



## Birth order, sex of child, and perceptions of parental favoritism

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### ABSTRACT

Many studies have examined factors that influence discriminative parental solicitude. Sex, birth order, and age of the mother are a few factors demonstrated to influence levels of parental investment (especially as measured by offspring self-report). One indicator of a high level of parental investment is being a parental favorite. Using self-reports from a sample of several hundred young adults, we secured support for two hypotheses related to the influence of birth order and sex on parental favoritism. Fathers are not perceived as having a favorite child more often than are mothers, but are more likely to favor female children than are mothers. Mothers are perceived to be more likely to favor female children in blended sibships. Both mothers and fathers are perceived as favoring genetically-related children. The results also suggest that the birth order of the parental favorite varies with the birth order of the participant. Firstborns and lastborns report a pattern of favoritism that suggests parents favor firstborn and lastborn children. The discussion addresses limitations of the methodology and presents directions for future research.

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### 1. Introduction

Theoretical and empirical work from an evolutionary perspective indicates that parents are not expected to, and neither do they, express affection for and invest in their children equally (Daly & Wilson, 1987). The genetic interests of parents and their children are not isomorphic (Trivers, 1974), resulting in parental “strategies” that reflect evolved psychological mechanisms designed to increase fitness by channeling investment to children who were likely to yield the greatest reproductive returns in ancestral environments (Geary & Flinn, 2001). *Favoritism* can be defined as the real or perceived preferential treatment of one or more of a parent’s children at the expense of that parent’s other children. Perceived parental favoritism may be contingent on the birth order of children (Kiracofe & Kiracofe, 1990; Kowal & Kramer, 1997). An examination of *perceptions* of parental favoritism is valuable for two reasons. First, perceptions of parental favoritism reflect evolved parental psychological mechanisms because they have a basis in actual parental investment biases. Second, despite parental attempts at equitable investment in children, biased investment can still result and can influence perceptions of favoritism (Hertwig, Davis, & Sulloway, 2002). It is these perceptions that have been argued to serve as a catalyst triggering a course of personality development that differs between siblings and influence how they manage relationships with family, friends, lovers, and co-workers (Salmon & Schumann, 2011). Understanding how these

perceptions of favoritism differ between siblings may shed light on how personality differences between siblings emerge.

Daly and Wilson (1987) argue that psychological mechanisms evolved in parents that were sensitive to the likely reproductive return offered by children. This sensitivity would have been selected for in ancestral parents because channeling investment in children who signaled a greater likelihood of surviving to reproductive age would have resulted in increased fitness to parents in ancestral environments. Characteristics of children that would have been linked with an increased probability of survival to reproductive age include good health and age (due to high rates of infant mortality). An additional feature that predicts parental investment is the likelihood of a genetic relationship between the parent and child (Daly & Wilson, 1987). Fathers, more than mothers, are expected to discriminate among their children because they recurrently incurred costs not incurred by mothers through investment in unrelated children due to a partner’s sexual infidelity (Daly & Wilson, 1982; Trivers, 1972). Fathers may have evolved mechanisms that make them more likely to invest in children that display cues of genetic relatedness. Kiracofe and Kiracofe (1990), for example, report that fathers are perceived as favoring a child more often than are mothers, while Daly and Wilson (1982) note that a newborn’s paternal resemblance is more often emphasized by maternal kin than is maternal resemblance. If children are sensitive to parental favoritism, then reports of the sibling that a parent favored should reveal features of parental psychology that reflect this sex-differentiated investment pattern.

