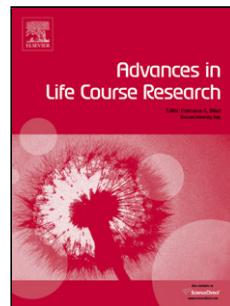


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The relationship between a parental conviction and a son's family formation

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ABSTRACT

This study investigated whether a parental conviction is related to a son's family formation. Using data from the *Cambridge Study in Delinquent Development* we found that parental crime was not related to whether sons marry, the age at which they marry, or the number of children they have. However, sons of convicted parents were younger when their first child was born, they separated more often than sons of unconvicted parents, and they also more often had a shotgun marriage. A son's own offending, impulsive behaviour, low socio-economic status (SES), and his parents' age at birth of the first child were all significant predictors decreasing the predictive power of parental crime for a son's family formation. Parental separation was not a significant predictor of a son's separation and parental violence did not increase the risk of a shotgun marriage. These results support the idea of intergenerational transmission of *risky behaviour* or an impulsive lifestyle. We also find some support for the intergenerational transmission of family formation characteristics. Third, adding low SES to the analysis reduced the strength of the relationship between parental crime and a son's family formation. We find less support for an *escape from home* mechanism; or the idea that offspring use a pregnancy or shotgun marriage to escape from an unsatisfactory home situation. We conclude that crime and some family formation variables are related, but that other variables are often stronger predictors of a son's family formation and therefore it is vital to investigate such relationships in multivariate analyses.

KEY WORDS: family formation, parental convictions, intergenerational transmission, crime.

INTRODUCTION

Adages such as 'the apple doesn't fall far from the tree' seem to suggest that parents and offspring resemble each other. We know, for example, that the offspring of convicted parents have an increased risk of committing crimes themselves (Besemer, 2012; Farrington, 2011; Thornberry, 2009; van de Weijer, 2014). However, not every child of a convicted parent exhibits criminal behaviour. Unconvicted children are either not caught, not affected by their parent's unlawful behaviour or perhaps they are affected in a different way. Their parent's behaviour might impact on another sphere of their lives. For instance, Huschek and Bijleveld (2011) found that girls with a convicted father were more likely to have a "non-normative" marriage pattern. This involved a turbulent marriage pattern including several divorces, children born out of wedlock or late childless marriages. A standard pattern, in contrast, consisted of a marriage followed by the birth of one or more children and a low prevalence of divorce (Huschek & Bijleveld, 2011). They investigated these family life trajectories in the NSCR Transfive sample for the 1950s and 1960s, a period of very standardized family life patterns (Huschek & Bijleveld, 2011). Instead of committing more crime, daughters of convicted parents might show different reactions to parental crime such as this non-standard marriage life.

Research into the relationship between parental offending and offspring family formation¹ is relatively new and scarce. Most research on intergenerational transmission has focused on just one aspect of behaviour – for example crime or family formation – thereby neglecting other behaviours that might be related to those singular behaviours. However, when investigating intergenerational continuity it is essential to consider the total picture of behaviour, since underlying problems can manifest themselves in different ways (Loeber, Hipwell, Battista, Sembower, & Stouthamer-Loeber, 2009). For instance, boys exhibit more externalising problem behaviour such as delinquency whereas girls suffer more from internalising problems such as depression (Capaldi, DeGarmo, Patterson, & Forgatch, 2002; Robins, 1986). This article investigates how parental criminal behaviour relates to a son's family formation. Specifically, we investigate whether a parental conviction is related to

¹ Family formation includes everything related to the formation of a family and refers to events such as marriage, cohabitation, divorce or separation, having children, etc.

whether sons marry, at what age they marry, whether they get separated², whether they experience a shotgun marriage³, at what age they have their first child, and the number of children they have. These six variables are important aspects of family formation and we expect that they might be related to parental criminal behaviour. This paper is the first to investigate these relationships and provides an overview of the empirical associations. We want to emphasize that we can only assess associations and cannot necessarily conclude anything about causation.

MECHANISMS

Why would we expect a relationship between a parental conviction and offspring family formation? Below we discuss five mechanisms or explanations through which parental crime and offspring family formation might be related. It is likely that these mechanisms are empirically intertwined and that a combination of mechanisms comes into play in the relationship between parental crime and offspring family formation.

Escape from home

One explanation given by Huschek and Bijleveld (2011), for the more turbulent life style of daughters of delinquent parents, is that women might have an early marriage or pregnancy as a means of escape out of a disturbed or a violent parental home. Nowadays getting married or becoming pregnant is less necessary for daughters to become independent and live on their own; the independence of women has increased considerably in the past decades. For people growing up in the 1960s and 1970s, however, the situation was different (Finch, 2003; Kuijsten, 1996). The *escape from home mechanism* would predict a correlation between parental conviction and children's early marriages, shotgun marriages, early age at parenthood and perhaps even separation, because marriages might be less stable when caused by pregnancy. One would expect this mechanism to be strong especially for

² Although the term 'divorce' might be more common, we use the word 'separation' throughout this paper, because both divorce and separation were measured. Technically, separation also includes divorce. The method section describes the operationalisation of this variable.

³ Shotgun marriages are marriages where the spouse was already pregnant, defined as cases where the child was born within seven months after the marriage.

daughters, because, compared with sons, they did not have other means of becoming independent. Sons could more easily get a job and their own place to live. Nonetheless, even sons may have preferred to live in a couple with a woman rather than live on their own.

Risky behaviour transmission

The second mechanism focuses on the intergenerational transmission of risky behaviour (West & Farrington, 1977). People who commit offences often encounter problems in other areas of their lives such as unemployment, substance (ab)use, unstable living accommodation, and relationships. Crime 'seems to be only one element of a larger syndrome of anti-social behaviour which arises in childhood and usually persists into adulthood' (Farrington, 1997, p. 363). Not only criminal behaviour, but also other related behaviours or circumstances, might be transmitted from parents to children. Successive generations may 'have disrupted family lives' or 'may experience single and teenage parenting' (Farrington, 2011, p. 132). Perhaps there is transmission of 'risky' and/or impulsive behaviour that can manifest itself in different ways: not only criminal behaviour but also unsafe sex may lead to early pregnancy, as well as unstable romantic relationships.

