Child Abuse and Other Risks of Not Living with Both Parents

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This study was undertaken to quantify various risks to children as a function of the identity of the person(s) *in loco parentis*. The household circumstances of children in Hamilton (a midsized Canadian city) were surveyed by telephone, and combined with information on child abuse victims, runaways, and juvenile offenders, to arrive at victimization rates according to age and household type.

Both abuse and police apprehension were least likely for children living with two natural parents. Preschoolers living with one natural and one stepparent were 40 times more likely to become child abuse cases than were like-aged children living with two natural parents. Whereas abuse risk was significantly higher for children living with a stepparent than for those with a single parent, the reverse was true of the risk of apprehension for criminal offenses.

Several variables were examined as possible confounds of household composition. Socioeconomic status, family size, and maternal age at the child's birth were all predictors of abuse risk, but these factors differed little or not at all between natural-parent and stepparent families and could not account for the stepparent-abuse association. As predicted from Darwinian considerations, stepparents themselves evidently constitute a risk factor for child abuse.

Key Words: Child abuse; Juvenile offenders; Runaways; Single parents; Stepparents; Victimization rates

INTRODUCTION

Child-rearing is a costly, prolonged undertaking. A parental psychology shaped by natural selec-

tion is therefore unlikely to be indiscriminate. Rather, we should expect parental feeling to vary as a function of the prospective fitness value of the child in question to the parent. One obvious determinant of that value is the certainty or reality of the link of biological parenthood; we thus expect parental feeling to be more readily and more profoundly established with own offspring than in cases where the parent–offspring relationship is artificial. When people are called upon to fill parental roles toward unrelated children, we may anticipate an elevated risk of lapses of parental solicitude. This has been our rationale for investigating the risk of child maltreatment by step-parents.

Wilson, Daly, and Weghorst (1980) reported an elevated risk of child abuse in stepparent homes in the United States. For children under 3 years of age, the risk in a stepparent-plus-natural-parent household was estimated to be 6.9 times that in a two-natural-parent household. This ratio of risks declined with the child's age, but stepparent households were still estimated to be more than twice as risky as natural-parent households for the oldest children.

Several problems attended these analyses, however. The U.S. census bureau does not discriminate natural and substitute parents, so that the prevalence of various household types in the population-at-large had first to be estimated. These estimations required several assumptions (which were made conservatively so as *not* to underestimate the incidence of step-relationships and thereby overestimate their risk; see Wilson, Daly, and Weghorst 1980; Daly and Wilson 1981a). The abuse sample itself consisted of "validated case reports" to the American Humane Association from 29 states with a variety of reporting practices, so that the definition of

the criterion variable was imprecise. We were furthermore concerned whether the effect might be due in part to a confound with socioeconomic status, a concern since laid to rest by Bachrach's (1983) finding that there is no appreciable confound between step-relationships and income.

Other research approaches have verified the phenomenon of stepparental violence by direct comparisons between criterion groups. Fergusson, Fleming, and O'Neill (1972), for example, compared two groups of children treated in New Zealand hospitals—those with injuries appearing to have been inflicted intentionally versus those whose injuries were apparently accidental. The former children proved more than twice as likely to reside with a stepparent as the latter. Daly and Wilson (1981b) analyzed data from a sample of 177 Canadian households to which police had been called to quell a disturbance involving a juvenile. A stepparent resided in 48% of those households in which there was evidence of physical abuse of the juvenile, compared to 21% of those in which there was not. In a study of identified abusive families in Pennsylvania, Lightcap, Kurland, and Burgess (1982) found that abusive stepfathers typically spared their natural children within the same household. All these studies clearly implicate stepparenthood in child abuse, but do not, of course, address the epidemiological question of relative rates of victimization in step- vs. natural-parent households.

To characterize the stepparent risk effect better, more intensive, local study seems necessary. One can select a sample of relatively severe abuse cases known to the local child welfare agencies, and one can conduct the requisite survey of household compositions in the appropriate base population served by those agencies. One can furthermore assess whether abuse cases and stepparent households are both unusually prevalent in low-income districts within the reporting area, and thus deal directly with the hypothesis that high abuse risk in stepparent households might be an incidental consequence of an economic confound.

In an intensive study it is possible, moreover, to assess the relationship between household composition and *other* negative outcomes for children. This should be of interest for at least two reasons. In the first place, physical abuse is only one extreme manifestation of the relative maltreatment of nonbiological children that we

expect on theoretical grounds. Subtler evidences of disadvantage might be widely manifested in measures of children's performance and welfare. In the second place, we have suggested that the statistical association between stepparenting and child abuse is attributable to stresses engendered by the stepparent–stepchild relationship per se, but it remains possible that the high risk in stepparent households merely reflects a general syndrome of broken homes, bad rearing environments, and bad outcomes. Were that so, we might expect that various household types would exhibit consistent ranking with respect to risks of various negative outcomes. If, on the other hand, abuse risk is higher in stepparent households than in single-parent households whereas the reverse holds for other risks, the argument would be strengthened that step-relationships per se constitute a threat to children rather than being incidentally correlated with some syndrome of disadvantage. The study reported here represents a first such effort to quantify various risks to children as a function of the identity of the person(s) *in loco parentis.*

The present study also permits analysis of abuse risk as a function of maternal age. Parents are expected to value and invest in dependent offspring increasingly as their own reproductive value declines (e.g., Pugesek 1981). In keeping with this expectation, the probability of infanticide declines with the age of Canadian (Daly and Wilson 1984) and Ayoreo (Bugos and McCarthy 1984) mothers. If the risk of child abuse is decreased by factors associated with increased maternal solicitude, then abuse, like infanticide, should be observed to decline with maternal age.