Previous research also suggests biases of paternal investment in daughters and maternal investment in sons (Salmon, 2003). This

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pattern of investment may be understood by appreciating the role of relational uncertainty on investment among family members. Relational uncertainty refers to the number of links between two kin that could have been severed by cuckoldry (Euler & Weitzel, 1996). Grandfathers faced the adaptive problem of relational uncertainty at higher rates than did grandmothers because paternal grandfathers, for example, averaged a greater number of relational links (two) that could be broken by cuckoldry between themselves and their grandchildren than did maternal grandmothers (none). Grandfathers would have benefited by investing more heavily in daughters than in sons because they could have been more certain that each unit of investment in a daughter would go towards aiding her children (with whom he could be more certain of a genetic relationship). The predicted pattern of greater investment in daughters than in sons may not be exclusive to periods when grandchildren through daughters are present. An ontogenetic history of increased investment in daughters relative to sons may result in prolonged investment biases throughout a daughter's life. Grandmothers' investments are not expected to favor one sex over the other, all else being equal. Grandmothers may channel more investment in daughters because of greater certainty that the investment will be directed toward grandchildren with a higher probability of being genetically related. On the other hand, grandmothers may channel more investment in sons because that investment, relative to an equal investment in daughters, may be more directly related to additional mating opportunities for their sons, relative to such opportunities for daughters, especially when resources are abundant (Trivers & Willard, 1973). Paternity uncertainty coupled with relational uncertainty suggests a paternal bias of investing in daughters.

Another aspect of ancestral environments that would have had an impact on parental investment is the presence of a mate who is unrelated to a woman's children. Families in which the genetic parents divorced and stepsiblings or half-siblings are present offer a unique opportunity to test for a difference in the sex and relatedness of the perceived favorite because it is a correlate of the current or historical presence of a stepfather. Theoretical models and evidence reveal that both mothers and fathers invest disproportionately in genetically-related children compared to genetically-unrelated children (Anderson, Kaplan, & Lancaster, 1999). Among blended families, it is likely that both mothers and fathers are perceived as favoring genetically-related children.

Another aspect of blended families that may impact parental investment is the risk of sexual attention a mother's daughters (especially post-pubertal ones) may receive from their step-father (Quinsey & Lalumiere, 1995). We expect mothers to increase the time and attention they invest in their daughters, to reduce the risk of step-father sexual abuse. Such an increase in attention is not expected with regard to sons.

Parental psychological mechanisms may be attuned to the "value" that children offer (Daly & Wilson, 1987). This value may be assessed by parents through three broad classes of child characteristics: the probability that a child will survive to reproductive maturity, the value of investment in one child relative to others, and the parent's probability of future reproduction. Firstborn children, on average, are highest in reproductive value because they have survived for a greater period of time and are closer to reproductive maturity than their younger siblings (Sulloway, 1996). One unit of investment is, on average, more valuable to lastborn children because lastborn children are more vulnerable than older siblings. This reasoning has led researchers to predict a pattern of parental investment that favors firstborns and lastborns over middleborns, with associated psychological and behavioral ramifications on expressions of family solidarity (Salmon & Daly, 1998), personality (Michalski & Shackelford, 2002a), and sexual strategies (Michalski & Shackelford, 2002b). Children nominate birth order as

a determinate of parental favoritism (Zervas & Sherman, 1994). Using data collected from several countries, for example, Rohde et al. (2003) found that (1) parents are reported as favoring last-born children more often than firstborn children and (2) lastborns are more likely to indicate that they are favorites relative to parallel reports by firstborns and middleborns.

According to parent-offspring conflict theory (Trivers, 1974), children have been selected to solicit more investment than a parent is willing to give. Children in ancestral environments recurrently faced the problem of sibling rivals for parental investment. Children, therefore, are expected to have psychological mechanisms that motivate awareness of parental investment biases as a signal that resources are being diverted elsewhere. These mechanisms may trigger the pursuit of alternative, within-family niches. There is evidence suggesting that, early in life, children are particularly sensitive to parental investment favoring siblings (Sulloway, 1996). Reports of favoritism provided by parents may be problematic relative to reports provided by children. Self-deception may result in parents being unlikely to report their own investment biases. Even if they are aware of their investment biases, parents may be unwilling to report their biases to reduce the likelihood of being perceived as favoring particular children, masking any favoritism that may exist within the family (Daniels, Dunn, Furstenberg, & Plomin, 1985). To circumvent methodologically this issue, we ask adult children about their parents' investment and favoritism towards them or their siblings, arguably a more accurate method of assessing parental favoritism.