Resemblance in family characteristics

The third mechanism is more focused on the transmission of family formation rather than on the criminal life style or an unsatisfactory parental home situation. It suggests that the family formation itself is transmitted from parents to children. We know that children from larger families are more likely to have a large number of children themselves, that offspring whose parents have separated are more likely to separate themselves, and, similarly, children resemble their parents in the age at which they have offspring (Anderton, Tsuya, Bean, & Mineau, 1987; Barber, 2000; 2001; Furstenberg, Levine, & Brooks-Gunn, 1990; Horwitz, Klerman, Kuo, & Jekel, 1991; Kahn & Anderson, 1992; Kiernan, 1997; Kiernan & Cherlin, 1999; Murphy & Knudsen, 2002; Murphy & Wang, 2001; Rijken & Liefbroer, 2009; Steenhof & Liefbroer, 2008). Furthermore, coming from a large family and having teenage parents are risk factors for criminal behaviour (Farrington et al., 2006). Criminal behaviour and family formation characteristics are clearly correlated with each other, but this does not necessarily mean that parental criminal behaviour *causes* offspring family formation characteristics. The relationship could be spurious. For example, when offspring of

convicted parents have a large number of children, this might be more strongly related to the fact that their parents also had a large number of children rather than to the fact that their parents were criminal.

Figure 1 visually represents these first three mechanisms. Pathway A represents the escape from home mechanism where parental offending creates an unsatisfactory home situation and thereby impacts on an offspring's family formation. Pathway B represents the risky behaviour transmission and pathway C shows the intergenerational transmission of family formation.

- figure 1 about here -

Socio-Economic Status

Another reason why children of convicted parents might get separated more often could be because of the relationship between socio-economic status (SES) and both family formation and criminal behaviour. In England, lower SES is related to criminal convictions as well as to a higher divorce rate, young parenthood, early marriage and non-marital child-bearing (Berrington & Diamond, 2000; Besemer, 2012; Elliott, 1991; Elliott & Vaitilingam, 2008; Haskey, 1984; Hobcraft & Kiernan, 2001; Kiernan, 1997; Kiernan & Mueller, 1998). This suggests that there is not necessarily a *causal* relationship between parental crime and offspring family formation, but that the correlation might be explained by low SES, which might be transmitted from parents to children. Moreover, a parental conviction could lead to low SES because a conviction makes it hard to get a decent job. Crime and separation are both related to SES and consequently they might also be transmitted. The process depicted in figure 2 will then take place. The dashed lines in this model represent the earlier discussed risky behaviour and family formation transmission mechanism.

- figure 2 about here -

Stigma

Another possible reason for the different family formations of the offspring of convicted parents is stigma, which might make it harder for them to find an appropriate romantic partner (Rasmussen, 1996). This could lead to a lower prevalence of marriages among offspring of convicted parents and/or to unstable relationships and thus separation.

- figure 3 about here -

HYPOTHESES

Based on these mechanisms we have formulated the following hypotheses:

1. Sons of convicted parents are less likely to marry compared with sons of parents who have not been convicted⁴
2. Sons of convicted parents are more likely to separate compared with sons of parents who have not been convicted.
3. Sons of convicted parents are more likely to have had a shotgun marriage compared with sons of parents who have not been convicted.
4. Sons of convicted parents marry at a younger age than sons of parents who have not been convicted.
5. Sons of convicted parents are younger when their first child is born than sons of parents who have not been convicted.
6. Sons of convicted parents have more children than sons of parents who have not been convicted.

In this study, we will first test relationships between parental conviction and these family formation outcomes. If significant relationships exist, we will further test specific hypotheses derived from the mechanisms discussed above.

METHOD

SAMPLE

These hypotheses will be tested using data from the *Cambridge Study in Delinquent Development* (CSDD), which is a prospective longitudinal study that has followed 411 London males born around 1953. At the time they were first contacted in 1961-1962, these males were all living in a working-class inner-city area of South London. The sample was chosen by taking all of the boys who were then aged 8-9 and on the registers of six state primary schools within a

⁴ Based on the risky behaviour transmission one would predict more marriages for sons of convicted parents, but this will also be measured by hypothesis 2, because more than one marriage ultimately involves divorce. Hypothesis 1 measures whether people ever got married. Based on the idea of stigma, one might expect the proportion of people who have ever married to be lower among sons of convicted parents.

one-mile radius of a research office that had been established. Hence, the most common year of birth for these males was 1953. In nearly all cases (94%), their family breadwinner in 1961-1962 (usually the father) had a working class occupation (skilled, semi-skilled, or unskilled manual worker). Most of the boys were white, and of British origin. The males have been studied at frequent intervals between the ages of 8 and 48. Information about convictions and self-reported delinquency was collected over the course of these years (Farrington, Ttofi, Crago, & Coid, 2014). Additionally, police records of the males and their parents were collected. For more information and major results see West (1969; 1982), West and Farrington (1973; 1977), Farrington and West (1990), Farrington (1995; 2003), Farrington et al. (2006; 2009), Piquero, Farrington, and Blumstein (2007), and Farrington, Piquero, and Jennings (2013).

In this article, the original males are the sons for whom we measure the family formation outcomes. It is not possible to disaggregate the analyses by age cohort, time period or gender, since these males were all born in the same time period.

The males in this study lived in an inner-city area of South London between the 1950's and 1970's. The area where the boys were recruited had been an affluent area in the Victorian period characterised by large majestic Georgian terraces. However, this affluence was and still is mixed with areas of deprivation, notably, run down terraces primarily in the private rental market originally, as noted by Farrington and West (1995, p. 256) '... even older were the streets of damp, decaying terraced houses built for workers in the Victorian times with outside lavatories and no indoor bathroom'. When state owned housing was introduced in the mid to late 1960's these terraces were systematically 'pulled down' to make way for large estates of houses and high rise blocks of flats. These high rise blocks of flats particularly were, and still are today, characterised by a lack of facilities for children to play, and vandalism and graffiti are rife.

Similar to the rest of Western Europe, England experienced a change in family formation patterns after the 1960s (Skardhamar & Lyngstad, 2009; Skardhamar, Monsbakken, & Lyngstad, 2014). The rate of marriage increased considerably in the 1960's and 1970's, and this time has been referred to as the 'golden age' of marriage (Kiernan, 2004, p. 35). From a socio-historical context men and women who wanted to live together at this time would more likely marry than cohabit. In the event of an unplanned pregnancy, a high percentage of men in the *CSDD* would be expected to marry the girl (West & Farrington,

1977). For more information on family formation in the historical time period that the *CSDD* men grew up in, readers are referred to the extensive research carried out on the 1958 British Cohort, the National Child Development Study (Berrington, 2001; Berrington & Diamond, 1999; 2000; Elliott & Vaitilingam, 2008; Kulu & Steele, 2013; Power & Elliott, 2006; Steele, Joshi, Kallis, & Goldstein, 2006a; Steele, Kallis, & Joshi, 2006b; Steele, Kallis, Goldstein, & Joshi, 2005).

