

The “Cinderella effect”: Elevated mistreatment of stepchildren in comparison to those living with genetic parents.

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Theory

Parents commit a huge amount of time, attention and material resources to the care of their children, as well as incurring life-threatening risks to defend them and bodily depletion to nourish them. Why are parents motivated to invest so heavily in their children? From an evolutionary perspective, the answer is surely that natural selection has favoured intensive parental care in our lineage. Those ancestral genotypes and phenotypes that best succeeded in raising children to become reproducing adults were the ones that persisted and proliferated.

If the psychological underpinnings of parental care have indeed evolved by natural selection, we may furthermore anticipate that parental feeling and action will not typically be elicited by just any random conspecific juvenile. Instead, care-providing animals may be expected to direct their care selectively towards young who are (a) their own genetic offspring rather than those of their reproductive rivals, and (b) able to convert parental investment into increased prospects for survival and reproduction. This is the kernel of the theory of *discriminative parental solicitude*, which (notwithstanding some interesting twists and *caveats*) has been abundantly verified in a broad range of care-giving species (see Clutton-Brock 1991; Daly & Wilson 1980, 1988a, 1995).

From this perspective, care of young who are not the caretaker’s own requires explanation. In nonhuman animals, adoption of unrelated young is usually best interpreted as a failure of discrimination, which should not be so surprising after all when we consider that there is a sort of “evolutionary arms race” between discriminative parents and those (of both the same and other species) who might gain fitness by overcoming parents’ evolved defences and parasitizing their efforts (see, e.g., Davies & Brooke 1991; Yom-Tov 1980). In the human case, adoption by unrelated persons is a recent cultural invention rather than a recurrent aspect of ancestral environments, and cannot have been a feature of the social milieus in which our parental psychology evolved (see Silk 1990).

Stepparental care, unlike modern adoption, is cross-culturally ubiquitous and almost certainly ancient. It is also not peculiar to human beings, and its distribution in the animal kingdom lends support to the idea that the reason why such care occurs is because investing resources in a new mate’s young of prior unions is a part of “mating effort”, confined to species in which suitable mates are scarce and in which couples, once established, often stay together for longer than just one breeding season (Rohwer *et al.* 1999). Investing pseudoparental care in a predecessor’s offspring can thus be adaptive and favoured by selection. However, a stepchild must rarely have been as valuable to a stepparent’s expected fitness as a child of one’s own would be, and we may therefore anticipate that stepparents will not, in general, feel such whole-hearted, self-sacrificial love for their wards as genetic parents so often do.

It is on these grounds that we hypothesized, many years ago, that any and all sorts of abuse and exploitation would be seen to occur at higher rates in stepparent relationships than in genetic parent-child relationships, and that the differences would persist when possible confounds such as socio-economic status were controlled for (see Daly & Wilson 1998). This hypothesis has since been abundantly supported in our own research and in that of many others. This differential (mis)treatment is what we refer to as the “Cinderella effect”.

Fatal batterings of small children

This most severe category of child maltreatment exhibits Cinderella effects of the greatest magnitude: in several countries, stepparents beat very young children to death at per capita rates that are *more than 100 times higher* than the corresponding rates for genetic parents.

The most thorough analyses are for Canada, where data in a national archive of all homicides known to police indicate that children under 5 years of age were beaten to death by their putative genetic fathers at a rate of 2.6 deaths per million child-years at risk (residing with their fathers) in 1974-1990, while the corresponding rate for stepfathers was over 120 times greater at 321.6 deaths per million child-years at risk (Daly & Wilson 2001). Note that because few small children *have* stepfathers, this rate differential does not, in itself, convey anything about the absolute numbers of victims; what these rates represent are 74 fatal batterings by genetic fathers in 28.3 million child-years at risk, and 55 by stepfathers in 0.17 million child-years at risk.

Estimates of this sort have not been made for other countries, but it is clear that this immense excess risk to stepchildren is not peculiar to Canada. In England & Wales in 1977-1990, for example, 117 children under five years of age were beaten to death by putative genetic fathers and 103 by stepfathers (Daly & Wilson 1994). As in Canada, the available population-at-large survey data indicate that fewer than 1% of British children of the same age as the victims dwelt with stepfathers, while over 90% dwelt with putative genetic fathers, and so, as in Canada, the difference in per capita rates of such fatal assaults is well over 100-fold.

