

# Parental imprisonment: effects on boys' antisocial behaviour and delinquency through the life-course

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**Background:** Prisoners' children appear to suffer profound psychosocial difficulties during their parents' imprisonment. However, no previous study has examined later-life outcomes for prisoners' children compared to children separated from parents for other reasons. We hypothesise that parental imprisonment predicts boys' antisocial and delinquent behaviour partly because of the trauma of separation, partly because parental imprisonment is a marker for parental criminality, and partly because of childhood risks associated with parental imprisonment. **Method:** This study uses prospective longitudinal data from the Cambridge Study in Delinquent Development (CSDD). The CSDD includes data on 411 Inner London males and their parents. We compare boys separated by parental imprisonment during their first 10 years of life with four control groups: boys who did not experience separation, boys separated by hospital or death, boys separated for other reasons (usually disharmony), and boys whose parents were only imprisoned before their birth. Individual, parenting, and family risk factors for delinquency were measured when boys were aged 8–11. Eleven antisocial and delinquent outcomes were assessed between ages 14 and 40. **Results:** Separation because of parental imprisonment predicted all antisocial–delinquent outcomes compared to the four control conditions. Separation caused by parental imprisonment was also strongly associated with many other childhood risk factors for delinquency. After controlling for parental convictions and other childhood risk factors, separation caused by parental imprisonment still predicted several antisocial–delinquent outcomes, even up to age 32, compared with other types of separation. **Conclusions:** Prisoners' children are a highly vulnerable group with multiple risk factors for adverse outcomes. Parental imprisonment appears to affect children over and above separation experiences and associated risks. Further research on possible moderating and mediating factors such as stigma, reduction in family income and reduced quality of care is required to identify the mechanisms by which parental imprisonment affects children. **Keywords:** Parent, prison, intergenerational, crime, antisocial behaviour.

Since Bowlby reported an association between parent–child separation and delinquency (Bowlby, 1946), research has continued to show that children from disrupted families are at increased risk of antisocial behaviour and delinquency compared to children from intact homes (Juby & Farrington, 2001). However, it is still unclear whether it is separation that causes children's difficulties in disrupted families, or whether it is risks associated with the disruption. Different types of parent–child separation are likely to carry different meanings for children. For example, children who experience parental divorce are more likely to become delinquent than children who experience parental death (Juby & Farrington, 2001). In this article we investigate the effects of parental imprisonment on children, and examine the hypothesis that parent–child separation caused by parental imprisonment is more harmful for children than separation because of other reasons. We use the term 'imprisonment' to refer to any form of custodial confinement, including local or training prisons (in the UK) or jail or prison (in the USA).

We found 35 previous studies of prisoners' children. Only 13 of them included any direct interviews with children; only 11 used standardised instruments or official records to measure children's outcomes; only 6 used a longitudinal design; only one followed up prisoners' children for more than one year; and only 10 included a control group of children who did not experience parental imprisonment. Because of limited space, literature on prisoners' children is only briefly reviewed here (for more detailed reviews see Johnston, 1995, and Murray, in press).

Although previous studies of prisoners' children have numerous methodological weaknesses, they consistently report that children experience a range of psychosocial problems during parental imprisonment, including: depression, hyperactivity, aggressive behaviour, withdrawal, regression, clinging behaviour, sleep problems, eating problems, running away, truancy, poor school grades and delinquency. Unfortunately, there is almost no evidence on outcomes for prisoners' children in later life. It is often stated that prisoners' children are six times

more likely than their peers to be imprisoned themselves; however, there appears to be no documented evidence to support this claim (Myers, Smarsh, Amlund-Hagen, & Kennon, 1999). The challenge for research is to establish the actual risk of adverse outcomes among prisoners' children, particularly in later life, and to identify the mechanisms by which parental imprisonment affects children.

### *Parental imprisonment as a risk mechanism*

There are a number of mechanisms by which parental imprisonment might affect children. According to trauma theories, parental loss in the form of separation or abandonment directly causes children's adjustment difficulties in the short and long term (Bowlby, 1973). The only study which compared prisoners' children with children separated from parents for other reasons (divorce) found similarly high rates of 'poor self-concept' and behavioural problems among the two groups of children (Moerk, 1973). However, the study relied on mothers' reports of children's adjustment and did not examine outcomes in later life. Parental imprisonment might imply worse outcomes for children, particularly antisocial outcomes, because prisoners' children might model their parents' behaviour. In Sack's clinic study some of the boys with fathers in prison mimicked their fathers' crimes (Sack, 1977). Parental imprisonment might also have an official labelling or stigmatising effect on children, making prisoners' children more likely to be prosecuted for their crimes. In this study we compare children according to whether they were separated because of parental imprisonment or for other reasons. We use both official and self-reported measures of delinquency to consider the labelling hypothesis.