VARIABLES

Predictor variable: parental criminal convictions

The predictor variable was whether any (biological) parent was convicted up to their son's 19th birthday. We chose to measure parental convictions up to this age because the family formation variables were measured from this age. In this way, the temporal relationships between parental conviction and family formation variables are unambiguous. Convictions were searched for in the central Criminal Record Office in London (see Farrington, Barnes, & Lambert, 1996). We used the date when the offence was committed to time the delinquency. Offences were defined as acts leading to convictions. We counted convictions for relatively serious offending, ranging from theft, burglary, and fraud to robbery, sexual offences and causing grievous bodily harm. Minor offences such as drunkenness and traffic offences were excluded, because they were not recorded in the Criminal Record Office. Violent behaviour included sexual offences, insulting or threatening behaviour, robbery, assault, wounding, murder and manslaughter.⁵ Convictions for weapon offences were also included in the definition of violence, since Farrington (2001) previously demonstrated in the *CSDD* that over half of those convicted of possessing an offensive weapon also had a conviction for a violent crime.

Outcome variables: family formation

The outcome variables are the following family formation variables:

1. Ever married – whether sons were ever married up to age 48.

⁵ This follows the UK Home Office and CBS (Statistics Netherlands) standard offence classification of violence (Kalidien & de Heer-de Lange, 2011; Research Development and Statistics Directorate, 1998).

2. Ever separated – whether sons were ever separated up to age 48. Only sons who were ever married were included in this variable. A man was considered separated if he remained separated but cohabited with another woman, if he divorced and remarried or if he divorced and remained single up to the age of 48.
3. Shotgun marriage – marriages where the spouse was already pregnant, defined as cases where the child was born within seven months after the marriage.
4. Age at first marriage.
5. Age at first child.
6. Number of children – this variable is calculated only for sons who had children.

Table 1 shows correlations between the different family formation variables. The strongest correlation is between the age at first marriage and the age at the birth of the first child. This is hardly surprising, since the first child was usually close to the time of the first marriage. Moreover, a younger age at the birth of their first child is related to more children, a finding previously reported by Billari and Borgoni (2005). Also not surprisingly, shotgun marriage was related to early age at both the first child and at marriage and more children.

- Table 1 about here -

The first three family formation variables are dichotomous while the other three are continuous. Information about these variables was gathered during the interviews with the men. The age 32 and 48 interviews were the most important for gathering information on the man's relationships, dates of marriage, and separations and divorces. At age 48, 93% of the original men were interviewed. Great efforts were made to locate and interview as many of the men in the sample as possible at age 48 because the most interesting (i.e. most antisocial) persons in any criminological project tend to be the most difficult to locate and the most uncooperative (Farrington, Gallagher, Morley, St Ledger, & West, 1990; Navratil, Green, Loeber, & Lahey, 1994). Up to age 48, 17 of the men had died, of whom 13 had been convicted. Of the 394 men who were alive, five could not be traced and 24 refused to be interviewed. Information was collected from the remaining 365 men representing 93% of the total group (Farrington et al., 2006).

We also investigated whether the men who were interviewed at age 48 differed from those who were not interviewed. First, we investigated whether being not interviewed was related to the distance from our office of the man's home. Men who lived closest to the office and those living abroad were most likely to be not interviewed. The explanation for this is that the most antisocial men tended to be still living in Central London, whereas the successful upwardly-mobile men had moved out of London. .

Second, we related difficulty of interviewing to proportion convicted up to 50. The proportion convicted in each group was as follows: 1 = very easy – 36.7%; 2 = OK – 36.4%; 3 = very difficult – 64.3%; 4 = not interviewed – 39.3%; 5 = dead – 76.5%. The not-interviewed men were similar to the very easy and OK men in their proportion convicted. The very difficult and dead men included the highest convicted.

Third, we related difficulty of interviewing to risk factors measured at ages 8-10. Generally, the not-interviewed men were similar to or not worse than the very easy and OK men on important predictors of convictions such as troublesomeness, convicted parents, antisocial, daring, dishonest, low income, low IQ, low attainment. The not-interviewed men were really only worse than the very easy and OK men on poor child-rearing. However, overall, there are very few signs that the not-interviewed men were worse than the interviewed men, so it is very unlikely that the loss of 7% has biased the results.

Control variables

To investigate mechanisms explaining the relationship between parental conviction and son's family formation we used several variables that could impact on this relation. The first variable was a *son's own offending*, measured using the conviction records. We used a dichotomous variable whether sons had been convicted between their 12th and 19th birthday. By choosing this age range, we ensured that the son's convictions were measured before his family formation variables were measured. Based on earlier research (see e.g. Lyngstad & Skardhamar, 2013; Zoutewelle-Terovan, van der Geest, Liefbroer, & Bijleveld, 2012) and the process of intergenerational transmission of criminal behaviour, we expect that a son's own offending is related to his family formation. Therefore we will also run separate analyses to investigate the relationship between a son's own offending and his family formation. Furthermore, when any of the variables described represents a significant predictor of a

son's family formation, we shall subsequently control for a son's offending by running extra analyses where we add a son's own offending to the regression model.

Second, we examined *a son's impulsive and/or risk taking behaviour*. The *CSDD* has collected three dichotomised variables related to this behaviour:

- teacher rating on "lacks concentration/restless in class" measured at ages 8 and 10.
- mother/peer rating on "daring/takes many risks in climbing, traffic, exploring etc" (mother at age 8 and peer at age 10).
- psychomotor clumsiness/impulsivity on three psychomotor tests at ages 8 and 10: Porteus maze, spiral maze, tapping test.

For a more detailed description and earlier use of these variables see Farrington, et al. (1990), and Farrington and Painter (2004). The three variables were correlated among them.. Therefore, these risk factors were summarised by taking their mean value (if one variable was missing, the mean of the remaining variables was automatically calculated). This resulted in a combined impulsivity variable reflecting a son's impulsive and risk taking behaviour in childhood.

Third, the *CSDD* has several dichotomous risk factor variables that measure *low socio-economic status* of the parent when the boy was aged eight to ten: low occupational prestige, low family income, poor housing, large family, (low) education of father, and (low) education of mother. Low occupational prestige indicated that the family breadwinner (usually the father) had an unskilled manual job. Low family income and poor housing were rated by the study social workers who interviewed the families; poor housing indicated dilapidated premises (Farrington et al., 2006). Similar to the impulsivity variables, the six SES variables correlated with each other and were summarised by taking the mean value. Similar to the combined impulsivity variable, if one variable was missing, the mean of the remaining variables was automatically calculated.

Fourth, we used a variable for *parental separation*, which was operationalized in a similar way as the men's separation. This information was collected through interviews with the parents. This variable was coded 1 if the boy had been separated from one of his parents because of marital breakdown up to age 14, and 0 otherwise.