**Hypothesis 1.** Parents possess psychological mechanisms designed to favor genetically related over unrelated children.

**Prediction 1.1.** Participants will perceive that their father has a favorite child more often than they will perceive that their mother has a favorite child.

**Prediction 1.2.** Participants will perceive parents to favor daughters over sons.

**Prediction 1.3.** Participants who report residence in blended sibships will perceive both mothers and fathers as favoring genetic children over stepchildren.

**Hypothesis 2.** To minimize the likelihood of sexual abuse from a stepparent, mothers, but not fathers, will favor biological daughters more than sons when they have a mixed brood.

**Prediction 2.1.** Participants who report residence in blended sibships will perceive mothers, but not fathers, as favoring female children over male children.

**Hypothesis 3.** Discriminative parental solicitude will shape parent-offspring relations such that middleborns will be less favored in terms of parental investment than other birth orders.

**Prediction 3.1.** Children's perceptions of maternal favorites will identify middleborns as favorites less often than firstborns and lastborns.

**Prediction 3.2.** Children's perceptions of paternal favorites will identify middleborns as favorites less often than firstborns and lastborns.

**Prediction 3.3.** Firstborns and lastborns will be more likely than middleborns to report patterns of maternal and paternal favoritism that correspond to favoring firstborns and lastborns.

## 2. Methods

### 2.1. Participants

We assessed perceived parental favoritism among 680 college students in two Western, industrialized countries (United States and Canada). The participants ranged in age from 18 to 50 years, with a mean of 20.1 years ( $SD = 3.6$  years). Thirty-nine percent of participants were male and 61% were female. Sixty-two participants indicated that they were only children and were excluded from further analyses. Of the remaining participants, 41% indicated that they were from sibships of two, 29% from sibships of three, 12% from sibships of four, and 9% from sibships of five or more. Forty-one percent of participants were firstborns, 21% were middleborns, and 29% were lastborns. After excluding only children and participants that did not report a parental favorite, we were left with 306 participants.

### 2.2. Materials and procedures

Participants first completed a section requesting demographic information, including the age and sex of each of their siblings. Participants indicated whether each sibling was a full, half, step, or adopted sibling. Participants were asked in the second section, “Of all your brothers and sisters, does or did your Father have a favorite?” and “Of all your brothers and sisters, does or did your Mother have a favorite?” Participants were asked to circle either “Yes” or “No” for each question and to indicate the age and sex of each parent’s favorite, if one was indicated. Participants completed the survey as partial fulfillment of their Introductory Psychology research participation credit and were instructed to place their completed survey in a security envelope provided to them. Participants were instructed to return one signed consent form to the researcher separately from the sealed survey.

## 3. Results

Due to the small number of participants from Canada (and the lack of significant differences between the samples on relevant variables), we collapsed data provided by US and Canadian participants. **Hypothesis 1** stated that participants will perceive that their father has a favorite child more often than they will perceive that their mother has a favorite child. Thirty-six percent of participants reported that their mother has a favorite compared to 40% of fathers. This difference was not significant,  $\chi^2(1, n = 581) = 1.20, p > .05$ . As a follow-up test of Prediction 1.1, we selected cases in which only one parent was perceived as favoring a child to assess whether participants were more likely to perceive a father (with paternity uncertainty) as having a favorite than a mother as having a favorite when only one parent was perceived to favor a child. There were 63 cases in which participants reported a maternal favorite with no associated paternal favorite and 79 cases in which participants reported a paternal favorite with no associated maternal favorite. A McNemar test was conducted and did not reveal a difference between the frequencies at which mothers and fathers are nominated as having favorites,  $\chi^2(1, n = 580) = 1.60, p > .05$ .

