenting by remaining caregivers, stigma, and stresses involved in maintaining contact with the imprisoned parent. However, there is little empirical evidence on the importance of these mechanisms.

Children may be more affected by parental imprisonment if their mother is imprisoned, if parents are imprisoned more frequently or for longer periods of time, and if parents are imprisoned in more punitive conditions. Children may be protected from harmful effects of parental imprisonment by having stable caregiving arrangements, by their families receiving social and economic support, and by living in places with more sympathetic public attitudes toward crime and punishment. Programs that might prevent adverse outcomes for children of prisoners include provision of financial assistance, social support, parenting programs, improved prison visiting procedures, and alternative forms of punishment such as community service and day fines. Large-scale research projects are needed to advance knowledge about the effects of parental imprisonment on children.

This essay is organized as follows: Section I defines key terms; estimates the number of children with imprisoned parents in the United States, England, and Wales; and describes criteria for inclusion of studies in this review. Sections II, III, and IV examine the associations between parental imprisonment and child antisocial behavior, mental health problems, and other adverse outcomes, respectively. Section V

examines whether parental imprisonment is a cause of adverse outcomes for children, and Section VI examines theories about why parental imprisonment might cause adverse outcomes for children. Section VII examines moderating factors that might influence the relationship between parental imprisonment and child outcomes. Section VIII offers policy and research recommendations.

### I. Introduction

Before examining the effects of parental imprisonment on children, we define parental imprisonment and child outcomes, summarize what is known about the numbers of children experiencing parental imprisonment in the United States and in England and Wales, and describe how we selected studies for examination.

We use the term *parental imprisonment* to refer to custodial confinement of a parent in jails or prisons (state or federal in the United States) or open or closed prisons (local or training in the United Kingdom). We are primarily concerned with the environmental effects of parental imprisonment on children. Therefore, we focus on parental imprisonment occurring during childhood (as opposed to parental imprisonment occurring before children's births). We discuss the effects of different types of imprisonment, for example, maternal versus paternal imprisonment, in Section VII.

We examine child outcomes that occur during parental imprisonment and also later in life. We review three types of adverse outcomes that may follow parental imprisonment: antisocial and delinquent behavior, mental health problems, and other adverse outcomes (alcohol and drug abuse, school failure, and unemployment). Antisocial behavior refers to a wide variety of behaviors that violate societal norms and laws (Rutter, Giller, and Hagell 1998). The main mental health outcomes investigated are anxiety and depression, but we also consider the effects of parental imprisonment on neurosis (general emotional distress) and low self-esteem.

#### *A. Size of the Problem*

With unprecedented numbers of people being sent to prison in Western industrialized countries, such as the United States and the United Kingdom, it is likely that unprecedented numbers of children are experiencing parental imprisonment. The number of children ex-

periencing parental imprisonment can be counted in two ways. The first is to count how many children have a parent in prison at one point in time, which is called the *point prevalence*. This reflects the daily prison population. The second is to count how many children have a parent imprisoned at some stage during a period of time, which is called the *cumulative prevalence*. This reflects the population of prison receptions. We review here what is known about the point prevalence and cumulative prevalence of children experiencing parental imprisonment in the United States and in England and Wales.<sup>1</sup>

1. *Point Prevalence.* In the United States, national inmate surveys have been conducted every 5 years since 1974, providing information about the number of children with a parent in prison at particular times (Johnson and Waldfogel 2004). In an important study, Mumola (2000) used data from the 1997 Survey of Inmates in State and Federal Correctional Facilities to calculate the number of children of prisoners in the United States at the end of 1999. He estimated that there were 1.5 million children with an imprisoned parent (2.1 percent of the nation's children under age 18), over half a million more than in 1991. Between 1991 and 1999, the number of children with a mother in prison nearly doubled (up 98 percent), while the number of children with a father in prison grew by 58 percent. Nevertheless, in 1999, the vast majority (92 percent) of children with an imprisoned parent had a father in prison. Parental imprisonment disproportionately affected ethnic minorities. Black children (7.0 percent) were nearly nine times more likely than white children (0.8 percent) to have a parent in a state or federal prison. Hispanic children (2.6 percent) were three times more likely than white children to have a parent in prison.

In England and Wales, the last National Prison Survey was conducted in 1991. It showed that 32 percent of male prisoners and 47 percent of female prisoners had dependent children living with them before coming to prison (Dodd and Hunter 1992), although data were not collected on the numbers of children. We are not aware of up-to-date estimates of the point prevalence of children with imprisoned parents in England and Wales. However, we estimate that roughly 88,000

<sup>1</sup> For data on other jurisdictions, see Cunningham and Baker (2004) on Canada; Quilty et al. (2004) on Australia; and the European Action Research Committee on the Children of Imprisoned Parents (1996) on seven other European countries.

children under age 18 (0.8 percent of the population) had a parent in prison in England and Wales in midyear 2006.<sup>2</sup>

2. *Cumulative Prevalence.* The number of children experiencing parental imprisonment may be underestimated because very little is known about the occurrence of parental imprisonment over time. We are not aware of any evidence-based statistics on the cumulative prevalence of children experiencing parental imprisonment in the United States. In England and Wales, it is often stated that between 125,000 and 150,000 children experience parental imprisonment each year (Ramsden 1998, p. 12; Home Secretary, Lord Chancellor, and Attorney General 2002, p. 85; Social Exclusion Unit 2002, p. 111; H. M. Treasury 2003, p. 43). However, only two small-scale surveys provide relevant evidence. Twenty years ago, Shaw (1987) estimated that 100,000 children experienced paternal imprisonment each year in England and Wales, based on a survey of 415 men arriving at Leicester prison. Recently, Murray (2007) estimated that approximately 127,000 (95 percent confidence interval equals 103,000–151,000) children under age 18 experience parental imprisonment each year in England and Wales, based on a survey of 150 men arriving at Bedford prison and data from a Home Office survey of imprisoned women (Caddle and Crisp 1997). The proportion of children who experience parental imprisonment at some stage between their birth and their eighteenth birthday is not known.

In summary, the number of children experiencing parental imprisonment is increasing, especially in the United States. Large-scale surveys should be conducted to estimate accurately the point prevalence and cumulative prevalence of children experiencing parental imprisonment, to ensure that there are adequate services to support them.

### *B. Criteria for Including Studies in This Review*

The main aim of this essay is to investigate the possible causal effects of parental imprisonment on children. A first step toward investigating this is to establish whether parental imprisonment is associated with child outcomes. If there is no association, it is unlikely that parental imprisonment causes child outcomes. Therefore, we first review evidence on the associations between parental imprisonment and child

<sup>2</sup> This is based on the number of children under age 18 in England and Wales midyear 2006 (Office of National Statistics 2007), the number of prisoners in England and Wales in June 2006 (Home Office 2007), and estimates that imprisoned men have, on average, 1.15 children (Murray 2007) and imprisoned women have, on average, 1.36 children (2,168 children/1,599 women; Caddle and Crisp 1997).

outcomes. To test for an association, rates of the outcome must be compared between children of prisoners and a suitable control group.

To make this comparison, three things are required. First, there must be a control group. The study must include children of prisoners and at least one group of children without imprisoned parents (preferably drawn from the general population of the same age as the children of prisoners). Second, the study must use a consistent measure of the child outcome. The same measure should be used for children of prisoners and controls. Third, effect sizes must be reported, or enough numerical information to calculate effect sizes, and, ideally, significance levels.

These requirements were set as minimum criteria for including studies in the first sections of this review. Ideally, further criteria might have been used to include only studies with high methodological quality. Additional criteria might have included the use of well-validated measures (to increase construct validity), appropriate statistical tests (to increase statistical conclusion validity), a quasi-experimental design (to increase internal validity), or appropriate sampling strategies (to increase external validity; Shadish, Cook, and Campbell 2002; Farrington 2003*b*). However, because setting additional selection criteria would have excluded nearly all studies of prisoners' children from our analysis, we did not do this. Instead, we discuss the methodological limitations of existing studies and requirements for improved future research.

We cannot claim to have conducted an exhaustive systematic review of studies of prisoners' children, which would have required searching all major abstracting systems and thousands of references. However, we did search key books and articles (e.g., Shaw 1992*b*; Gabel and Johnston 1995; Johnston 1995; Hagan and Dinovitzer 1999; Travis and Waul 2003*b*; Pattillo, Weiman, and Western 2004) and electronic databases, including PsychInfo, Criminal Justice Abstracts, and Web of Science (using the keywords prison, incarceration, jail, mother, father, parent, and child), and we examined over 150 full-text articles on parental imprisonment to identify studies relevant to this review.

Sometimes a study used more than one measure of a child outcome. For example, arrest records and conviction records might both have been used to assess criminal behavior. In general, we only report results for one measure of a child outcome in each study. We chose measures that were taken a long time after parental imprisonment in preference to measures taken soon after parental imprisonment, in order to examine more serious, long-lasting effects of parental imprisonment. We

chose clinical measures (e.g., of depression) over subclinical measures (e.g., of dysthymia), because they are more valid. In order to increase sensitivity of measurement, we chose more general measures of outcomes (e.g., arrests for any crime) over more specific measures (e.g., arrests for violent crimes). We chose measures with higher response rates over measures with lower response rates, because results based on higher response rates are more generalizable.

Because we only review studies that include control groups, standard measures, and numeric information, several important qualitative studies of children of prisoners are excluded from Sections II–V (e.g., Zalba 1964; Sack, Seidler, and Thomas 1976; Baunach 1985; Skinner and Swartz 1989; Kampfner 1995; Boswell and Wedge 2002; Braman 2004; Bernstein 2005). These studies are important because they provide qualitative accounts of how some children experience parental imprisonment and suggest possible mechanisms by which parental imprisonment might affect children. We use these studies to inform our discussion of mediators and moderators in Sections VI and VII.

## II. Effects on Child Antisocial Behavior

It is frequently claimed that children of prisoners are five to six times more likely than their peers to be convicted or imprisoned (Jacobs 1995, p. 3; Moses 1995, p. 3; Hagan and Dinovitzer 1999, pp. 146–47; Simmons 2000, p. 6; Springer, Lynch, and Rubin 2000, p. 431; Van Wormer and Bartollas 2000, p. 60; Petersilia 2003, p. 8). However, after attempting to trace the sources of these claims, we did not find evidence to support them. In this section, we review evidence on the strength of association between parental imprisonment and child antisocial behavior. From the results of several prospective longitudinal studies we conclude that children of prisoners have about three times the risk for antisocial behavior compared to their peers.

### *A. Review of 11 Prior Studies*

Eleven prior studies of the antisocial behavior of prisoners' children included control groups, standard measures, and numeric information for calculating an effect size. We summarize these studies in the text below and in table 1. We categorize the studies into three groups. The first group (general population studies) used samples drawn from general populations of children. In most cases these studies used a pro-



spective longitudinal design. These studies provide the best evidence on the association between parental imprisonment and child outcomes. The second group (studies with matched control groups) used control groups who were at risk for reasons other than parental imprisonment (e.g., children separated from parents because of parental divorce). Most of these studies used cross-sectional designs (in which child outcomes were assessed while parents were in prison) or retrospective designs (in which parental imprisonment was measured retrospectively at the time of outcome assessment). These studies may underestimate the association between parental imprisonment and child outcomes, because control groups were at risk for other reasons. However, they can be useful for evaluating causal hypotheses about the effects of parental imprisonment on children (see Sec. V). The third group (clinic and court-based studies), which used retrospective designs, recruited children of prisoners and controls at clinics or courts. Findings from these studies are the most difficult to interpret, because children at clinics and courts are likely to have higher rates of problem behavior than other children. Although we note the limitations of these studies for the present purposes, this does not necessarily imply that the original study designs were weak, as sometimes they were conducted with other aims.

For each study we calculated a standardized effect size (the odds ratio [OR]) to summarize the strength of the association between parental imprisonment and child antisocial behavior. Odds ratios are interpretable as the increase in the odds of an outcome associated with parental imprisonment.<sup>3</sup> Conventionally, an odds ratio of 2.0 or greater is considered to indicate a strong relationship between a risk factor and an outcome (Cohen 1996).

<sup>3</sup> Odds ratios are calculated from  $2 \times 2$  contingency tables using the following formula:

	No Outcome	Outcome
Nonrisk category	<i>a</i>	<i>b</i>
Risk category	<i>c</i>	<i>d</i>

$$\text{OR} = \frac{\text{odds of outcome in risk category}}{\text{odds of outcome in nonrisk category}} = \frac{d/c}{b/a} = (a \times d)/(b \times c).$$

TABLE 1  
Previous Studies of Parental Imprisonment and Child Antisocial Behavior

Study	Study Design	Imprisoned Parents	Children (Age at Outcome)	Controls Matched	Outcome Measure	Effect Size: OR (95% CI)
Huebner and Gustafson (2007), United States	General population: prospective	Mothers (any imprisonment 1979–2000)	E = 31 C = 1,666 (aged 18–24)	Mother's age	Convicted between 1994 and 2000 (self-report)	3.1* (1.4, 7.1) <sup>a</sup>
Murray, Janson, and Farrington (2007), Stockholm, Sweden	General population: prospective	Primarily fathers (any imprisonment, child aged 0–19)	E = 283 C = 14,589 (aged 30)	Child age, city of residence	Offended 19–30 (official records)	2.4* (1.9, 3.2)
Bor, McGee, and Fagan (2004), Australia	General population: prospective	Mothers' current partners (any imprisonment, up to child age 5)	E = 265 C = 4,591 (aged 14)	Child age	Delinquency (mother rating)	1.3* <sup>b</sup>
Kandel et al. (1988), Denmark	General population: retrospective	Fathers (imprisoned at any time)	E = 92 C = 513 (aged 35)	Child age <sup>c</sup>	Jailed plus one additional offense (official records)	8.5* (5.0, 14.6) <sup>a</sup>
Moerk (1973), probably United States	Matched control: retrospective	Fathers (imprisoned for at least one month after birth of child)	E = 24 C = 24 (aged 11–20)	Father absence (divorce), SES, ethnicity, age at separation, age at study	Behavior problems (mother rating)	.8 (.3, 2.7) <sup>d</sup>
Stanton (1980), California, United States	Matched control: cross-sectional	Mothers (in county jails)	E = 22 C = 18 (aged 4–18)	Maternal criminality (probation)	Poor behavior in school (teacher rating)	3.5 (.9, 14.1) <sup>a</sup>

	Matched control: prospective	Mothers (in county jails)	E = 24 C = 17 (aged 4–18)	Maternal criminality (probation)	Trouble with police/ school /neighbors (mother rating)	2.3 (.6, 9.3) <sup>a</sup>
Trice and Brewster (2004), Virginia, United States	Matched control: cross-sectional	Mothers (in state prisons)	E = 47 C = 41 (aged 13–20)	Controls were best friends of prisoners’ children	Arrested (guardian report)	3.0* (1.1, 8.7) <sup>d</sup>
Dannerbeck (2005), Missouri, United States	Court-based: retrospective	Mothers and fa- thers (ever imprisoned)	E = 346 C = 766 (age not known)	Both groups were “ad- judicated youths”	Prior referral to court (self-report and official records)	2.2* (1.6, 3.0) <sup>a</sup>
Gabel and Shindle- decker (1993), New York, United States	Clinic-based: retrospective	Mothers and fa- thers (ever imprisoned)	E = 11 C = 20 (aged 6–12)	Both groups attended day hospital	Externalizing problems (teacher rating) Delinquency (teacher rating)	2.3 (.6, 8.9) <sup>e</sup> 3.3 (.8, 13.0) <sup>e</sup>
Bryant and Rivard (1995), South Carolina, United States	Clinic-based: retrospective	Mothers and fa- thers (no details)	E = 66 C = 114 (aged 5–17)	Both groups were cli- ents of social services and clinics for emo- tional disturbance	Offended (official records)	1.9* (1.0, 3.5) <sup>d</sup>
Phillips et al. (2002), Arkansas and Texas, United States	Clinic-based: retrospective	Mothers and fa- thers (ever in any jail/prison)	E = 98 C = 146 (aged 11–18)	Both groups attended mental health clinics	Conduct disorder (clini- cal diagnosis)	1.9* (1.1, 3.2) <sup>d</sup>

NOTE.—E = children of prisoners; C = controls; OR = odds ratios; 95 percent CI = 95 percent confidence interval around odds ratios; SES = socioeconomic status.