Individual, parenting, and family risk factors might also mediate the effects of parental imprisonment on children. Qualitative research suggests that parental imprisonment can lead to severe financial hardship for prisoners' families and relationship breakdowns, which can have knock-on effects on children. Children's care arrangements are also likely to be disrupted by parental imprisonment, particularly when mothers are imprisoned, and remaining carers might experience reduced capacity to support and supervise children. It is also possible that the experience of imprisonment reduces imprisoned parents' capacity to care for their children when they are released. Other possible mechanisms linking parental imprisonment and children's antisocial behaviour–delinquency include: traumatic experiences of prison visits (Richards et al., 1994); and inadequate explanations given to children about their parents' absence. In Shaw's (1992) study, one-third of children with a father in prison were told lies to explain their father's absence, and a further third were told nothing at all.

### *Parental imprisonment as a risk marker*

A critical question is whether parental imprisonment represents a risk mechanism for children (as outlined above) or whether it is only a marker for other risk factors (as we outline here). Of course, it is possible that parental imprisonment is both a risk mechanism and risk marker, which we hypothesise in this study. Parental imprisonment is likely to confer genetic risk for antisocial behaviour and delinquency among children, even before parents are imprisoned. In a retrospective study among prisoners' children, Crowe (1974) found that adopted children of incarcerated biological mothers were more likely than controls to have been arrested, incarcerated, and have a psychiatric record at age 25. If the effect of parental imprisonment on children were very highly genetic then the timing of parental imprisonment would be of little importance. In this paper we compare children's outcomes according to whether parents were imprisoned before or after children's births.

Prisoners are also more likely to have previous criminal convictions than the general population. In the Cambridge Study in Delinquent Development (CSDD), parental convictions was one of the most important predictors of later offending by the Study males (Farrington, 2003). Only two projects have tested whether prisoners' children are more likely to have delinquent outcomes than children with convicted parents who received a non-custodial sentence (Osborn & West, 1979; Stanton, 1980). Although both found higher rates of delinquency among prisoners' children, neither controlled for the number of parental convictions, which might have influenced the results. In this study we control for the number of parental convictions when comparing prisoners' children with controls.

Prisoners' children are also likely to be exposed to parenting and family risk factors for delinquency before the imprisonment takes place. Prisoners are more likely to have been unemployed, to be of low social class, have multiple mental health problems, marital difficulties, and to have their own experiences of abuse and neglect than the general population (Dodd & Hunter, 1992; Singleton, Meltzer, Gatward, Coid, & Deasy, 1998) In this study we control for individual, parenting, and family risk factors that previously were shown to predict boys' antisocial behaviour and delinquency in the CSDD (Farrington, 2003), and that are associated with parental imprisonment.

### *The present study*

We use data on male children in the CSDD and their mothers and fathers to examine outcomes of children separated because of parental imprisonment. Use of the CSDD represents a considerable advance on previous research into the effects of parental

imprisonment on children. This is the first time that a prospective longitudinal study has been used to investigate long-term effects of parental imprisonment. It is the first time that appropriate control groups of children have been used, including children separated from parents for other reasons and children of parents who have been imprisoned only before the child's birth. It is the first time that prisoners' children have been studied using a wide range of standardised measures derived from the children themselves, their parents, their teachers, social workers, psychologists, and official criminal records. We test four hypotheses about the effects of parental imprisonment on children's antisocial-delinquent behaviour through the life-course. Although some children might actually benefit from having an antisocial parent imprisoned (Shaw, 1992), we hypothesise that, on average, parental imprisonment will have a negative impact on children.

### Hypotheses

1. Separation because of parental imprisonment predicts boys' own antisocial and delinquent outcomes through the life-course.
2. Separation because of parental imprisonment predicts worse outcomes for boys than other forms of parent-child separation, and worse outcomes than parental imprisonment before the boy's birth.
3. Parental imprisonment is associated with many other childhood risk factors for delinquency (i.e., parental imprisonment is a risk marker).
4. Parental imprisonment still predicts boys' antisocial-delinquent outcomes after controlling for parental convictions, and after controlling for other childhood risk factors (i.e., parental imprisonment is a plausible risk mechanism).

### Method

The CSDD is a prospective longitudinal survey of the development of offending and antisocial behaviour in 411 males. At the time they were first contacted in 1961-62, these males were all living in a working-class inner-city area of South London. The sample was chosen by taking all the boys who were then aged 8-9 and on the registers of 6 state primary schools within a one-mile radius of a research office that had been established. Hence, the most common year of birth of these males was 1953. In nearly all cases (94%) their family breadwinner at that time (usually the father) had a working-class occupation (skilled, semi-skilled or unskilled manual worker). Most of the males were white (97%) and of British origin. The study was originally directed by Donald J. West, and it has been directed since 1982 by David P. Farrington, who has worked on it since

