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Kinship Foster Care: Implications of Behavioral Biology Research

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Erratum
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INTRODUCTION

Public child welfare agencies have come to rely heavily on kin to serve as foster parents.[1] In some urban counties more than half of the children in foster care live with kin.[2]

In securing this high rate of kin placement, agency caseworkers must necessarily consider and choose among different types of kin. In the process, caseworkers may favor certain kin (e.g., grandmothers).

Similarly, legislators may favor certain kin in child welfare proceedings. For example, the Pennsylvania legislature is considering a "grandparents rights bill" that would give grandparents formal standing as a party in child welfare custody matters.[3] This bill would place grandparents in a superior legal position in relation to other relatives of a child subject to child dependency proceedings.[4] With their

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1. *See* Rob Geen, *The Evolution of Kinship Care Policy and Practice*, FUTURE CHILDREN, Winter 2004, at 131, 133-35.

2. *See id.*; James P. Gleeson, *Kinship Care as a Child Welfare Service: What Do We Really Know?*, *in* KINSHIP CARE: IMPROVING PRACTICE THROUGH RESEARCH 3, 4-6 (James P. Gleeson & Creasie Finney Hairston eds., 1999).

3. H.R. 1548, 2007 Gen. Assem. (Pa. 2007) (as amended on second consideration, Oct. 23, 2007).

4. *See* Karen Roebuck, *Grandparents May Win Rights in State*, PITT. TRIB.-REV., Nov. 6, 2007, *available at* http://www.pittsburghlive.com/x/pittsburghtrib/search/s_536477.html.

superior political power, grandparents can press for this legislation, but it is an open question whether such legislation would serve the interests of affected children and families.

At the same time that public agencies and legislatures have turned their attention to kin, behavioral biology[5] researchers have been exploring kinship relationships.[6] They have explored the expected levels of investment in child care for different types of kin.[7] Their findings speak to the choices being made by agencies and legislators concerning kin.

This Article explains the relevance to kinship foster care of behavioral biology research on kinship relationships and expected levels of parental investment. Because there is reason to believe that the level of parental investment correlates with positive child development and adult functioning outcomes,[8] ascertaining and considering relative expected levels of parental investment for different categories of kin might improve conditions and outcomes for many foster children. The behavioral biology research allows for the development of a rank listing of second-degree kin (i.e., grandparents, aunts, and uncles) in terms of their likely level of investment in a related foster child. Such a rank listing could serve three beneficial functions within public child welfare systems. First, child welfare researchers could use the listing to formulate and test

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5. This Article adopts the definition of "behavioral biology" provided by Owen Jones and Timothy Goldsmith: Behavioral biology refers to information and perspectives from many disciplines (e.g., evolutionary biology, developmental biology, cognitive neuroscience, behavioral genetics, evolutionary psychology) that "overlap to provide the rich and textured foundation—both in theory and in empirical work—for understanding how biological processes winnow, shape, and influence patterns of behavior in all animal life, including humans." Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405, 424 (2005).

6. *See* DAVID BUSS, EVOLUTIONARY PSYCHOLOGY: THE NEW SCIENCE OF THE MIND 198-261 (3d ed. 2008).

7. *See id.* at 243-52.

8. *See generally* John P. Ackerman & Mary Dozier, *The Influence of Foster Parent Investment on Children's Representations of Self and Attachment Figures*, 26 APPLIED DEVELOPMENTAL PSYCHOL. 507 (2005); Anne Case et al., *Educational Attainment of Siblings in Stepfamilies*, 22 EVOLUTION & HUM. BEHAV. 269 (2001); Mary Dozier et al., *Foster Children's Diurnal Production of Cortisol: An Exploratory Study*, 11 CHILD MALTREATMENT 189, 194-95 (2006).

hypotheses concerning expected levels of investment by different types of kin in order to develop sophisticated kinship foster care placement policies and practices. Second, agencies and caseworkers could use the listing in conjunction with other relevant considerations when choosing among second-degree kin who step forward to serve as a foster parent for a particular child. Third, agencies and caseworkers could consider the listing, along with other factors, when making decisions about the level of monitoring and support services that is appropriate for particular foster care placements.