METHODS

Study Locale

The regional municipality of Hamilton–Wentworth is a predominantly urban, heavily industrialized area of 1113 sq km, with a population of 411,445 in 1981 (Statistics Canada 1982), situated at the western end of Lake Ontario.

Regional Population-at-Large Survey

In order to estimate the household compositions of children in the population-at-large, we conducted a telephone survey between August and November, 1983. Telephone interview was cho-

sen as a survey method on the basis of its economy and its superior response rate (Groves and Kahn 1979). Only about 2% of urban Canadian households lack telephones (personal communication from R. T. Ryan, Special surveys, Statistics Canada).

A sample of 2000 telephone numbers was generated as follows. Three-digit exchanges in the region were selected in proportion to their representation in regional telephone listings. The final four digits were then generated at random, a technique designed to make unlisted and listed numbers equally likely to be sampled. The 2000 numbers were called in random order. Each number was called back until either it had been reached or eight unsuccessful calls had been made; the eight calls always included at least one weekday morning, one weekday afternoon, one weekday evening, and one Saturday call, and were spaced over an interval of at least 1 week. If a child answered, the interviewer asked to speak to a resident adult.

When the telephone was answered, the interviewer said,

> Hello. This is Dr. Martin Daly (or Dr. Margo Wilson), calling from the Psychology Department at McMaster University. We're conducting a study of the living arrangements of children in the Hamilton–Wentworth region, under sponsorship of Health & Welfare Canada, and I'm calling a random sample of households in the region. Your number was generated by a computer, so I don't know who I'm talking to, but if anyone 17 years old or younger lives in your home, then I'd like to ask you just a couple of anonymous questions if I might.

If the respondent concurred, the interviewer continued,

> Thank you. What we're trying to find out is what proportion of children in the region live with what sorts of relatives and nonrelatives. For example, no one knows what proportion of children of a given age live with a substitute parent such as a stepparent. You'd think you could find out from the census, but the census bureau doesn't ask the detailed relationships of children to the people they live with. So that's what we're trying to find out and the information is entirely anonymous: I don't want to know anyone's name. Okay?

The interviewer then asked the number of persons living in the home, their ages, sexes, and relationships to one another, verifying the latter explicitly (e.g., "So the two children are the natural offspring of your husband and yourself? Is that correct?"). Finally the interviewer said,

> One last question. We try to place our respondents by the general area in which they live. I wonder if you could tell me either your postal code or a nearby street intersection.

The interviewer then thanked the informant and rang off. The typical interview lasted 2–3 minutes. Those few respondents who wished to verify the interviewer's identity were directed to call the psychology department through the university switchboard.

Hamilton–Wentworth is divided into 115 census tracts. Canadian postal codes specify addresses within a block or less, so that the request for a postal code or nearby intersection enabled us to place respondents by census tract. The median family income for a respondent's census tract, according to the 1981 census, was then used as an index of socioeconomic status. Census tracts were categorized as "high income" (mean family income above the median census tract) or "low income" (below the median).

Child Abuse Sample

The two children's aid societies of Hamilton–Wentworth (CAS and Catholic CAS) each provided us with data on the living arrangements of abused children, recording on a form the age, sex, relationship to the focal child and the duration of dwelling with the focal child, for each person dwelling in the same household with the focal child. The sample of children consisted of all those active cases that had been designated "abuse" cases for purposes of the Ontario Child Abuse Registry, during a 12-month period ending in mid-1983. All the cases were well known to society workers from repeated calls, and most of the children had been taken into protective care, at least temporarily, at one time or another. Altogether the sample comprised 99 abused children, aged 0–17, living in the region in households of known composition—53 boys, 45 girls, and 1 child of unspecified sex, 46 on the case list of the Children's Aid Society and 53 on that of the Catholic agency.

Police Sample

During the 3-month period of August to October, 1983, Youth Branch officers of the Hamilton–Wentworth Regional Police collected data for the project, recording demographic and household composition information, as above, for

Table 1. Hamilton–Wentworth Population-at-Large survey, 1983: Responding Households by the Number of Children 17 Years of Age or Younger

	Number of Children in Household						
	0	1	2	3	4	5	6
Number of households	840	168	194	59	19	4	2
Proportion of children		0.200	0.461	0.210	0.090	0.024	0.014

each apprehended juvenile. Reports, including the reason for police apprehension, were filed on 542 children residing in the region. Ninety-three were runaways (52 boys, 41 girls); the other 449 (362 boys, 87 girls) were apprehended for a variety of criminal offenses.

RESULTS

Population-at-Large Survey

The sample consisted of 2000 telephone numbers, of which 599 proved to be either business addresses or numbers not in service, leaving 1401 possible households. Of these, 56 (4.0%) were not reached after eight calls, leaving 1345 households contacted. In 17 of these, no English- or French-speaking respondent was available, leaving 1328 potential respondents, of whom 1286 (96.8%) participated in the survey, while 42 (3.2%) refused. The 1286 responding households included 841 children 17 years of age or younger (Table 1).

The household types of these 841 children are categorized in Table 2 according to the relationship of the person(s) *in loco parentis* to each

focal child. The category "stepparent" includes both legally married and common-law spouses of the natural parent. Ages are collapsed into three categories in order that the overall pattern may be discernible without distraction by chance fluctuations.