Australian data indicate an even larger Cinderella effect. Wallace (1986) reported that perpetrators of fatal baby batterings in New South Wales in 1968-1981 included 11 putative genetic fathers and 18 stepfathers, even though the victims' median age was only 12 months. Strang (1996) reported that comparable cases for the country as a whole in 1989-1993 included 11 children killed by putative genetic fathers and 12 by stepfathers, although the victims' median age was in this case less than 1 year. For both of these samples, the age distribution was such that fewer than 0.5% of a random sample of same-age children from the population-at-large would be expected to have had a stepfather according to Australian Family Characteristics Survey data, and the estimated relative risk from stepfathers *vs* genetic fathers exceeds 300-fold.

There are no high-quality national data on fatal batterings in the United States, but the available evidence again indicates a large overrepresentation of stepchildren as victims. According to an analysis of the FBI's *Supplementary Homicide Reports* (SHR) case data by Weekes-Shackelford & Shackelford (2004), stepfathers beat children under 5 years old to death at a rate of 55.9 per million children at risk

per annum, compared to 5.6 for genetic fathers. This 10-fold risk differential, albeit substantial, is surprisingly low in comparison to what has been documented in Canada, Britain and Australia, but there is good reason to believe that it is an extreme underestimate. The main reason for saying this is that SHR coders are instructed to restrict the “stepparent” code to persons in registered marriages and to code “mothers’ boyfriends”, whether they coreside or not, as nonrelatives. (Recently, a specific “mother’s boyfriend” code has been added to the “incident-based” NIBRS codes that are replacing the SHR.) In contrast, genetic fathers are coded as “fathers” regardless of marital status, and so Weekes-Shackelford & Shackelford’s (2004) comparison is effectively one of married stepfathers *versus* married *and* unmarried genetic fathers. Moreover, the SHR data suffer from a substantial incidence of coding errors; for example, 13 boys under 5 years of age who were beaten to death by adult men were coded as their killers’ stepfathers rather than stepsons and were therefore omitted from Weekes-Shackelford & Shackelford’s calculations.

There is considerable direct evidence that U.S. stepparents are more extremely overrepresented as fatal child abusers than Weekes-Shackelford & Shackelford’s 10-fold estimate. Wilson *et al.* (1980) analyzed child abuse data from an archive collating mandated reports from jurisdictions representing about half the U.S. population, and found 279 cases of “fatal physical abuse” (a broader category than lethal battering) in 1976; 43% of the victims (whose median age was under 2 years) dwelt with stepparents, and these data in combination with population-at-large estimates suggest that stepchildren incurred such deaths at about 100 times the rate for same-age children living with two genetic parents (Daly & Wilson 1988b). Various small-scale local studies similarly imply a very large Cinderella effect among murdered U.S. toddlers. Four examples of such studies are these:

- (1) 9 fathers and 6 *de facto* stepfathers (live-in “mothers’ boyfriends”) were identified as killers of small children (median age 1 year) in a Birmingham, Alabama sample (Lyman *et al.* 2003);
- (2) 4 fathers and 4 “mothers’ boyfriends” were killers of infants (median age 6.5 months) in a Dayton, Ohio sample (Hicks & Gaughan 1995);
- (3) 11 fathers and 15 (registered marriage plus *de facto*) stepfathers (plus an additional 2 mothers’ boyfriends who did not coreside with their victims) inflicted fatal injuries on preschool-age children in Missouri over a 3-year period (Stiffman *et al.* 2002); and
- (4) 14 fathers and 9 (registered marriage plus *de facto*) stepfathers were killers of preschool-age children in an analysis of such murders by U.S. Air Force personnel (Lucas *et al.* 2002).

If stepfathers and genetic fathers were equally likely to kill, then in view of the very young ages of the victims and the household circumstances of children in the U.S. population-at-large, the expected count of stepfathers in each of these four samples, rounding to the nearest whole number, would be zero.