<sup>a</sup> Our calculation of odds ratios from contingency tables.

<sup>b</sup> Our calculation of odds ratios from  $r$ .

<sup>c</sup> Fathers of controls had no criminal record.

<sup>d</sup> Our calculations of numbers in E and C groups and odds ratios.

<sup>e</sup> Our calculation of odds ratios from means and standard deviations.

\*  $p < .05$ .

1. *General Population Studies.* Huebner and Gustafson (2007) compared rates of adult offending behavior of 31 children whose mothers had been imprisoned and 1,666 children whose mothers had not been imprisoned, in the National Longitudinal Survey of Youth (United States). This survey is a nationally representative, prospective longitudinal study of males and females who were aged 14–22 in 1979 (Center for Human Resource Research 2006). Mothers in this survey were disproportionately young, economically disadvantaged, and of minority race. Maternal imprisonment was measured in annual interviews with the mothers from 1979 to 1994 and in biannual interviews from 1996 to 2000. This measure is likely to exclude occasions of short-term imprisonment (under 3 months) and occasions of imprisonment occurring between interviews (Huebner and Gustafson 2007). In 2000, children of the mothers were between 18 and 24 years old. Adult convictions of the children were measured using self-reports between 1994 and 2000. No adult conviction occurred before maternal imprisonment.

In Huebner and Gustafson's study, 26 percent of children with imprisoned mothers were convicted as an adult, compared with 10 percent of controls. This translates into an effect size (odds ratio) that is large (3.1) and statistically significant (95 percent confidence interval [CI] = 1.4–7.1). The main limitation of this study is that paternal imprisonment was not measured. Another limitation is that some child participants were too young (under age 18) to have been at risk when adult convictions were measured.

Murray, Janson, and Farrington (2007) compared rates of adult criminal behavior of 283 children whose parents were imprisoned and 14,589 children without imprisoned parents in Project Metropolitan (Sweden). This study is a prospective longitudinal survey of 15,117 children born in 1953 and living in Stockholm in 1963 (Janson 2000; Hodgins and Janson 2002, chaps. 2 and 3). Parental imprisonment (from the children's births until they were age 19) was measured using the criminal records of the children's parents (in nearly all cases the father). Child criminal behavior between ages 19 and 30 was measured using criminal records. Of prisoners' children, 25 percent offended as adults, compared with 12 percent of controls (OR = 2.4; CI = 1.9–3.2). The main limitation of this study is that maternal imprisonment was only measured for a small number of cases.

Bor, McGee, and Fagan (2004) compared delinquency rates of 265 children of imprisoned parents and 4,591 controls in the Mater Uni-

versity Study of Pregnancy (Australia). This study is a prospective longitudinal survey of 8,458 women who were pregnant in Australia in 1981 (Najman et al. 2005). When the children were age 5, their mothers were asked about any occasion on which their partner had been imprisoned. Therefore, parental imprisonment in this study might refer to imprisonment before the child was born and does not necessarily refer to imprisonment of the child's biological parent. Child delinquency was measured using the delinquency scale of the Child Behavior Checklist (Achenbach 1991*a*), which mothers completed when the children were age 14. Bor and colleagues (2004) reported a significant correlation ( $r = .08, p < .01$ ) between parental imprisonment and child delinquency in adolescence. This translates into a small odds ratio of 1.3 (see the appendix for calculations). No other statistics were available to calculate a confidence interval. The study has three limitations for present purposes. First, parental imprisonment may not refer to the children's parents. Second, the interview measure of parental imprisonment may be unreliable (on the discrepancy between maternal and paternal reports of paternal imprisonment, see Bendheim-Thoman Center for Research on Child Wellbeing [2002]). Third, parental imprisonment may refer to imprisonment before children's births. Therefore, the study did not necessarily measure environmental exposure of children to parental imprisonment.

Kandel and her colleagues (1988) compared criminal outcomes of 92 children whose fathers had been imprisoned and 513 children whose fathers had no criminal record. The children were born between 1936 and 1938 in Denmark and were studied in 1972. Paternal imprisonment was measured using official records and presumably refers to any imprisonment up to 1972 (although this was not stated in the study report). Child criminal behavior was measured using official records and referred to having at least one jail sentence plus an additional offense up to 1972. Of children whose fathers were imprisoned, 39 percent were imprisoned themselves, compared to 7 percent of controls. This translates into a large (8.5) and significant (CI = 5.0–14.6) odds ratio, showing a strong positive association between paternal imprisonment and children's own imprisonment. However, because the control group consisted of fathers with no criminal record, this may overestimate the association between paternal imprisonment and child criminal outcomes. Two additional limitations of this study are that the

children were not studied prospectively and the measure of paternal imprisonment was not well defined.

2. *Studies with Matched Control Groups.* Moerk (1973) compared 24 boys who experienced father absence because of paternal imprisonment with 24 boys who experienced father absence because of parental divorce (probably in the United States). Children of prisoners and controls were matched on social class, ethnicity, age at the time of separation, and age at the time of the study. No information was reported about how paternal imprisonment (or divorce) was measured or about how children were sampled for the study. Participants were assessed for “behavioral changes” in interviews with their mothers and coded “affected” or “not affected.” The behavioral outcome might only refer to antisocial behaviors, but it could also refer to other problem behaviors. No details were reported. Of boys from prisoners’ homes, 58 percent were rated as having behavior problems compared with 63 percent of boys from divorced homes (OR = 0.8; CI = 0.3–2.7).<sup>4</sup> However, children of divorce are likely to be at increased risk compared to the general population of children of that age. Therefore, using children of divorce as a comparison group is likely to underestimate the zero-order association between parental imprisonment and child behavior problems. The study has three other limitations for present purposes. The number of children studied was small, the study lacked reliable measures of parental imprisonment and child behaviors, and there was clear evidence of “fishing” in the analyses: 45 tests of statistical significance were conducted without correcting for multiple tests.

In what is considered a classic study, Stanton (1980) compared children of 54 jailed mothers and children of 21 mothers on probation (United States). The mothers had a total of 166 children, aged 4–18 years old. The children in the study had been living with their mother before her arrest. Data on the children were collected from children’s mothers, children’s outside caregivers, and children’s teachers during the mother’s imprisonment. Of 22 children with jailed mothers, 50 percent were rated by teachers as showing poor or below-average school behavior, compared to 22 percent of 18 controls (OR = 3.5; CI = 0.9–14.1). However, there are three problems with this first stage of Stanton’s study. First, the response rate of teachers was low. Second, teachers

<sup>4</sup>The table of results presented “means and frequencies” (Moerk 1973, pp. 308–9). We assume that the results for behavioral variables referred to frequencies.

might have known if children had mothers in jail, which might have influenced their ratings of child behavior. Third, children of jailed mothers were more likely than children of probation mothers (12 percent vs. 6 percent) to be absent from school (sometimes because of behavioral problems), and this might have biased the results.

Stanton also reinterviewed the mothers 1 month after their release from jail. At that time, the mothers reported on whether their children had been in trouble with the police, the school, or neighbors (although the reference period was not specified). Of 24 children of jailed mothers, 42 percent had been in trouble, compared to 24 percent of 17 children with mothers on probation (OR = 2.3; CI = 0.6–9.3). Overall, the study has four limitations for assessing the zero-order association between maternal imprisonment and child antisocial outcomes. First, using children of probation mothers as a comparison group is likely to underestimate the association between maternal imprisonment and child antisocial outcomes. Second, the number of children studied was small, and attrition was high. Third, the study used unreliable outcome measures. Fourth, four of the probation mothers in the study had previously been imprisoned, confounding the comparison between their children and the children of jailed mothers.

Trice and Brewster (2004) compared 47 adolescents whose mothers were imprisoned and 41 of the adolescents' "best friends" (United States). Children of imprisoned mothers were identified by distributing questionnaires to women in prison. Imprisoned mothers gave children's caregivers a questionnaire to fill in. Children's caregivers then gave a similar questionnaire to the parents of the child's same-sex best friend. Caregivers reported whether the student had been arrested during the previous year. Of children with imprisoned mothers, 34 percent were arrested, compared to 15 percent of their best friends (OR = 3.0; CI = 1.1–8.7). However, the children's best friends are not likely to be representative of the general population, and co-offending may have biased these results. For present purposes, there are three other limitations of this study. First, whether children in the control group had experienced parental imprisonment was not known. Second, outcomes were not measured reliably. Third, the outcome measure referred to arrests over the previous year, and it is possible that this reference period included some time before mothers were imprisoned. Therefore, the causal direction of effects is ambiguous.

3. *Studies of Children at Courts and Clinics.* Dannerbeck (2005) used

court records to compare 346 delinquent youths who had a history of parental imprisonment and 766 delinquent youths without a history of parental imprisonment (United States). Parental imprisonment was measured by criminal justice officials asking youths, "Have either of your parents ever been incarcerated in jail or prison?" Therefore, parental imprisonment did not necessarily occur during the youth's lifetime. A delinquent outcome of "prior referrals to juvenile authorities" was self-reported by youths and verified using court records. Of youths with a history of parental imprisonment, 84 percent had a prior referral, compared to 70 percent of controls (OR = 2.2; CI = 1.6–3.0). Although the sample size was large in this study, the fact that both the control group and the children of prisoners were recruited from courts makes it difficult to interpret the results. Additionally, there are three other limitations of the study for present purposes. First, the measure of parental imprisonment was self-reported by youths to criminal justice officials and may be unreliable. Second, parental imprisonment referred to any time in the past, possibly before children were born. Third, the outcome referred to events (prior delinquency referrals) that might have occurred before parental imprisonment.

Gabel and Shindledecker (1993) compared behavioral ratings of 11 children in a day hospital who had a history of parental imprisonment and 20 children in that setting who had no history of parental imprisonment (United States). Parental imprisonment "at any time in the past" was measured on the basis of interviews with children's caregivers and through "available charts" (Gabel and Shindledecker 1993, p. 657). Teachers reported child "total externalizing problems" and "delinquency" on the Achenbach Teacher Report Form (Achenbach 1991*b*), sometime between enrollment in the hospital and 1 month later.<sup>5</sup> Outcome scores were reported separately for 10 girls and 21 boys. Because of the small numbers, we pooled the scores of girls and boys. We calculated odds ratios for the associations between parental imprisonment and child outcomes for all children in the study (from the standardized mean differences; see the appendix). The odds ratio between parental imprisonment and child externalizing problems was large (2.3) but not significant (CI = 0.6–8.9). The odds ratio between parental imprisonment and child delinquency was also large (3.3) but not significant (CI = 0.8–13.0). Because samples were recruited at a hospital,

<sup>5</sup> "Externalizing problems" refer to aggressive, antisocial, and delinquent behaviors.



it is not known if the results are representative of the general population of children. The study has two other limitations for present purposes. The number of children in the study was small, and parents may have been imprisoned only before children were born.

Bryant and Rivard (1995) examined Department of Juvenile Justice records of 180 youths who were clients of social services and clinics for emotionally disturbed children (United States). They reported the relationship between parental imprisonment and youth offending. Parental imprisonment was determined from records of the two agencies where participants were clients. Details were not reported, but we assume that parental imprisonment referred to imprisonment at any time, even before children's births. Sixty-six youths had a history of parental imprisonment. The authors reported that the proportion of youths who had imprisoned parents depended on whether youths had a record of minor offending (60 percent), a record of major offending (36 percent), or no record of offending (31 percent). For present purposes, we calculated the odds ratio for youth offending (major or minor) according to whether youths' parents had been imprisoned or not. This odds ratio was quite large (1.9) and just statistically significant (CI = 1.0–3.5). As children of prisoners and controls were clients of social services and clinics for emotional disturbance, this casts doubt on the generalizability of the results. An additional limitation of the study for present purposes is that details were not given about the measurement of parental imprisonment, which might have referred to imprisonment before the children's births.

In a sample of 258 adolescents receiving routine mental health services, Phillips and her colleagues (2002) compared 98 adolescents whose mother, father, or stepparent had ever been imprisoned with 146 controls (United States). Parental imprisonment was derived from one self-report item on a questionnaire given to youths' adult caregivers. Conduct disorder was measured within one week of intake to the mental health services (baseline), using the Diagnostic Interview Schedule for Children (Shaffer et al. 2000).<sup>6</sup> Of adolescents with a history of parental imprisonment, 40 percent were diagnosed with conduct disorder, compared with 26 percent of controls (OR = 1.9; CI = 1.1–3.2). For present purposes, this study has two limitations.