The distributions of household types did not differ between the sexes: 81.3% of girls and 80.5% of boys lived with two natural parents; 9.6% of girls and 10.3% of boys with a single parent; and 5.7% of girls and 5.8% of boys with one natural and one stepparent.

Telephone survey respondents were classified as living in "high-income" or "low-income" districts according to the mean census tract income. Household circumstances of the two income classes are compared in Table 3. Single-parent households are significantly more prevalent in low- than in high-income districts ($\chi^2_{df} = 14.7, p < 0.001$), but there is no evidence that the prevalence of stepparent situations is associated with socioeconomic status.

Child-Abuse Sample

The household circumstances of the 99 abused children on active case lists of the local chil-

Table 2. Persons *in loco parentis* to Children in Hamilton–Wentworth in 1983, According to Telephone Survey[a]

	Child's Age (Years)					
	0–4		5–10		11–17	
Two natural parents	214	(89.5)	210	(79.5)	263	(77.8)
One natural parent	15	(6.3)	28	(10.6)	39	(11.5)
Mother alone	13		25		31	
Father alone	2		3		8	
Natural + stepparent	2	(0.8)	17	(6.4)	29	(8.6)
Mother + stepfather	2		16		19	
Father + stepmother	0		1		10	
Other substitute	8	(3.3)	9	(3.4)	7	(2.1)
Other biological relative	3		2		2	
Nonrelative adoptive	5		4		4	
Other nonrelative	0		3		1	

[a] Entries are numbers of children. Parentheses enclose percentages of children within each age class.

Table 3. Persons *in loco parentis* to Children Residing in Census Tracts with Mean Family Incomes Below vs. Above the Median[a]

	Low-Income Districts		High-Income Districts	
Two natural parents	303	(77.5)	286	(84.9)
One natural parent	56	(14.3)	19	(5.6)
Natural + stepparent	25	(6.4)	18	(5.3)
Other substitute	7	(1.8)	14	(4.2)

[a] Entries are numbers of children. Parentheses enclose percentages within income-district categories.

dren's aid societies are summarized in Table 4. Comparing these results with those for the population at large (Table 2), it is evident that abused children lived in circumstances other than with two natural parents far more often than would be expected by chance. In particular, when population-at-large estimates are used to generate expected proportions of household types, single-parent households and stepparent households are both significantly overrepresented in the abuse sample relative to two-natural-parent households, within each of the three age classes ($p < 0.001$ by binomial test, for each of six comparisons).

The household compositions in Tables 2 and 4 are combined with census information on the numbers of persons in each age class to produce the victimization rates in Figure 1. All household types other than two-natural-parents are high-risk environments for becoming a children's aid society abuse case, especially stepparent house-

holds. It is also of interest to express the degree of risk in the various household types relative to risk in a two-natural-parent household (Table 5); thus, for example, preschoolers living with a single natural parent are 12.5 times as likely to become registered abuse victims as like-aged children living with two natural parents (first entry in Table 5). It is noteworthy that the elevation of risk in stepparent households is maximal for the youngest children.

Census tract information was available for 87 of the 99 abuse cases. Eighty-one (93%) resided in "low-income" and only six in "high-income" census tracts (whereas only 54% of children in the population-at-large survey resided in "low-income" tracts, according to Table 3).
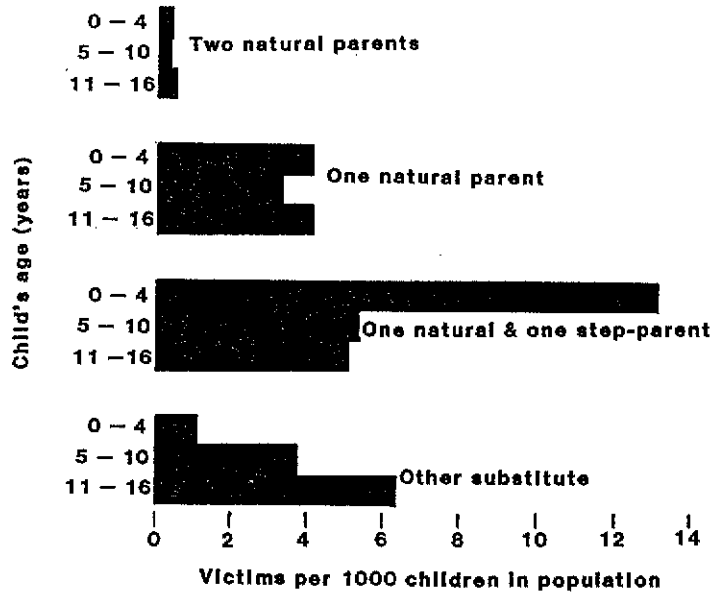
Police Samples

Youth Branch of the Hamilton–Wentworth Regional Police filed data forms on 542 apprehended juveniles residing in households (as opposed to institutions) in the region. Ninety-three of these were runaways not accused of any criminal offense. The remaining 449 were accused of a variety of offenses, the most common of which (186 cases) was "theft or possession of stolen goods valued at less than $200" (Canadian Criminal code s.294; i.e., shoplifting). Rates of apprehension of adolescents aged 11–16, relative to their numbers in the regional population, are presented in Figure 2.

