

# Step-parents and infanticide: new data contradict evolutionary predictions

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Evolutionary psychologists have hypothesized, inspired by evolutionary biology, that parents should care less for children with whom they are not genetically related since these young do not contribute to the genetic fitness of the parents. Based on this, evolutionary psychologists have predicted that there will be an overrepresentation of step-parents as offenders in family-related killings of children. Data on child homicide, particularly from Canada, have supported this prediction in that the frequency of children killed was relatively high in families where one of the two parents was a step-parent. Here we present a survey of all child homicide that occurred in Sweden between 1975 and 1995. In contrast to the Canadian data, children in Sweden living in families with a step-parent were not at an increased risk compared with children living together with two parents to whom they were genetically related. In addition, there were no other indications that step-parents are overrepresented as offenders.

**Keywords:** evolutionary psychology; child homicide; infanticide; step-parent

## 1. INTRODUCTION

The evolutionary psychologists Martin Daly and Margo Wilson have used evolutionary biology to explain patterns of homicide (Daly & Wilson 1988a). They hypothesize that homicides are highly revealing of people's emotions, and that deep human concerns must have an adaptive logic as a result of natural selection (Daly & Wilson 1987). One type of homicide that Daly & Wilson (see e.g. 1988b) have studied is the killing of children in families. They predict that children living with non-genetic parents (i.e. parents with whom children are not genetically related) should be at a higher risk than other children since biological evolution should have favoured those parental psyches that do not squander resources on non-relatives (Daly & Wilson 1988b). Non-genetic parents are expected to have an elevated risk of lapses in parental solicitude since they are expected to be less motivated to care for the children (Daly & Wilson 1987, 1988a).

Daly & Wilson (1988b) also showed that children in families with one non-genetic parent and one genetic parent were at a higher risk of being killed than children in families with two genetic parents. In Canada, the highest risk was for small children, up to three years old, where the estimated risk was 640 per million children per year. This risk is 70 times higher than for children living with two genetic parents and considerably higher than major risks such as accidents (approximately 100 fatalities per million children per year) (United Nations 1987). In this paper we analyse data on all children (0–15 years) killed in Sweden over a 21-year period (1975–1995) and use this data set to test the generality of Daly & Wilson's hypothesis (see e.g. 1988b).

## 2. METHODS

The Central Bureau of Statistics in Sweden provided us with information about the identity of all children in Sweden who died due to violence caused by another individual during 1975–1995. We then identified the killers by the help of police records

or from court sentences. A case was considered solved when the police had identified the killer. A total of 175 children 0–15 years old were killed in Sweden during this time. The offender was known in 171 of these cases from court rulings and police reports. Out of these children, 139 were killed by a parent or by a partner (defined as having a relationship with a parent but not living with the child) of one of the parents in 110 incidents (in 22 cases more than one child was killed). There was only one offender in all but four cases where there were two offenders.

We also had access to the records from the psychiatric investigations of the offenders after the crime (from the Department of Forensic Psychiatry, Huddinge Hospital, Stockholm). Extensive data from these records were available for 40 offenders. In addition, information about psychiatric problems and drug abuse among offenders were obtained from police records.

We categorized family situations, in which the victims lived, into four groups: (i) children living with two genetic parents; (ii) children living with one single genetic parent; (iii) children living with one genetic and one non-genetic parent (step-parent); and (iv) children living with two non-genetic parents. To determine whether victims living in a certain family situation were over- or underrepresented in the data set, we used statistical information on the Swedish population. Excellent statistics exist for the family situation of children in Sweden. For our analyses we used data on how many children lived in different family situations. Both in 1985 and 1990 all children (*ca.* 1.5 million) living in Sweden were classified in this way. The figures are very similar in both surveys. We chose to base our tests on the survey from 1985 since it is from the middle of the time-period from which we obtained data about children being killed.