1969. It has been funded mainly by the Home Office and also by the Department of Health.

In this article we compare five mutually exclusive groups of boys according to whether they were separated from a parent, and according to whether their parent was imprisoned. The experimental group consists of 23 boys who experienced parental imprisonment in their first 10 years of life. The first control group consists of 227 boys who did not experience parent-child separation in their first 10 years, and whose parents were not imprisoned at any time before the boys' 18th birthdays. The second control group consists of 77 boys whose parents were not imprisoned, but who experienced separation from either parent in their first 10 years because of hospitalisation or parental death. The third control group consists of 61 boys whose parents were not imprisoned, but who experienced separation from either parent in their first ten years for other reasons than hospitalisation or death. The fourth control group consists of 17 boys of parents who were imprisoned before the boy's birth, but not again between the boy's birth and his 18th birthday.<sup>1</sup>

Given the small number of cases of parental imprisonment, individual outcomes were less important than average effects on boys' antisocial-delinquent behaviour across the life-course. We used *t*-tests and meta-analyses of odds ratios to investigate average effects of parental imprisonment on boys' outcomes through the life-course. Outcomes used in meta-analyses are derived from the same subjects in the study, and component measures of antisocial personality include some of the other outcomes that we measure separately (see Measurement below). Therefore, the assumption of independence of measurements is not fully met in these analyses.

In the final analyses, logistic regression was used to control for effects of parental convictions and other childhood risk factors previously shown to predict boys' antisocial-delinquent outcomes. Because logistic regression excludes missing data case-wise and we wanted to maximise the number of cases, we only included control variables that independently predicted outcomes. To identify which of the risk factors were independent predictors (and not just correlates) of antisocial and delinquent outcomes, all twelve age-10 risk factors (listed in Table 2) were entered in a forward stepwise logistic regression model for each outcome variable. Those variables retained in the final step using  $p = .05$  as the cut-off point (listed in Table 3) were selected as control variables for the analyses of the explanatory variables.

<sup>1</sup> Six cases were excluded from analyses because boys' parents were first imprisoned between the boy's 11th and 18th birthdays, and we wanted the explanatory variable to be genuinely predictive of outcomes.

### Measurement

Most outcomes and childhood risk factors in the study were dichotomised into the worst quarter versus the remainder. As well as simplifying the presentation of results, dichotomous variables do not necessarily cause a decrease in measured strength of associations; they equate the sensitivity of measurement of all variables, and make it possible to compare the predictive strengths of explanatory variables (Farrington & Loeber, 2000). Measures and major findings on earlier phases of the study have been reported in four books (West, 1969, 1982; West & Farrington, 1973, 1977) and in many publications, including two summary articles (Farrington, 1995, 2003).

### Parental imprisonment and parent-child separations

For the present analyses, cases of parental imprisonment were identified from searches of the central Criminal Record Office in London for findings of guilt of boys' biological parents. Parents had to be convicted for a relatively serious offence to have a criminal record; offences of common assault, traffic infractions and drunkenness are excluded from these records. Social workers' files were used to identify further cases of parental imprisonment for minor offences or on remand (up to the boys' 15th birthdays). Parents must have been imprisoned for at least one month to appear on social worker files. Four cases were coded as 'no parent imprisoned' where parents had only been held in custody for one day.

According to these criteria, 20 boys' fathers had been to prison, two boys' mothers had been to prison, and one boy's mother and father had been to prison in the boys' first 10 years of life. The mean time these boys' parents were imprisoned during the boys' first 10 years of life was 9.6 months ( $SD = 14.2$ ). None of the boys were permanently separated from their parent before the imprisonment. Boys who were separated from their parents by hospitalisation or death, or for other reasons (usually disharmony), were separated for at least one month from their operative parent up to age 10 (see West & Farrington, 1973). Separations were coded according to repeated inquiries with the boys' parents by successive social workers.

### Boys' outcomes

We chose to analyse mainly antisocial and delinquent outcomes because they are the best measures available in the CSDD. However, we believe that other possible effects of parental imprisonment, for example on internalising behaviours, ought to receive similar research attention. Official criminal history measures were derived from searches of the central Criminal Record Office in London (see Farrington, Barnes, & Lambert, 1996). Self-reported delinquency and violence were measured in interviews with cohort members at ages 18 and 32 (West & Farrington, 1973). Antisocial personality scales were derived from interviews with the boys themselves, parents, teachers, and official records. Antisocial personality at age 14 is a combined scale

including: convicted, self-reported delinquency, steals outside home, regular smoking, had sex, bully, lies frequently, lacks concentration/restless, daring, frequently disobedient, hostile to police, truant. At age 18 the antisocial personality scale included: convicted, self-reported delinquency, self-reported violence, involvement with an antisocial group, taken drugs, heavy smoking, heavy drinking, drunk driving, irresponsible sex, heavy gambling, an unstable job record, an anti-establishment attitude, tattooed, and impulsive. At age 32 the antisocial personality scale included: convicted, self-reported delinquency, involved in fights, taken drugs, heavy drinking, poor relationship with parents, poor relationship with wife, divorced or child elsewhere, unemployed frequently, anti-establishment, tattooed, and impulsive. For further details on all measures of antisocial personality, including inter-correlations, see Farrington (1991). Poor life success at age 32 was measured from interviews with Study males and official records on the basis of accommodation history, cohabitation history, success with children, employment history, recent fights, abuse of substances, recent self-reported offences, GHQ score (measuring anxiety-depression), and recent criminal convictions (see Farrington, 1989).