Household types of apprehended juveniles are compared in Table 6 with the distributions expected from the population-at-large survey. The majority of apprehended juveniles were 14

Table 4. Numbers of Abuse Victims by Age and Household Type[a]

	Child's Age (Years)					
	0–4		5–10		11–17	
Two natural parents	8	(42.1)	7	(21.2)	13	(27.7)
One natural parent	7	(36.8)	11	(33.3)	16	(34.0)
Mother alone	7		11		15	
Father alone	0		0		1	
Natural + stepparent	3	(15.8)	11	(33.3)	14	(29.8)
Mother + stepfather	2		8		11	
Father + stepmother	1		3		3	
Other substitute	1	(5.3)	4	(12.1)	4	(8.5)
Biological relative	1		1		1	
Nonrelative adoptive	0		1		0	
Other nonrelative	0		2		3	

[a] Parentheses enclose percentages within each age class.

Figure 1. Child abuse victimization rates in Hamilton–Wentworth by age and household type. "Victims" are abused children on active case lists of the local children's aid societies.

or 15 years of age; the youngest were two 4-year-olds (one accused of shoplifting, one of breaking and entering). Since household compositions vary by age (Table 2), expected frequencies for the apprehended juveniles are computed by weighting age-specific household composition distributions in proportion to the observed age distribution of the criterion group. (Four runaways from institutions and four criminal offenders residing with no one *in loco parentis* are excluded from the analyses in Figure 2 and Table 6.)

Children from two-natural-parent homes are far less likely to be apprehended as runaways than children from any other household type. Similarly, there is an elevated risk of arrest for criminal offenses for all other household types in comparison to two-natural-parent households, but this elevation is much greater for single-parent households than for substitute-parent

households, a reversal of the pattern with abuse risk (Table 5). Crimes of violence towards persons (44 "assaults," including 8 sexual assaults) show a pattern of risk by household type that is not different from that for other criminal offenses.
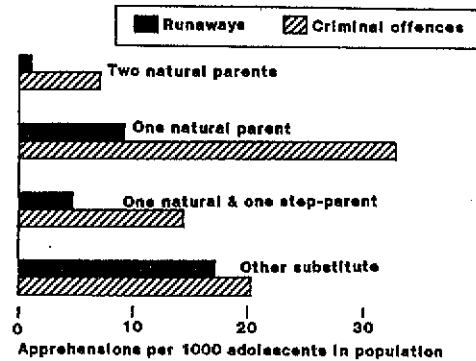

Figure 2. Police apprehension rates for adolescents (ages 11–16 years) in Hamilton–Wentworth by household type.

Table 5. Risk of Appearing in the Child Abuse Sample by Age and Household Type, Relative to a Child Living with Two Natural Parents

	Child's Age (Years)		
	0–4	5–10	11–17
One natural parent	12.5	11.8	8.3
Natural + stepparent	40.1	19.4	9.8
Other substitute	3.3	13.3	11.6

Table 6. Observed Houshold Circumstances of Juveniles Apprehended by Police in Comparison to the Expected Distributions of Household Circumstances Given Those of Like-aged Juveniles in the Population at Large

	Observed	Expected	Risk relative to two natural parent home
Runaways			
Two natural parents	29	72.0	
One natural parent	36	10.1	8.9
Natural + stepparent	13	4.4	7.4
Other substitute	11	2.5	10.9
$\chi^2_{3\ df} = 138.4\ p < 0.0001$			
Criminal Offenses			
Two natural parents	225	358.2	
One natural parent	162	46.2	5.6
Natural + stepparent	45	29.8	2.4
Other substitute	13	10.8	1.9
$\chi^2_{3\ df} = 331.8\ p < 0.0001$			
Assaults (a subset of criminal offenses)			
Two natural parents	23	35.4	
One natural parent	15	4.6	5.0
One natural + one stepparent	5	2.9	2.7
Other substitute	1	1.1	1.4

Census tract information was available for 83 runaways and 420 criminal offenders. Sixty-four (77%) of the runaways and 296 (70%) of the criminal offenders lived in "low-income" tracts.

Average Relatedness of Focal Child to Cohabitants

The categorization of household types according to the persons *in loco parentis* ignores such complications as the possible presence of grandparents, distant relatives, or nonrelatives not *in loco parentis*. On theoretical grounds, we might anticipate greater conflict between, say, half-siblings than full-siblings (Holmes and Sherman 1982) or greater risks to children in households containing unrelated stepsiblings. As an index of such capacity for conflict, we computed the average degree of relatedness of each focal child to all other members of its household. Results are presented in Figure 3. The criminal-arrest group shows an average relatedness to household members similar to that of children in the population at large. Abuse victims and runaways, however, are substantially less closely related to other household members. The reduced average relatedness of the latter two groups is

not due to a greater presence of relatives of degree less than 0.5 (i.e., relatives other than parents and full siblings), but rather to a greater presence of persons of no blood relation whatever. Of the abuse victim, 36.4% lived with one or more nonrelatives compared to an age-weighted expected value (i.e., for like-aged children in the population-at-large) of 10.6%. Of the runaways, 25.8% lived with one or more non-
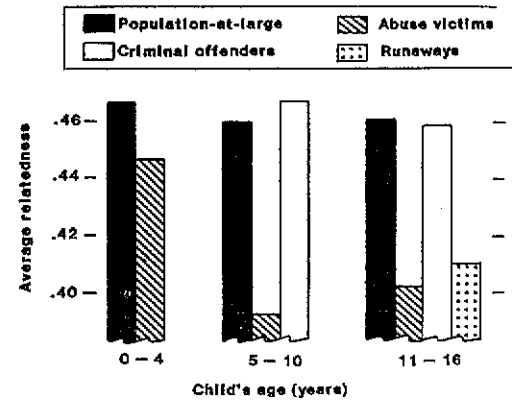

Figure 3. Average relatedness of focal child to all household cohabitants.