Swedish data indicate a smaller, but still substantial, Cinderella effect with respect to parental homicides *in toto*, (i.e. not just fatal batterings). Temrin *et al.* (2000) initially reported that there was no excess risk to Swedish stepchildren whatever, but this claim was based on an analytical error: the researchers used a very young group of victims to generate the numerators for their homicide rate estimates and a much older distribution of children’s ages in the population-at-large to generate the denominators. When the analysis was done correctly, toddlers were found to have been killed by genetic parents at a

rate of 3.8 per million coresiding parent-child dyads per annum, while the corresponding rate for stepparents was 8.4 times greater at 31.7 deaths per million dyads per annum (Daly & Wilson 2001). Because these estimates include all parental and stepparental killings, many of which have different typologies and different risk factors than fatal batterings, they are not strictly comparable to the Canadian, British and Australian numbers discussed above, but they certainly suggest that the magnitude of Cinderella effects may vary considerably across countries (see also Temrin *et al.* 2004).

How and why Cinderella effects vary in magnitude are important questions for future research, and we are going to need cross-national research that differentiates homicide typologies to get the answers. Fatal batterings are clearly different, for example, from murder-suicides by depressed parents, who may even construe the killing of their children as a “rescue”, and in both Canada and Britain, stepparents are overrepresented as killers to a much lesser extent in murder-suicides and familicidal massacres than in fatal batterings (Daly & Wilson 1994; Wilson *et al.* 1995). As regards the specific case of Sweden, Daly & Wilson (2001: 294) speculate that “it may well be the case that the modern Swedish welfare state provides a social climate in which stepparents do not experience, and thus do not resent, heavy pseudoparental obligation”. Whether social policy indeed has such effects on the incidence of family violence is an important question that will require more sophisticated analyses than have yet been undertaken.

Nonlethal abuse

The evidence for Cinderella effects in nonlethal abuse is much more extensive than that for homicides. Numerous studies from a diversity of countries indicate that stepparents perpetrate both nonlethal physical assaults and sexual abuse at much higher rates than genetic parents.

One sort of evidence comes from the case data collected by child protection agencies, in which stepfamily households and stepparent perpetrators are greatly overrepresented relative to their prevalence in the population-at-large (e.g. Creighton 1985; Creighton & Noyes 1989; Craissati & McClurg 1996; Cyr *et al.* 2002; Daly & Wilson 1985; Gordon 1989; Gordon & Creighton 1988; Klevens *et al.* 2000; Rodney 1999; Sirles & Franke 1999; Trocmé *et al.* 2000; Wilson *et al.* 1980).

Another source of evidence is victimization surveys, from which comparisons can be made between the responses of those who live or formerly lived with stepparents and those raised by genetic parents. The former routinely report much higher rates of both physical and sexual abuse (e.g. Kim & Ko 1990; Russell 1984; Sariola & Uutela 1996). Surveys of runaway youth combine the features of the criterion case study and the victimization survey, and provide further evidence. When runaway and homeless adolescents are interviewed, a very large proportion report that they have fled stepfamilies in which they were subject to abuse (e.g. Powers *et al.* 1990; Tyler & Cauce 2002).

Are Cinderella effects byproducts of other risk factors associated with stepparenthood?

That stepparents abuse and kill children at much higher *per capita* rates than genetic parents does not necessarily implicate the steprelationship as a causal factor. It could instead be correlated (“confounded”, in statistical jargon) with some other factor that is of more direct relevance.

An obvious example of a possible confound is socioeconomic status: one might hypothesize that the stresses of poverty cause the poor to be especially likely to abuse and kill their children and also to experience high rates of divorce and remarriage, making steprelationship an incidental correlate of abuse. This initially plausible hypothesis has been tested and rejected with respect to Cinderella effects in Canada (Daly & Wilson 1985) and the U.S. (Wilson et al. 1980; Wilson & Daly 1987): in both countries, poverty is indeed a risk factor for child maltreatment, but it is weakly or not at all associated with steprelationship, with the result that having a stepparent and being poor are in large measure independent and additive (“orthogonal”) predictors of the risk that a child will be abused. Other confound hypotheses that have been tested and rejected are that the differences between stepparent families and genetic parent families might be byproducts of differences in parental age and/or family size; such differences are in fact small and make negligible contributions to Cinderella effects (e.g. Daly & Wilson 1985).