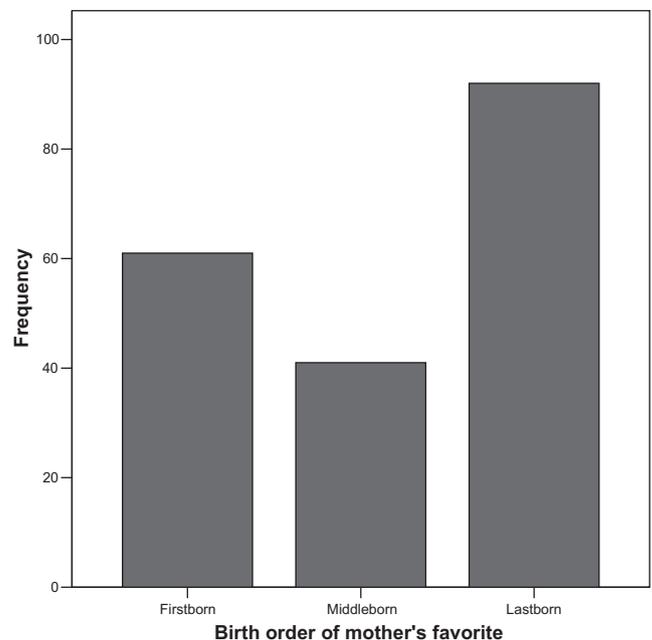
Prediction 1.2 suggests that participants will report that their mothers and fathers favor female children more than male children (due to greater certainty that a daughter’s children will be related to the parents than a son’s). A  $\chi^2$  analysis was conducted on the sex of maternal favorites and paternal favorites. Results from the test

of maternal favorites did not reveal that they are perceived as favoring one sex over another (112 nominated male favorites and 112 nominated female favorites;  $\chi^2(1, n = 224) = 0.00, p > .05$ ). Results from the test of reported paternal favorites revealed that daughters (146) are favored relative to sons (97),  $\chi^2(1, n = 243) = 9.88, p < .01, phi = 0.20$ . These tests provide some support for **Hypothesis 1**.

Prediction 1.3 stated that participants who report residence in blended sibships will perceive both mothers and fathers as favoring genetic children over stepchildren. The percentage of perceived favorites as being either genetically related to parents or not genetically related to parents revealed the perception of both mothers and fathers as favoring genetically related children. Of the 62 nominated favorites among blended sibships, only one participant perceived his or her mother as favoring a stepsibling and two perceived their mothers as favoring an adopted sibling,  $\chi^2(1, n = 62) = 58.10, p < .001, phi = 0.97$ . One hundred percent of the reports of perceived favorites among fathers were genetically related to the father with no reported nominations of either a stepsibling or an adopted sibling as a perceived favorite. Prediction 1.3 was supported.

Prediction 2.1 stated that participants who report residence in blended sibships will perceive mothers, but not fathers, as favoring female children over male children. Only participants reporting a sibling as either a stepsibling or half-sibling were included in the analysis. This left 69 affirmative responses to maternal favoritism and 68 affirmative responses to a paternal favoritism. The results supported the prediction that female children (62%) are reported as being favored more often than male children (38%) in blended sibships,  $\chi^2(1, n = 69) = 4.19, p < .05, phi = 0.25$ . Parallel tests of paternal favorites did not reveal a tendency to favor female children (56%) over male children (44%),  $\chi^2(1, n = 68) = 0.94, p > .05$ . Prediction 2.1 was supported.

**Hypothesis 3** stated that reports of parental favoritism will be lowest for middleborns, relative to firstborns and lastborns. **Fig. 1** shows the frequencies of birth order of perceived maternal favorites. Firstborns and lastborns are overrepresented as maternal favorites relative to middleborns,  $\chi^2(2, n = 194) = 20.42, p < .01, phi = 0.32$ , with the baby of the family being the most frequent favorite. Predic-