<sup>6</sup> Although follow-up measures were also taken 6 months later, only results obtained at baseline are reviewed here, because follow-up results might have been influenced by the treatment received at the clinics.

The clinic sample is unlikely to be representative of the general population, and parental imprisonment might have occurred before the children's births.

*B. New Findings from the Cambridge Study in Delinquent Development*

Recently, we analyzed data collected on males in the Cambridge Study in Delinquent Development (the Cambridge Study) to assess the association between parental imprisonment and child antisocial-delinquent outcomes through the life course (Murray and Farrington 2005). The Cambridge Study is a prospective longitudinal study of 411 boys who were born in 1953 and were living in a working-class area of South London at ages 8–9 (for overviews of the study, see Farrington 1995, 2003a; Farrington et al. 2006). For the purposes of this essay, several new analyses were conducted using Cambridge Study data (see the appendix for details).

Antisocial-delinquent outcomes were compared between 23 boys who were separated because of parental imprisonment (between birth and age 10) and four control groups: boys with no history of parental imprisonment or separation from a parent by age 10, boys separated because of hospitalization or death, boys separated for other reasons (principally because of parental conflict), and boys whose parents were imprisoned only before the boy's birth. Parental imprisonment was measured using conviction records of the boys' biological mothers and fathers and social workers' records regarding imprisonment of parents on remand (for over 1 month). Antisocial-delinquent outcomes were assessed between ages 14 and 50, using self-reports of the study males, parents' reports, teachers' reports, and criminal records of the study males. We summarize here the results of comparing boys separated because of parental imprisonment and boys with no history of parental imprisonment or separation. This comparison may overestimate the zero-order association between parental imprisonment and child antisocial outcomes, because boys separated from parents for other reasons are not included in the comparison. In Sections V and VI we discuss other comparisons to consider the possible causal effects of parental imprisonment on children.

Parental imprisonment during childhood was a strong predictor of antisocial-delinquent outcomes through the life course (table 2). For example, of boys separated because of parental imprisonment, 65 percent were convicted between ages 19 and 32, compared with 21 percent of boys with no history of parental imprisonment or separation

TABLE 2  
Cambridge Study Results on Parental Imprisonment and Child Antisocial Behavior

Sons' Outcomes (Age)	History of Parental Imprisonment					Odds Ratios Comparing Prison (E) and:			
	No Prison (A): No Separation ( <i>n</i> = 227)	No Prison (B): Separated <sup>a</sup> ( <i>n</i> = 77)	No Prison (C): Separated <sup>b</sup> ( <i>n</i> = 61)	Prison (D): Pre-birth ( <i>n</i> = 17)	Prison (E): 0–10 ( <i>n</i> = 23)	No Prison (A)	No Prison (B)	No Prison (C)	No Prison (D)
Antisocial personality (14)	15.9%	15.6%	32.8%	11.8%	60.9%	8.3*	8.4*	3.2*	11.7*
Antisocial personality (18)	17.1%	15.7%	23.3%	46.7%	71.4%	12.2*	13.4*	8.2*	2.9
Antisocial personality (32)	19.1%	16.4%	29.6%	40.0%	71.4%	10.6*	12.7*	5.9*	3.8
Antisocial personality (48)	19.4%	16.7%	29.4%	21.4%	52.2%	4.5*	5.5*	2.6	4.0
Self-reported violence (18)	18.0%	15.7%	25.0%	20.0%	42.9%	3.4*	4.0*	2.3	3.0
Self-reported delinquency (18)	24.0%	18.6%	20.0%	40.0%	52.4%	3.5*	4.8*	4.4*	1.7
Self-reported delinquency (32)	18.7%	17.8%	25.9%	40.0%	52.4%	4.8*	5.1*	3.1*	1.7
Convicted (10–18)	21.4%	20.3%	27.9%	58.8%	65.2%	6.9*	7.4*	4.9*	1.3
Convicted (19–32)	21.2%	23.0%	34.4%	43.8%	65.2%	7.0*	6.3*	3.6*	2.4
Convicted (33–50)	9.3%	13.7%	23.7%	21.4%	26.1%	3.4*	2.2	1.1	1.3
Imprisoned by 40	8.1%	9.2%	11.5%	6.3%	30.4%	4.9	4.3*	3.4*	6.6
Weighted mean odds ratios						<b>5.7*</b>	<b>6.0*</b>	<b>3.4*</b>	<b>3.1*</b>

SOURCE.—Adapted from Murray and Farrington (2005).

NOTE.—Summary results for the weighted mean odds ratios in boldface.

<sup>a</sup> Parent-son separation within first 10 years of son's life because of death or hospitalization.

<sup>b</sup> Parent-son separation within first 10 years of son's life for reasons other than death, hospitalization, or imprisonment.

\*  $p < .05$ .

(OR = 7.0; CI = 2.8–17.5). An average (weighted mean) odds ratio was calculated for the 11 antisocial-delinquent outcomes, measured up to age 50 (see the appendix for these calculations). In comparing boys separated because of parental imprisonment and boys with no history of parental imprisonment or separation, the average odds ratio was large (5.7) and significant (CI = 4.3–7.6). The main limitation of the Cambridge Study for assessing the association between parental imprisonment and child antisocial behavior is the small number of boys with imprisoned parents in the study.

### *C. Conclusion*

Only four prior studies used general population samples to assess the association between parental imprisonment and child antisocial behavior (Kandel et al. 1988; Bor, McGee, and Fagan 2004; Huebner and Gustafson 2007; Murray, Janson, and Farrington 2007). In all four studies, parental imprisonment was positively associated with child antisocial-delinquent outcomes. In the Cambridge Study, parental imprisonment predicted official and self-report measures of offending and was very strongly related with measures of antisocial personality, even up to age 48. We calculated the average association between parental imprisonment and child antisocial-delinquent behavior across all five of these studies. The average odds ratio was 3.4, showing that parental imprisonment (compared with no history of parental imprisonment) approximately trebles the risk for antisocial-delinquent behavior of children.<sup>7</sup>

### III. Effects on Child Mental Health

Philbrick (1996, p. 12) claimed that up to 30 percent of prisoners' children experience mental health problems during childhood and adolescence, compared to about 10 percent of the general population. However, no evidence was cited to support this claim. In this section, we review evidence on the association between parental imprisonment and child mental health problems.

<sup>7</sup> We calculated the geometric mean of the five odds ratios (using the average odds ratio from the Cambridge Study: 5.7). Because the confidence interval for one study (Bor, McGee, and Fagan 2004) was unknown, we were unable to calculate a confidence interval for the geometric mean. We note that the samples and measures used in these studies were different and therefore that this average result may be unreliable.

*A. Review of Five Prior Studies*

Five studies of mental health outcomes among children of prisoners included control groups, standard measures, and numeric information that made it possible to calculate an effect size. We summarize these studies in the text below and in table 3 (all but one of these studies also appear in table 1). Only one study (Friedman and Esselstyn 1965) used a general population sample to examine the association between parental imprisonment and child mental health. The limitations of the other studies are similar to the limitations noted in Section II, and we do not repeat them here.

1. *General Population Study.* Friedman and Esselstyn (1965) compared the “self-concept” of 90 boys whose fathers were imprisoned and 154 controls (in two control groups; United States). The two control groups were randomly selected for the study (presumably using school registers, although the research report does not make this clear). None of the controls had a father who had been imprisoned, according to school principals and administrators. Teachers rated the boys’ self-concept on the Pupil Adjustment Inventory (University of Pennsylvania 1957). Of prisoners’ children, 45 percent had below-average self-concept compared to 29 percent and 14 percent of the two control groups. Comparing children of prisoners and the two control groups combined yielded an odds ratio of 2.5 (CI = 1.4–4.3), showing a significant positive association between paternal imprisonment and a child’s poor self-concept. However, for present purposes, this study is limited for three reasons: maternal imprisonment was not taken into account, official records were not used to verify the status of children in the control group, and the meaning of “self-concept” is not clear.

2. *Studies with Matched Control Groups.* Moerk (1973, reviewed above) compared rates of neurosis of 24 boys of imprisoned fathers and 24 boys separated from their father because of divorce. Neurosis was measured using the Tennessee Self Concept Scale (Fitts 1965). Children of prisoners scored, on average, 84.8 on the neurosis scale, compared to 80.4 for controls. This small difference was not significant (at the .05 level). No further statistics were reported (such as standard deviations, *t*-values, or exact *p*-values). Therefore, it was not possible to derive an effect size for the association between parental imprisonment and child neurosis.

Stanton (1980, reviewed above) compared rates of low self-esteem

TABLE 3  
Previous Studies of Parental Imprisonment and Child Mental Health

Study	Study Design	Imprisoned Parents	Children (Age at Outcome)	Controls Matched?	Outcome Measure	Effect Size: OR (95% CI)
Friedman and Esselstyn (1965), Santa Clara, United States	General population: cross-sectional	Fathers (in Elmwood rehabilitation center at least six months)	E = 90 C = 154 (kindergarten to seventh grade)	School registers	Self-concept (teacher rating)	2.5* (1.4, 4.3) <sup>a</sup>
Moerk (1973), probably United States	Matched control: retrospective	Fathers (imprisoned for at least one month after birth of child)	E = 24 C = 24 (aged 11–20)	Father absence (divorce), SES, ethnicity, age at separation, age at study	Neurosis (self-report)	Mean E = 84.8; mean C = 80.4
Stanton (1980), California, United States	Matched control: cross-sectional	Mothers (in county jails)	E = 22 C = 18 (aged 4–18)	Maternal criminality (probation)	Low self-esteem (teacher/counselor ratings)	5.1* (1.2, 20.5) <sup>b</sup>
Gabel and Shindler (1993), New York, United States	Clinic-based: retrospective	Mothers and fathers (ever imprisoned)	E = 11 C = 20 (aged 6–12)	Both groups attended day hospital	Internalizing problems (teacher rating)	.6 (.1, 2.2) <sup>c</sup>

Phillips et al. (2002), Clinic-based: Arkansas and Texas, United States	retrospective	Mothers and fathers (ever in any jail/prison)	E = 99	Both groups attended mental health services	Major depressive disorder (clinical diagnosis)	.3* (.1, .7) <sup>a</sup>
			C = 137 (aged 11–18)			
			E = 94 C = 135 (aged 11–18)		Generalized anxiety disorder (clinical diagnosis)	.6 (.2, 1.7) <sup>a</sup>
			E = 104 C = 148 (aged 11–18)		Separation-anxiety disorder (clinical diagnosis)	1.2 (.7, 2.0) <sup>a</sup>

NOTE.—E = children of prisoners; C = controls; OR = odds ratios; 95 percent CI = 95 percent confidence interval around odds ratios; SES = socioeconomic status.

<sup>a</sup> Our calculations of numbers in E and C groups and odds ratios.

<sup>b</sup> Our calculation of odds ratios from contingency tables.

<sup>c</sup> Our calculation of odds ratios from means and standard deviations.

\*  $p < .05$ .

of 22 children with jailed mothers and 18 children of mothers on probation. Low self-esteem was rated by teachers or counselors. For teachers, the Coopersmith Behavior Rating Form (Coopersmith 1967) was used. Of children with jailed mothers, 59 percent were rated as having low self-esteem, compared to 22 percent of children whose mothers were on probation (OR = 5.1; CI = 1.2–20.5).

3. *Studies of Children at Clinics.* Gabel and Shindledecker (1993, reviewed above) compared internalizing problems of 11 children of prisoners and 20 controls at a hospital clinic.<sup>8</sup> Internalizing problems were measured using the Achenbach Teacher Report Form (Achenbach 1991*b*). Combining the mean internalizing scores for boys and girls, we calculated an odds ratio for the association between parental imprisonment and child internalizing problems. This odds ratio was 0.6 (CI = 0.1–2.2), reflecting an inverse (but statistically insignificant) relationship.

Phillips and her colleagues (2002, reviewed above) compared depression and anxiety of adolescents whose parents had ever been imprisoned and controls. Both groups were receiving mental health services. Child depression and anxiety were measured using the Diagnostic Interview Schedule for Children (Shaffer et al. 2000). Children of prisoners were significantly less likely to have major depression (9 percent) than controls (23 percent; OR = 0.3; CI = 0.1–0.7). Children of prisoners were also less likely to have generalized anxiety disorders (6 percent) than controls (10 percent; OR = 0.6; CI = 0.2–1.7), but the difference was not statistically significant. Children of prisoners had similar rates of separation anxiety disorder (28 percent) to controls (25 percent; OR = 1.2; CI = 0.7–2.0).

#### *B. New Findings from the Cambridge Study in Delinquent Development*

Recently, we analyzed data from the Cambridge Study to assess the association between parental imprisonment and child mental health problems (Murray and Farrington 2008). We compared mental health outcomes of 23 children separated because of parental imprisonment (between birth and age 10) and four control groups. We summarize here the results of comparing boys separated because of parental im-

<sup>8</sup> “Internalizing problems” refer to “a core disturbance in introjective emotions and moods (e.g., sorrow, guilt, fear, and worry)” (Zahn-Waxler, Klimes-Dougan, and Slattery 2000, p. 443).



prisonment and boys with no history of parental imprisonment or separation.

Neuroticism during adolescence (at ages 14 and 16) was measured using two self-report personality questionnaires (the New Junior Maudsley Inventory [Furieux and Gibson 1966] and the Eysenck Personality Questionnaire [Eysenck and Eysenck 1964]). Anxiety-depression during adulthood (at ages 32 and 48) was measured using the self-report General Health Questionnaire (Goldberg and Williams 1988). For this essay, we calculated odds ratios for the association between parental imprisonment and child mental health problems (for results using continuous outcome measures, see Murray and Farrington [2008]).

Parental imprisonment during childhood was a strong risk factor for boys' mental health problems in the Cambridge Study (table 4). For example, of boys separated because of parental imprisonment, 36 percent had high levels of anxiety-depression at age 48, compared to 15 percent of boys with no history of parental imprisonment or separation (OR = 3.2; CI = 1.2–8.4). Parental imprisonment predicted mental health problems through the life course with an average odds ratio of 2.5 (CI = 1.6–4.0).

### *C. Conclusions*

Only one prior study (Friedman and Esselstyn 1965) and the Cambridge Study used general population samples to investigate the association between parental imprisonment and child mental health outcomes. In both studies, odds ratios for mental health problems were 2.5. We conclude that parental imprisonment is probably associated with at least double the risk for mental health problems of children.