### Childhood risk factors

Individual, parenting and family risk factors were measured when boys were aged 8–11. For convenience they are referred to as age-10 risk factors. These are the most important risk factors measured in the CSDD. Their importance as predictors of antisocial outcomes has been demonstrated elsewhere (see Farrington, 2003). Low junior attainment was measured by Arithmetic, English and verbal reasoning tests. IQ was measured on Raven's Progressive Matrices test. Daring was based on teachers' and parents' ratings of the boy's propensity to take risks. The boys' parents provided details about such things as family income, family size (also checked against school records), the social class of the family breadwinner, and their degree of supervision of the boy. Poor attitudes of mothers and fathers reflected combined scales of cruel, passive or neglecting attitudes, and harsh or erratic discipline. Neuroticism of fathers and mothers refers to a combined measure of the parents' nervousness and psychiatric treatment (and neuroticism in the case of mothers). Further details of these and other childhood risk factors in the study can be found in West and Farrington (1973). Convictions of mothers and fathers up to when boys were age 10 were summed to create the 'parents' convictions' variable.

## Results

### Parental imprisonment as a predictor of antisocial-delinquent behaviour

Separation because of parental imprisonment was a strong predictor of antisocial and delinquent outcomes of boys through the life-course (Table 1). For example, 71% of boys who experienced parental imprisonment during childhood had antisocial per-

**Table 1** Parental imprisonment versus sons' outcomes

| Sons' outcomes (Age)           | History of parental imprisonment              |   |   |                                       |                                  | Odds ratios      |       |      |       |
|--------------------------------|---|---|---|---------------------------------------|----------------------------------|------------------|-------|------|-------|
|                                | No prison (A)<br>no separation<br>% (n = 227) | No prison (B)<br>separated <sup>b</sup><br>% (n = 77) | No prison (C)<br>separated <sup>c</sup><br>% (n = 61) | Prison (D)<br>pre-birth<br>% (n = 17) | Prison (E)<br>0-10<br>% (n = 23) | E/A              | E/B   | E/C  | E/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   |
| Poor life success (32)         | 20.1  | 19.2  | 35.2  | 26.7                                  | 52.4                             | 4.4*             | 4.6*  | 2.0  | 3.0   |
| Convicted juvenile (10-16)     | 15.9  | 16.9  | 26.2  | 29.4                                  | 47.8                             | 4.9*             | 4.5*  | 2.6  | 2.2   |
| Self-reported delinquency (18) | 24.0  | 18.6  | 20.0  | 40.0                                  | 52.4                             | 3.5*             | 4.8*  | 4.4* | 1.7   |
| Self-reported violence (18)    | 18.0  | 15.7  | 25.0  | 20.0                                  | 42.9                             | 3.4*             | 4.0*  | 2.3  | 3.0   |
| Convicted (17-25)              | 21.9  | 20.8  | 34.4  | 52.9                                  | 65.2                             | 6.7*             | 7.1*  | 3.6* | 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 adult (26-40)        | 14.1  | 18.2  | 24.6  | 31.3                                  | 47.8                             | 5.6*             | 4.1*  | 2.8* | 2.0   |
| Imprisoned by 40               | 8.1   | 9.2   | 11.5  | 6.3                                   | 30.4                             | 4.9*             | 4.3*  | 3.4* | 6.6   |
|                                | 2.2   | 2.2   | 3.5   | 4.2                                   | 6.7                              | 5.7*             | 5.9*  | 3.4* | 2.6*  |
|                                | Mean number of outcomes                       |   |   |                                       |                                  | Weighted mean OR |       |      |       |

\*95% confidence interval does not include 1.

Note: Some numbers on individual outcomes are lower than the total n because of missing cases.

<sup>b</sup>Parent-son separation within first ten years of son's life because of death or hospitalisation.

<sup>c</sup>Parent-son separation within first ten years of son's life for reasons other than death/hospitalisation/imprisonment.