A final confound hypothesis is that there are “personality” differences between parents who reside with only their own children and people who become stepparents. In principle, the population of adults in stepfamilies could include disproportionate numbers of disturbed, violent or otherwise abuse-prone people, elevating victimization rates for those living in such families regardless of how victims and assailants were related. But although the population of persons who become stepparents may indeed be atypical of parents in general, one line of evidence speaks against the idea that this could account for Cinderella effects: abusive stepparents typically spare their own children. In a study of abusive families in the U.S., for example, only the stepchildren were abused in every one of 10 households containing both stepchildren and children of the current marital union (Lightcap et al. 1982); similarly, in urban Canadian samples, the stepchildren were selectively abused in 9 of 10 such families in one study (Daly & Wilson 1985), and in 19 of 22 in another (Rodney 1999). This tendency for stepchildren to be targeted is especially striking in light of the following additional facts: (1) when child abuse is detected, it is often found that all the children in the home have been victimized, and (2) the abused stepchildren were almost always the eldest children in the home, whereas the general (albeit slight) tendency in genetic-children-only families was for the youngest to be the most frequent victims (Rodney 1999).

Stepfathers or “mothers’ boyfriends”?

In our own research and in the review above, we typically define a “stepparent” as the coresiding partner of a (presumed) genetic parent, regardless of marital registration. But marital status may not be irrelevant, and a large proportion of slain and abused stepchildren were the victims of their mothers’ “live-in boyfriends”. This raises the question of whether Cinderella effects might be due primarily, or even solely, to abuse by *de facto* stepparents rather than registered-marriage stepparents. The answer is that Cinderella effects are large regardless of marital registration.

Both registered-marriage stepfathers and *de facto* stepfathers (*aka.* commonlaw stepfathers, mothers’ boyfriends, cohabitantes, and, in older literature, “paramours”) are overrepresented as perpetrators of abuse in many of the studies cited above. Weekes-Shackelford & Shackelford (2004) analyzed U.S. homicide data using a data base that effectively limits the term “stepparent” to persons in registered marriages (even though the comparison group of “parents” includes both married and unmarried), and

nevertheless found large Cinderella effects. Creighton & Noyes (1989) estimated rates of child abuse by married stepfathers *versus* mothers' cohabitantes in Great Britain, and actually found the former to be significantly higher than the latter, a unique result that is likely to prove exceptional.

The most thorough examination of the simultaneous relevance of steprelationship and marital registration is that conducted by Daly & Wilson (2001) with respect to fatal batterings in Canada. What they found was that both steprelationship and commonlaw status were strong predictors of homicide risk, and that neither variable's influence could be explained away as an artifact of the other's. In other words, stepfathers were greatly overrepresented as killers within both registered and *de facto* unions considered separately, and *de facto* fathers were greatly overrepresented within both genetic and stepfathers considered separately.

Stepparents or stepfathers?

Many of the analyses discussed above have focused on homicides and abuse perpetrated by stepfathers *vs* (putative) genetic fathers. Can we infer that excess risk is a feature only of stepfather homes and not stepmother homes? The answer is no. The reason why stepmothers are often omitted from the data presentation is because small children live with stepmothers so infrequently that in all but the largest data bases, the cases are usually so few that estimates of abuse risk are unreliable, changing markedly as a result of the addition or subtraction of a single case. Nevertheless, all available evidence indicates that excess risk from stepmothers (relative to genetic mothers) is roughly on the same order as excess risk from stepfathers (relative to genetic fathers).

The best evidence on this question comes from large child abuse data bases such as those analyzed by Daly & Wilson (1981) and Creighton & Noyes (1989). Both studies included large numbers of stepmother cases and provided evidence that rates of physical abuse in stepmother and stepfather households are roughly similar and far in excess of those in two-genetic-parent households. Stepmothers are also substantially and significantly more likely to kill young children than genetic mothers according to the analyses of U.S. data by Weekes-Shackelford & Shackelford (2004), despite the facts that (1) as with stepfathers, the code "stepmother" was restricted to those in registered marriages, and (2) the genetic mother cases included neonaticides, a distinct category of homicides that is sometimes quite numerous. We have already mentioned the identical abuse rates in stepmother and stepfather households in the Korean study by Kim & Ko (1990). Finally, stepmother households tend to be even more extremely overrepresented than stepfather households among adolescent runaways who aver that they are fleeing abusive families.