ANALYSES

To test the relationships between parental conviction - and similarly a son's own conviction - and the three dichotomous outcome variables (whether sons marry, separate, and have a shotgun marriage), odds ratios (ORs) were calculated using logistic regression. To test the relationships between parental conviction – and again similarly for a son's own conviction - and two of the three continuous outcome variables (age at first marriage, age at first child), Cox survival regression analyses were run. For the outcome variable number of children we used negative binomial regression analysis. This variable is a count variable; negative binomial regression analysis suitably deals with skewed distributions of count variables. Because the hypotheses predicted an effect in a specific direction, we used a one-tailed significance level. Based on the results of these analyses, more specific hypotheses were formulated. These were tested using multivariate (logistic) regression analyses and produced partial odds ratios and partial regression coefficients. A partial odds ratio or regression coefficient measures the relationship between predictor and outcome variables, in this case between a convicted parent and offspring family formation such as separations, when the impact of a third variable, for example SES, is controlled for (Field, 2005).

RESULTS

To test our hypotheses, we first analysed whether parental conviction was related to a son's family formation. The results of these analyses are presented in Tables 2a and 2b. Figures 4 and 5 show the survival graphs for the Cox regression analyses for the outcomes of timing to marriage and timing to parenthood. The outcomes are rather similar for marriage (the percentage ever married and the age at first marriage are close to each other). These two variables were not significantly related to parental conviction. Sons whose parents had been convicted had on average a slightly larger number of children (2.67 versus 2.43), but the difference between them was not significant. The three remaining outcomes were significantly different: sons of convicted parents were more likely to be separated (52.0% for sons of convicted parents versus 38.6% for sons of unconvicted parents), more likely to have a shotgun marriage (18.1% versus 9.9%), and were on average one year younger when they had their first child (25.66 versus 26.84 years old). Figure 5 shows this difference in

survival for time to parenthood: the survival curve is steeper for those whose parents had been convicted, more people had children at a younger age.

- Table 2a and 2b about here -

- Figure 4 and 5 about here -

With these first results we can reject hypothesis 1 (Sons of convicted parents are less likely to marry compared with sons of parents who have not been convicted), 4 (Sons of convicted parents will marry at a younger age than sons of parents who have not been convicted), and 6 (Sons of convicted parents will have more children than sons of parents who have not been convicted).⁶ Hypotheses 2 (Sons of convicted parents are more likely to separate compared with sons of parents who have not been convicted), 3 (Sons of convicted parents are more likely to have a shotgun marriage compared with sons of parents who have not been convicted), and 5 (Sons of convicted parents will be younger when their first child is born than sons of parents who have not been convicted)⁷ were supported by these first analyses.

MECHANISMS RELATING CONVICTED PARENTS WITH A SON'S FAMILY FORMATION

The next question was whether parental conviction represents the sole predictor of more separations, shotgun marriages, and a younger age when the first child was born, or whether other factors might be responsible for the differences in family formation. Based on the mechanisms discussed in the introduction, we formulated the following hypotheses:

⁶ We also analysed whether sons of convicted parents had an increased probability of having children compared with sons of unconvicted parents. 78.7% of sons of convicted parents ever had children compared with 70.1% of sons of unconvicted parents, but these percentages were not significantly different (OR = 1.58, 95% CI 0.96-2.60).

⁷ We also analysed a dichotomous variable of age at which sons had children; whether they were teenage parents. This was defined as having a child before the 20th birthday. Having a convicted parent was not related to sons being a teenage parent: 5.6% of sons of unconvicted parents had a child before their 20th birthday compared with 6.3% of sons of convicted parents (OR=1.13, one-tailed 95% CI 0.54-2.35).

- a. The strength of the relationship between a parental conviction and a son's family formation is reduced when controlling for the son's own conviction.
- b. The strength of the relationship between a parental conviction and a son's family formation is reduced when controlling for a son's impulsive/risk taking behaviour.
- c. The strength of the relationship between a parental conviction and a son's family formation is reduced when controlling for the parents' socio-economic status.

These hypotheses will be tested for the family formation variables that proved to be significant predictors in the previous analyses: a son's separation (hypothesis 2), shotgun marriages (hypothesis 3), and age at the birth of his first child (hypothesis 5). Furthermore, the following specific hypotheses were formulated. Based on the *family formation transmission* one might, for example, expect a relationship between parental separation and sons getting separated. Thus:

- 2d. The strength of the relationship between parental conviction and sons getting separated is reduced when controlling for parental separation.
- 5d. The strength of the relationship between parental conviction and the age at which sons have their first child is reduced when controlling for the age at which their parents had their first child.

Furthermore, we discussed the *escape from home* mechanism that hypothesizes that offspring use the formation of a family as a way to escape an unsatisfactory home situation. One would expect that this mechanism would apply particularly to violent home situations compared with home situations where parents might participate in for example shoplifting where there is no imminent threat or danger to the offspring.

Thus we hypothesize that:

- 3d. Shotgun marriages are more likely to occur among sons of violent parents than among sons of parents who have been convicted of other criminal behaviour.

Below we discuss the results of analyses testing each of these hypotheses.

RELATIONSHIP BETWEEN A SON'S OWN CONVICTION AND HIS FAMILY FORMATION

We first investigated to what extent a son's own conviction was related to his family formation. To do so, we used the family formation variables already described, and the results of the analyses appear in Tables 3a and 3b. Figures 6 and 7 show the survival graphs for the Cox regression analyses for the outcomes of timing to marriage and timing to parenthood. Convicted sons are more likely to have a separation, to have a shotgun marriage, to be younger when they have their first child and to have more children, compared with sons who have not been convicted. Figure 7 shows this difference in survival for time to parenthood: the survival curve is steeper for those with a conviction, more people had children at a younger age.

- Tables 3a and 3b about here -

- Figure 6 and 7 about here -

Because a son's own conviction is such an important predictor of his family formation, it is vital to take this information into account and control for this when investigating the relationship between a parental conviction and a son's family formation. First we added a son's own conviction as a control variable when investigating the relationship between a parental conviction and a son's family formation. Second, we added the variable son's conviction to the multivariate models whenever one of the other control variables proved to be a significant predictor.

Impact of a son's own conviction

We wanted to know whether a son's own conviction might impact on the relationship between parental conviction and getting separated, having a shotgun marriage, or the age at which sons have children. To do this we added the predictor variable whether sons had been convicted between their 12th and 19th birthday to the multivariate regression together with parental conviction as a predictor and a son's family formation as the outcome. The results of these analyses appear in model 1 in Tables 4-6. Table 4 gives results for the separation

outcome, Table 5 for the shotgun marriage outcome, and Table 6 for the age at which sons had their first child. These analyses demonstrate that a son's own criminal behaviour was more strongly related to him getting separated, and to the age at which he had his first child than was his parents' criminal behaviour. Adding a son's conviction reduces the strength of parental conviction as a predictor of a son's shotgun marriage, but a parental conviction is a stronger predictor than a son's conviction. These results support hypotheses 2a and 5a.