In Part I, this Article discusses the increasing reliance on kin for service as foster parents. This discussion includes a description of the type of kin (e.g., grandmothers, aunts, uncles) who typically serve as foster parents. Part I also includes a discussion of the social science research comparing kinship with non-kin foster care placements, noting researchers' tendency to view all types of kin as fungible "kin foster parents." In other words, kinship foster care researchers do not appear to draw distinctions among different types of kin, conducting studies that simply compare "kin" placements with "non-kin" placements.[9] Part I ends by describing a study that calls this typical approach into question.[10] This study's findings identify the degree of relatedness between foster parent and foster child as a factor that may have implications for the level of parental investment and quality of relationship in foster care. Notably, behavioral biology research suggests that the level of parental investment may on average vary among kin, depending on the degree of relatedness between the kin caregiver and the child.[11]

Part II describes behavioral biology research that addresses the relative level of parental investment one can expect from different types of kin. This Part begins by explaining several evolutionary concepts used by behavioral

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9. *See, e.g.*, Jill Duerr Berrick, *Assessing Quality of Care in Kinship and Foster Family Care*, 46 FAM. REL. 273 (1997); Jennifer Ehrle & Rob Geen, *Kin and Non-Kin Foster Care—Findings from a National Survey*, 24 CHILD & YOUTH SERVICES REV. 15 (2002).

10. Mark F. Testa, *The Quality of Permanence—Lasting or Binding? Subsidized Guardianship and Kinship Foster Care as Alternatives to Adoption*, 12 VA. J. SOC. POL'Y & L. 499 (2005).

11. *See* BUSS, *supra* note 6, at 230-46.

biology researchers to formulate testable hypotheses concerning kin—inclusive fitness, degree of relatedness, paternity certainty, sex effects, and preferential kin investment.[12] The discussion proceeds with a description of empirical studies designed to test the hypotheses. The findings of these studies allow for distinctions among second-degree kin in terms of expected level of parental investment.[13]

Part III explores the implications of the relevant behavioral biology research for kinship foster care placements. This Part first describes the implications for the development of a research agenda addressing foster care placements.[14] It then discusses the possible development of a rank listing of kin based on expected levels of parental investment. This Part ends with a discussion of the benefits provided by a rank listing of kin for both foster care placement research and practice.

I. KINSHIP FOSTER CARE

This Part begins with a description of the increased use of kin as foster parents and the type of kin who typically serve as foster parents. It also includes a description of the legal regime that supports the increasing use of kin as foster parents. The discussion then turns to studies that compare aspects of kinship placements to those of non-kin placements, noting that researchers have viewed all kinship placements as occupying one category. In other words, the researchers have not distinguished among types of kin in conducting and reporting their studies. Finally, this Part discusses a study that begins to differentiate among types of kin by the degree of relatedness to the particular foster child in their care. This study draws on, and reflects, an aspect of the behavioral biology research that addresses kinship—the subject of Part II.

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12. *See id.* at 230-50.

13. *See id.* at 246-52.

14. *See generally* David J. Herring, *Legal Scholarship, Humility, and the Scientific Method*, 25 QUINNIPIAC L. REV. 867 (2007).

A. *The Increased Use of Kin as Foster Parents*

The extended family is a powerful concept and mechanism for the provision of child care. A significant percentage of children in the United States grow up in the care of family members who are not their parents.[15] Historically, this type of care has been provided on an informal basis outside the formal state child welfare system.[16] Typically, a problem arises with the capacity of parents to care for a child. For example, a parent may die or become seriously ill or develop a serious substance abuse problem. Members of a child's extended family often respond in such a situation by providing immediate care for the affected child. Through express or tacit agreement with the child's parents, these relatives step into the role of parent.[17]

Over the past two decades, public child welfare systems have increasingly enlisted a child's relatives for service as foster parents, thus formalizing the provision of kinship care.[18] When the state intervenes in a family because of child maltreatment, state actors now regularly look to members of a child's extended family for immediate placement options. As a result, the use of kin as foster parents has grown significantly.[19] In 1986, data from

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15. *See* Rob Geen, *Kinship Foster Care: An Ongoing, Yet Largely Uninformed Debate*, *in* KINSHIP CARE: MAKING THE MOST OF A VALUABLE RESOURCE 1, 3-5 (Rob Geen ed., 2003); Jill Theresa Messing, *From the Child's Perspective: A Qualitative Analysis of Kinship Care Placements*, 28 CHILD & YOUTH SERVICES REV. 1415, 1416 (2006).

16. *See* Rocco A. Cimmarusti, *Caregiver Burden in Kinship Foster Care*, *in* KINSHIP CARE: IMPROVING PRACTICE THROUGH RESEARCH, *supra* note 2, at 257.

17. *See id.*

18. *See* Geen, *supra* note 15, at 3-5; Gleeson, *supra* note 2, at 4-6; Maria Scannapieco & Rebecca L. Hegar, *Kinship Care Providers: Designing an Array of Supportive Services*, 19 CHILD & ADOLESCENT SOC. WORK J. 315, 316-17 (2002).