**Fig. 1.** Birth order of maternal favorites.

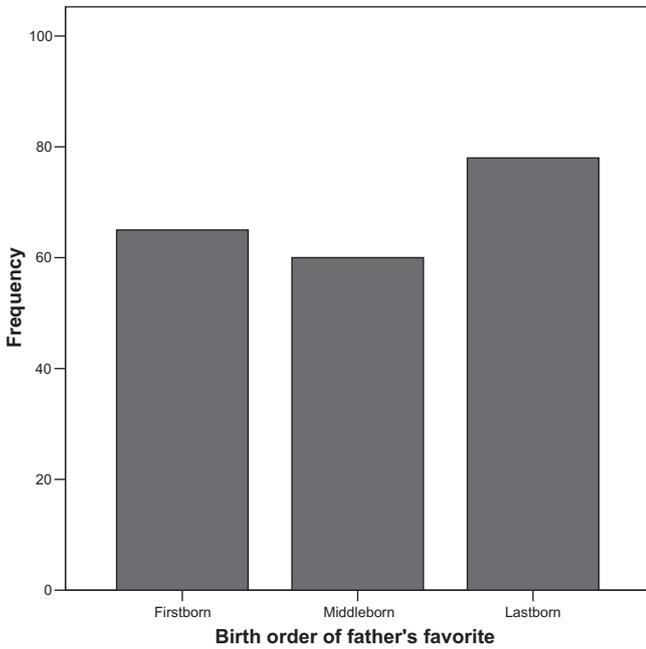


Fig. 2. Birth order of paternal favorites.

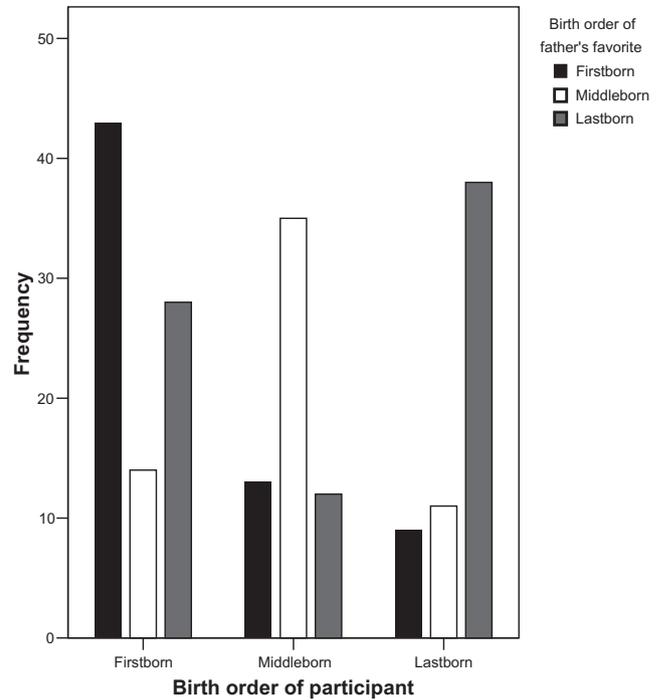


Fig. 4. Birth order of paternal favorites by birth order of respondent.

tion 3.1 was supported. Fathers were not reported as more likely to favor a firstborn or a laterborn, relative to middleborns,  $\chi^2(2, n = 203) = 2.55, p > .05$ . Prediction 3.2 was not supported (see Fig. 2). A similar pattern with the same results for tests of the predictions emerged for reports of both perceived maternal and paternal favoritism when only responses from participants from sibships of three were analyzed. Among sibships of three, firstborns and lastborns were overrepresented as perceived maternal favorites relative to middleborns [30% firstborns, 20% middleborns, 50% lastborns;  $\chi^2(2, n = 64) = 8.84, p < .05, phi = 0.37$ ] but firstborns and lastborns were not overrepresented as perceived paternal favorites relative to middleborns [25% firstborns, 35% middleborns, 40% lastborns;  $\chi^2(2, n = 65) = 2.43, p > .05$ ]. Here there was a linear pattern, though it was not significant, with the baby as the paternal favorite. Predic-

tion 3.3 stated that firstborns and lastborns will be more likely than middleborns to report patterns of maternal and paternal favoritism that correspond to favoring firstborns and lastborns. Reports of maternal favoritism revealed a difference across levels of participant birth order,  $\chi^2(4, n = 194) = 42.48, p < .001, phi = 0.47$ . This result was replicated with reports of the paternal favorite,  $\chi^2(4, n = 194) = 57.07, p < .001, phi = 0.54$ . Figs. 3 and 4 depict responses to the birth order of the maternal favorite and paternal favorite based on the participant's birth order, respectively. The trends for reports by firstborns and lastborns revealed an overrepresentation of firstborns and lastborns as both maternal and paternal favorites. Firstborns are not disproportionately represented in lastborn reports of perceived paternal favorites. Middleborns showed a pattern different from that reported by firstborns and lastborns across both maternal and paternal perceived favoritism. Middleborns reported that middleborns were more likely than firstborns and lastborns to be both maternal and paternal favorites.