- Tables 4-6 about here -

Impact of a son's impulsive / risk taking behaviour

Next, we investigated the impact of a son's impulsive behaviour to test whether separations, shotgun marriages and the age at which sons have children might be explained by the transmission of risky behaviour. This is related to the previous analyses where we controlled for a son's own conviction, but instead of a son's own conviction we controlled for impulsive or risk taking behaviour when the son was young. The combined impulsivity variable was added to the multivariate logistic regression analysis, and the results appear under model 2 in Tables 4-6.

Adding a son's impulsive behaviour to the multivariate analysis did not remove the significant impact of a parental conviction as a predictor of separation (model 2 in Table 4). Based on these results, we have to reject hypothesis 2b and conclude that the relationship between a parental conviction and a son's separation cannot be explained by a son's impulsive behaviour.

When a son's impulsive behaviour was added to the analysis of shotgun marriages we see a different pattern (model 2A in Table 5). A son's impulsive behaviour was a strong predictor ($OR=3.5$) of shotgun marriages, and it reduced the relationship between a parental conviction and the risk of a son's shotgun marriage. These results support hypothesis 3b that the strength of the relationship between a parental conviction and a son's shotgun marriage is reduced when the son's impulsive / risk taking behaviour was added to the analysis.

The son's impulsivity was not a significant independent predictor in a Cox regression analysis (see model 2 in Table 6). These results do not support hypothesis 5b that the strength of the relationship between a parental conviction and a son's age at the birth of his

first child was reduced when the son's impulsive / risk taking behaviour was added to the analysis.

We then investigated these relationships while adding the son's conviction variable to the model. When we added a son's conviction to the model for shotgun marriages (model 2B in Table 5), a son's impulsivity remained a significant predictor of a son's shotgun marriage.

These results support the idea that risky behaviour is transmitted from parents to children. This can manifest itself in criminal behaviour as well as in other impulsive behaviour, such as unsafe sex leading to shotgun marriages.

Impact of Parental Socio-Economic Status

Next we wanted to test the impact of parental socio-economic status on the relationship between a parental conviction and a son's family formation. We added the combined SES variable to the multivariate regression analyses and the results are presented under model 3 in Tables 4-6.

When we added parental socio-economic status to the analysis with the outcome separation (model 3A Table 4), the impact of a parental conviction (the OR) decreased from 1.7 to 1.4 and became non-significant. Interestingly, low parental SES was a stronger predictor of a son's separation than was a parental conviction. These results confirm hypothesis 2c that the strength of the relationship between a parental conviction and sons getting separated is reduced when socio-economic status is taken into account.

In contrast, SES was not a significant predictor of shotgun marriages, but it did reduce the impact of a parental conviction (from 2.02 to 1.82) when added to this analysis. Based on these results, we have to reject hypothesis 3c and conclude that the relationship between a parental conviction and a son's shotgun marriage cannot be explained by socio-economic status. Parental SES, which was a near-significant predictor ($B=-1.79$, $p = .086$), independently of a convicted son, in a linear regression analysis (not shown here), was not a significant independent predictor in the Cox regression analyses (Model 3 Table 6).

We also investigated these relationships while adding the son's conviction variable to the model. When we added a son's conviction to the model for separation (model 3B in Table 4), SES remained a significant predictor of a son's separation. These results confirm

the idea that the strength of the relationship between a parental conviction and a son getting separated is reduced when low SES is taken into account.

Parental separation and a son's separation

For the relationship between a parental conviction and a son's separation we wanted to specifically test the impact of a parental separation. This is to test whether the transmission of *family formation* might explain the association between a parental conviction and a son's separation. We would expect parental separation to correlate with a son's separation. Sons who experienced a parental separation had a slightly increased, but not significant, risk of separation later in life (51.6% versus 41.4% for sons who did not experience parental separation, OR=1.51, 95% CI 0.81-2.82). Adding the parental separation variable to the multivariate regression analysis did not remove the significant relationship between a parental conviction and a son getting separated (model 4 in Table 4). These results do not support hypothesis 2d that the strength of the relationship between a parental conviction and a son getting separated is reduced when a parental separation is added to the analysis.

Parents' age at the birth of their first child and the son's age at the first child

Similarly, we wanted to test the intergenerational resemblance of family formation for the relationship between a parental conviction and a son's age at the birth of his first child. This relationship might be explained by the parent's age at the birth of their first child. One would expect that sons whose parents had children at a young age would also tend to have children at a young age. Furthermore, we expect that having children at a very young (teenage) age might be associated with a parental conviction.

We first tested whether a father or a mother's age at the birth of their first child was related to a son's age at the birth of his first child. Models 4A and 5A in Table 7 demonstrate that both a mother's and a father's age were a significant predictor of their son's age at the birth of his first child. We then added the father's and mother's age to a multivariate regression analysis. The results from models 4B and 5B demonstrate that both the mother's and the father's age remained a predictor of a son's age at the birth of his first child, but this did not remove the predicting value of a parental conviction. We then added the son's conviction variable to the models. Models 4C and 5C demonstrates that, even though a son's

conviction is a predictor, the mother's and father's age remain a significant predictor of a son's age when his first child was born. These results support hypothesis 5d (the strength of the relationship between a parental conviction and the age at which a son has his first child is reduced when the age at which the parents had their first child is added to the analysis).

- Table 7A and B about here -

Shotgun marriage and escape from home / violent parent

Furthermore, based on the *escape from home* mechanism, one would expect more shotgun marriages of the offspring of violent parents. However, Tables 8a and 8b demonstrate that there was no difference in the prevalence of shotgun marriages between sons whose parents were convicted of violent versus non-violent offences (16.7% versus 18.4%, OR=0.88, 95%CI 0.34-2.39). These results do not support hypothesis 3d that the proportion of sons who will experience a shotgun marriage will be higher among sons of violent parents than among sons of parents who have been convicted of non-violent criminal behaviour.

- Tables 8a and 8b about here -

DISCUSSION

This article investigated whether parental crime was related to a son's family formation. Parental crime was not related to whether sons marry, the age at which they marry, or the number of children. However, the sons of convicted parents were younger when their first child was born, they separated more often than the sons of unconvicted parents, and they also more often had a shotgun marriage, which means that they married when their spouse was already pregnant. These family formation behaviours are also related to each other: sons with a shotgun marriage were younger when they had their first child and sons who separated were younger when they had their first child.