19. *See* Scannapieco & Hegar, *supra* note 18, at 316-17. It should be noted that there is no definitive definition of "kin" for reporting purposes within public child welfare systems. Researcher Rob Geen has asserted that "[i]n its broadest sense, kinship care is any living arrangement in which children do not live with either of their parents and are instead cared for by a relative or someone with whom they have had a prior relationship." Geen, *supra* note 1, at 132.

twenty-five states indicated that approximately 18% of children in foster care were placed with relatives.[20] As of September 30, 2005, just over 30% of children living in a state supervised foster or pre-adoptive family home setting had been placed with kin.[21] Some large states, such as California and Illinois, use kinship foster care placements at an even higher rate, with kin accounting for more than 40% of placements.[22] The highest growth in the use of kinship placements has occurred in urban communities, especially those that include a substantial proportion of black families.[23] Rob Geen of the Urban Institute notes, "[a]lthough kinship care is unevenly used across the states, it continues to be the placement of choice for those states with some of the highest caseloads in the country."[24]

Kinship foster care placements predominantly involve certain types of biological relatives. National data indicate that the most common placement (from 40% to over 50% nationally) is with one or two grandparents, usually a maternal grandmother.[25] The next most common kin placement (30% to 40% nationally) is with aunts and/or uncles, with most of these placements involving an aunt.[26] The remaining 10% to 20% of kin placements are with various other relatives such as great aunts or cousins.[27]

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20. Geen, *supra* note 1, at 134.

21. *See* CHILDREN'S BUREAU, U.S. DEP'T OF HEALTH & HUMAN SERVICES, THE AFCARS REPORT: PRELIMINARY FY 2005 ESTIMATES AS OF SEPTEMBER 2006, at 1 (2006), *available at* http://www.acf.hhs.gov/programs/cb/stats_research/afcars/tar/report13.pdf.

22. *See* Geen, *supra* note 15, at 4; Scannapieco & Hegar, *supra* note 18, at 316. *But see* Messing, *supra* note 15, at 1416 (noting that by 2003 the number of children entering foster care in California and being placed with a relative had declined to 33.7%).

23. *See* Gleeson, *supra* note 2, at 6.

24. Geen, *supra* note 1, at 135.

25. *See* Scannapieco & Hegar, *supra* note 18, at 317; *see also* Ehrle & Geen, *supra* note 9, at 24.

26. *See* Scannapieco & Hegar, *supra* note 18, at 317; Ehrle & Geen, *supra* note 9, at 24.

27. *See* Scannapieco & Hegar, *supra* note 18, at 317; Ehrle & Geen, *supra* note 9, at 24. The subjects who participated in two small studies reflect and illustrate these national statistics. The first study, a qualitative investigation, requested responses from kinship foster care parents in a large Mid-Western city. Monique Y. Johnson-Garner & Steven A. Meyers, *What Factors Contribute*

Federal law and procedures have reinforced a preference for using kin as foster parents. Since the mid-1990s, the United States Department of Health and Human Services has invited proposals for demonstration projects that address kinship care.[28] Several states have responded by providing new approaches to and support for kinship care.[29] Also, in enacting welfare reform legislation, Congress has expressed its support for this practice, intending for state actors to give preference to relatives when deciding where to place a particular child.[30]

In addition, the 1997 Adoption and Safe Families Act (ASFA) expressly addressed kinship care, distinguishing kin placements from non-kin placements.[31] One primary goal of ASFA is to achieve timely permanent placements for children in foster care.[32] And one robust mechanism for achieving this goal is seemingly strict time requirements for state agencies to file a petition seeking the termination of parental rights.[33] For example, state agencies are required

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to the Resilience of African-American Children Within Kinship Care?, 32 CHILD & YOUTH CARE F. 255 (2003). Thirty caregivers responded. Nineteen (63%) were grandmothers (the study report does not distinguish between maternal and paternal grandmothers), eight (27%) were aunts or uncles (seven were aunts and one was an uncle), and three (10%) were great aunts. *Id.* at 257. The second study, also a qualitative investigation, recruited forty children who resided with kin under an informal arrangement as opposed to a formal foster care placement. Messing, *supra* note 15. The study included forty-three kin caregivers. Thirty-three (76%) were grandparents (the study report indicates that twenty-five were maternal grandparents and eight were paternal grandparents, but no information is given on whether the caregiver was a grandmother or grandfather), eight (19%) were maternal aunts and uncles (the report does not provide the numbers of aunts and uncles separately), and two (5%) were other unidentified relatives. *Id.* at 1420. The national data indicate that informal voluntary kin arrangements involve grandparents more often than formal foster care placements and the second study appears to reflect this. *See* Ehrle & Geen, *supra* note 9, at 24.