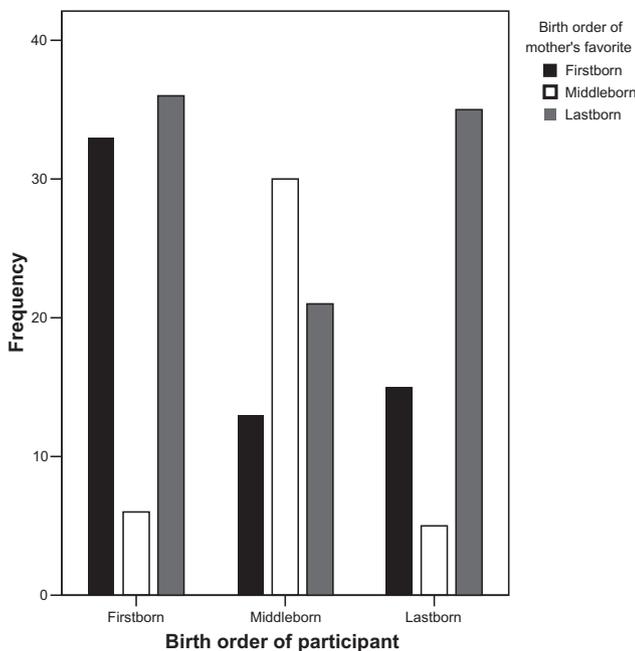


Fig. 3. Birth order of maternal favorites by birth order of respondent.

#### 4. Discussion

Using a sample of several hundred undergraduates from two Western countries, we did not find support for the hypothesis that participants will perceive their fathers as having a favorite child more often than they will perceive their mothers as having a favorite child. We did, however, find support for the hypothesis that participants will perceive their fathers, relative to their mothers, as favoring female children more than male children and that participants in blended sibships will perceive their mothers, but not their fathers, as favoring female children relative to male children. Consistent with previous research, both mothers and fathers are perceived as favoring genetically-related children. Participants perceive firstborns and lastborns as being favored more often than middleborns by mothers but not by fathers. The results of the current study extend previous research related to children's perceptions of parental favoritism by examining these relationships for perceptions of maternal and paternal favoritism separately and by examining perceptions of parental favoritism in blended sibships.

Ancestral fathers, but not ancestral mothers, recurrently faced the adaptive problem of discriminating between related and unrelated children. Consequently, fathers but not mothers are expected to have evolved psychological mechanisms designed to discriminate among putative children. As a result of this discriminate investment, we hypothesized that participants will perceive fathers more often than mothers as having a favorite. The current study indicates that fathers are *not* perceived by their children as being more likely than mothers to favor a child. Rates of maternal and paternal perceived favoritism did not differ. However, these results do not address the cues that fathers in this study may have had with which to direct their favoritism. It is possible that the *rates* of perceived favoritism do not differ between mothers and fathers but the *reasons* for favoritism do differ. Mothers, more than fathers, may discriminate among children on the basis of the children's quality (Daly & Wilson, 1987) rather than on cues of relatedness. In cases in which perceptions of maternal and paternal favorites differ, mothers may be compensating for favoritism expressed by fathers toward children that the fathers perceive as most similar to them.