We then set out to investigate whether other factors could explain this relationship between parental crime and a son's separation, shotgun marriages, and age at birth first child. First, a son's own conviction was a stronger predictor of a son's separation and of a son's age at the birth of his first child. Second, a son's impulsive behaviour was also a stronger

predictor of a shotgun marriage than was a parental conviction, but this was not the case for separation or a son's age at the birth of his first child. Third, parental socio-economic status (SES) was a stronger predictor of separation than was a parental conviction, but this was not the case for a shotgun marriage or a son's age at the birth of his first child. Fourth, a parental separation did not reduce the strength of the relationship between a parental conviction and a son's separation. Adding the mother's or father's age at the birth of their first child reduced the strength of the relationship between a parental conviction and a son's age at the birth of his first child. Finally, parental violence did not increase the prevalence of sons' shotgun marriages.

In the introduction we discussed several mechanisms that might explain the relationship between parental crime and a son's family formation. The results from this article do not seem to support the escape from home mechanism, because the direct relationship between parental crime and a son's separation, shotgun marriage, and age at the birth of his first child disappears when we add other variables such as a son's impulsive behaviour and SES. Moreover, based on this escape from home mechanism, we expected that a violent parent would increase the risk of a shotgun marriage, but the data did not support this hypothesis. It might be possible that to *escape from home* males did not need to get married, because they had other ways to become independent.

The results do support the risky behaviour transmission; the idea that a risky or impulsive life style or an antisocial syndrome, as discussed by Farrington (1997), is transmitted from parents to children. This life style would include criminal behaviour as well as certain family formation behaviours such as shotgun marriages. Perhaps a latent trait is transmitted from parents to children that could express itself in different ways: criminal behaviour as well as unsafe sex. Naturally, a shotgun marriage may also be a conscious choice and may not just be caused by impulsiveness, but the analyses in this paper showed that son's impulsive behaviour was a strong predictor of shotgun marriages and that it reduced the relationship between a parental conviction and the risk of a son's shotgun marriage.

The third mechanism hypothesised that the relationship between parental crime and a son's family formation could be explained by the parent's family formation. Unfortunately we could not investigate this mechanism for shotgun marriages with the CSDD since we did not have information about shotgun marriages of parents. We could investigate this for

separation and for the age when the first child was born. The analyses for separation demonstrated that a parental conviction was a stronger predictor of a son's separation than was a parental separation, which does not support this mechanism. This is surprising, because one would expect that similar types of behaviour would be more strongly related than different types of behaviour.

A possible explanation for the weak relationship between a parent's and a son's separation could be that separation had a different meaning in the different time periods. Separation was rare at the time when the parents were separated and became much more common when the sons reached adulthood. Therefore, these events might not be completely comparable. The analyses with the age of parenthood showed a strong impact of the mother's age at the birth of her first child, but not of the father's age. Our results partly support this mechanism of resemblance in family formation characteristics.

Furthermore, the strength of the relationship between parental crime and a son's separation was reduced when parental socio-economic status was taken into account, which supports the idea that the relationship between parental crime and separation might be mediated by other variables. Finally, although we could not specifically study the stigma mechanism, the results rejecting hypothesis 1 do not support the idea of stigma, because sons of convicted parents did not marry less often than sons of unconvicted parents.

This study obviously has limitations, mostly because we cannot conclude anything about causality. We did not randomly assign sons to have a convicted parent or not and as such we can only say something about correlations. We discussed several causal mechanisms in the introduction, but the data and research do not allow us to draw any conclusions about causality. Furthermore, we could only investigate sons. As we discussed in the introduction, it is likely that some mechanisms work differently for daughters, especially the escape from home mechanism. Future research should investigate these mechanisms for daughters specifically.

The results from this article cannot be easily generalised to today's society or other countries. Therefore, it is vital that more studies using data from different time periods and locations should investigate the relationship between parental crime and offspring family formation to examine whether the conclusions from this article apply to other time periods and places.

Nevertheless, this study is the first to use English data to investigate the relationship between parental crime and offspring family formation. Theobald and Farrington (2012) investigated other family formation variables, but not the impact of a criminal parent. It demonstrates that some relationships exist, but not for every family formation outcome. It also illustrates that multivariate analyses are necessary, since the relationship between parental crime and a son's separation, shotgun marriages, and age at the birth of his first child weakens when other variables such as a son's own crime, his risky behaviour and parental socio-economic status are taken into consideration.