Table 7. Household Compositions of Abused Children Living with their Natural Mothers, Compared to Two Model "Expected" Distributions

	Observed	Expected₁[a]	Expected₂[b]
Two natural parents	28	70.8	66.9
Natural mother alone	33	7.3	8.9
Natural mother + stepfather	21	3.9	6.2

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Observed vs. Expected₁: $\chi^2_{2\ df} = 192, p < 0.00001$

Observed vs. Expected₂: $\chi^2_{2\ df} = 124, p < 0.00001$

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[a] Expected₁ is proportional to the frequencies of the three household types in the population-at-large.

[b] Expected₂ incorporates effects of maternal-age-at-child's-birth (MACB), by weighting MACB-specific household composition distributions in proportion to the MACB distribution of the abuse sample.

relatives compared to an age-weighted expected value of 12.2%.

Effect of Maternal Age

The distribution of maternal ages at the child's birth (MACB) for the population surveyed by telephone is presented in Figure 4 (top). It approximates the distribution expected from 1981 census data (Statistics Canada 1982). For the abuse, runaway, and criminal-offense samples, risk was calculated as a function of MACB by comparing the observed frequencies with those expected on the basis of the population-at-large distribution (Fig. 4, bottom). In all four data sets (population at large, abuse, runaways, criminal offenders), only children still residing with their natural mothers are included, since natural mothers' ages were not otherwise recorded.

Risk of abuse is maximal for children born to young mothers and declines monotonically with MACB. The risk of appearing in the police samples is also maximal for children born to young mothers, but unlike abuse risk, the risk of apprehension declined and then rose again for children born to women in their late 30s and 40s (Fig. 4, bottom).

The abuse data for this analysis are based on just 36 cases for which maternal ages were available. (This datum was not recorded by one of the two reporting agencies.) Nevertheless, the departure from an expected distribution of maternal ages is highly significant (combining adjacent MACB categories in order to maintain expected values greater than five, $\chi^2_{4df} = 19.7, p < 0.001$). The runaways ($N = 73$) and criminal offenders ($N = 425$) each exhibited MACB distributions departing from chance expectation at $p < 0.00001$ (χ^2 tests).
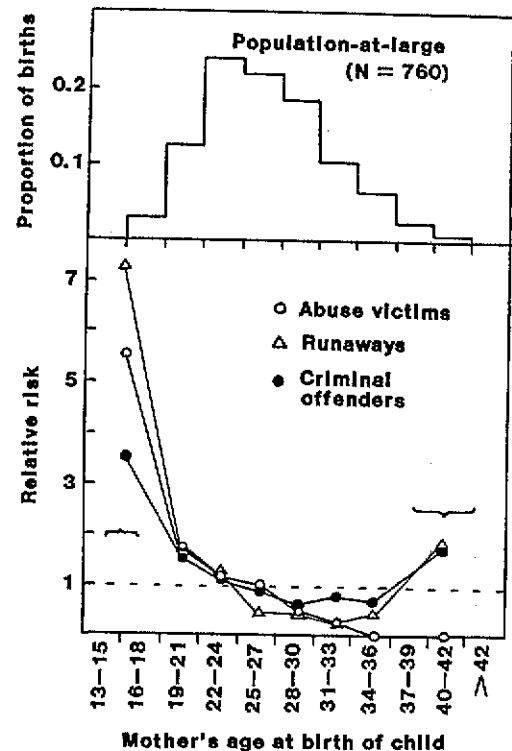

Figure 4. Maternal age at birth of child (MACB). Top: frequency distribution of MACB for 760 children according to telephone survey. Bottom: Risks of abuse and police apprehension of children as a function of MACB. "Relative risk" is the ratio of the MACB-specific victimization rate to the average victimization rate overall.

In the population at large, children living with two natural parents were born at a mean maternal age of 26.7 years whereas those living with natural mother and stepfather were born at a mean maternal age of 23.6. Since children born to young mothers are both likelier to be abused and likelier to acquire a stepfather, one should test whether the elevation of abuse risk in stepparent households could be an artifact of a causally prior MACB variable. To test this hypothesis, "expected" distributions of household types were computed for abused children living with their natural mothers, with and without consideration of the MACB variable (Table 7). When MACB is used as a predictor, the expected number of stepfather households indeed increases, but only 13% of the observed excess of stepfather households in the abuse sample is accounted for, indicating that the stepparent risk factor is largely independent of the maternal age risk factor.

DISCUSSION

Stepparents and Abuse Risk

The present study provides the most direct evidence to date of a substantial elevation in the risk of child abuse for children living in households other than with the two natural parents, and especially for children living with a stepparent. We are not talking about a small effect: preschoolers in stepparent–natural-parent homes, for example, are estimated to be *40 times* as likely to become abuse statistics as like-aged children living with two natural parents (i.e., about 40 chances in 3000 vs. 1 in 3000; Figure 1).

One might hypothesize that abuse in stepparent households is not really more prevalent than in natural-parent households but is just more often detected or reported. Wilson and Daly (in press) examine this hypothesis and reject it; their most telling argument is that detection and reporting biases should be least influential with the most severe forms of abuse, and yet that is where stepparent overrepresentation is maximal.