Mundane (non-abusive) discrimination against stepchildren

It is important to stress that although stepchildren incur elevated risks of abuse and homicide, these dire outcomes are by no means typical. Many, perhaps most, stepparents make positive contributions to the well-being of their stepchildren, and most stepparents and stepchildren evaluate their relationships at least somewhat positively. Nevertheless, steprelationships are difficult, and those who make it their business to help stepfamilies in distress are unanimous in cautioning that it is a mistake to expect that a

stepparent-stepchild relationship is, or will with time become, psychologically equivalent to a birthparent-child relationship (e.g., Johnson 1980; Turnbull & Turnbull 1983). Research tells the same story. Duberman (1975), to take a single example, interviewed a select sample of well-established, “successful”, middle class, registered-marriage U.S. stepfamilies, and reported that only 53% of the stepfathers and 25% of the stepmothers felt able to say that they had any “parental feeling” (much less “love”) for their stepchildren. There are literally hundreds of self-help manuals for stepfamily members, and they have a single focus: how to cope with the characteristic conflicts of stepfamily life.

To an evolutionist, these facts are unsurprising. Assuming the role of stepparent may be a tolerable price to pay to acquire a desired mate, but how much one should then invest in stepchildren remains negotiable. The extent to which a new couple’s combined resources will be devoted to children of former unions is therefore likely to be a source of persistent conflict, an expectation that is abundantly confirmed by studies of marital discord (see Daly & Wilson 1996; Wilson & Daly 2001, 2004). Children of former unions enter into (re)marriage negotiations as a cost, not a benefit (e.g. White & Booth 1985), and their presence therefore reduces the custodial parent’s value on the marriage market. Moreover, children of former unions increase the marital-duration-specific probability of divorce, whereas children of the present union reduce it (Becker *et al.* 1979). Having children of former unions also elevates the risk that wives will be assaulted (Daly, Singh & Wilson 1993) and killed (Daly, Wiseman & Wilson 1997; Campbell *et al.* 2003).

In light of the theoretical ideas that we espoused at the beginning of this review and facts like those recounted above, we long ago proposed that violence against stepchildren would prove to be the atypical and extreme “tip of the iceberg” of a more ubiquitous discrimination. A wide variety of recent research in diverse disciplines has now demonstrated that this is indeed the case.

Econometric analyses of large data bases such as the U.S. *Panel Study of Income Dynamics* provide one sort of evidence: controlling for the family’s economic means, U.S. stepchildren receive reduced investment in the form of support for higher education, routine medical and dental care, and even food (e.g. Case *et al.* 2000; Case & Paxson 2001; Zvoch 1999). Surveys that ask people directly about parental support tell the same story: according to both the parents and the children, stepparents withhold investment relative to genetic parents (e.g. Anderson *et al.* 1999a,b; White 1994). Also of interest in this context is Ferri’s (1984) finding that both the mothers and stepfathers in British stepfamily homes expressed low aspirations for the children’s education, lower even than those of single mothers of lesser means.

Another sort of evidence comes from anthropological studies using observational sampling methods. In one such study of Trinidadian villagers, Flinn (1988) found that stepfathers spent significantly less time with their children than genetic fathers, and that a significantly higher proportion of their interactions were “agonistic”. In another such study of Hadza hunter-gatherers in Tanzania, Marlowe (1999) reported that although stepfathers mind their stepchildren in camp, they are unlike genetic fathers in their behaviour towards them; for example, they never play with them. Stepchildren also suffer elevated rates of accidental injury, both lethal and nonlethal, from infancy onwards, apparently because they are less assiduously monitored and protected (e.g. Fergusson *et al.* 1972; Wadsworth *et al.* 1985), and they

suffer elevated mortality in general, not just from assaults (e.g. Hill & Kaplan 1988; Volland 1988).

In view of all the above, it is no surprise to learn that stepchildren find their home life stressful. Many studies have reported that they leave home at a substantially younger age than children from intact birth families (e.g. Aquilino 1991; Davis & Daly 1997; Kiernan 1992; White & Booth 1985), and not only do they leave earlier, but they are far more likely to cite family conflict as the reason (Kiernan 1992). The last findings that we will cite are from a study of child health in Dominica: stepchildren exhibit reduced growth (Flinn et al. 1999) and have chronically higher circulating levels of the stress hormone cortisol (Flinn & England 1995; Flinn *et al.* 1996) than their age mates living with only their genetic parents under similar material circumstances in the same village.