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Fig. 1

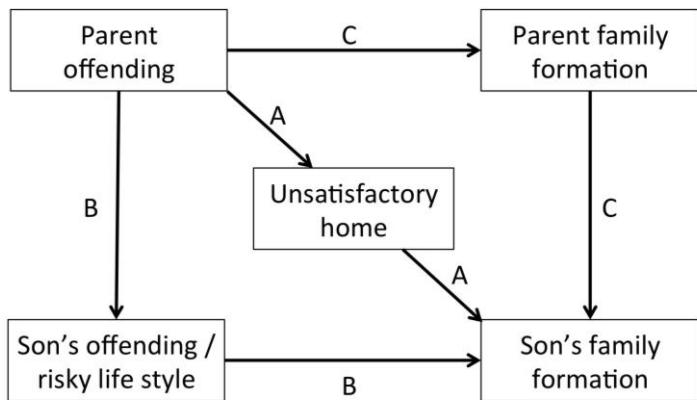


Figure 1. Visual representation of theoretical model

Fig. 2

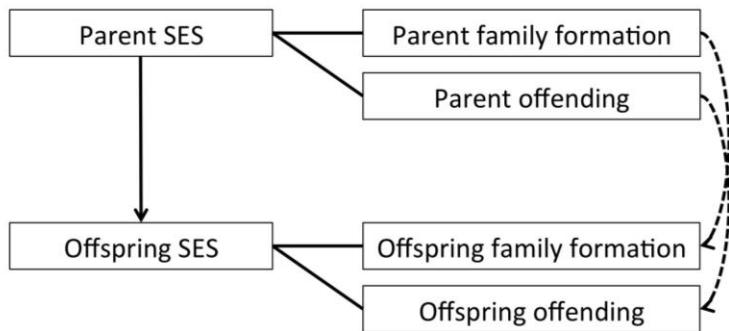


Figure 2. Visual representation of SES model

Fig. 3

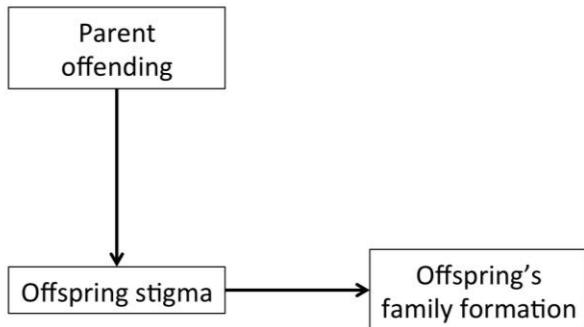


Figure 3. Visual representation of stigma model

Figure 4: parental conviction - survival curve for time to marriage

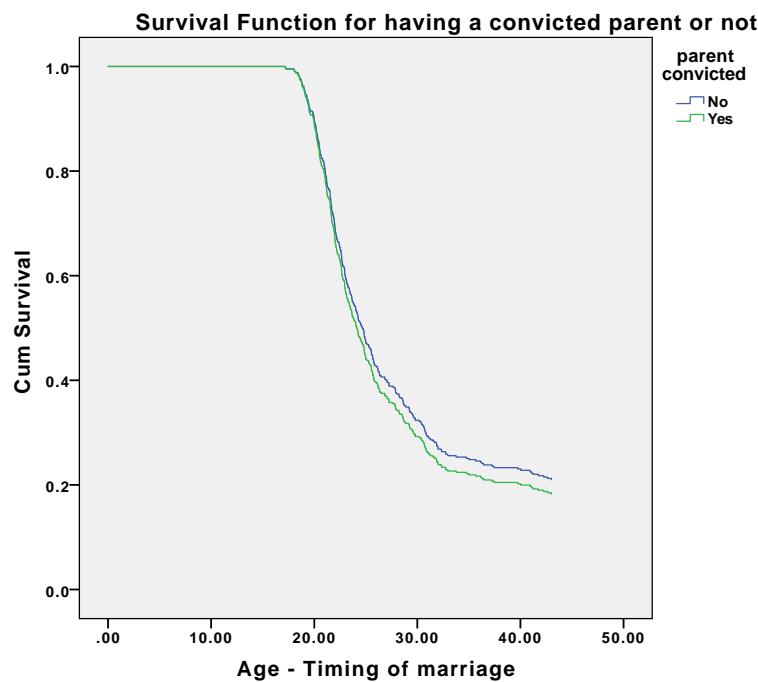


Figure 5: parental conviction - survival curve for time to parenthood

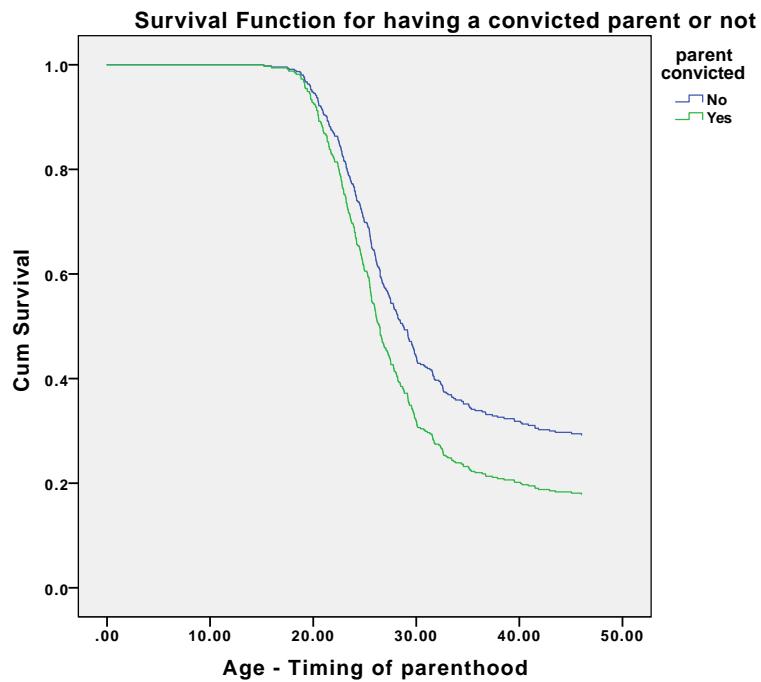


Figure 6: son conviction - survival curve for time to marriage

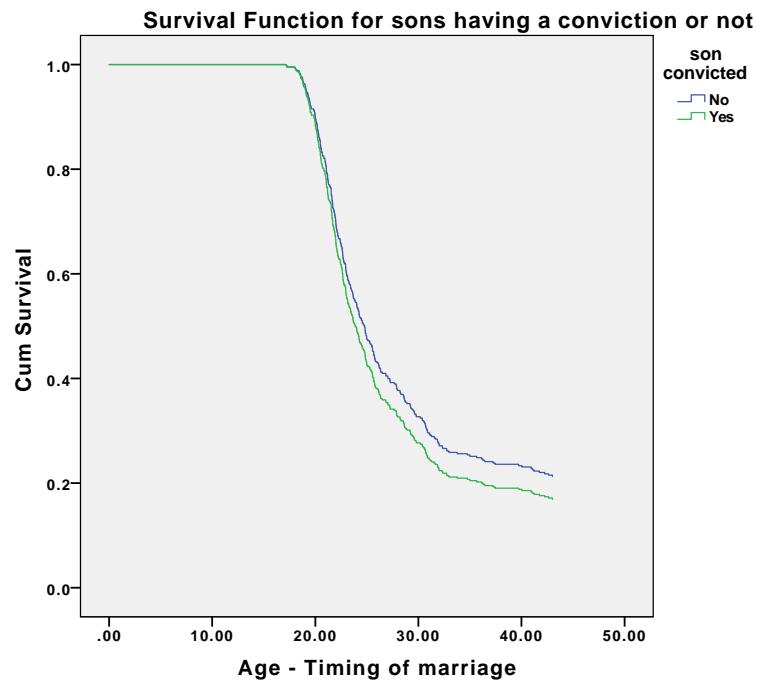


Figure 7: son conviction - survival curve for time to parenthood

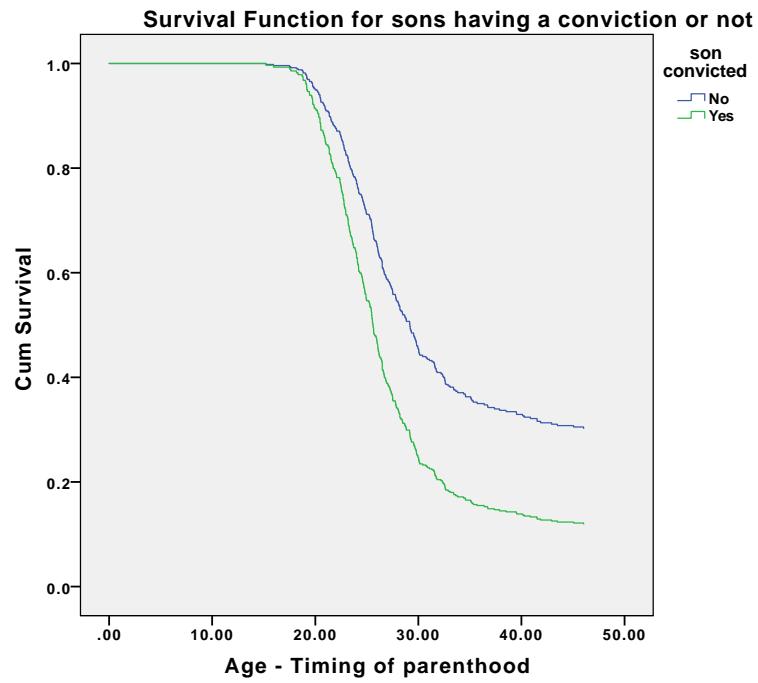


Table 1. Correlations between family formation variables

	Ever married	Ever separated	Shotgun marriage	Age at first marriage	Age at first child
Ever married					
Ever separated		NA			
Shotgun marriage		NA	0.072		
Age at first marriage		NA	-0.176 ***	-0.175 **	
Age at first child		-0.108	-0.142 *	-0.306 ***	0.622 ***
Number of children		0.077	0.174 **	0.219 ***	-0.116 *
					-0.324 ***