## IV. Effects on Child Drinking, Drugs, Education, and Employment

Previous reviews of the effects of parental imprisonment on children have focused on child antisocial behavior and mental health problems. Here, we review evidence on the association between parental imprisonment and other adverse outcomes for children: drinking and drug abuse, school failure, and unemployment.

TABLE 4  
Cambridge Study Results on Parental Imprisonment and Child Mental Health

Sons' Outcomes (Age)	History of Parental Imprisonment					Odds Ratios Comparing Prison (E) and:			
	No Prison (A): No Separation ( <i>n</i> = 227)	No Prison (B): Separated: <sup>a</sup> ( <i>n</i> = 77)	No Prison (C): Separated: <sup>b</sup> ( <i>n</i> = 61)	Prison (D): Pre-birth ( <i>n</i> = 17)	Prison (E): 0–10 ( <i>n</i> = 23)	No Prison (A)	No Prison (B)	No Prison (C)	No Prison (D)
	Neuroticism (14)	24.0%	21.3%	23.0%	31.3%	47.8%	2.9*	3.4*	3.1*
Neuroticism (16)	25.9%	20.8%	24.6%	41.2%	43.5%	2.2	2.9*	2.4	1.1
Anxiety-depression (32)	23.4%	16.4%	29.6%	26.7%	38.1%	2.0	3.1*	1.5	1.7
Anxiety-depression (48)	15.1%	14.5%	17.0%	14.3%	36.4%	3.2*	3.4*	2.8	3.4
Weighted mean odds ratios						<b>2.5*</b>	<b>3.2*</b>	<b>2.3*</b>	<b>1.8</b>

SOURCE.—Adapted from Murray and Farrington (2008).

NOTE.—Summary results for the weighted mean odds ratios in boldface.

<sup>a</sup> Parent-son separation within first 10 years of son's life because of death or hospitalization.

<sup>b</sup> Parent-son separation within first 10 years of son's life for reasons other than death, hospitalization, or imprisonment.

\*  $p < .05$ .

*A. Review of Three Prior Studies*

Only three prior studies of drinking and drug abuse, education, and employment of prisoners' children included control groups, standard measures, and numeric information for calculating an effect size. These studies are summarized in the text below and in table 5 (all three studies also appear in tables 1 and 3). None of these studies used a general population sample of children.

1. *Studies with Matched Control Groups.* Stanton (1980, reviewed above) compared the academic performance of 23 children of jailed mothers and 18 children of probation mothers. Academic performance was measured using school records, showing the child's rank within his or her class. Of children of jailed mothers, 70 percent had below-average academic performance, compared with 17 percent of children whose mothers were on probation (OR = 11.4; CI = 2.5–52.5). This was a very large effect size.

Trice and Brewster (2004, reviewed above) compared rates of failure and dropping out of school of 47 children of incarcerated mothers and 41 of these children's best friends. Academic failure was measured by receiving a failing grade on a school report card in the previous year. Academic failure and dropping out of school were measured using caregivers' reports. Children of prisoners were significantly more likely (45 percent) than controls (20 percent) to have failed academically (OR = 3.3; CI = 1.3–8.7). Prisoners' children were also significantly more likely (36 percent) than controls (7 percent) to have dropped out of school (OR = 7.2; CI = 1.9–26.8).

2. *Study of Children at a Clinic.* Phillips and her colleagues (2002, reviewed above) compared rates of alcohol and drug abuse dependency of children of prisoners and controls receiving mental health services. Substance abuse was measured using the Diagnostic Interview Schedule for Children (Shaffer et al. 2000). At the time of intake into mental health services, 16 percent of prisoners' children abused or were dependent on alcohol, compared to 12 percent of controls (OR = 1.3; CI = 0.6–2.7). Of prisoners' children, 20 percent abused or were dependent on marijuana, compared with 13 percent of controls (OR = 1.6; CI = 0.8–3.3). Of prisoners' children, 1 percent abused or were dependent on other substances, compared to 6 percent of controls (OR = 0.2; CI = 0.0–1.3).

TABLE 5  
Previous Studies of Parental Imprisonment and Child Alcohol, Drugs, and Education

Study	Study Design	Imprisoned Parents	Children (Age at Outcome)	Controls Matched?	Outcome Measure	Effect Size: OR (95% CI)
Stanton (1980), California, United States	Matched control: cross-sectional	Mothers (in county jails)	E = 23 C = 18 (aged 4–18)	Maternal criminality (probation)	Poor academic performance (academic records)	11.4* (2.5, 52.5) <sup>a</sup>
Trice and Brewster (2004), Virginia, United States	Matched control: cross-sectional	Mothers (in state prisons)	E = 47 C = 41 (aged 13–20)	Controls were best friends of prisoners' children	Failing classes (guardian report)	3.3* (1.3, 8.7) <sup>b</sup>
Phillips et al. (2002), Arkansas and Texas, United States	Matched control: retrospective	Mothers and fathers (ever in any prison/jail)	E = 103 C = 148 (aged 11–18)	Both groups attended mental health clinics	Dropped out of school (guardian report)	7.2* (1.9, 26.8) <sup>b</sup>
					Alcohol problem (clinical diagnosis)	1.3 (.6, 2.7) <sup>b</sup>
					Marijuana problem (clinical diagnosis)	1.6 (.8, 3.3) <sup>b</sup>
					Other substance problem (clinical diagnosis)	.2 (.0, 1.3) <sup>b</sup>

NOTE.—E = children of prisoners; C = controls; OR = odds ratios; 95 percent CI = 95 percent confidence interval around odds ratios.

<sup>a</sup> Our calculation of odds ratios from contingency tables.

<sup>b</sup> Our calculations of numbers in E and C groups and odds ratios.

\*  $p < .05$ .

### *B. New Results from the Cambridge Study in Delinquent Development*

For this essay, we analyzed the relationships between parental imprisonment and 12 drinking, drug, education, and employment outcomes, and two summary measures of “poor life success” in the Cambridge Study. Average odds ratios were not calculated because of the heterogeneity of the outcomes. However, poor life success referred to a combined score for poor accommodation history, poor cohabitation history, poor employment history, alcohol use, drug use, anxiety-depression, and offending behavior. (For details of these measures, see the appendix.) We compared 23 boys who were separated because of parental imprisonment (between birth and age 10) and four control groups on each outcome (table 6). We summarize here the comparison of boys separated because of parental imprisonment and boys with no history of parental imprisonment or separation.

Parental imprisonment during childhood significantly predicted poor life success in adulthood. For example, of boys separated because of parental imprisonment, 35 percent were rated as having poor life success at age 48, compared to 9 percent of boys with no history of parental imprisonment or separation (OR = 5.1; CI = 1.9–13.6). With respect to individual outcome measures, parental imprisonment strongly predicted poor educational outcomes at ages 14 (OR = 8.1 and 10.3) and 18 (OR = 3.9) and unemployment at ages 18 (OR = 13.0) and 32 (OR = 3.1). There was also a strong relationship between parental imprisonment and drug use at ages 32 (OR = 3.7) and 48 (OR = 3.6). However, parental imprisonment did not significantly predict drinking problems at any age.

### *C. Conclusions*

Few studies have investigated the relationship between parental imprisonment and child drinking, drug, education, and employment outcomes. Previous studies are based on unrepresentative samples, and results should be treated with caution. Nevertheless, in previous studies and in the Cambridge Study, parental imprisonment strongly predicted school failure. Results from the Cambridge Study also suggested that parental imprisonment was a risk factor for drug abuse and unemployment. However, parental imprisonment was not consistently associated with drinking problems.

TABLE 6  
Cambridge Study Results on Parental Imprisonment and Child Alcohol, Drugs, Education, and Employment

Sons' Outcomes (Age)	History of Parental Imprisonment					Odds Ratios Comparing Prison (E) and:			
	No Prison (A): No Separation ( <i>n</i> = 227)	No Prison (B): Separated: <sup>a</sup> ( <i>n</i> = 77)	No Prison (C): Separated: <sup>b</sup> ( <i>n</i> = 61)	Prison (D): Pre-birth ( <i>n</i> = 17)	Prison (E): 0–10 ( <i>n</i> = 23)	No Prison (A)	No Prison (B)	No Prison (C)	No Prison (D)
	Binge drinking (18)	20.8%	18.6%	16.7%	20.0%	38.1%	2.3	2.7*	3.1*
Drinking problem (32)	35.6%	37.0%	35.2%	60.0%	57.1%	2.4	2.3	2.5	.9
Drinking problem (48)	24.4%	11.1%	17.6%	28.6%	30.4%	1.4	3.5*	2.0	1.1
Drug use (18)	30.9%	22.9%	36.7%	26.7%	47.6%	2.0	3.1*	1.6	2.5
Drug use (32)	19.7%	9.6%	25.9%	6.7%	47.6%	3.7*	8.6*	2.6	12.7*
Drug use (48)	17.4%	13.9%	17.6%	.0%	43.5%	3.6*	4.8*	3.6*	10.8* <sup>c</sup>
School failure (14)	21.1%	29.0%	32.8%	18.8%	68.4%	8.1*	5.3*	4.4*	9.4*
Truant (14)	21.6%	26.0%	34.4%	35.3%	73.9%	10.3*	8.1*	5.4*	5.2*
No exams (18)	45.2%	50.7%	56.7%	66.7%	76.2%	3.9*	3.1*	2.4	1.6
Unemployed (18)	19.8%	7.2%	27.3%	33.3%	76.2%	13.0*	41.0*	8.5*	6.4
Unemployed (32)	19.7%	20.5%	27.8%	26.7%	42.9%	3.1*	2.9*	2.0	2.1
Unemployed (48)	6.1%	6.3%	20.9%	8.3%	13.6%	2.4	2.4	.6	1.7
Poor life success (32)	20.1%	19.2%	35.2%	26.7%	52.4%	4.4*	4.6*	2.0	3.0
Poor life success (48)	9.5%	6.9%	17.6%	7.1%	34.8%	5.1*	7.1*	2.5	6.9

<sup>a</sup> Parent-son separation within first 10 years of son's life because of death or hospitalization.

<sup>b</sup> Parent-son separation within first 10 years of son's life for reasons other than death, hospitalization, or imprisonment.

<sup>c</sup> For prison pre-birth, the zero was replaced by one to calculate the odds ratio.

\*  $p < .05$ .

### V. Does Parental Imprisonment Have a Causal Effect?

Parental imprisonment is a strong predictor of adverse outcomes for children throughout their lives. However, that does not imply that parental imprisonment has a causal effect on children. Instead of being a cause, parental imprisonment might predict adverse child outcomes because it is associated with preexisting disadvantages that themselves cause adverse child outcomes. As one female prisoner in the study by Healey, Foley, and Walsh (2000, p. 23) stated, “the damage was done before I came to prison.” This idea corresponds to the “selection perspective” that Hagan and Dinovitzer (1999) theorized might explain adverse outcomes among children of prisoners. In particular, parental criminality, parental mental illness, and other environmental risks before parental imprisonment might cause child behavior problems, rather than parental imprisonment itself. We discuss how these preexisting disadvantages might explain the link between parental imprisonment and adverse child outcomes. We then review the available evidence on whether parental imprisonment causes adverse outcomes for children.

#### *A. Does the Relationship Reflect the Intergenerational Transmission of Criminality?*

Prisoners tend to be highly criminal, and parental criminality might explain the link between parental imprisonment and adverse child outcomes. Parental criminal convictions, regardless of the sentences that follow them, are a strong predictor of children’s own criminal behavior, as has been shown in a number of classic studies in criminology (Glueck and Glueck 1950; McCord, McCord, and Zola 1959; Robins, West, and Herjanic 1975; Smith 1991; Farrington, Barnes, and Lambert 1996; Fergusson, Horwood, and Nagin 2000; Farrington et al. 2001). In their meta-analysis, Lipsey and Derzon (1998) concluded that, on average, having antisocial parents predicted serious and violent offending with an odds ratio of 5.0. Therefore, the association between parental imprisonment and child antisocial behavior might merely reflect the effects of parental criminality and parental antisocial behavior on children.

Farrington and his colleagues (2001) suggested six explanations for the intergenerational transmission of criminality: intergenerational exposure to risk (e.g., parents and children might be trapped in a cycle of poverty); assortative mating—children with two antisocial parents

are even more likely to be antisocial than those with only one; imitation and teaching of crime; criminal parents tend to live in bad neighborhoods and use poor child-rearing methods; official (police and court) bias; and genetic mechanisms.

Crowe (1974) investigated the genetic risk associated with maternal imprisonment by comparing adopted children according to whether or not their biological mothers were imprisoned. Of 37 adopted children of prisoners, 19 percent were convicted as adults, compared with 3 percent of 37 controls (OR = 8.4; CI = 1.0–72.2). Of 46 adopted children of prisoners, 13 percent had an antisocial personality disorder in adulthood compared with 2 percent of 46 controls (who had a “probable antisocial personality disorder”; OR = 6.8; CI = 0.8–58.5). These findings suggest that children of prisoners may be at risk for antisocial outcomes partly because of genetic mechanisms.

In summary, antisocial outcomes for children of prisoners might be a consequence of the effects of parental criminality and antisocial tendencies on children. Antisocial tendencies might be transmitted to children of prisoners via mechanisms of poor parenting, imitation of behavior, social labeling, residing in bad neighborhoods, or through genes.

#### *B. Does the Relationship Reflect the Intergenerational Transmission of Mental Health Problems?*

Prisoners are also much more likely to have mental health problems than the general population. Therefore, the association between parental imprisonment and child mental health problems might merely reflect the effects of parental mental illness on children. In a national study of psychiatric morbidity among prisoners in England and Wales, Singleton and her colleagues (1998) found rates of depression of 33 percent and 51 percent among male and female prisoners, respectively, compared with 8 percent and 11 percent in the general population (see also Butler et al. [2006] for data from Australia; James and Glaze [2006] for data from the United States).

More than 20 studies report an association between parental mental illness and childhood anxiety (see the review by Klein and Pine [2002, pp. 497–99]), and children of depressed parents have about three times the risk of developing major depression themselves compared to children of nondepressed parents (Weissman et al. 1997; Weissman et al. 2006). Intergenerational continuities in mental illness might partly be explained by genetic effects and partly by environmental adversities



associated with parental mental illness, such as maladaptive parenting, marital dysfunction, and stress (Garber 2000; Zahn-Waxler et al. 2000).