Homes other than those with two natural parents are high-risk environments for all the problems investigated here (abuse, running away, and criminal arrest). But more than this, the presence of a stepparent is shown to be a specific

risk factor for child abuse. In this study, children from stepparent homes were actually slightly less likely than those from single-parent homes to run away (cf Rankin 1983) or to be arrested for a criminal offense, but they were much more likely to be abused.

The present study also strengthens the argument that the stepparent effect is not an artifact of a correlated socioeconomic variable. Giles-Sims and Finkelhor (1984) suggest such a confound as an explanation for the stepparent-abuse association, pointing to the negative relationship between divorce rate and income as suggestive evidence that step-relationships may be associated with poverty. Bachrach (1983), however, has shown that step- vs. natural-parent relationship was virtually unrelated to family income in the United States in 1976, coincidentally the same year for which Wilson, Daly, and Weghorst (1980) analyzed abuse data. Similarly, in the present study, step-relationships in the Hamilton–Wentworth region proved not to be exceptionally prevalent in lower socioeconomic strata (Table 3). Low income *is* associated with abuse in the present study, as in previous ones (e.g., Pelton 1978), but the stepparent effect is not an incidental consequence of this fact.

It remains possible that step-relationships are correlates of some noneconomic sort of "disadvantage" which is the real cause of elevated abuse rates. For example, there is some evidence that abusive parents were themselves abused as children (e.g., Egeland, in press), and such experience might also be associated with high rates of marital breakup and reconstitution. In a related argument, Giles-Sims and Finkelhor (1984) propose that there may be a higher proportion of people with violent dispositions among remarried people than among first-marrieds, and that the stepparent-abuse connection might be a spurious result of this confound. But this hypothesis, and indeed any other that invokes cross-situational personality characteristics of abusers, cannot account for the fact that abusive stepparents are discriminative. Lightcap, Kurland, and Burgess (1982) found that only the stepchildren were abused in each of ten Pennsylvania cases where there were also children of the present marriage. Similarly, in the present study, the abuse sample included ten households in which children of the present marriage and stepchildren resided together. Only the stepchildren were abused in nine of the ten,

while in the exceptional case, a stepchild and a child of the present marriage were both victims. In neither study was any child of the present marriage abused while a stepchild was spared, which should be equally likely under a null hypothesis that the step-relationship per se is irrelevant.

Yet another possible confound is family size. Abuse rates for children with either no cohabitant siblings or with three or more were higher in the present study than the rates for children with exactly one or two. However, the distribution of family sizes did not differ between stepparent and natural-parent households, so that this factor cannot account for the stepparent effect either. Moreover, the analysis presented in Table 7 demonstrates that the stepparent effect is not an incidental consequence of the higher abuse risk for children born to young mothers, although this factor may contribute slightly to stepparent household overrepresentation among the abused. The essentially negative results with all of these possible confounds reinforce the conclusion that stepparenthood per se is a risk factor for child abuse, as theory leads one to expect.

The present results replicate another feature of our earlier American study: the ratio of abuse risk in a stepparent household to that in a natural-parent household declines with the child's age. We have suggested that this phenomenon reflects the greater costliness of assuming a parental role, and hence a greater resentment of the obligation, the younger the child (Daly and Wilson 1981b). Alternatively, stepparents of older children may simply have had longer to establish positive relationships with them. We should like to make the same comparison while confining the sample of step-relationships to newly established ones; we predict that a declining ratio of risk would still be evident, but the data for such an analysis will not be easily gathered. One argument against the familiarity alternative deserves note: in the case of infants, neither natural nor stepparents have had much time to establish positive bonds, and yet it is with this age group that the probability of abuse is most different between the two types of caretakers.

The "Other Substitute" Category

The label "other substitute" encompasses a variety of household types, each too rare to be treated separately. Lumping them all together may have obscured some important distinctions that would warrant analysis in a larger survey.

Nonrelative adoptions (as opposed to adoptions by blood relative or by natural parent plus stepparent) comprise most of the "other substitutes" for the population at large (13 of 24), but only one of nine "other substitutes" among the abused children. Thus, if adoptive parents were removed to a separate category, the computed risk of abuse in the remaining "other substitute" households would double. There are many reasons why adoptive parents would be expected to be low-risk "substitutes." Nonrelative adoptions are primarily the recourse of childless couples who are strongly motivated to simulate a natural family experience; rather than having their position *in loco parentis* thrust upon them, they have actively sought it. Applicants to adopt are screened by agencies, and many are rejected as unsuitable. Adoptive households are much wealthier on average than either stepparent or two-natural-parent households (Bachrach 1983). Finally, if the adoption (or the marriage) fails, the couple can return the child, which happens more often than is generally realized (e.g., Kadushin and Seidl 1971).

At the opposite extreme are substitute parents left in charge of children they may never have wanted in the first place. Four of the "other substitute" children in the abuse sample (Table 4) resided with a single stepfather, a circumstance that was never encountered among the 841 children in the population-at-large survey. We cannot, of course, compute an abuse rate for this rare household type, but even these few data are sufficient to show that stepfather alone was riskier than natural mother plus stepfather: the natural mother was absent for 4 of 25 abuse victims living with a stepfather vs. 0 of 37 for the population-at-large ($p = 0.023$; Fisher exact test).

The Nature of "Abuse"

A recurring problem for students of child maltreatment is that of definition. Our criterion was the Children's Aid Society's decision that a case warranted inclusion in the provincial registry.

