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Original Article

Do parents favor their adoptive or biological children? Predictions from kin selection and compensatory models

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ABSTRACT

Evolutionary reasoning (Kin Selection Theory) predicts less favorable behaviors directed by parents toward their unrelated children, relative to their biologically related children. By extension, it may be argued that parents should also have less favorable perceptions of the intellectual, personality and other behavioral traits of unrelated children, compared with biologically related children. However, recent work has modified this expectation, given the distinction between unrelated adopted children (who are acquired intentionally) and unrelated stepchildren (who are acquired via mating effort). The compensatory model takes into account evolved desires for parenting and the evolutionarily novel availability of unrelated children. It predicts that adopted children may be viewed as favorably, or even more favorably, than biological children due to parents' compensation for the perceived challenges and stigma linked to their exceptional family structure. In the present study, IQ, Adjective Checklist and Child Behavior Checklist scale scores were available for 135 virtual twin pairs (same-age unrelated siblings raised together). Virtual twins included 41 adopted–biological pairs and 94 adopted–adopted pairs, with a mean age of 6.14 years (SD = 3.51). These unique data allowed tests of hypotheses and predictions concerning parenting perceptions, given the matched age and placement of the biological and adoptive siblings. Consistent with prior research, the IQ scores of the biological children exceeded those of the adopted children, both between and within pairs. A between-pair analysis revealed no difference between biological children and members of adopted–adopted pairs in ratings of favorable or unfavorable traits. However, more telling within-family comparisons of adopted–biological pairs revealed higher scores for adoptees on unfavorable traits, consistent with Kin Selection Theory, but no differences between adoptive and biological children on favorable traits, consistent with the compensatory model. These findings refine our understanding of parenting genetically related and unrelated offspring.

According to Kin Selection Theory (Hamilton, 1964), people have evolved to preferentially treat and impart resources onto their own offspring and relatives because such individuals share genetic material and are, thus, pathways for the transmission of genes related to altruism (Alexander, 1979; Daly & Wilson, 1995). This perspective is readily apparent in the way that people treat their own offspring versus biologically unrelated stepchildren: compared with children who reside with their biologically-related parents, stepchildren have been found to be 40 times more likely to be physically abused (Daly & Wilson, 1985) and up to 100 times more likely to be killed by their stepparents (Daly & Wilson, 2009). Stepchildren are genetically unrelated and acquired unintentionally through mating effort and as such, may receive less care and may be subject to greater rates of exploitation and harm (Daly & Wilson, 1988).

But what about cases of adoption in which genetically unrelated children are acquired *intentionally*? In traditional societies, adopters are often childless or older couples who take on the children of relatives who cannot effectively raise them (e.g., Silk, 1980). Such transactions fit within a kin-selection framework, given that these parents are investing resources in children with whom they share common genes (albeit less than the percentage they share with their own offspring), thereby indirectly enhancing their own biological fitness. As such, we would expect adopted children in traditional societies to fare better than unrelated stepchildren. In fact, adoption (i.e., movement of children within families and communities) occurs with relative ease among Polynesians and other relatively inbred island populations (Freedman, 1979) and some extended families (Hartman & Laird, 1990). In modern times, in which private domestic adoption, foster care and international adoption in the United States recently involved a total of 246,694 children (Bureau of Consular Affairs, 2014), adopters also tend to be childless or older (Ashe, 2015; Bamberger, 2013). However, a key difference is that people currently have many more options for acquiring *unrelated*

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children, including those of strangers who often are of a different ethnicity and live on the opposite side of the globe. Indeed, 59% of recently adopted children were biologically unrelated to their adopters. In such evolutionarily novel circumstances, how are adoptees treated by their adopting parents?

On one hand, according to a "Compensation" model (Hamilton, Cheng, & Powell, 2007), modern day adopters are especially motivated to be parents and, when taking on unrelated children, may compensate in their attitudes, cognitions, and behaviors for any natural inclinations to favor biological children. From an evolutionary perspective, adoption of children that are both genetically and socially unrelated to oneself likely involves a misfiring of evolved mechanisms promoting a desire for offspring, whereby in evolutionarily novel conditions there is a relatively large supply of unrelated children. Likewise, a motivation to compensate for biological favoritism may be a byproduct of the high parental motivation behind adoptive parenting. Furthermore, in an increasingly multi-ethnic and peaceful modern society, mechanisms for altruism and fairness, as well as for projecting social norm adherence, may be extending beyond one's own kin and ingroup members to include unrelated children.

However, evolved psychological mechanisms for enhancing inclusive fitness (Hamilton, 1964) through parenting may be unable to fully encompass the evolutionary novelty and fitness-reducing altruism of caring for children who are biologically and socially unrelated. That is, despite adopters having an initially strong desire to parent and any intentions of fairness, factors such as a lack of visual cues to genetic similarity (e.g., facial or bodily resemblance) and a lack of connections between the offspring and adopter's family members may contribute to lower levels of parental bonding and lead to less favorable attitudes toward, and treatment of, adoptees.