We had several cases where it was difficult to know into which family situation a case should be categorized. In some cases, a family had both stepchildren and genetic children but only the child genetically related to the offender was killed. Since we classified the family situation in which the victim lived, such cases were categorized to the family situation of two genetic parents. In some other cases, the victim lived with one genetic and one step-parent but was killed by the genetic parent. In such cases, the family situation was categorized as being with one step-parent and one genetic parent. In some instances, the victim lived with a single genetic parent but was

Table 1. *Victims and children in different family situations*

(When describing family situations, adults living with the child are referred to as genetic or non-genetic parents. Victims include all children killed by parents that lived with the victim, partners to genetic parents and genetic parents not living with the child.)

	two genetic parents	one genetic and one non-genetic parent	two non-genetic parents	one genetic parent	unknown	sample size
all victims	$n = 77^a$ 56.2%	$n = 7$ 5.1%	$n = 0$ 0%	$n = 53^b$ 38.7%	( $n = 2$ )	139
children in general	79.1%	6.4%	1.4%	13.1%		1 533 286

<sup>a</sup> In one case, a father, living with the family, was aided by his new girlfriend when killing his child.

<sup>b</sup> Out of these victims, 17 were killed by the genetic parent not living with the child (14 offenders). In one case, the father's new partner (not living with him) killed the child.

Table 2. *Psychiatric problems and drug abuse among offenders*

(Data are based on all cases for which such information were available (sources: police records or psychiatric examinations). Data are presented for different family situations, and for different relationships between offender and victim.)

	earlier psychiatric problems	psychiatric illness at time of the crime	drug abuse	sample size
family situation				
two genetic parents	24%	44%	13%	54
one genetic and one non-genetic parent	25%	38%	38%	8
one genetic parent	18%	33%	10%	40
relationship between offender and victim				
genetic	22%	38%	12%	97
non-genetic	20%	40%	40%	5
all cases	22%	38%	14%	102

killed by the genetic parent not living with the child. Such instances were categorized as being done in a family situation where the victim lived with only one genetic parent (see table 1).

### 3. RESULTS AND DISCUSSION

Our first analysis focuses on the homicide frequency of children living in different family situations, which was the method used by Daly & Wilson (1988c). The relative frequency of child homicide is not the same in the four family situations ( $\chi^2 = 79.9$ , d.f. = 3,  $p < 0.0001$ ). Table 1 shows that the main difference in the material is between children living with two parents compared to children living with only one parent. The estimated risk of family related homicide is 3.1 per million children per year when living with two parents and 12.6 per million children per year when living with only one parent. The estimated overall risk of being killed by a parent is 4.3 per million children per year.

In families with two parents, no difference is found. Children with one step-parent and one genetic parent do not run a greater risk when compared with children living with two genetic parents ( $\chi^2 = 0.084$ , d.f. = 1,  $p = 0.78$ ). The estimated risk is 3.0 per million children per year when living with two genetic parents and 3.4 per million children per year when living with one genetic and one non-genetic parent.

A disadvantage with basing the analysis on family situation is that it does not take into account whether the offender is genetically related to the victim or not. In fact, a closer look at our data shows that in two of the

seven cases in which a child was killed in a family with one genetic and one non-genetic parent, the genetic parent was the offender. In another of the seven cases, both the genetic and the non-genetic parent killed the child. To analyse more directly whether a non-genetic parent is more likely to be the offender we need to limit our analysis to offenders that lived with the child. The reason for this is that population statistics do not exist for partners and genetic parents not living with the child. This decreases the sample from 139 to 115 victims. Out of these, five (4.3%) were killed by a non-genetic parent and 110 (95.7%) by a genetic parent. These frequencies are very similar to the expected frequencies according to the population survey, 5.0% and 95.0%, respectively ( $\chi^2 = 0.10$ , d.f. = 1,  $p = 0.75$ ). Thus, non-genetic parents are not overrepresented as offenders.