**Table 2** Parental imprisonment versus childhood risk factors

| Risk Factors (Age 10)  | History of parental imprisonment              |   |   |                                       |                                  | Odds ratios      |      |      |      |
|------------------------|---|---|---|---------------------------------------|----------------------------------|------------------|------|------|------|
|                        | No prison (A)<br>no separation<br>% (n = 227) | No prison (B)<br>separated <sup>b</sup><br>% (n = 77) | No prison (C)<br>separated <sup>c</sup><br>% (n = 61) | Prison (D)<br>pre-birth<br>% (n = 17) | Prison (E)<br>0-10<br>% (n = 23) | E/A              | E/B  | E/C  | E/D  |
| Low junior attainment  | 21.7  | 14.5  | 17.0  | 40.0                                  | 54.5                             | 4.3*             | 7.1* | 5.9* | 1.8  |
| Low IQ                 | 19.4  | 24.7  | 26.2  | 52.9                                  | 52.2                             | 4.5*             | 3.3* | 3.1* | 1.0  |
| High daring            | 27.0  | 24.7  | 36.7  | 41.2                                  | 45.5                             | 2.3              | 2.5  | 1.4  | 1.2  |
| Poor supervision       | 9.0   | 26.8  | 24.6  | 20.0                                  | 42.9                             | 7.5*             | 2.1  | 2.3  | 3.0  |
| Poor attitude father   | 16.9  | 14.9  | 31.9  | 28.6                                  | 42.1                             | 3.6*             | 4.1* | 1.6  | 1.8  |
| Poor attitude mother   | 27.6  | 35.2  | 20.0  | 13.3                                  | 30.0                             | 1.1              | .8   | 1.7  | 2.8  |
| Neurotic father        | 17.8  | 30.9  | 16.3  | 14.3                                  | 33.3                             | 3.5*             | 1.7  | 2.6  | 3.0  |
| Neurotic mother        | 27.7  | 34.2  | 21.8  | 33.3                                  | 15.8                             | .7               | .5   | .7   | .4   |
| Poor marital relations | 16.3  | 22.9  | 41.7  | 28.6                                  | 36.8                             | 3.0*             | 2.0  | .8   | 1.5  |
| Large family size      | 15.7  | 28.0  | 17.5  | 40.0                                  | 61.9                             | 8.7*             | 4.2* | 7.6* | 2.4  |
| Low family SES         | 14.3  | 18.7  | 24.6  | 13.3                                  | 47.6                             | 5.4*             | 4.0* | 2.8  | 5.9* |
| Low family income      | 12.6  | 22.7  | 33.3  | 20.0                                  | 61.9                             | 11.3*            | 5.5* | 3.3* | 6.5* |
|                        | 2.3   | 3.0   | 3.4   | 3.8                                   | 5.4                              | 3.8*             | 2.2* | 2.1* | 1.6* |
|                        | Mean number of risks                          |   |   |                                       |                                  | Weighted mean OR |      |      |      |

\*95% confidence interval does not include 1.

Note: Numbers on individual outcomes might be lower than the total n because of missing cases and deleted brothers.

<sup>b</sup>Parent-son separation within first ten years of son's life because of death or hospitalisation.

<sup>c</sup>Parent-son separation within first ten years of son's life for reasons other than death/hospitalisation/imprisonment.

sonalities at age 32, compared to only 19% of boys who were not separated and whose parents never went to prison (OR = 10.6, 95% CI = 3.9 to 28.9). Conventionally, an odds ratio of 2.0 or greater is considered to indicate a strong relationship (Cohen, 1996). Odds ratios were large for 10 out of 12 comparisons of self-reported delinquency and violence, suggesting that the effects of parental imprisonment were not accounted for by official labelling of prisoners' families.

We compared the average number of antisocial-delinquent outcomes for prisoners' sons and controls. For each boy we added up the number of

adverse outcomes out of 11. Boys who were separated because of parental imprisonment had, on average, more antisocial-delinquent outcomes (M = 6.7, SD = 3.7) than boys who did not experience separation from a parent (M = 2.2, SD = 2.9) ( $t = 5.47, df = 24, p < .001$ ). Boys separated because of parental imprisonment also had more antisocial-delinquent outcomes than boys separated by hospitalisation or death (M = 2.2, SD = 3.0) ( $t = 5.88, df = 94, p < .001$ ) and boys who were separated for other reasons (M = 3.5, SD = 3.6) ( $t = 3.61, df = 80, p = .001$ ). Separation because of parental imprisonment conferred more risk on boys than

separation for other reasons. Boys who were separated because of parental imprisonment also had more negative outcomes than boys whose parents had been to prison only before the boy was born ( $M = 4.2$ ,  $SD = 2.7$ ) ( $t = 2.27$ ,  $df = 36$ ,  $p = .029$ ). This suggests that the effects of parental imprisonment were not very highly genetic.

### Parental imprisonment as a risk marker

To the extent that parental imprisonment is a risk marker, boys separated because of parental imprisonment should have the highest average number of individual, parenting, and family risk factors for delinquency compared to all four control groups. This was indeed the case (Table 2). For each boy we added up the number of risk factors out of 12. Boys separated because of parental imprisonment had, on average, more risk factors ( $M = 5.4$ ,  $SD = 2.1$ ) than boys who were not separated from a parent ( $M = 2.3$ ,  $SD = 2.1$ ) ( $t = 6.56$ ,  $df = 241$ ,  $p < .001$ ). Boys separated because of parental imprisonment also had more risk factors than boys separated by hospitalisation or death ( $M = 3.0$ ,  $SD = 2.3$ ) ( $t = 4.27$ ,  $df = 94$ ,  $p < .001$ ) and boys separated for other reasons ( $M = 3.4$ ,  $SD = 2.4$ ) ( $t = 3.18$ ,  $df = 76$ ,  $p = .002$ ). Although boys separated because of parental imprisonment had more risk factors than boys whose parents were only imprisoned before the boy's birth ( $M = 3.8$ ,  $SD = 2.7$ ) the difference was not quite significant ( $t = 1.86$ ,  $df = 34$ ,  $p = .072$ ).