Let us stress again that most stepparents try hard to treat their stepchildren fairly, and extreme negative outcomes, despite being much more prevalent than in genetic-parent homes, are infrequent. That said, however, it is also important to recognize that Cinderella is no fairy tale.

References

- Anderson KG, Kaplan H & Lancaster J (1999a) Paternal care by genetic fathers and stepfathers I: reports from Albuquerque men. *Evolution & Human Behavior* 20: 405-431.
- Anderson KG, Kaplan H, Lam D & Lancaster J (1999b) Paternal care by genetic fathers and stepfathers II: reports by Xhosa high school students. *Evolution & Human Behavior* 20: 433-451.
- Aquilino WS (1991) Family structure and home leaving: a further specification of the relationship. *Journal of Marriage & the Family* 52: 405-419.
- Becker GS, Landes EM & Michael RT (1977) An economic analysis of marital instability. *Journal of Political Economy* 85: 1141-1187.
- Campbell JC *et al* (2003) Risk factors for femicide in abusive relationships: results from a multisite case control study. *American Journal of Public Health* 93: 1089-1097.
- Case A, Lin I-F & McLanahan S (2000) How hungry is the selfish gene? *Economic Journal* 110: 781-804.
- Case A & Paxson C (2001) Mothers and others: who invests in children's health? *Journal of Health Economics* 20: 301-328.
- Clutton-Brock TH (1991) *The evolution of parental care*. Princeton: Princeton University Press.
- Craissati J & McClurg G (1996) The challenge project: perpetrators of child sexual abuse in south east London. *Child Abuse & Neglect* 20: 1067-1077.
- Creighton SJ (1985) An epidemiological study of abused children and their families in the United Kingdom between 1977 and 1982. *Child Abuse & Neglect* 9: 441-448.
- Creighton SJ & Noyes S (1989) *Child abuse trends in England and Wales 1983-1987*. London: National Society for the Prevention of Cruelty to Children.
- Cyr M, Wright J, McDuff P & Perron A (2002) Intrafamilial sexual abuse: brother-sister incest does not differ from father-daughter and stepfather-stepdaughter incest. *Child Abuse & Neglect* 26: 957-

973.

- Daly M, Singh LS & Wilson MI (1993) Children fathered by previous partners: a risk factor for violence against women. *Canadian Journal of Public Health* 84: 209-210.
- Daly M & Wilson MI (1980) Discriminative parental solicitude: a biological perspective. *Journal of Marriage & the Family* 42: 277-288.
- Daly M & Wilson MI (1981) Abuse and neglect of children in evolutionary perspective. In RD Alexander & DW Tinkle, eds., *Natural selection and social behavior*. NY: Chiron.
- Daly M & Wilson MI (1985) Child abuse and other risks of not living with both parents. *Ethology & Sociobiology* 6: 197-210.
- Daly M & Wilson MI (1988a) The Darwinian psychology of discriminative parental solicitude. *Nebraska Symposium on Motivation* 35: 91-144.
- Daly M & Wilson MI (1988b) *Homicide*. New York: Aldine de Gruyter.
- Daly M & Wilson MI (1994) Some differential attributes of lethal assaults on small children by stepfathers versus genetic fathers. *Ethology & Sociobiology* 15: 207-217.
- Daly M & Wilson MI (1995) Discriminative parental solicitude and the relevance of evolutionary models to the analysis of motivational systems. Pp. 1269-1286 in M. Gazzaniga, ed., *The cognitive neurosciences*. Cambridge MA: MIT Press.
- Daly M & Wilson MI (1996) Evolutionary psychology and marital conflict: the relevance of stepchildren. Pp. 9-28 in DM Buss & N Malamuth, eds., *Sex, power, conflict: feminist and evolutionary perspectives*. New York: Oxford University Press.
- Daly M & Wilson M (1998) *The truth about Cinderella*. London: Weidenfeld & Nicolson.
- Daly M & Wilson M (2001) An assessment of some proposed exceptions to the phenomenon of nepotistic discrimination against stepchildren. *Annales Zoologici Fennici* 38: 287-296.
- Daly M, Wiseman KA & Wilson MI (1997) Women with children sired by previous partners incur excess risk of uxoricide. *Homicide Studies* 1: 61-71.
- Davis JN & Daly M (1997) Evolutionary theory and the human family. *Quarterly Review of Biology* 72: 407-435.
- Duberman L (1975) *The reconstituted family: a study of remarried couples and their children*. Chicago: Nelson-Hall.
- Davies NB & Brooke M (1991) Coevolution of the cuckoo and its hosts. *Scientific American* 264: 92-98.
- Fergusson DM, Fleming J & O'Neill DP (1972) *Child abuse in New Zealand*. Wellington: Government of New Zealand Printer.
- Ferri E (1984) *Stepchildren: a national study*. Windsor UK: NFER-Meslon.
- Flinn MV (1988) Step and genetic parent/offspring relationships in a Caribbean village. *Ethology & Sociobiology* 9: 335-369.