In Crowe's (1974) adoption study, of 46 children of imprisoned mothers, 9 percent had a history of depression, compared with 7 percent of 46 controls (OR = 1.4; CI = 0.3–6.5). This result suggests that maternal imprisonment might not be associated with genetic risk for depression. However, the confidence interval was wide, and the results did not disprove the genetic hypothesis. In summary, children of prisoners may be at increased risk for mental health problems because parental mental illness has an environmental or genetic risk for children.

*C. Does the Relationship Reflect Other Adversities Correlated with Parental Imprisonment?*

Parental imprisonment is associated with many other social adversities that might put children at risk (Travis and Waul 2003a). Reviewing research from England and Wales, the Social Exclusion Unit (2002) reported that 27 percent of prisoners were taken into care in childhood, compared to 2 percent of the general population; 81 percent of prisoners were unmarried prior to imprisonment, compared to 39 percent of the general population; 52 percent of male prisoners and 71 percent of female prisoners had no educational qualifications, compared to 15 percent of the general population; 67 percent of prisoners were unemployed prior to imprisonment, compared to 5 percent of the general population; and 72 percent of prisoners were on benefits prior to imprisonment, compared to 14 percent of working-age people in the general population (see Dodd and Hunter [1992] for most of the original data; for relevant statistics from the United States, see Harlow [2003]; Mumola and Karberg [2006]).<sup>9</sup>

Three general population studies also show that children of prisoners are exposed to more social and economic disadvantage than their peers. Murray and Farrington (2005) calculated the number of childhood risk factors for antisocial-delinquent behavior among boys in the Cambridge Study. The risk factors examined were high daring, low IQ, and low junior school attainment of the boy, poor parental supervision, poor parenting attitudes of mothers and fathers, poor parental

<sup>9</sup> The general population referred to by the Social Exclusion Unit is not always matched on age with the comparatively young prison population. Therefore, the differences between prisoners and the general population may be overestimated, e.g., for rates of unemployment or marriage.

relations, neuroticism of mothers and fathers, low family income, low family social class, and large family size. Boys who had been separated from a parent because of parental imprisonment had, on average, significantly more (5.4) risk factors at age 10 than boys who had no history of parental imprisonment or separation (2.3).

Using data from the Great Smoky Mountains Study, which is a prospective longitudinal survey of over 1,400 children in North Carolina, Phillips and her colleagues (2006) found that parental imprisonment was associated with economic strain and instability in children's care and living arrangements. Huebner and Gustafson (2007) concluded that maternal imprisonment was associated with poor parental supervision in the National Longitudinal Survey of Youth, although it was not significantly associated with poor home environment (indexed by child responsibilities at home, child discipline, and time spent together by family members). However, none of these studies demonstrated the time-ordering of childhood disadvantage and parental imprisonment. Hence, parental imprisonment might have caused an increase in these childhood risk factors.

Children of prisoners might experience high levels of social and economic disadvantage even before their parents are imprisoned. For example, in a cross-sectional study of 56 family members visiting prisons, Arditti, Lambert-Shute, and Joest (2003) found that, before the imprisonment, 39 percent of families had been living on incomes under \$15,000 per year. The poverty level in the United States for a family of four at that time was \$18,100. In summary, parental imprisonment might be associated with negative child outcomes because children of prisoners are disproportionately exposed to preexisting social disadvantage, not because parental imprisonment has a causal effect.

#### *D. Conclusions from Empirical Studies*

In this section, we review studies that have tried to disentangle the causal impact of parental imprisonment on children from the effects of preexisting disadvantage. The best way to test whether something has a causal effect is to conduct an experiment. For example, an experiment in Switzerland randomly assigned offenders who were sentenced to short prison terms and who volunteered for the study either to serve their sentence in prison (as usual) or to perform a community service (Killias, Aebi, and Ribeaud 2000*a*, 2000*b*). To date, no similar experiment has included child outcomes and tested whether parental

imprisonment causes problems for children. We review quasi-experimental studies that used statistical controls or matched control groups to estimate the causal effects of parental imprisonment on children. However, these methods are weaker for drawing causal inferences than randomized experiments (Shadish, Cook, and Campbell 2002). Therefore, causal conclusions must be very tentative. Ideally, quasi-experimental studies should control for child adjustment prior to parental imprisonment, but no study has done this to date.

1. *General Population Studies.* Using data from the National Longitudinal Survey of Youth, Huebner and Gustafson (2007) compared the adult criminal outcomes of 30 children whose mothers were imprisoned and 1,666 controls, statistically controlling for child characteristics and background risks. The factors that were controlled for were child demographics, child delinquency in adolescence, maternal demographics, maternal smoking during pregnancy, maternal delinquency, maternal absence for reasons other than imprisonment, parental supervision, home environment, and peer pressure. After controlling for these background factors, maternal imprisonment still significantly predicted adult convictions, with an adjusted odds ratio of 3.0. Maternal imprisonment also independently predicted whether the child spent time on probation as an adult, with an adjusted odds ratio of 4.0. These results are consistent with the idea that parental imprisonment has a causal effect on children. It is possible that the effects of maternal imprisonment on adult criminal behavior were underestimated in this study, because adolescent delinquency was controlled for and adolescent delinquency might be an intervening link between maternal imprisonment and adult criminal behavior.

In the Cambridge Study, we investigated whether separation because of parental imprisonment predicted adverse child outcomes after controlling for background risks (Murray and Farrington 2005, 2008). First, we compared boys separated because of parental imprisonment (from birth to age 10) and boys whose parents were imprisoned only before the boy's birth. The logic of this comparison is that boys whose parents were imprisoned only before the boy's birth were not directly exposed to parental imprisonment, but they should have similar levels of background risk as boys separated because of parental imprisonment. In this comparison, separation because of parental imprisonment predicted higher rates of antisocial behavior, mental health problems, and other adverse outcomes than parental imprisonment before the boy's birth (see

comparison E/D in tables 2, 4, and 6). Comparing the two groups on 11 antisocial-delinquent outcomes, the average odds ratio was large (3.1) and significant (CI = 1.7–5.4). Comparing the two groups on four mental health outcomes, the average odds ratio was quite large (1.8) and nearly significant (CI = 0.9–3.6). Comparing the two groups on poor life success at ages 32 and 48, odds ratios were large (3.0 and 6.9, respectively) but not significant (CI = 0.7–12.6 and 0.8–63.0, respectively). These results are consistent with the idea that exposure to parental imprisonment has a causal effect on children.

Second, in the Cambridge Study we investigated whether parental imprisonment predicted boys' antisocial and mental health outcomes after statistically controlling for other childhood risk factors, such as low IQ, parental criminality, family poverty, and poor parenting. Although the effects of parental imprisonment were reduced after controlling for other childhood risks, parental imprisonment still significantly predicted antisocial and mental health problems through the life course (Murray and Farrington 2005, 2008). Third, we combined both approaches (using boys whose parents were imprisoned only before the boy's birth as the control group and statistically controlling for background risks). In these analyses, we still found that separation because of parental imprisonment predicted antisocial and mental health problems through the life course (Murray and Farrington 2005, 2008).

Using data from Project Metropolitan, we used the same methods as in the Cambridge Study to investigate the independent effects of parental imprisonment on children (Murray, Janson, and Farrington 2007). In Project Metropolitan, parental imprisonment after the child's birth (up to age 19) did not predict significantly higher rates of criminal behavior than parental imprisonment occurring before the child's birth. Also, parental imprisonment in childhood did not predict children's criminal behavior after statistically controlling for levels of parental criminality. These findings suggested that parental imprisonment did not cause children's offending in Project Metropolitan; rather, parental criminality explained the association between the two.

Using data from the Mater University Study of Pregnancy, Bor and his colleagues (2004) tested whether parental imprisonment predicted adolescent antisocial behavior, statistically controlling for a range of other maternal and family characteristics. The other maternal and family factors controlled were teenage mother, single parent at birth, family income, changes in marital status, marital conflict, and parental ar-

rest. After controlling for these factors, parental imprisonment did not significantly predict adolescent antisocial behavior (effect sizes were not reported).

2. *Study with a Matched-Control Group.* In Stanton's study (1980), a case-control design (Schlesselman 1982) was used to try to disentangle the effects of parental imprisonment from background risks. The children of 54 jailed mothers were compared with the children of 21 mothers on probation. The logic of this comparison was that children of jail and probation mothers should have similar levels of background adversity, and so differences in child outcomes might be attributed to the differences in criminal justice sanctioning of their mothers. As we described earlier, compared to mothers on probation, there were large effects of maternal imprisonment on teachers' ratings of child problem behavior (OR = 3.5; CI = 0.9–14.1), child poor self-concept (OR = 4.6; CI = 1.1–18.2), and child academic performance (OR = 11.4; CI = 2.5–52.5). These results are consistent with a causal effect of parental imprisonment on children.

However, the jailed mothers differed from probation mothers in their previous criminal convictions and employment and education histories, which might have acted as confounding factors. Significantly more jailed mothers in the study had prior adult arrests than probation mothers (59 percent vs. 29 percent). Therefore, the association between maternal imprisonment and adverse child outcomes might be explained by differences in mothers' criminal and social histories, rather than maternal imprisonment itself. Another limitation of this study was that some of the mothers in the probation group had previously been to jail, confounding the comparison between their children and the children of jailed mothers.

3. *Studies of Children at Courts and Clinics.* Two court and clinic studies also investigated whether parental imprisonment predicted child delinquency independent of background risks (Bryant and Rivard 1995; Dannerbeck 2005). However, given the unrepresentativeness of these samples, we only briefly report the findings here. Bryant and Rivard (1995) found that parental imprisonment significantly predicted minor offending (OR = 5.2; CI = 1.9–13.7), even after controlling for other risk factors (including single mother, parental substance abuse, marital disharmony, sibling imprisonment, and several measures of the youth's problem behaviors). However, parental imprisonment did not predict major offending after controlling for these background risks

(OR = 1.2; CI = 0.5–3.0). Dannerbeck (2005) also did not find a significant association between parental imprisonment and youths' prior court referrals, after controlling for background factors of parental mental illness and substance abuse, inadequate parenting, child abuse, out of home placement, and age of the youth at the first referral to court. However, both studies used measures of antisocial behavior as control variables (alcohol and substance abuse in Bryant and Rivard's study and age of first court referral in Dannerbeck's study). As these behaviors may overlap with the delinquent outcomes (Farrington 1991), controlling for them might have underestimated the effects of parental imprisonment on child delinquency.

In summary, there is no experimental evidence on which to draw firm conclusions about the causal effects of parental imprisonment on children. Five quasi-experimental studies used reasonably representative samples of prisoners' children and controls to estimate the effects of parental imprisonment on children, independent of background risks. Three found an independent effect of parental imprisonment on child antisocial behavior (Stanton 1980; Murray and Farrington 2005; Huebner and Gustafson 2007), while two did not find an independent effect (Bor, McGee, and Fagan 2004; Murray, Janson, and Farrington 2007). Only two studies examined the effects of parental imprisonment on child mental health, drug use, school failure or unemployment, using suitable controls (Stanton 1980; Murray and Farrington 2008; tables 4 and 6). Both studies suggested some independent effect of parental imprisonment on these outcomes. In conclusion, parental imprisonment might cause child antisocial behavior, mental health problems, drug use, school failure, and unemployment, but more rigorous tests of this hypothesis are required.

## VI. Mediating Factors and Theories

In this section, we review theories about why parental imprisonment might cause adverse outcomes for children. *Mediators* refer to the mechanisms through which parental imprisonment might harm children (Baron and Kenny 1986; Murray 2005), which are reviewed in this section. Different criminological theories suggest different mediating mechanisms. It is critical to test for mediating mechanisms in carefully designed empirical studies (Rutter 2003). Mediators should be investigated by testing whether, when the postulated mediator is

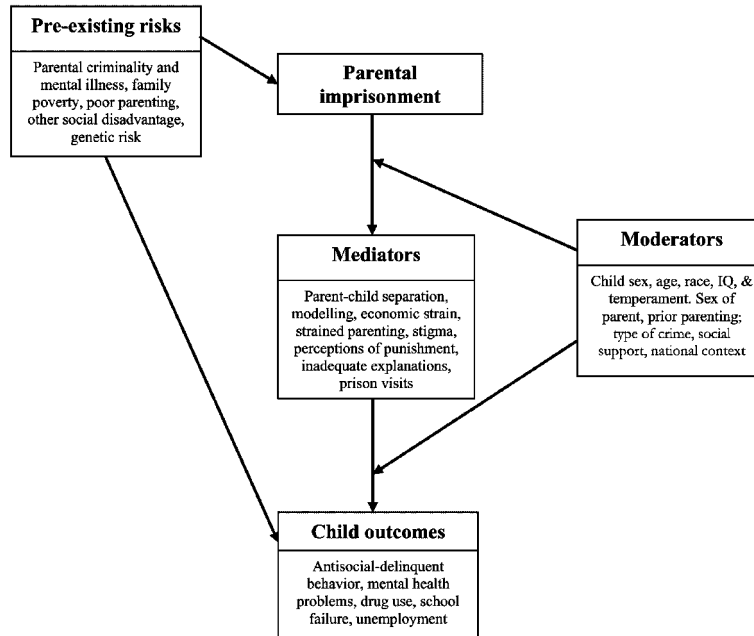


FIG. 1.—Parental imprisonment and child outcomes (conceptual model). Source: adapted from Murray (2005).

controlled for, the association between parental imprisonment and the child outcome is reduced (Baron and Kenny 1986; see also Kraemer, Lowe, and Kupfer 2005).

Figure 1 shows possible mediators, *pre-existing risks*, and *moderators* of the relationship between parental imprisonment and child outcomes. Preexisting risks refer to the disadvantages that exist before parental imprisonment and might account for child outcomes after parental imprisonment, as reviewed in Section V. Moderators refer to factors that alter how parental imprisonment affects children (Baron and Kenny 1986; Murray 2005), which are reviewed in Section VII.

The studies we review in this section and in Section VII have different methodological qualities. Some studies are small scale and cross-sectional. Other studies are large scale and longitudinal. We give greater weight to findings derived from large-scale longitudinal surveys.