Unsurprisingly, the number of parents' criminal convictions (regardless of sentences following them) was higher for boys separated by parental imprisonment ( $M = 5.2$ ,  $SD = 4.1$ ) than for boys who were not separated from their parents ( $M = .2$ ,  $SD = .6$ )

( $t = 5.64$ ,  $df = 20$ ,  $p < .001$ ). The number of parental convictions was also higher for boys separated because of parental imprisonment than boys separated by hospitalisation or death ( $M = .5$ ,  $SD = 1.0$ ) ( $t = 5.32$ ,  $df = 21$ ,  $p < .001$ ) and boys separated for other reasons ( $M = .5$ ,  $SD = .9$ ) ( $t = 5.27$ ,  $df = 21$ ,  $p < .001$ ). The number of parental convictions was higher for boys separated because of parental imprisonment than for boys whose parents were only imprisoned before the boy's birth ( $M = 3.6$ ,  $SD = 2.1$ ) but the difference was not significant ( $t = 1.58$ ,  $df = 32$ ,  $p = .124$ ).

### Parental imprisonment as an independent predictor

Parental imprisonment during childhood was a clear marker of a number of risk factors for children's own antisocial behaviour and delinquency, including a high number of parental convictions. Next we estimated the effect of separation because of parental imprisonment on antisocial outcomes, controlling for the effects of parents' convictions and independently predictive childhood risk factors, using logistic regression. Boys separated by parental imprisonment were compared to each control group in turn (Table 3-6).

Parental imprisonment still predicted several adverse outcomes for boys even after controlling for parental convictions (first column, Table 3). All three odds ratios for antisocial personality were large and significant, and the weighted mean of all 11 odds ratios was large (2.7) and significant ( $CI = 1.8-4.2$ ). This suggests that parental imprisonment is not just an indicator of parental criminality, but confers specific risk on children. When independently predictive risk factors were also added to the model

**Table 3** Effects of parental imprisonment compared with no separations

| Sons' outcomes (Age)           | Partial odds ratios for parental imprisonment<br>(Prison 0-10 vs. No prison, no separation) |   |   |
|--------------------------------|---|---|---|
|                                | Controlling for<br>parents' convictions   | Controlling for parents'<br>convictions and childhood<br>risk factors | Childhood risk factors included in<br>final models (Table 3-6)  |
| Antisocial personality (14)    | 4.0*  | 2.2   | Junior attainment, IQ, Daring                                   |
| Antisocial personality (18)    | 7.4*  | 3.2   | IQ, Daring, Mother's attitude,<br>Neurotic mother, Family size  |
| Antisocial personality (32)    | 5.1*  | 4.1*  | IQ, Daring, Family size   |
| Poor life success (32)         | 2.1   | 1.5   | Family income   |
| Convicted juvenile (10-16)     | 1.4   | .8  | IQ, Daring, Family size   |
| Self-reported delinquency (18) | 1.7   | 1.5   | Daring  |
| Self-reported violence (18)    | 2.1   | 1.3   | Daring, Family size   |
| Convicted (17-25)              | 3.3   | 2.3   | Junior attainment, Daring,<br>Parental supervision, Family size |
| Self-reported delinquency (32) | 2.5   | 2.5   | None  |
| Convicted adult (26-40)        | 3.2   | 3.0   | Daring, Family size   |
| Imprisoned by 40               | 1.7   | .5  | Junior attainment, Daring,<br>Family size, Family SES           |
| Weighted Mean OR               | 2.7*  | 1.9*  |   |

\*95% confidence interval does not include 1.

**Table 4** Effects of parental imprisonment compared with separation through hospitalisation or death

| Sons' outcomes (Age)           | Partial odds ratios for parental imprisonment<br>(Prison 0–10 vs. No prison, separation by hospitalisation or death) |   |
|--------------------------------|--|---|
|                                | Controlling for parents' convictions   | Controlling for parents' convictions and childhood risk factors |
| Antisocial personality (14)    | 6.8*   | 6.4*  |
| Antisocial personality (18)    | 13.1*  | 16.1*   |
| Antisocial personality (32)    | 7.0*   | 7.0*  |
| Poor life success (32)         | 3.6  | 2.4   |
| Convicted juvenile (10–16)     | 2.5  | 1.1   |
| Self-reported delinquency (18) | 3.7  | 3.6   |
| Self-reported violence (18)    | 2.3  | 1.8   |
| Convicted (17–25)              | 4.8*   | 3.7   |
| Self-reported delinquency (32) | 3.9*   | 3.9*  |
| Convicted adult (26–40)        | 3.1  | 2.5   |
| Imprisoned by 40               | 2.5  | 1.1   |
| Weighted Mean OR               | 4.1*   | 3.2*  |

\*95% confidence interval does not include 1.