- Flinn MV & England BG (1995) Family environment and childhood stress. *Current Anthropology* 36: 854-866.
- Flinn MV, Leone DV & Quinlan RJ (1999) Growth and fluctuating asymmetry of stepchildren. *Evolution & Human Behavior* 20: 465-479.
- Flinn MV, Quinlan RJ, Decker SA, Turner MT & England BG (1996) Male-female differences in effects of parental absence on glucocorticoid stress response. *Human Nature* 7: 125-162.
- Gordon M (1989) The family environment of sexual abuse: a comparison of natal and stepfather abuse. *Child Abuse & Neglect* 13: 121-130.
- Gordon M & Creighton SJ (1988) Natal and nonnatal fathers as sexual abusers in the United Kingdom: a comparative analysis. *Journal of Marriage & the Family* 50: 99-105.
- Hicks RA & Gaughan DC (1995) Understanding fatal child abuse. *Child Abuse & Neglect* 19: 855-863.
- Hill K & Kaplan H (1988) Tradeoffs in male and female reproductive strategies among the Ache, part 2. In LL Betzig, M Borgerhoff Mulder & P Turke, eds., *Human reproductive behavior*. Cambridge University Press.
- Johnson HC (1980) Working with stepfamilies: principles of practice. *Social Work* 25: 304-308.
- Kiernan K (1992) The impact of family disruption in childhood on transitions made in young adult life. *Population Studies* 46: 218-234.
- Kim K & Ko B (1990) An incidence survey of battered children in two elementary schools of Seoul. *Child Abuse & Neglect* 14: 273-276.
- Klevens J, Bayón MC & Sierra M (2000) Risk factors and context of men who physically abuse in Bogotá, Colombia. *Child Abuse & Neglect* 24: 323-332.
- Lightcap JL, Kurland JA & Burgess RL (1982) Child abuse: a test of some ideas from evolutionary theory. *Ethology & Sociobiology* 3: 61-67.
- Lucas DR, Wezner KC, Milner JS, McCanne TR, Harris IN, Monroe-Posey C & Nelson JP (2002) Victim, perpetrator, family, and incident characteristics of infant and child homicide in the US Air Force. *Child Abuse & Neglect* 26: 167-186.
- Lyman JM, McGwin G, Malone DE, Taylor AJ, Brissie RM, Davis G & Rue LW (2003) Epidemiology of child homicide in Jefferson County, Alabama. *Child Abuse & Neglect* 27: 1063-1073.
- Marlowe F (1999) Showoffs or providers? The parenting effort of Hadza men. *Evolution & Human Behavior* 20: 391-404.
- Powers JL, Eckenrode J & Jaklitsch B (1999) Maltreatment among runaway and homeless youth. *Child Abuse & Neglect* 14: 87-98.
- Rodney J (1999) *Household composition and the risk of child sexual and physical abuse*. Unpublished BSc thesis, Psychology, McMaster University.