### A. *Trauma Theories*

Parental imprisonment might cause adverse outcomes for children because of the trauma of parent-child separation. The idea that parent-child separation is harmful for children is suggested by attachment theory (Bowlby 1969, 1973, 1980) and social bonding theory (Hirschi 1969), which we refer to as *trauma theories*. Consistent with trauma theories, small-scale studies often report that children show sadness and miss their imprisoned parent (Sack, Seidler, and Thomas 1976; Sack 1977; Fritsch and Burkhead 1981; Skinner and Swartz 1989; Kampfner 1995; Boswell and Wedge 2002; Poehlmann 2005). In a recent cross-sectional study of 54 children with imprisoned mothers, Poehlmann (2005) found that most (63 percent) children had insecure attachment feelings toward their imprisoned mothers. Recent legislation in the United States (the Adoption and Safe Families Act) makes it more difficult for prisoners to reunite with their children after release, which may exacerbate problems caused by separation during parental imprisonment (Petersilia 2003, pp. 126–27; Bernstein 2005, pp. 148–49).

One prediction that can be derived from trauma theories is that the longer the time that parents are imprisoned and the more often that parents are imprisoned, the more likely it is that children have adverse outcomes. Consistent with this hypothesis, in the Cambridge Study, boys were significantly more likely to be chronic offenders in adulthood if their parents were imprisoned for longer than 2 months than if their parents were imprisoned for less than 2 months (35 percent vs. 7 percent; Murray, Janson, and Farrington 2007). In Project Metropolitan, there was also a dose-response relationship between the number of times parents were imprisoned and the number of times children offended as adults (Murray, Janson, and Farrington 2007). However, these differences may reflect the fact that longer-sentence prisoners and parents who were imprisoned more frequently were more antisocial than other prisoners.

Separation because of parental imprisonment might be a particularly harmful form of separation for children because it is often unexpected, sometimes violent at the time of arrest, and often unexplained, and because children are severely restricted in their contact with imprisoned parents (Shaw 1987; Bernstein 2005; Poehlmann 2005). If separation because of parental imprisonment is particularly harmful for children, children of prisoners should have worse outcomes than chil-



dren separated from parents for other reasons. Consistent with this, in the Cambridge Study, boys separated because of parental imprisonment had higher rates of antisocial behavior, mental health problems, and poor life success than boys separated from parents for other reasons, even after other risk factors were controlled for (see tables 2, 4, and 6 and Murray and Farrington [2005, 2008]). Moerk (1973) did not find such differences in his small-scale retrospective study. However, in the National Longitudinal Survey of Youth, the effects of maternal imprisonment on adult criminal outcomes were also larger than the effects of maternal absence for other reasons (Huebner and Gustafson 2007).

In summary, the evidence to date is generally consistent with the idea that traumatic separation because of parental imprisonment is harmful for children. However, it is difficult to isolate the effects of separation from the effects of other adversities that often follow parental imprisonment (e.g., loss of family income and stigma). These effects have not been successfully disentangled to date. Therefore, it is not possible to state conclusively that traumatic separation is an important cause of adverse child outcomes following parental imprisonment.

#### *B. Modeling and Social Learning Theories*

According to social learning theories (e.g., Matsueda 1988), parental imprisonment might cause child antisocial behavior because children become more likely to imitate their parent's antisocial behavior following parental imprisonment. This may be because children are made more aware of their parent's criminality when their parent is imprisoned. For example, Sack (1977) reported that, in his small-scale clinical study, some of the boys with fathers in prison imitated their father's crime. However, there have been no rigorous tests of whether parental imprisonment makes children more aware of their parent's criminality and whether this awareness mediates the relationship between parental imprisonment and child antisocial behavior.

#### *C. Strain Theories*

Hagan and Dinovitzer (1999) hypothesized that the loss of economic and social capital following parental imprisonment might cause adverse outcomes for children and labeled this idea "the strain perspective." We review evidence on whether economic strain and strained childcare might cause adverse outcomes for children after parental imprisonment.

1. *Economic Strain.* Parental imprisonment might cause adverse outcomes for children because it causes economic strain (lowered family income), which is consistently associated with child antisocial behavior. In the meta-analysis by Lipsey and Derzon (1998), low family social class was one of the two strongest family predictors of serious and violent delinquency in young adulthood. In the Cambridge Study, family poverty measured at age 10 was one of the six most important independent predictors of later offending (Farrington 2003a). Both in the Cambridge Study (Murray and Farrington 2005) and in the Great Smoky Mountains Study (Phillips et al. 2006), children of prisoners experienced higher rates of economic strain than other children. However, neither study established if economic strain increased from before to after parental imprisonment.

Parental imprisonment might cause an increase in economic strain in the short term because imprisoned parents cannot contribute to family income (Travis and Waul 2003a) and because families often have to pay for prison visits, letters, telephone calls (especially if prisoners call collect, as in the United States), and sending money to imprisoned relatives. In a cross-sectional study of 56 families of prisoners, Arditti and her colleagues (2003) found that family poverty significantly increased after the imprisonment of a family member, according to retrospective reports. Other small-scale studies also report that families experience economic difficulties following the imprisonment of a relative (Morris 1965; Ferraro et al. 1983; Richards et al. 1994; McEvoy et al. 1999). In the long term, imprisonment may also cause unemployment and fewer educational opportunities among ex-prisoners, which may expose children to further economic strain. In summary, although several studies report that economic strain is common among families of prisoners, they have not demonstrated that this mediates the effects of parental imprisonment on children.

2. *Strained Child Care.* Children's caregivers often experience considerable distress during parental imprisonment (see Murray [2005] for a review), and children often have unstable care arrangements after parental imprisonment (Phillips et al. 2006). Therefore, parental imprisonment might decrease the quality of parental care and supervision that children receive, and this might cause their behavior problems (Eddy and Reid 2003).

In the Cambridge Study, boys separated because of parental imprisonment were more likely than those without imprisoned parents to be

poorly supervised and to have fathers with cruel, passive, or neglecting attitudes, or who used harsh or erratic discipline, when boys were age 10 (Murray and Farrington 2005). These parenting variables were also independent predictors of boys' delinquent development in the Cambridge Study (Farrington 2003*a*). In the Great Smoky Mountains Study, parental arrest or imprisonment was associated with the use of harsh discipline by parents, overprotective or intrusive parenting, and child abuse (sexual and physical; Phillips et al. 2006). In the National Longitudinal Survey of Youth, maternal imprisonment was associated with poor parental supervision (Huebner and Gustafson 2007). Thus, three large-scale longitudinal studies show that children of prisoners are exposed to higher than average levels of potentially harmful parenting practices. However, none of the projects tested whether parental imprisonment caused an increase in those parenting risks over preexisting levels.

Based on a cross-sectional study of 118 Israeli inmates and their wives, Lowenstein (1986) suggested that children were more affected by strained caregiving during paternal imprisonment than by separation from their fathers (see also Mackintosh, Myers, and Kennon 2006). However, this hypothesis was not adequately tested in Lowenstein's study, which did not include a control group or any formal test of mediation. In summary, it is plausible that parental imprisonment causes strained parenting and that this in turn causes adverse outcomes for children. However, this mediation model has not been tested effectively thus far.

#### *D. Stigma and Labeling Theories*

Parental imprisonment might cause children to experience stigma, bullying, and teasing, which might increase their antisocial behavior and mental health problems (Zalba 1964; Sack, Seidler, and Thomas 1976; Sack 1977; Boswell and Wedge 2002; Braman and Wood 2003). In interviews with 127 caregivers of children with imprisoned fathers, Boswell and Wedge found that some children "got verbal abuse from other children. . . . The pressure was so great that the children didn't want to go to school" (child's caregiver, quoted in Boswell and Wedge [2002, p. 67]). The problem may be exacerbated in the United States, where criminal records are publicly available and widely accessed (Petersilia 2003, pp. 107–12). As Myers and her colleagues (1999, p. 20) argue, stigma "may be fueled by the politics of [being] 'tough on crime.'" It is also possible that there is official bias against children of

prisoners, making them more likely than other children to be prosecuted or convicted for their crimes. These stigma and labeling theories correspond to what Hagan and Dinovitzer (1999) called the “stigmatization perspective.”

There have been no systematic studies of whether social stigma mediates the relationship between parental imprisonment and adverse outcomes for children. However, some evidence regarding official bias comes from the Cambridge Study. If children of prisoners are more likely to be prosecuted or convicted than their peers because of official bias, there should be stronger effects of parental imprisonment on official measures of offending (convictions) than on self-report measures of offending (which are not influenced by police or court bias). However, parental imprisonment had similar effects on convictions and self-reported offending behavior in the Cambridge Study (see table 2), suggesting that official bias did not account for the high rate of offending among children of prisoners.

#### *E. Other Mediating Factors*

Parental imprisonment might affect children in more subtle ways than are suggested by the traditional criminological theories reviewed above. Although the empirical evidence is sparse, we consider three other mediating factors here that might link parental imprisonment and child outcomes.

1. *Perceptions of Punishment.* Parental imprisonment might change children’s perceptions of punishment and the consequences of wrongdoing, which might in turn influence their behavior. Two opposite predictions might be made about this. According to social learning theories, behavior can be influenced by observing what happens to other people, as well as by actual experiences of rewards and punishments (Bandura 1969). Following this line of thought, experiencing parental imprisonment might make children estimate a higher probability of punishment following rule breaking and therefore make them less likely to offend. Rational choice theories of offending would also predict this, because parental imprisonment would increase the perceived costs of offending. However, if children believe that their parent’s punishment is unfair (see, e.g., Brown et al. 2002), they may develop a hostile attitude toward authority figures and be more likely to offend themselves (on which see Sherman’s defiance theory [1993]). At pres-

ent, there is no empirical evidence that makes it possible to assess these competing predictions.

2. *Inadequate Explanations.* What children are told about their parent's absence might also mediate the effects of parental imprisonment on children. Several studies show that children are often told lies or nothing at all about their father's imprisonment, although children may be more likely to be told the truth about their mother's imprisonment (Caddle and Crisp 1997). In Sack and Seidler's (1978) study in the United States, and in Shaw's (1987, 1992*a*) study in England, approximately one-third of children were lied to about the whereabouts of their imprisoned father, one-third were told a fudged truth, and one-third were told the whole truth.<sup>10</sup> When no information is available to children about parental absence, children tend to blame themselves, possibly increasing the risk of adverse reactions (Hinshaw 2005; see also Boss 2007).

Researchers and support groups for prisoners' families commonly argue that children are better off knowing the truth about their parent's imprisonment, rather than experiencing confusion and deceit, and some children themselves have stated this preference (Boswell and Wedge 2002). However, we are aware of only one cross-sectional study that compared child outcomes according to what they were told about their parent's imprisonment. Poehlmann found that children who were given "emotionally open and developmentally appropriate" (Poehlmann 2005, p. 685) information were more likely to have secure attachment feelings toward their caregivers than children who were given less appropriate or no information. However, there was no association between being given open and appropriate explanations and children's attachment feelings for their mothers, and other child outcomes were not investigated. The effects of what children are told about their parent's imprisonment should be investigated in longitudinal studies.

3. *Prison Visits.* In the context of parent-child separation caused by divorce, good quality parent-child contact can help reduce child distress following separation (Amato and Gilbreth 1999; Dunn 2004). However, active parenting is extremely difficult to achieve in the prison context. Moreover, prison visits can involve the strains of long distance travel, stressful prison search procedures, a lack of physical contact during visits, and the difficulty of leaving parents at the end of a visit (McDermott and King 1992; Peart and Asquith 1992; Boswell and

<sup>10</sup> See McEvoy et al. (1999) for different estimates among families of politically motivated prisoners in Northern Ireland.

Wedge 2002; Brown et al. 2002). There might also be adverse “contagion effects” on children as a result of visiting prisons. For example, participating in “Scared Straight” prison visiting programs appears to cause an increase in delinquency for at-risk children (Petrosino, Turpin-Petrosino, and Buehler 2003). Accordingly, prison visits might either relieve strain for children or cause them more difficulties.

Some small-scale studies report that prison visits can be confusing and upsetting for children and that visiting imprisoned parents is associated with worse outcomes for children (Fritsch and Burkhead 1981; Richards et al. 1994; Poehlmann 2005). However, other small-scale studies suggest that children prefer to maintain contact with their imprisoned parent (Sack and Seidler 1978; Boswell and Wedge 2002; Brown et al. 2002) and that visiting imprisoned parents might reduce child disruptive and anxious behaviors and encourage better parent-child relations (Sack and Seidler 1978; Stanton 1980). In a study of 47 children of imprisoned mothers, Trice and Brewster (2004) reported that children were significantly less likely to be out of school and suspended if they had more frequent contact with their imprisoned mothers, by letter, phone, or visits. To date, no large-scale study has tested the effects of parent-child contact on children during parental imprisonment.

Future research should investigate the effects of different types of parent-child contact during parental imprisonment, using longitudinal designs, and controlling for background factors such as the quality of the parent-child relationship before the imprisonment.

#### *F. Conclusions*

There is little high-quality evidence on why parental imprisonment might cause adverse outcomes for children. Future studies should investigate whether mechanisms that are theoretically plausible, such as traumatic separation, economic strain, social stigma, and strained parenting, mediate the effects of parental imprisonment on children. Quasi-experimental analyses in longitudinal surveys are needed, following children before, during, and after parental imprisonment.

### VII. Moderating Factors

Children might react to parental imprisonment in different ways, depending on their individual characteristics, family environments, and wider social factors. Factors that influence how children react to pa-

rental imprisonment are called moderators (Baron and Kenny 1986; Murray 2005). Identifying moderators can help explain why some children have adverse outcomes after parental imprisonment while others lead normal lives. Moderators should be identified by testing for statistical interactions between parental imprisonment and potential moderators in predicting child outcomes (Baron and Kenny 1986; Kraemer, Lowe, and Kupfer 2005). Very few studies have tested for statistical interactions in this way. In this section, we review evidence on possible moderators of the effects of parental imprisonment on children, giving greater weight to findings that are based on large-scale studies with tests of statistical interactions.