Participants do perceive fathers, relative to mothers, as favoring female children more than male children. Previous research has not consistently shown a pattern of paternally-biased favoritism toward female children (Brody, Copeland, Sutton, Richardson, & Guyer, 1998). Using reports of perceived parental favoritism provided by participants whose parents divorced, we found support for the hypothesis that, under this condition, mothers are more likely to favor female children. We predicted this on the basis of maternal sensitivity to their female children's vulnerability to sexual abuse by the mother's current mate. Mothers may increase the amount of time they spend with their female children as a strategy of reducing her exposure to the mother's new mate. This additional time spent with the female children may be perceived by the female children and their siblings as favoritism. The result of favoritism towards female children may be driven simultaneously by mechanisms in female children that motivate them to solicit greater investment from their mothers. Future research is necessary to understand more precisely how family members, particularly mothers and their daughters, may counteract the risk of sexual abuse by stepfathers.

The findings of the current study concerning the birth order of the parental favorites extends previous research by documenting that mothers only are perceived as favoring firstborn and lastborn children. When reports of the birth orders of perceived maternal and paternal favorites are analyzed as a function of the birth order of the participant, the results suggest that firstborns and lastborns report parental favoritism in a way that corroborates previous research, whereas middleborns do not. Precisely why middleborns in this study are more likely to nominate middleborns as perceived favorites and simultaneously express less familial solidarity [previous studies indicate that middles receive less parental investment (Kennedy, 1989) and feel that parents are more punitive (Kidwell, 1982)] represents a challenge that researchers working on birth order may need to address. The results also raise the question of what subjects themselves believe parental favoritism to mean; is it a reflection of emotional closeness, parental expectations, or parental indulgence (which might explain the high frequency of the baby of the family as favorite despite parental expectations often being highest for firstborns)?

The current study relied exclusively on reports from young adult children's perceptions of parental favoritism. We were not able to examine how perceptions of favoritism might change as a function of age because we lacked a sufficient sample of older participants (or very young children) to compare their responses with the responses provided by younger adults. Future research that attempts to replicate these relationships among older adults is warranted

because it may provide a window into how perceptions of parental favoritism change. Although the reports of parents might appear to provide the most direct tests of the hypotheses of the current study, parents are likely to minimize the extent to which they favor particular children and, therefore, to distort perceptions of parental favoritism that may be revealed from examinations of reports of favoritism provided by children (Daniels et al., 1985). Although perceptions of favoritism are theorized to be a factor in shaping children's personality, exclusively assessing perceptions of parental favoritism is a methodological limitation. Despite the limitation of reliance on self-report, the perceptions of favoritism provided by one child are nevertheless *real* perceptions that can be replicated in future, with studies that investigate agreement between the reports of various siblings and parents, to identify the impact of social desirability on self-report responses.

We also found that many participants reported themselves as being a parental favorite, which is interesting as many children and adolescents often complain how another child is favored over them and some previous studies have not found this pattern of self-favoritism (Salmon, 2003). One possibility is that the students we sampled, all of whom were at university, many with their way paid fully by parents, were in fact their parents' favorites. Another is that social desirability is playing a role in that people might want to be perceived as a favorite, and by extension worthy of that parental valuation.

The results of the current study indicate that participants are more likely to report that their parents do not have a favorite than that they do. Whether parents are perceived as favoring a child may represent an empirical product of a compromise between psychological mechanisms in children attuned to the detection of parental favoritism and psychological mechanisms in parents that function to thwart detection of their favoritism. This study is not designed to test whether parents *actually* have favorites. We also are not able to claim that the reports of who was a parent's favorite are accurate because of the possibility that parental favoritism is perceived differently among siblings. Future research can more objectively assess parental favoritism through within-family studies that capitalize on triangulating the responses of multiple family members, including siblings.

Despite these limitations, this study adds to the literature on perceived parental favoritism and highlights several areas of future research. The current study is the first to examine reports of parental favoritism among blended sibships and is the first to identify a pattern of perceptions of parental favoritism on the basis of the birth order of the participant. The results of this study document that (1) parental favoritism is not perceived similarly among siblings, (2) parental favoritism may be sensitive to the unique costs imposed on daughters in stepfamilies, and (3) perceptions of parental favoritism can be interpretable within an evolutionary psychological framework. These results highlight the value of continued study into parental psychology and an examination of how perceived parental favoritism is expressed, maintained, and altered throughout the ontogeny of the parent-child relationship.