Twenty-eight of the 99 cases were entirely or in part matters of "sexual abuse"—22 of 46 from the Children's Aid Society and 6 of 53 from the Catholic agency. Victims were 23 girls (ages 3–

16), 4 boys (ages 7–16) and one 10-year-old of unspecified sex. The Children's Aid Society identified perpetrators in 21 cases; all were men, including three putative fathers and six stepfathers.

It is important to note that the high risk of abuse in stepparent households (Table 5 and Fig. 1) is not solely or even mainly a matter of sexual abuse. Among preschoolers (in whom the elevation of abuse risk in step-households was maximal) the only two sexual abuse cases resided with a single mother and maternal relatives, respectively. In the 5–10-year-old group, step-households comprised an identical proportion (0.33) of sexual and nonsexual cases. Only among adolescent victims (ages 11–16) was the proportion of natural parent plus stepparent homes higher among sexual abuse victims (0.43) than for nonsexual abuse (0.26). These facts suggest that the decline in "relative risk" from step-parents as a function of the child's age (Table 5) might be still more pronounced if attention were confined to nonsexual forms of maltreatment.

"Abuse" as here defined encompasses various acts, and a larger study might usefully distinguish them (cf Wilson, Daly, and Weghorst 1983). For our present purposes, however, the Abuse Registry criterion has the virtue of capturing diverse cases with this common denominator: the care being provided by those *in loco parentis* is, in the opinion of child welfare professionals, so poor or unreliable as to imperil the child. We consider such a criterion particularly apt, because psychological constructs such as "child-specific parental solicitude" afford the best level of abstraction for evolutionary theoretical analyses (see Barkow 1984; Daly and Wilson, in press; Symons, in press). What, after all, can most usefully be considered to have evolved by natural selection? Certainly not "child abuse"! Lenington (1981) erects a straw man when she writes,

> although it is possible to present very plausible arguments for the adaptive significance of child abuse, it has not been possible, and would be extraordinarily difficult, to show that individuals who abuse their children are, in fact, increasing their reproductive success. The entire sociobiological argument, in this case, rests on plausibility.

Abusive parents commonly persist in inflicting damage upon their wards, while continuing to invest in them. This is hardly an efficient strategy of parental effort allocation, as Giles-Sims

and Finkelhor (1984) correctly note, but they are wrong to conclude that such considerations invalidate a sociobiological approach to stepparental abuse. We agree entirely that chronic abuse lacks the "design features" (Williams 1966) of an evolved adaptation; it is therefore most *un*likely that "individuals who abuse their children are, in fact, increasing their reproductive success." We propose, however, that discriminative parental solicitude (Daly and Wilson 1980, 1981a) *is* an evolved adaptation, exhibiting predictable relationships to several independent variables that were historically predictive of the child's expected contribution to parental fitness, and to several dependent variables including the risk of child maltreatment.

Lapses of parental solicitude include, but are not confined to, direct violence. Neglecting a child and deliberately inflicting injury are certainly different, but both betray a failure of parental love. The caretaker who is truly concerned for a child's welfare will furthermore not normally use that child as a sexual object. There is thus a certain motivational commonality to these diverse acts. Lapses of parental solicitude may also be manifested in reduced protection of the child from third parties; perpetrators of sexual abuse in Hamilton, for example, included neighbors, a stepfather's male friend, and other such nonrelatives (indeed the majority of perpetrators of sexual abuse were not themselves *in loco parentis* to the child).

Variation in the quality of parental protection from third parties raises another point: failures of parental solicitude might in principle be separated into failures of parental inclination (which we have emphasized thus far) and failures of parental *capability*. This distinction seems especially relevant to the risk of abuse in single-parent households, where money and other parental resources may be in short supply. In the present study, 13 children living with single mothers were abused (seven of them sexually) by identified persons. Men were involved in 11 of these cases, and only 2 were putative fathers of their victims. Thus the threat to children with single mothers appears to be much the same threat as confronts stepchildren: men other than their fathers.

Maternal Age

The decline in abuse risk as a function of maternal age (Fig. 4) we interpret as reflecting a

tendency for women to value their children more highly as their own reproductive value declines. This is also the interpretation offered by Daly and Wilson (1984) and by Bugos and McCarthy (1984) for a similar decline in the probability of maternally instigated infanticide as a function of maternal age in Canadian and Ayoreo women, respectively. Unfortunately, the analysis of maternal age omitted those cases in which children were no longer residing with their mothers. It seems probable that such cases might also include a disproportionate representation of younger mothers. The somewhat different pattern with respect to the police samples (Fig. 4) invites further speculation. Whereas the high risk for children of young mothers may reflect poor supervision and care, the high risk for children of older mothers might also be due to a declining capacity for supervision or alternatively to overindulgence of late-borns.

Population-at-Large Estimates

Several possible sources of error in the estimates derived from the telephone survey warrant consideration. Our advisers at Statistics Canada suggested that only 2% of urban Canadian households lack telephones, and it seems likely that many of these will be childless, but some bias due to this factor is conceivable. The 17 households not included due to language difficulties comprised just 1.2% of contacted households, and we know of no reason to suspect that their exclusion seriously affects any of the estimates. The 56 numbers not reached, comprising just 4% of possible households, are also unlikely to be an important source of error. Some were surely not households; telephone booths are one possibility. Moreover, the proportion of contacted households that contained children declined the more calls it took to reach the number: 37% of households reached on the first call included children, compared to 33% of those requiring two to four calls, and 28% of those requiring five or more. The implication is that relatively few households requiring more than eight calls would include children.