In this paper, we test the two alternative views by examining whether siblings of unique "virtual twin" pairs – where one child is biologically related to the parents, but the other, very close in age, is not – differ on a variety of key traits both objectively and as perceived by their parents. Thus, our investigation examines positive or negative bias in perceptions toward adoptees, and provides a window into whether parental motivation can induce individuals to supplant evolved psychological (kin-selection) mechanisms promoting investment in genetically related offspring. More broadly, the question is important as, increasingly, humans are living in conditions under which there is a mismatch between their evolved mechanisms and the evolutionary novelty of the current environment (e.g., Colarelli & Arvey, 2014; Hagen & Hammerstein, 2006; Kanazawa, 2004). In this rapidly changing context, it is increasingly important to identify key evolutionarily novel inputs and to understand the impact they have on relevant evolved psychologies.

1. Theoretical approaches

1.1. Kin Selection Theory

Evolutionary reasoning predicts less favorable treatment of unrelated children, relative to biological children. These expectations derive from Hamilton's (1964) Kin Selection Theory, namely that altruistic interactions between individuals should vary with their genetic relatedness. Hamilton asserted that behaviors incurring cost to the self (e.g., altruism) could evolve if such costs were outweighed by the benefit, multiplied by the coefficient of relatedness. He reasoned that natural selection should favor alleles predisposing individuals to behave in ways favoring transmission of those alleles. Alleles prompting individuals to behave altruistically toward others likely to carry copies of those alleles would allow indirect transmission of one's genes, enhancing inclusive fitness. A sizeable body of research supports increased cooperation and altruism with increasing genetic relatedness (Kurland & Gaulin, 2005; Neyer & Lang, 2003).

In particular, research shows that parents are more likely to protect and/or invest resources in biological than non-biological children. The higher rate of murder, abuse and neglect of stepchildren relative to biological children, has been partly explained by possible threats to the resources of stepparents' genetic children (Daly & Wilson, 1980; Wilson, Daly, & Daniele, 1995). Even in the absence of other genetic children in the home, stepparents may be unmotivated to provide optimal child care, given their acquisition of these children as a by-product of mating with individuals who are already parents. Investment in children with whom genes are not shared by descent does not enhance inclusive fitness, and reduces resources available to current and/or future biological children.

However, the notion that stepparenting might assist in mate acquisition is supported by a study of Israeli students embarking upon the "Great Journey" (i.e., a trip to Latin America or Asia by young adults upon completion of military service) (Tifferet, Jorey, & Nasanovitz, 2010). Individuals raised by stepfathers received greater financial support for the trip than individuals raised by stepmothers. Family income was not a significant predictor in the analysis. This suggests that males are more motivated than females to assist unrelated children to secure and maintain access to mates; also see Anderson, Kaplan, and Lancaster (1999). Thus, stepfathers may use parental investment as a mating strategy.

A similar picture emerges from studies of resource provision and family inheritance. In a review of research conducted in Oceania, Silk (1980) found that families raising both biological and adopted children apportioned their land so as to favor biological children. Case, Lin, and McLanahan (2000) found that American families with biological children spent 5% more on food than did families with non-biological children (adoptive, step and foster children). This pattern was also observed in South Africa where mothers raising biological children spent relatively more money on healthy foods and relatively less money on alcohol and cigarettes than mothers raising non-biological children (Case et al., 2000). These findings remained constant after controlling for number of children in the family. In this study, adoptees were disadvantaged to the same extent as other non-biological children. Unfortunately, comparison of food and other resources directed toward biological and non-biological children *within* the same family was generally not undertaken in the research reviewed above.

The foregoing themes were repeated in a study of relatedness and family investment among black South African children (Anderson, 2005). Data from a large nationally representative sample showed that the genetic relatedness of a "focal child" to household members positively predicted expenditures for food, health care and clothing; however, the first two findings held only for urban families, not for rural families. Possible explanations, such as reduced food and health care expenses available to rural families, were suggested. Again, a between-family, rather than a within-family, approach was taken.

Even when child care is provided by individuals outside the nuclear family, closely related kin tend to be more highly involved than less closely related kin. A review of forty-five cultures found that the presence of at least one care-taking non-parental relative was beneficial to child survival, and that maternal grandmothers and elder siblings contributed positively in this regard (Sear & Mace, 2008). Among the Efe foragers of the Democratic Republic of the Congo, kin are more than twice as likely to engage in alloparenting, whereas siblings and fathers are more than seventeen times more likely to do so than non-kin (Ivey, 2000).

In summary, research has generally found the parental favoring of biological over non-biological children, and more closely-related over less closely-related children. However, studies comparing the psychological attributes of parents and children in alternative family structures suggest that other factors may affect, and even overturn, the balance of resource provisioning, parenting experiences and child outcomes.

1.2. Alternative family structures reconceptualized

Recent research has laid a basis for reconceptualizing parental care and investment in unrelated children. This approach derives from the fundamental distinction between the rearing of adopted children and