## References

- Anderson, K. G., Kaplan, H., & Lancaster, J. (1999). Paternal care by genetic fathers and stepfathers I: Reports from Albuquerque men. *Evolution & Human Behavior*, 20, 405–431.
- Brody, L. R., Copeland, A. P., Sutton, L. S., Richardson, D. R., & Guyer, M. (1998). Mommy and daddy like you best: Perceived family favoritism in relation to affect, adjustment and family process. *Journal of Family Therapy*, 20, 269–291.
- Daly, M., & Wilson, M. (1982). Whom are newborn babies said to resemble? *Ethology and Sociobiology*, 3, 69–78.
- Daly, M., & Wilson, M. (1987). The Darwinian psychology of discriminative parental solicitude. *Nebraska Symposium on Motivation*, 35, 91–144.
- Daniels, D., Dunn, J., Furstenberg, F., & Plomin, R. (1985). Environmental differences within the family and adjustment differences with pairs of siblings. *Child Development*, 56, 764–774.

- Euler, H. A., & Weitzel, B. (1996). Discriminative grandparental solicitude as reproductive strategy. *Human Nature*, 7, 39–59.
- Geary, D. C., & Flinn, M. V. (2001). Evolution of human parental behavior and the human family. *Parenting: Science and Practice*, 1, 5–61.
- Hertwig, R., Davis, J., & Sulloway, F. J. (2002). Parental investment: How an equity motive can produce inequality. *Psychological Bulletin*, 128, 728–745.
- Kennedy, G. E. (1989). Middleborns' perceptions of family relationships. *Psychological Reports*, 64, 755–760.
- Kidwell, J. S. (1982). The neglected birth order: Middleborns. *Journal of Marriage and the Family*, 44, 225–235.
- Kiracofe, N. M., & Kiracofe, H. N. (1990). Child-perceived parental favoritism and birth order. *Individual Psychology*, 46, 74–81.
- Kowal, A., & Kramer, L. (1997). Children's understanding of parental differential treatment. *Child Development*, 68, 113–126.
- Michalski, R. L., & Shackelford, T. K. (2002a). An attempted replication of the relationships between birth order and personality. *Journal of Research in Personality*, 36, 182–188.
- Michalski, R. L., & Shackelford, T. K. (2002b). Birth order and sexual strategy. *Personality and Individual Differences*, 33, 661–667.
- Quinsey, V. L., & Lalumière, M. L. (1995). Evolutionary perspectives on sexual offending. *Sexual Abuse: A Journal of Research and Treatment*, 7, 301–315.
- Rohde, P. A., Atzwanger, K., Butovskaya, M., Lampert, A., Mysterud, I., Sanchez-Andres, A., et al. (2003). Perceived parental favoritism, closeness to kin, and the rebel of the family: The effects of birth order and sex. *Evolution and Human Behavior*, 24, 261–276.
- Salmon, C. A. (2003). Birth order and relationships: Family, friends, and sexual partners. *Human Nature*, 14, 73–88.
- Salmon, C. A., & Daly, M. (1998). Birth order and familial sentiment: Middleborns are different. *Evolution and Human Behavior*, 19, 299–312.
- Salmon, C. A., & Schumann, K. (2011). *The secret power of middle children: How middleborns can harness their unexpected and remarkable abilities*. New York: Hudson St. Press.
- Sulloway, F. J. (1996). *Born to rebel*. New York: Pantheon.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago: Aldine Publishing Company.
- Trivers, R. L. (1974). Parent-offspring conflict. *American Zoologist*, 14, 249–264.
- Trivers, R. L., & Willard, D. E. (1973). Natural selection of parental ability to vary the sex ratio of offspring. *Science*, 179, 90–92.
- Zervas, L. J., & Sherman, M. F. (1994). The relationship between perceived parental favoritism and self-esteem. *Journal of Genetic Psychology*, 155, 25–34.