**Table 5** Effects of parental imprisonment compared with separation for other reasons

| Sons' outcomes (Age)           | Partial odds ratios for parental imprisonment<br>(Prison 0–10 vs. No prison, separation for other reasons <sup>c</sup> ) |   |
|--------------------------------|--|---|
|                                | Controlling for parents' convictions   | Controlling for parents' convictions and childhood risk factors |
| Antisocial personality (14)    | 2.2  | 2.5   |
| Antisocial personality (18)    | 5.4*   | 25.8*   |
| Antisocial personality (32)    | 2.7  | 2.3   |
| Poor life success (32)         | 1.1  | .8  |
| Convicted juvenile (10–16)     | 1.0  | .8  |
| Self-reported delinquency (18) | 2.3  | 4.1*  |
| Self-reported violence (18)    | 1.6  | 1.5   |
| Convicted (17–25)              | 2.0  | 1.2   |
| Self-reported delinquency (32) | 1.8  | 1.8   |
| Convicted adult (26–40)        | 1.9  | 1.5   |
| Imprisoned by 40               | 1.7  | .5  |
| Weighted Mean OR               | 1.9*   | 1.7*  |

\*95% confidence interval does not include 1.

<sup>c</sup>Separation for reasons other than death/hospitalisation/imprisonment.

(second column, Table 3), all three odds ratios for antisocial personality were still large (although not all significant). The weighted mean of all 11 odds ratios was large (1.9) and significant (CI = 1.2–3.0). This suggests that parental imprisonment is not just a marker of risk, but represents a risk mechanism.

Parental imprisonment remained an independent predictor when compared to separation caused by

**Table 6** Effects of parental imprisonment in childhood compared with before birth

| Sons' outcomes (Age)           | Partial odds ratios for timing of parental imprisonment<br>(Prison 0–10 vs. Prison before son's birth) |   |
|--------------------------------|--|---|
|                                | Controlling for parents' convictions   | Controlling for parents' convictions and childhood risk factors |
| Antisocial personality (14)    | 10.2*  | 17.0*   |
| Antisocial personality (18)    | 4.9  | 33.2*   |
| Antisocial personality (32)    | 3.6  | 3.7   |
| Poor life success (32)         | 2.9  | 2.3   |
| Convicted juvenile (10–16)     | 2.1  | 2.2   |
| Self-reported delinquency (18) | 1.7  | 1.7   |
| Self-reported violence (18)    | 2.9  | 2.9   |
| Convicted (17–25)              | 1.3  | 1.3   |
| Self-reported delinquency (32) | 1.6  | 1.6   |
| Convicted adult (26–40)        | 2.1  | 2.0   |
| Imprisoned by 40               | 5.0  | 6.0   |
| Weighted Mean OR               | 2.6*   | 2.6*  |

\*95% confidence interval does not include 1.

hospitalisation or death. Odds ratios for all outcomes in the study were large, even after controlling for parental convictions, and the weighted mean odds ratio was large and significant (OR = 4.1, CI = 2.7–6.3) (first column, Table 4). Moreover, all three odds ratios for antisocial personality were still large after controlling for independently predictive risk factors and the weighted mean odds ratio was large (3.2) and significant (CI = 2.0–5.1) (second column, Table 4).

Boys separated because of parental imprisonment also had worse outcomes than boys separated for other reasons (usually disharmony), even after controlling for parental convictions and childhood risk factors. After controlling for parental convictions, all odds ratios for antisocial outcomes were large, and the weighted mean of odds ratio was large (1.9) and significant (CI = 1.2–2.9) (first column, Table 5). After adding independently predictive risk factors to the model all three antisocial personality outcomes still had large odds ratios, and the weighted mean odds ratio was in the expected direction (1.7) and just significant (CI = 1.1–2.7) (second column, Table 5). Although the average effect was smaller than in some of the other comparisons, the increase in risk is impressive given that approximately half (48%) of boys separated for other reasons were in permanently disrupted homes at age 10, compared to only 13% of children who were separated because of parental imprisonment.

Finally, we compared boys who experienced parental imprisonment during childhood with boys whose parents only went to prison before the boy's birth. The timing of parental imprisonment remained predictive even after controlling for parental convictions (first column, Table 6). All three odds ratios for

antisocial personality were large, and the weighted mean odds ratio was large (2.6) and significant (CI = 1.7–4.1). Moreover, after adding childhood risk factors to the model the timing of parental imprisonment remained strongly predictive (weighted mean OR = 2.6, CI = 1.6–4.2) (second column, Table 6). This is perhaps the purest evidence of an effect of separation caused by parental imprisonment over and above the effect of parental convictions, other childhood risk factors, and even parental imprisonment before birth.