The table shows the phi coefficient for two dichotomous variables (the odds ratio in this case is 1.486; 95% CI 0.816-2.707); Pearson's r for two continuous variables; point-biserial correlation coefficient for dichotomous and continuous variables. Correlations shown are statistically significant at $p < .05$ (using two-tailed tests), apart from those between shotgun marriage and separation ($p = .194$), ever married and age at first child ($p = .062$), ever married and number of children ($p = .203$). * Correlation is significant at the .05 level; ** Correlation is significant at the .01 level; *** Correlation is significant at the .001 level.

Table 2a. Relationship between parental conviction and a son's family formation outcomes

Family formation	Parent not convicted		Parent convicted		OR	95% CI
	N		N			
Ever married	284	78.5%	127	78.7%	1.01	0.66-1.56
Ever separated	223	38.6%	100	52.0%	1.73	1.16-2.57
Shotgun marriage	284	9.9%	127	18.1%	2.02	1.23-3.34

OR, odds ratio; 95% CI, 95% confidence interval for one-tailed tests; N, number of boys.

Table 2b. Relationship between parental conviction and a son's family formation outcomes

Family formation	Parent not		Parent convicted		B	SE	Exp(B)	95% CI for Exp (B)	<i>p</i>
		convicted							
	N	Mean (SD)	N	Mean (SD)					
Age at first marriage	284	24.65 (5.21)	127	23.89 (4.56)			1.089	0.894-1.328	.477
Age at first child	284	26.84 (5.57)	127	25.62 (4.91)			1.398	1.143-1.711	.006
Number of children	200	2.43 (1.09)	100	2.67 (1.33)	0.094	.076			.108

p-values for one-tailed tests; 95% CI, 95% confidence interval for one-tailed tests; N, number of boys.

Table 3a. Relationship between a son's own conviction and a son's family formation (dichotomous) outcomes

Family formation	Son not convicted		Son convicted		OR	95% CI
	N		N			
Ever married	301	79.1%	110	77.3%	0.90	0.58-1.40
Ever separated	238	36.6%	85	60.0%	2.60	1.70-3.99
Shotgun marriage	301	10.3%	110	18.2%	1.94	1.16-3.23

OR, odds ratio; 95% CI, 95% confidence interval for one-tailed tests; N, number of boys.

Table 3b Relationship between a son's own conviction and a son's family formation (continuous) outcomes

Family formation	Son not convicted		Son convicted		B	SE	Exp(B)	95% CI for Exp (B)	<i>p</i>
	N	Mean (SD)	N	Mean (SD)					
Age at first marriage	238	24.72 (5.20)	85	23.57 (4.41)			1.148	0.932-1.414	.138
Age at first child	213	27.34 (5.69)	87	24.22 (3.71)			1.777	1.439-2.194	.001
Number of children	213	2.39 (1.05)	87	2.80 (1.40)	0.160	.078			.020

p-values for one-tailed tests; 95% CI, 95% confidence interval for one-tailed tests.

Table 4. Multivariate logistic regression predicting a son's separation

Predictor	Model									
	1		2		3A		3B		4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Convicted parent	1.26	0.82-1.96	1.55	1.02-2.35	1.44	0.95-2.19	1.13	0.72-1.77	1.75	1.17-2.61
Son convicted	2.37	1.50-3.76					2.13	1.33-3.40		
Son's impulsivity			1.98	0.99-3.95						
Parental SES					4.17	1.88-9.28	3.42	1.51-7.72		
Parental separation									1.45	0.77-2.72

OR, odds ratio; 95% CI, 95% confidence interval for one-tailed tests

Table 5. Multivariate logistic regression predicting a son's shotgun marriage

Predictor	Model							
	1		2A		2B		3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Convicted parent	1.72	0.99-2.96	1.64	0.97-2.77	1.51	0.87-2.62	1.82	1.07-3.09
Son convicted	1.57	0.90-2.74			1.32	0.74-2.34		
Son's impulsivity			3.47	1.52-7.94	3.16	1.35-7.41		
Parental SES							1.89	0.69-5.15

OR, odds ratio; 95% CI, 95% confidence interval for one-tailed tests.

Table 6. Cox regression models analyzing the timing of entrance into first parenthood.

Predictor	Model		
	1	2	3
	Exp(B)	<i>p</i>	Exp(B)
Convicted parent	1.162	.134	1.351
Son convicted	1.667	.001	
Son's impulsivity		1.219	.177
Parental SES			1.261
			.164

p-values for one-tailed tests.

Table 7a. Cox regression models analyzing the timing of entrance into first parenthood, controlling for his mother's age at the birth of her first child

Predictor	Model					
	4A		4B		4C	
	Exp(B)	<i>p</i>	Exp(B)	<i>p</i>	Exp(B)	<i>p</i>
Convicted parent			1.346	.009	1.129	.185
Son convicted					1.637	.001
Mother's age at birth first child	0.972	.010	0.976	.023	0.978	.038

p-values for one-tailed tests.

Table 7b. Cox regression models analyzing the timing of entrance into first parenthood, controlling for his father's age at the birth of his first child

Predictor	Model					
	5A		5B		5C	
	Exp(B)	<i>p</i>	Exp(B)	<i>p</i>	Exp(B)	<i>p</i>
Convicted parent			1.379	.005	1.154	.147
Son convicted					1.626	.001
Father's age at birth first child	0.981	.021	0.983	.018	0.984	.039

p-values for one-tailed tests.

Table 8a. Relationship between parental violent offending, non-violent offending or non-offending and a son's shotgun marriage

	Parent not convicted	Parent convicted, but not of violence	Parent convicted of violence
N	284	103	24
Shotgun marriage	9.9%	18.4%	16.7%

Table 8b. Relationship between violent versus non-violent parental conviction and a son's shotgun marriage

Risk factor	OR	95% CI
Parent convicted of violent versus non-violent offence	0.88	0.34-2.39

OR, odds ratio; 95% CI, 95% confidence interval for one-tailed tests.