#### *A. Maternal versus Paternal Imprisonment*

Researchers commonly suggest that imprisonment of a mother is more damaging for children than imprisonment of a father (Fishman 1983; Koban 1983; Richards et al. 1994; Hagan and Dinovitzer 1999, p. 143). In relation to other types of parent-child separation, separation from a mother does seem to be more harmful for children than separation from a father (Juby and Farrington 2001). Maternal imprisonment might be more harmful than paternal imprisonment for several reasons. First, children are more likely to live with their mother before her imprisonment (Koban 1983; Mumola 2000), and, because of prior care arrangements, children might have stronger attachment relations with their mother. Second, when mothers are imprisoned, children are less likely to be placed with their other parent and are more likely to be placed in foster care (Koban 1983; Mumola 2000). Third, because there are fewer women's facilities, it is likely that imprisoned mothers are held further away from home, making it harder for children to visit (Koban 1983; Hagan and Coleman 2001). However, Mumola (2000) found that mothers and fathers in state facilities were equally likely to report at least monthly visits from their children, and imprisoned mothers had more regular contact with their children by telephone and mail. Also, maternal imprisonment is usually shorter than paternal imprisonment, which may help children to cope better with maternal imprisonment.

The hypothesis that maternal imprisonment is more harmful than paternal imprisonment should be tested by examining whether the association between parental imprisonment and child problem behavior is significantly stronger when mothers are imprisoned than when fathers are imprisoned. We are not aware of any study that has done

this. Small-scale studies report mixed findings on the different effects of maternal and paternal imprisonment. In a comparison of 65 children of imprisoned mothers and 59 children of imprisoned fathers, Richards and his colleagues (1994) found worse effects for children of imprisoned mothers. However, Sack and colleagues (1976) reported more aggressive problems for children of imprisoned fathers. Fritsch and Burkhead (1981) concluded that children of imprisoned mothers were more likely to show withdrawn behavior, while children of imprisoned fathers were more likely to show discipline problems.

One problem with these studies is that differences in child outcomes following maternal and paternal imprisonment might be explained by different levels of other risk factors experienced by children of imprisoned mothers and fathers. For example, Johnson and Waldfogel (2004) calculated that imprisoned mothers had more risk factors for child behavior problems (3.4) than imprisoned fathers (2.7), using data on 2,047 imprisoned mothers and 6,870 imprisoned fathers in the 1997 Survey of Inmates in State and Federal Correctional Facilities.<sup>11</sup> In summary, although it is plausible that maternal imprisonment is more harmful than paternal imprisonment for children, conclusive evidence is lacking.

Some infants live with their mothers in prison in mother and baby units. This may reduce the trauma of separation for children, but it might also mean living in an environment that is detrimental to child development (Jiménez 2002; Eloff and Moen 2003). Catan (1992) compared the development of 74 babies living with their mothers in prison and 33 controls, who were living outside with relatives or social services. Babies in prison generally made similar developmental progress (in locomotor, social, linguistic, fine-motor coordination, and cognitive development) to the control group in the study (and also similar to the general population of contemporary British babies). However, babies who spent longer than average in prison showed a slight decline in locomotive and cognitive development over a 4-month period. Further investigation of the effects of mother and baby units is needed.

### *B. Child Age*

Theoretically, children might react to parental imprisonment differently at different developmental stages. Johnston (1995) suggested that

<sup>11</sup> The nine risk factors examined were unmarried, low education, substance abuse, mental or emotional problems, low socioeconomic status, history of prior imprisonment, history of physical or sexual abuse experienced by the parent, parent ever lived in foster care as a child, and parent's own parent had ever been imprisoned.



parental crime, arrest, and imprisonment are likely to disrupt children's attachment relations in infancy, cause developmental regression and poor self-concept in early to middle childhood, and cause antisocial behavior and delinquency during adolescence (see also Myers et al. 1999). Johnston hypothesized that the long-term effects of parental crime, arrest, and imprisonment may be most harmful for children between ages 2–6, because they “cannot process or adjust to trauma without assistance” (Johnston 1995, p. 74). In research on children's reactions to parental divorce, the evidence is inconsistent. According to the meta-analysis by Wells and Rankin (1991, p. 87) there is no clear evidence that the effects of broken homes differ according to the age of children at the time of the separation.

Using data from Project Metropolitan, Murray and colleagues (2007) compared the effects of parental imprisonment according to the age of the children at the time of parental imprisonment (birth to age 6 vs. ages 7–19). The effects of parental imprisonment during both age periods were very similar (odds ratios for child offending in adulthood were 2.4 for the younger children and 2.6 for the older children, not significantly different).

In Poehlmann's (2005) study of children aged 2–7 with imprisoned mothers, younger children had less secure attachment feelings toward their imprisoned mothers than older children. Based on clinical observations of children with imprisoned fathers, Sack (1977) suggested that boys aged 6–12 were the most likely to become aggressive in reaction to their father's imprisonment. Neither study included a control group without imprisoned parents and therefore could not test for statistical interactions. In summary, although there are theoretical reasons why children may react differently to parental imprisonment at different developmental stages, there is little evidence relevant to this hypothesis.

### *C. Child Sex*

The fact that antisocial behavior is generally more prevalent among boys, and anxiety and depression are generally more prevalent among girls, suggests that males and females might react differently to life events such as parental imprisonment. Hence, child sex may moderate the effects of parental imprisonment on children. However, research on other risk factors suggests that this is unlikely to be the case. In the most comprehensive investigation of the causes of sex differences in antisocial behavior to date, Moffitt and her colleagues (2001) found

that boys and girls were similarly affected by risk factors such as parental criminality, harsh discipline, and maternal mental illness in the Dunedin Longitudinal Study, which is a large-scale prospective longitudinal study of 1,037 children in New Zealand.

Comparing the effects of parental imprisonment on 7,277 girls and 7,595 boys in Project Metropolitan, Murray and colleagues (2007) found that parental imprisonment in childhood was a strong predictor of adult criminal behavior for both males and females, but the effects were slightly stronger for females. The odds ratio for female chronic offending was significantly larger than the odds ratio for male chronic offending (5.5 vs. 3.0). However, Murray and his colleagues were unable to test why the effects were stronger for girls or to rule out the hypothesis that this finding was the result of there being fewer female offenders in the cohort than male offenders (and hence female offenders being more extreme).

Small-scale studies show mixed results on sex differences in children's reactions to parental imprisonment. Gabel and Shindledecker (1993) and Sack (1977) both reported that boys had worse antisocial reactions, but Friedman and Esselstyn (1965) found worse effects for girls. More large-scale longitudinal studies are needed to test whether there is an interaction between parental imprisonment and child sex in predicting child outcomes.

#### *D. Child Social Class*

It is unclear how social class might affect the relationship between parental imprisonment and delinquency. The greater resources of middle- and upper-class families might protect children from some consequences of parental imprisonment, but parental imprisonment might also carry more social stigma for these families (Lowenstein 1986). In Project Metropolitan, the effects of parental imprisonment were not significantly different for working-class children compared with middle- or upper-class children (Murray, Janson, and Farrington 2007). For example, odds ratios for crime in adulthood were 2.1 for working-class children and 2.3 for middle- to upper-class children (not significantly different). In a small-scale cross-sectional study, Anderson (1966) also reported that the families of prisoners experienced similar levels of "crisis," regardless of their social class.

### *E. Child Race*

Race or ethnicity might moderate the effects of parental imprisonment on children, although there have been no large-scale studies of this issue. Exploratory studies suggest that black families can experience racism from police and prison staff (Light 1994) and that black children with imprisoned parents are particularly vulnerable to racism from peers (Amira 1992). In a cross-sectional survey, Baunach (1985) conducted a rare comparison of children of imprisoned mothers according to the race of the mothers. She reported that children's problems (as reported by their mothers) did not differ significantly according to whether their mothers were black or white. In a cross-sectional study of 93 black prisoners and their wives, Schneller (1976) found difficulties that were similar to difficulties reported for white families in other studies (e.g., economic strain, loneliness, depression, and problems of "nerves" or "emotions").

In the United States, parental imprisonment is more prevalent among African Americans (49 percent of parents in state prisons and 44 percent of parents in federal prisons were black in 1997; Mumola 2000). It is of high importance to investigate whether parental imprisonment has different effects on children according to their race and ethnicity.

### *F. Other Possible Moderators*

As well as the demographic variables considered above, many other child, family, and wider social factors might moderate the effects of parental imprisonment on children. We review some potentially important ones here.

1. *Genetics.* There might be gene-environment interactions in the effects of parental imprisonment on children. One example of a gene-environment interaction in developmental psychopathology concerns the effects of child abuse on children. In the Dunedin Longitudinal Study, Caspi and his colleagues (2002) showed that a gene for MAOA (the neurotransmitter metabolizing enzyme, monoamine oxidase) expression protected children from antisocial outcomes following abuse, and this finding has been replicated in several other studies (Kim-Cohen et al. 2006). It is possible that genetic factors also moderate the effects of parental imprisonment on children, but no study has tested this to date.

2. *Individual Resilience Factors.* "Resiliency" research suggests that children can be protected from adversity by having an above-average

IQ, an easy temperament, secure parental attachment, and positive peer relations (Garmezy and Rutter 1983; Rutter 1990; Masten et al. 1999; Luthar 2003). In their follow-up of Danish men born in the 1930s, Kandel and her colleagues (1988) compared 50 offspring of imprisoned fathers and 48 controls on IQ scores and criminal records up to 1972. They found a significant interaction between paternal imprisonment, offspring IQ (at the time of follow-up), and offspring criminality. Among the offspring of imprisoned fathers, higher IQ scores were associated with a lower probability of offending, but this was not the case among children whose fathers were not imprisoned. This interaction remained significant after statistically controlling for the number of years of education and social class of the offspring. This suggested a buffering effect of high IQ for children of imprisoned fathers.

There are no other studies that have tested interactions between parental imprisonment and potential resilience factors in predicting child outcomes. However, three recent studies suggest that child hopefulness and social support is associated with fewer mental health problems for children of prisoners (Hagen, Myers, and Mackintosh 2005) and that stable and affectionate caregiving is associated with fewer mental health problems and more secure attachment toward caregivers (Poehlmann 2005; Mackintosh, Myers, and Kennon 2006). Further research is required to test possible resilience mechanisms for children of prisoners.

3. *Parent-Child Relationships before Imprisonment.* Parent-child relationships and parenting practices prior to imprisonment are also likely to influence how children react to the event. Parental imprisonment is likely to be more disruptive for children who were more attached and positively involved with their parent prior to imprisonment (Fritsch and Burkhead 1981). In some cases, where children have experienced abusive relationships, children might even benefit from parental imprisonment. A recent large-scale study in England and Wales suggests that, on average, children who spend more time living with their antisocial fathers have worse conduct problems than children who are separated from their antisocial fathers (Jaffee et al. 2003). However, there are no empirical tests of how parenting characteristics prior to parental imprisonment influence children's reactions to the event.

4. *Type of Crime.* Children's reactions to parental imprisonment might also vary according to the type of crime committed by their parent. One would expect that more stigmatized offenses, such as sex of-

fenses, would exacerbate the effects of parental imprisonment on children (see, e.g., Lowenstein 1986), but this has not been systematically investigated.

5. *Neighborhood Context.* Over 30 years ago, Schwartz and Weintraub (1974) hypothesized that, in neighborhoods with high imprisonment rates, children can be more open about their situation and feel less social stigma. Possibly, because prison populations have grown so dramatically in recent decades, and imprisonment is such a common event in some communities (Clear, Rose, and Ryder 2001; Pettit and Western 2004), the stigma of imprisonment may have been reduced (Nagin 1998, p. 22). However, stigma might be especially high in neighborhoods with high imprisonment rates, because many victims of crime also live in those neighborhoods (Braman 2004). Clear and colleagues (2001) argue that imprisonment causes stigma for exoffenders, their families, and communities, even where imprisonment rates are high, but large-scale studies of this topic are lacking.

6. *Cross-National Differences.* There might also be cross-national differences in the effects of parental imprisonment on children. For example, in the International Self-Reported Delinquency Study (Junger-Tas, Marshall, and Ribeaud 2003) across 11 European countries, father absence (for various reasons) was more strongly associated with serious delinquency for boys in Anglo-Saxon countries than in north-west European countries. Comparing the effects of disrupted families in England and Switzerland, Haas and her colleagues (2004) found that separation from a mother in England predicted court convictions more strongly than it did in Switzerland.

We compared as closely as possible the effects of parental imprisonment on child offending in England (in the Cambridge Study) and in Sweden (in Project Metropolitan; Murray, Janson, and Farrington 2007). Children were born in the same year in the two studies (1953), and both cohorts lived in capital cities (London and Stockholm). Additionally, we matched the samples as closely as possible on sex (male), class (working class), age at the time of parental imprisonment (birth to 19), and age at the time of the outcome (19–30). The results showed that parental imprisonment predicted offending behavior in England independent of parental criminality, but it did not in Sweden. We speculated that, unlike in England, Swedish children may have been protected from adverse effects of parental imprisonment by more family-friendly prison policies, a welfare-oriented juvenile justice system, an

extended social welfare system, a less diverse population, and more sympathetic public attitudes toward crime and punishment. The results might also be explained by Swedish prisoners being more similar to the general population than in England because of the high prevalence of drunk drivers in Swedish prisons. As Bronfenbrenner (1979, p. 7) argued, child development may be “enhanced by the adoption of public policies and practices that create additional settings and societal roles conducive to family life.” There have been no other cross-national studies of the effects of parental imprisonment on children, and these results require replication.

#### *G. Conclusions*

There is little convincing evidence on moderators of the effects of parental imprisonment on children. The limited evidence to date suggests that children may have worse reactions if their mother is imprisoned, if parents are imprisoned for longer periods of time, and if parents are held in more punitive penal contexts. Children might be protected from harmful effects of parental imprisonment by higher levels of intelligence, hopefulness, and social support, and by living in a country with liberal prison policies and strong welfare provision. Future studies need to use appropriate tests of statistical interactions to investigate these possibilities more rigorously.

### VIII. Conclusion

In this section we summarize findings on the effects of parental imprisonment on children and consider their implications for policy, practice, and future research.