## Discussion

This study used prospective data from the Cambridge Study in Delinquent Development to investigate the effects of parental imprisonment on children's antisocial and delinquent outcomes through the life-course. Separation because of parental imprisonment was a strong predictor of all antisocial and delinquent outcomes in the study, even up to age 40. Separation because of parental imprisonment predicted worse outcomes for children than parent-child separation caused by other reasons. The effects of parental imprisonment remained, albeit reduced, even after controlling for parental criminality, childhood risk factors, and parent-child separation. Specifically, antisocial behaviours at ages 14, 18, and 32 were strongly predicted by the experience of parental imprisonment during childhood after controlling for other risk factors. The timing of parental imprisonment (whether it happened before or after the boy's birth) was also predictive of sons' outcomes (unlike the timing of parental convictions (Osborn & West, 1979)). These results confirmed our hypothesis that parental imprisonment represents a risk-mechanism for children, as well as a risk marker.

Qualitative research suggests that parental imprisonment affects children because of separation, stigma, loss of family income, reduced quality of care, poor explanations given to children, and children's modelling of their parents' behaviour. Our findings shed some light on these and other hypothesised mechanisms. The effects of parental imprisonment were not entirely explained by parental criminality, other associated risks, or parent-child separation. Parental imprisonment predicted worse outcomes than separation for other reasons (usually disharmony). Therefore, it is unlikely that the additional effects of parental imprisonment were explained by relationship breakdowns, changes in children's care arrangements, or loss of family income, which also tend to follow parental separation and divorce. The effects of parental imprisonment could not be explained by legal bias towards prisoners' children, because antisocial behaviours measured by self-reports, teachers' and parents' reports were also predicted by parental imprisonment.

We were unable to test the hypotheses that the effects of parental imprisonment were caused by stigma, modelling, or poor explanations given to children, and these warrant further research.

Several other possible interpretations of the results should be considered. First, with small numbers of prisoners' children ( $n = 40$ ) statistical conclusions are less reliable. Second, despite the fact that we controlled for a wide range of individual, parenting, and family variables, it is still possible that prisoners' children were deviant before their parents were imprisoned, or that unmeasured environmental differences accounted for their outcomes. Third, twin and adoption studies are needed to rigorously establish that the effects of separation caused by parental imprisonment were not genetic. Fourth, risk factors were measured at the same time as parental imprisonment in childhood. Therefore, we cannot tell if risk factors were present before the imprisonment, or were acting as mediating factors after the imprisonment. To the extent that parental imprisonment actually caused these risk factors, the effects of parental imprisonment were underestimated by controlling for childhood risk factors in this study. Finally, imprisonment was measured among parents of white males between 1953 and 1964. Since then, the prison population has grown dramatically; the proportion of prisoners in England and Wales with long-term sentences has increased; the proportion of women in prison has grown (Morgan, 1997) and, over the last decade, the Black and Minority Ethnic prison population increased by 124% (Home Office, 2004). Replication is required to establish whether results from this study would apply among today's prison population.

Nevertheless, this is the first prospective study of the outcomes of prisoners' children's outcomes through the life-course, and represents a substantial advance in methods for investigating the effects of parental imprisonment on children. Major strengths of this study are the high rate of retention among Study males (94% of those still alive at age 32 were interviewed), use of well-validated measures, and control of a wide variety of possible confounds.

The lesson for clinicians is that prisoners' children are a highly vulnerable group, and are likely to be disproportionately represented in clinical populations, as has been found previously in the USA (Phillips, Burns, Wagner, Kramer, & Robbins, 2002). Parental imprisonment increases the risk of antisocial outcomes for children for a number of reasons. It is associated with multiple background adversities, including individual risks, poor parenting, and family deprivation. At the time of a child's birth a history of parental imprisonment is associated with a number of risk factors (Princeton University, 2002). Our results suggest that children experiencing parental imprisonment during childhood are exposed to even more risk factors for delinquency than children whose parents were only imprisoned before their

birth. Separation *per se* did not appear to be an important explanatory factor for antisocial behaviour of children because prisoners' children had worse outcomes than children experiencing separation for other reasons. Prevention and treatment of behavioural problems of prisoners' children is likely to require intensive intervention, including all family members.

From a social policy point of view, it seems that imprisoning parents might cause antisocial behaviour and crime in the next generation, and hence contribute to the intergenerational transmission of offending. Clearly, extensive replication studies would be required to validate this hypothesis, but the issue cannot be ignored. If imprisoning parents does cause crime (or other adverse outcomes) among children, parenthood could be treated as a mitigating factor in sentencing, because of concerns about the child's welfare. Also, where parental imprisonment does occur, there could be an extensive range of family and child support services on offer. Sadly, at present, no statutory agency has responsibility for supporting prisoners' families and children in the UK (H. M. Treasury, 2003).

Future research should examine whether effects of parental imprisonment on children differ according to whether mothers or fathers are imprisoned; interaction effects, for example whether girls and boys have similar reactions to parental imprisonment; mediators between parental imprisonment and child outcomes; and whether parental imprisonment causes internalising disorders as well as antisocial behaviour. Future research should also examine whether effects are dependent on: the length of the parent's sentence and type of crime; children's ages; the amount of contact maintained between children and their imprisoned parent; the explanations given to children about their parent's absence; children's experiences of stigma; levels of social support; the social class and race of the family; and different neighbourhood contexts. The effects of parental imprisonment on children warrant a major research agenda to investigate this topic.

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