More problematic are the 42 refusals. Although the refusal rate of 3.2% was remarkably low for a survey of this sort, it is certainly possible that refusers differ systematically from respondents. A few people interrupted the introductory remarks to refuse, but almost all refusals came only after "living arrangements of children" had been mentioned. In 16 cases, the conversation before refusal was such as to indicate that there were indeed children in the home, but most refusals were brusque and uninformative. A single respondent was verbally abusive to the interviewer. We have no basis for surmising whether refusals might include a disproportionate number of one household type or another.

Some people may have "refused" deceptively, by falsely stating that no children resided at the number and quickly terminating the interview. The census provides some indirect evidence on the probable frequency of such deceptions. According to the 1981 census (Statistics Canada 1982), the average household in Hamilton–Wentworth contained 0.709 children. For our responding households in 1983, the corresponding figure is 0.654, an apparent 8% shortfall. However, the discrepancy between obtained and expected numbers of children per household is in fact less than this 8%, because the average number of children per household must actually have declined between 1981 and 1983, for two reasons. One has to do with the population's age structure: four people turned 18 (and thus left the "children" category) for every three that were born each year. If the number of persons per household had remained constant from 1981 to 1983, this factor alone should have reduced the average number of children from 0.709 to 0.698. But the second reason why children per household will have declined is that household size itself has been on the decline, a trend that accelerated over several decades prior to 1981. Between 1971 and 1981, the average Canadian household shrank from 3.5 persons to 2.9, mainly because of the increased number of people residing alone (Pryor 1983). If, as seems likely, these trends have continued, then the number of children per household will have fallen still lower. Furthermore, if half of the overtly refusing households contained children, as seems a conservative guess, and if we assume the same 1.89 children per household as for those who reported children, then the estimated number of children per household rises to 0.663. We conclude that deceptive denials of the presence of children were probably few. And as in the case of overt refusals, one can only speculate whether the probability of such a deception might vary according to household type.

Finally, it is of course possible that some of the people interviewed gave false information.

The interviewers were especially concerned that substitute parents be correctly identified as such, and always checked relationships by rephrasing the respondent's reply, asking in particular whether those relationships described as parent-to-offspring involved "natural" parents. Inadvertent misinformation therefore seems unlikely, but some respondents may have been deceptive. If some interviewees indeed misrepresented step-relationships as biological, we will have underestimated their incidence and hence overestimated attendant risks. But there is no particular reason to suppose that this occurred, and there could as readily be error leading us to *under*estimate the risks in step-households. One such source of error would arise if mothers living common-law with new mates represented themselves as single in order to retain welfare benefits. The Children's Aid workers doubted that this was a serious problem, stressing their familiarity with the mothers and household circumstances. The police, on the other hand, suggested that some of the women in their sample might have been concealing live-in boyfriends, on the basis of having seen unidentified men at some single mothers' homes. If such men were really residents, then the tendency for single-parent households to be riskier than stepparent households with respect to arrest could be spurious. But again, there is no compelling reason to imagine that women should have been deceptive in this direction.

For the present, our estimated incidences of household types are as good as is available for risk estimation. We hope that official agencies, particularly census bureaus, will soon recognize the importance of the distinction between natural and substitute parenthood.

Step-Relationships in Darwinian Perspective

There is a substantial literature on "reconstituted families," ranging from empirical surveys through anecdotes and autobiographical tips to exhortative pop psychology. The prevalent theme is *coping*, and the literature abounds with acknowledgments that step-relationships are stressful. A Darwinian view of the organism suggests that the reason *why* they are stressful is because they demand that all parties overcome their usual inclinations toward nepotistic discrimination. The stepparent has, after all, usually entered into the relationship out of an at-

traction to the new mate; the stepchild must frequently enter into the remarriage decision as a cost, not a benefit. Whereas satisfying relationships with nonrelatives ordinarily involve careful reciprocity, parental investment is exceptional: parents tolerate a cumulative imbalance in the flow of resources. With all the good will in the world, stepparents may strive to feel the altruism of a natural parent, but they do not always—perhaps do not often—succeed (e.g., Duberman 1975). It is thus not surprising that many professionals have concluded that the common attempt to simulate a natural parent-offspring relationship is misguided (e.g., Perkins and Kahan 1979; Johnson 1980; Einstein 1982; Turnbull and Turnbull 1983; Mills 1984; Clingempeel, Brand, and Ievoli 1984).

Most writers on step-relationships do not, of course, take a Darwinian view of the organism. The dominant framework is instead to speak of step-parenthood as a "role" and to attribute its problems to ambiguity and "newness" (e.g., Cherlin 1978; Kompara 1980; Giles-Sims 1984): stress is said to result from uncertain and conflicting expectations about what a stepparent can and should do, and will continue until "society" defines the role more clearly. This view must be challenged. Its proponents have not shown that there is greater uncertainty or conflict about roles and duties in stepparent households than in natural parent households, nor that there is any lesser degree of societal consensus about what duties stepfathers ought to assume than about what duties fathers ought to assume. Neither have they criticized (or apparently even considered) the common-sense alternative view that "well-defined," easy roles differ from "ambiguous," difficult ones in that the former match our inclinations while the latter defy them. Why situate role ambiguity in "society" rather than within the ambivalences of the actors themselves? Finally, the "ill-defined new role" theory evidently predicts that the difficulty attending step-relationships will fade as they become more common and receive more media attention. We are not aware of any evidence that this is happening.

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