#### *A. What Are the Effects of Parental Imprisonment on Children?*

Compared with other risk factors in criminology, parental imprisonment has received little research attention. Yet, it certainly is a risk factor, and its effects appear to be relatively strong, with multiple adverse outcomes. In their meta-analysis of other risk factors, Lipsey and Derzon (1998) found that odds ratios for serious and violent delinquency were 2.4 for low child IQ, 5.0 for antisocial parents, 1.7 for abusive parents, 2.0 for broken homes, 3.0 for poor parent-child relations, and 5.4 for low family socioeconomic status. The present review shows that parental imprisonment roughly trebles the risk for child antisocial be-

havior. In the Cambridge Study, parental imprisonment predicted antisocial-delinquent behavior through the life course with an average odds ratio of 5.7 and predicted violence with an odds ratio of 3.4. Odds ratios for poor mental health, drug use, school failure, and unemployment were all 2.0 or larger in the Cambridge Study. Thus, parental imprisonment is a relatively strong predictor of multiple adverse outcomes for children. Parental imprisonment might cause adverse outcomes for children via mechanisms of traumatic separation, economic and social strain, and stigma, but stronger tests of causation and mediation are required to draw firm conclusions.

It is possible that parental imprisonment is more harmful for children if their mother is imprisoned, if children have little social support, or if they live in punitive social contexts. Further research is required on how the effects of parental imprisonment differ according to individual and family attributes and social context. As prison populations grow and change over time, the effects of parental imprisonment on children might also change. For example, the rates of imprisonment of women, ethnic minorities, and drug and violent offenders have been increasing faster than for other populations in the United States in recent decades (Blumstein and Beck 1999; Harrison and Beck 2006).

Parental imprisonment differs from many classic risk factors in criminology because it is determined not only by individuals' behavior but also, critically, by state actions. It is important to prevent harmful effects of state actions on children. In the following section we offer policy recommendations to reduce harmful effects of parental imprisonment on children.

### *B. Implications for Policy and Practice*

The main policy issue raised by this review is that imprisoning parents might harm children and contribute to the intergenerational transmission of offending. The UN Convention on the Rights of the Child states that children should be protected from any form of discrimination or punishment based on their parents' status or activities and that the best interests of the child should be the primary consideration in actions concerning children by courts of law (Articles 2 and 3, UN General Assembly 1989).

An obvious option for preventing harmful effects of parental imprisonment is to imprison fewer parents. This could be achieved by increasing the use of alternative forms of punishment, such as proba-

tion, intensive supervision, house arrest, electronic monitoring, community service, and day fines. Sentencing reforms could be introduced with a presumption against the use of imprisonment (in favor of intermediate sentences; Tonry 1998), and guidelines could be introduced to reduce sentence lengths and increase the use of parole and prison amnesties (Tonry 2003; Scottish Consortium on Crime and Criminal Justice 2005). Given that women tend to be imprisoned for more minor offenses than men, and the possibility that maternal imprisonment might be more harmful for children, these reforms may be particularly urgent for women. However, the obstacles to such criminal justice reforms are complex (Tonry 1996, chap. 4) and often political (Tonry 2004). While such reforms are being pursued, it is important also to implement programs that reduce harmful effects of parental imprisonment when it does occur.

Depending on why children of prisoners are at risk, different interventions will be needed to protect them. Programs for children of prisoners should be developed based on what is known about the causes of their outcomes. Based on four key theories about why parental imprisonment might cause adverse outcomes for children (reviewed in Sec. VI), we propose a range of interventions that might prevent harmful effects of parental imprisonment on children (see also Murray and Farrington 2006).

1. *Trauma Theories.* Based on trauma theories, the harmful effects of parental imprisonment on children might be prevented using four strategies. Children could be provided with stable care arrangements during parental imprisonment, ideally with families or friends (Trice and Brewster 2004; Bernstein 2005). Children's caregivers could be given professional advice about how to provide honest and clear explanations about parental absence to children (Poehlmann 2005). Counseling and therapeutic services could be offered to children of prisoners to help them cope psychologically with the separation (Sack, Seidler, and Thomas 1976; Hames and Pedreira 2003). Children's opportunities to maintain good-quality contact with their imprisoned parent could be increased, in particular by providing child-friendly visiting arrangements in prisons (Council of Europe 1997; Trice and Brewster 2004; Bernstein 2005). However, it is important to investigate under what conditions children might benefit from contact with their imprisoned parent.

2. *Strained Caregiving.* Based on theories about strained caregiving,



four well-tested parenting programs might be used to prevent adverse outcomes for children of prisoners (Eddy and Reid 2003). Nurse home-visiting programs could be used to support mothers in high-risk circumstances and improve prenatal care and maternal health (Olds et al. 1998). Parent-management training programs could be used that enhance parenting skills and parents' handling of child misbehavior (Webster-Stratton 1998; Sanders et al. 2000; Scott et al. 2001). Multi-systemic therapy could be used to target parent-child interactions as well as wider social problems of youth (Henggeler et al. 1998). And multidimensional treatment foster care could be used to provide therapeutic care for youngsters removed from their homes and to encourage reintegration and support of children with their natural family (Chamberlain and Reid 1998; on parenting programs in prisons, see Loper and Tuerk [2006]).

3. *Economic Strain.* Based on theories of economic strain, three modes of financial support might be provided to families of prisoners to alleviate children's difficulties. Emergency funds could be given to help families of prisoners overcome the immediate financial difficulties after the imprisonment (Council of Europe 1997). Free transport or financial assistance to families could be provided for prison visits, and the costs of telephone calls between prison and home could be reduced or eliminated (Bernstein 2005). Prisoners could be provided with more paid jobs while in custody, and work schemes that employ former prisoners could be increased (Council of Europe 1997; Clear, Rose, and Ryder 2001; Petersilia 2003, pp. 195–98).

4. *Stigma.* Based on theories of stigma, three policies might be considered to reduce the stigma experienced by children of prisoners, as well as by prisoners themselves. The public identification of offenders could be prohibited, not only before conviction but also afterward (Walker 1980; Petersilia 2003, pp. 215–16). Offenders could be diverted away from courts to restorative justice conferences, which emphasize reconciliation between offenders, victims, family members, friends, and the community (Braithwaite and Mugford 1994; Braithwaite 1999; Sherman et al. 2005; Sherman and Strang 2007). More community services could be used that emphasize the positive contributions that exoffenders can make to the community (Clear, Rose, and Ryder 2001; Maruna and LeBel 2002, p. 167).

The effectiveness of these programs should be carefully evaluated using systematic reviews and in demonstration projects using random-

ized controlled trials. Programs that are found to improve child outcomes following parental imprisonment should be implemented on a large scale.

### *C. Research Implications*

Hagan and Dinovitzer (1999, p. 152) rightly argued that “the implication of not having better and more systematic research on the collateral effects of imprisonment is that we are making penal policy in a less than fully, indeed poorly, informed fashion,” and they laid out a useful framework for future research. We describe key research needs on the effects of parental imprisonment on children in this section (see also Murray 2005; Murray and Farrington 2006; Murray 2007).

First, there is a need for replication studies that test how strongly parental imprisonment and adverse child outcomes are associated. These studies should be conducted using prospective longitudinal designs, with representative samples, suitable control groups, and reliable and valid measures of key constructs. Other child outcomes that were not reviewed in this essay, because of a lack of evidence, should also be studied; for example, gang membership, physical illness, and mortality.

Second, there is a great need for more research on the causal effects of parental imprisonment on children. A key problem is to disentangle the causal effects of imprisonment from the effects of preexisting disadvantage. Randomized experiments that might rigorously investigate this issue are ethically and practically possible (see, e.g., Killias, Aebi, and Ribeaud 2000*a*, 2000*b*). If child outcomes are measured in experiments that randomly assign convicted parents to prison (the usual treatment) or other (e.g., community) sentences, the causal effects of parental imprisonment on children could be estimated with greater validity than has been possible to date. Quasi-experimental designs (Shadish, Cook, and Campbell 2002) investigating within-individual change over time and analytic techniques such as propensity scores (Rosenbaum and Rubin 1983) should also be used to estimate the causal effects of parental imprisonment on children.

Third, there is a need for better research on the mechanisms linking parental imprisonment and child outcomes. Theory and qualitative research suggest many possible pathways, but we still lack systematic tests of these mechanisms. Longitudinal research should measure child adjustment and hypothesized mechanisms before, during, and after pa-

rental imprisonment. Tests should be conducted to see whether the mechanisms increase following parental imprisonment and whether they mediate the effects of parental imprisonment on children.

Fourth, factors that alter the impact of parental imprisonment on children (moderators) need to be investigated. These can be examined in longitudinal studies that include enough children of prisoners and controls to test for interaction effects between parental imprisonment and variables, such as the sex of the child, the sex of the imprisoned parent, and levels of social support, in predicting the child outcome.

Fifth, there is a need to know about effective intervention programs to reduce the undesirable effects of parental imprisonment. Knowledge could be drawn from other areas of child development (e.g., research on reducing the effects of parental mental illness and the effects of parental divorce on children). Qualitative and quantitative research should be used to investigate additional support needs of prisoners' families, and systematic evaluation of intervention programs should be conducted to test how effectively they reduce adverse outcomes among children of prisoners (see the systematic review of experimental evaluations of parenting programs in prisons by Dowling and Gardner [2005]).

Sixth, there is a need for regular surveys, including imprisoned men and women, and longitudinal follow-up of prison receptions, to monitor accurately the number of children who experience parental imprisonment.

It is clear from the research reviewed here that the children of prisoners are an extremely high-risk group, and the best scientific methods should be used to test whether and how parental imprisonment affects them. The time is ripe for funding agencies and researchers to collaborate in implementing an ambitious research agenda to advance knowledge about the effects of parental imprisonment on children. We hope that our essay will encourage this goal to be achieved sooner rather than later.

#### APPENDIX

##### *A. Methods to Calculate Odds Ratios from Other Statistics*

Where research reports provided means and standard deviations for children of prisoners and controls, we calculated odds ratios using the following three steps:

1. The pooled standard deviation ( $s_{\text{pooled}}$ ) was calculated using the following formula:

$$s_{\text{pooled}} = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

(Lipsey and Wilson 2001, p. 173), where  $n_1$  = the number in group 1,  $n_2$  = the number in group 2,  $s_1$  = the standard deviation for group 1, and  $s_2$  = the standard deviation for group 2.

2. The standardized mean difference ( $ES_{sm}$ ) was calculated using the following formula:

$$ES_{sm} = \frac{M_1 - M_2}{s_{\text{pooled}}}$$

(Lipsey and Wilson 2001, p. 198), where  $M_1$  = the mean of group 1, and  $M_2$  = the mean of group 2.

3. The odds ratio (OR) was calculated from the standardized mean difference ( $ES_{sm}$ ) using the following formula:

$$\text{OR} = \exp(\pi ES_{sm} / \sqrt{3})$$

(Lipsey and Wilson 2001, p. 198).

Where research reports provided a correlation coefficient (Pearson's  $r$ ) for the association between parental imprisonment and child outcomes, an odds ratio was calculated by first estimating the standardized mean difference ( $ES_{sm}$ ), using the following formula:

$$ES_{sm} = \frac{2r}{\sqrt{1 - r^2}}.$$

Then the odds ratio was calculated using the equation in step 3, above.

### *B. New Analyses of Data from the Cambridge Study in Delinquent Development*

*1. Antisocial-Delinquent Outcomes.* Previous results on the association between parental imprisonment and boys' antisocial-delinquent outcomes can be found in Murray and Farrington (2005). For this essay, we analyzed the relationship between parental imprisonment and four new antisocial-delinquent outcomes: antisocial personality at age 48 and three conviction variables (convicted between ages 10 and 18, convicted between ages 19 and 32, and convicted between ages 33 and 50). The new measure of antisocial personality at age 48 was similar to the measure at age 32 and comprised 11 items (referring to the previous 5 years): convicted, self-reported delinquency, involved in fights, taken drugs, heavy drinking, poor relations with female partner, ever divorced or separated, unemployed for over 10 months, antiestablishment, impulsive, and tattooed.

Weighted mean odds ratios were calculated for outcomes in the Cambridge Study using the following three steps:

1. A weight ( $w_{\text{LOR}}$ ) was calculated for the natural logarithm of each odds ratio (LOR), using the following formula:

$$w_{\text{LOR}} = 1/se_{\text{LOR}}^2$$

(Lipsey and Wilson 2001, p. 54), where  $se_{\text{LOR}}$  = the standard error of the LOR.

2. The weighted mean LOR ( $\overline{ES}$ ) was calculated using the following formula:

$$\overline{ES} = \frac{\sum (w_i \text{LOR}_i)}{\sum w_i}$$

(Lipsey and Wilson 2001, p. 114), where  $\text{LOR}_i$  = the natural logarithm of each odds ratio, and  $w_i$  = the weight of each LOR.

3. The weighted mean odds ratio was calculated as the exponent of  $\overline{ES}$ .

2. *Mental Health Outcomes.* Previous results on parental imprisonment and boys' mental health outcomes in the Cambridge Study can be found in Murray and Farrington (2008). Previous results were mostly presented using continuous outcome variables. For this essay, we used dichotomized mental health outcome variables for consistency with the antisocial outcomes. Outcome scales (of neuroticism at ages 14 and 16, and anxiety-depression at ages 32 and 48) were dichotomized into the worst quarter versus the remainder. Weighted mean odds ratios were calculated for all four mental health outcomes, using the same formulas as above.

3. *Drinking, Drugs, Education, and Employment Outcomes.* For this essay, we analyzed three new drinking outcomes, three new drug outcomes, three new education outcomes, three new employment outcomes, and one new summary measure of poor life success (at age 48). All of these outcomes, apart from education outcomes and the combined life-success scores, were based on self-reports of the study males. As far as possible, having a problem present was defined as being in the worst quarter in the sample.

Binge drinking at age 18 referred to having drunk over 13 units of alcohol in one evening during the previous month. Drinking problems at ages 32 and 48 referred to combined measures of drunk driving, heavy drinking, binge drinking, and a high CAGE alcoholism score (Mayfield, McLoed, and Hall 1974). Drugs at age 18 referred to ever having taken an illicit drug. Drugs at ages 32 and 48 referred to the use of cannabis or other drugs during the previous 5 years. School failure at age 14 referred to low class position according to school records. Truant at age 14 referred to being truant according to the boy's teacher. No exams at age 18 referred to no school examinations having been taken or passed. Unemployed at age 18 referred to having been unemployed for over 5 weeks in the previous year. Unemployed at age 32 referred to having been unemployed for over 5 months in the previous 5 years. Unemployed at age 48 referred to having been unemployed for over 10 months in the previous 5 years. Poor life success at age 48 was a combined scale, based on accommodation history, cohabitation

history, employment history, involvement in fights, alcohol use, drug use, self-reported offending, anxiety-depression, and convictions over the previous 5 years (Farrington et al. 2006).

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