Our data from Sweden contrast sharply with Daly & Wilson's results (1988a,b,c). In one of their papers, they provide raw data on the number of children aged between one and four years old killed in different family situations in Canada (Daly & Wilson 1988b). This allows us to directly compare the two data sets. In the Swedish material four children aged one to four years old were killed by a non-genetic parent, while 53 children of the same ages were killed by a genetic parent. Daly & Wilson (1988b) report that in Canada 147 children between the ages of one and four were killed by someone *in loco parentis* between 1974 and 1983. Thirty-seven of those were the victims of step-parents and another five were killed by foster parents. Hence, 42 children were killed by non-genetic parents and 105 by genetic parents. These figures

show that the frequency of non-genetic parents as offenders is much higher in Canada (29%) than in Sweden (7%). This difference is significant assuming equal population frequencies ( $\chi^2 = 9.73$ , d.f. = 1,  $p = 0.0018$ ). In reality, this underestimates the difference between the two countries since the proportion of children one to four years old living with a step-parent is roughly four times higher in Sweden (1.7%; Statistics Sweden 1992) than in Canada (0.4%; Daly & Wilson 1988b).

The Swedish material is also different in that there is no bias towards very young children being killed in families with one genetic parent and one non-genetic parent (average 4.9 years, range 1–11 years,  $n = 7$ ). In Canada, the estimated risk per million children per year when living with one non-genetic and one genetic parent was 640 for up to three years old, 135 for children three up to six years old and less than ten for children six years or older (Daly & Wilson 1988b). In Sweden, the estimated risk for children 0–15 years was 3.4 per million children per year when living with one genetic and one non-genetic parent.

A problem that is always present in population studies is how to obtain proper samples. One potential problem is that children living with one genetic and one non-genetic parent may have parents that are, for instance, less able to maintain a pair bond or more violent (Giles-Sims & Finkelhor 1984). In our study, three out of the five step-parents who killed children had earlier been convicted for maltreating other persons, two out of the five had severe drug problems and two were classified as having a psychiatric illness. Our data indicate that offenders in general are extreme in various ways, often having a history of psychiatric problems (table 2). It is then clear from our Swedish study that offenders differ considerably in these respects from the population at large. This will potentially increase the risk of biases.

A way out of this statistical problem is to study parents that live together with both genetically unrelated and genetically related children. This allows us to study differences in a parent's behaviour towards different children. In our material, we can identify at least six such cases. In five of these, the parents killed only children with whom they were genetically related. In the remaining case, the parent killed only the stepchild. A problem with this result is that the non-genetic children living in such families were generally older than the genetic children. This may have influenced who became victim. However, if this analysis could be expanded we may have a powerful alternative way of testing the hypothesis.

Why are there such differences between Sweden and Canada? One possible explanation is related to unwanted children. In Sweden, the frequency of unwanted births is low in a world-wide comparison (The Alan Guttmacher Institute 1999). A major reason for this is probably that Sweden has a long history of legal abortions and that abortions are widely accepted. In Canada, the frequency of unwanted births is roughly twice as high as in Sweden (The Alan Guttmacher Institute 1999). Unwanted births may increase the risk of children being mistreated and are likely to be relatively common among young mothers. Such mothers are also more likely to have an unstable social situation where stepfathers may be relatively frequent.

Daly & Wilson (1985) predict that parental feeling should vary as a function of the prospective fitness value of a child and anticipate an elevated risk of lapses of parental solicitude by step-parents. However, the information available in our Swedish study suggests that other emotions than parental feelings influence the killings. Often the children were used as objects in conflicts between parents, and killing a child became a destructive form of revenge. In our data set, 13 genetic fathers and one genetic mother killed children with whom they did not live. According to psychiatric records, at least six of these offenders were considered having jealousy as the prime motive for the crime. In at least four cases, a lost court battle about a child's custody was considered the prime reason. If other factors than varying degrees of parental solicitude towards children are important, it will be difficult to use homicide data to test the Daly & Wilson hypothesis.

Lapses of parental solicitude influencing child maltreatment may be more adequately tested in cases of child abuse. Daly & Wilson (1988b) have found an overrepresentation of stepfathers in studies of child abuse in North America. Confounding variables are, however, at hand and have not been thoroughly investigated.

In summary, our results do not support the conclusion that step-parenthood is the most important risk factor for child homicides in families (Daly & Wilson 1998). Furthermore, the differences in risks between Canada and Sweden suggest that cultural factors influence patterns of child homicide.

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