- Rohwer S, Herron JC & Daly M (1999) Stepparental behavior as mating effort in birds and other animals. *Evolution & Human Behavior* 20: 367-390.
- Russell DEH (1984) The prevalence and seriousness of incestuous abuse: stepfathers vs. biological fathers. *Child Abuse & Neglect* 8: 15-22.
- Russell DEH (1986) *The secret trauma: incest in the lives of girls and women*. New York: Basic Books.
- Sariola H & Uutela A (1996) The prevalence and context of incest abuse in Finland. *Child Abuse & Neglect* 20: 843-850.
- Silk JB (1990) Human adoption in evolutionary perspective. *Human Nature* 1: 25-52.
- Sirles EA & Franke PJ (1989) Factors influencing mothers' reactions to intrafamily sexual abuse. *Child Abuse & Neglect* 13: 131-139.
- Stiffman MN, Schnitzer PG, Adam P, Kruse RL & Ewigman BG (2002) Household composition and risk of fatal child maltreatment. *Pediatrics* 109: 615-621.
- Strang H (1996) *Children as victims of homicide*. Trends and issues in crime and criminal justice No. 53. Canberra: Australian Institute of Criminology.
- Temrin H, Buchmayer S & Enquist M (2000) Stepparents and infanticide: new data contradict evolutionary predictions. *Proceedings of the Royal Society, London B* 267: 943-945.
- Temrin H, Nordlund J & Sterner S (2004) Are stepchildren overrepresented as victims of lethal parental violence in Sweden? *Proceedings of the Royal Society, London B, Biology Letters* 271: S124-S126.
- Troc   N *et alia* (2000) Canadian incidence study of reported child abuse and neglect. Ottawa: Public Health Agency of Canada.
<<http://www.phac-aspc.gc.ca/publicat/cisfr-ecirf/index.html>>
- Turnbull SK & Turnbull JM (1983) To dream the impossible dream: an agenda for discussion with stepparents. *Family Relations* 32: 227-230.
- Tyler KA & Cauce AM (2002) Perpetrators of early physical and sexual abuse among homeless and runaway adolescents. *Child Abuse & Neglect* 26: 1261-1274.
- Voland E (1988) Differential infant and child mortality in evolutionary perspective: data from 17th to 19th century Ostfriesland. In LL Betzig, M Borgerhoff Mulder & P Turke, eds., *Human reproductive behavior*. Cambridge University Press.
- Wadsworth J, Burnell I, Taylor B & Butler N (1983) Family type and accidents in preschool children. *Journal of Epidemiology & Community Health* 37: 100-104.
- Wallace A (1986) *Homicide: the social reality*. Sydney: New South Wales Bureau of Crime Statistics & Research.
- Weekes-Shackelford VA & Shackelford TK (2004) Methods of filicide: stepparents and genetic parents kill differently. *Violence & Victims* 19: 75-81.

- White L (1994) Stepfamilies over the life course: social support. Pp. 109-137 in A. Booth & J Dunn, eds., *Stepfamilies. Who benefits? Who does not?* Hillsdale NJ: Erlbaum.
- White LK & Booth A (1985) The quality and stability of remarriages: the role of stepchildren. *American Sociological Review* 50: 689-698.
- Wilson MI & Daly M (1987) Risk of maltreatment of children living with stepparents. Pp. 215-232 in RJ Gelles & JB Lancaster, eds., *Child abuse and neglect: biosocial dimensions*. NY: Aldine de Gruyter.
- Wilson M & Daly M (2001) The evolutionary psychology of couple conflict in registered versus de facto marital unions. Pp. 3-26 in A Booth, AC Crouter & M Clements, eds., *Couples in conflict*. Mahwah NJ: Erlbaum.
- Wilson M & Daly M (2004) Marital cooperation and conflict. Pp.197-215 in C Crawford & C Salmon, eds., *Evolutionary psychology, public policy, and personal decisions*. Mahwah NJ: Lawrence Erlbaum.
- Wilson MI, Daly M, Daniele A (1995) Familicide: the killing of spouse and children. *Aggressive Behavior* 21: 275-291.
- Wilson MI, Daly M & Weghorst SJ (1980) Household composition and the risk of child abuse and neglect. *Journal of Biosocial Science* 12: 333-340.
- Yom-Tov Y (1980) Intraspecific nest parasitism in birds. *Biological Reviews* 55: 93-108.
- Zvoch K (1999) Family type and investment in education: a comparison of genetic and stepparent families. *Evolution & Human Behavior* 20: 453-464.