28. *See* Rob Geen & Jill Duerr Berrick, *Kinship Care: An Evolving Service Delivery Option*, 24 CHILD & YOUTH SERVICES REV. 1, 3 (2002).

29. *See id.*

30. *See id.* at 3-4.

31. Adoption and Safe Families Act of 1997, Pub. L. No. 105-89, 111 Stat. 2115 (codified at 42 U.S.C. § 671 *et seq.* (2000)).

32. *See* Robert M. Gordon, *Drifting Through Byzantium: The Promise and Failure of the Adoption and Safe Families Act of 1997*, 83 MINN. L. REV. 637, 650-52 (1999).

33. *See id.* at 651.

to file a petition once a child has spent fifteen of the last twenty-two months in a foster care placement.[34] However, this requirement is subject to three exceptions, one of which applies to children placed with kin.[35] The state is not only not required to seek termination of parental rights for a child placed with kin, but also can allow "a fit and willing relative" to provide a "planned permanent living arrangement."[36] Thus, ASFA considers kinship placements to be permanent ones or at least stable enough not to require a change to achieve permanency.[37] Therefore, Congress's most recent comprehensive reform of the states' child welfare systems reinforces and encourages a special, favored place for kinship care.

B. *Kin v. Non-Kin Foster Care: Comparative Studies*

In response to the increased use of kinship foster care, several studies have compared various aspects of kinship placements to those of non-kin placements.[38] In terms of demographics, studies reveal differences that may justify expectations of worse treatment and outcomes for children placed with kin. Kinship caregivers have significantly lower incomes than non-kin foster parents.[39] They are more likely to be single and have less education.[40] Kinship caregivers are likely to be older, with many being grandparents of the children for whom they provide care.[41] They are also more likely to be in poor health.[42]

Several researchers have examined the stress confronted by kinship caregivers, noting how it is different from that

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34. 42 U.S.C. § 675(5)(E) (2000).

35. 42 U.S.C. § 675(5)(E)(i).

36. Geen & Berrick, *supra* note 28, at 4; *see also* 42 U.S.C. § 675(5)(E)(i).

37. *See* Geen & Berrick, *supra* note 28, at 4 (noting that ASFA also required the United States Department of Health and Human Services to report to Congress on what was currently known about kinship care).

38. *See, e.g.*, Berrick, *supra* note 9; Ehrle & Geen, *supra* note 9.

39. Ehrle & Green, *supra* note 9, at 19.

40. *Id.* at 19-20.

41. *Id.* at 20.

42. *Id.* at 20.

faced by non-kin foster parents.[43] They start by noting that children in both types of foster care placement exhibit more behavioral problems than children in the general population, but that both groups of foster children are similar in terms of the frequency of behavioral problems.[44] Thus, both sets of foster parents must provide care to children who are more likely to exhibit behavioral problems. But, as discussed above, kinship foster parents as a group face more socioeconomic challenges than non-kin foster parents. In addition, public agencies often ask kin to care for a child with little or no advance notice.[45] Researcher Rocco Cimmarusti reports the situation that kin caregivers might face upon a child's arrival:

> When caregivers received the children from police or directly from the shelter, they reported that these children often arrived with few articles of clothing and little else in the way of possessions. In these situations, clothes for the children had to be purchased immediately by the caregiver and contributed to making the transition into their home a stressful one. Caregivers reported that once the children arrived they were often uncontrollable or inconsolable at first and that they stole food, broke furniture, or did not even know how to use a knife and fork.[46]

Unlike most non-kin foster parents, kin caregivers often have not completed the licensing and training process that prepares them to deal with stressful child care situations.[47] Moreover, because most kin caregivers are grandparents, they may not have cared for a child in some time.[48]

Kin caregivers are also more likely to be in poor physical health, compounding the normal challenges of caring for a foster child.[49] Some studies have also found that grandparents and other kin caregivers experience

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43. *See generally* Geen, *supra* note 1, at 135-37; Scannapieco & Hegar, *supra* note 18, at 317, 320-21.

44. *See* Berrick, *supra* note 9, at 273; Susan G. Timmer et al., *Challenging Children in Kin Versus Nonkin Foster Care: Perceived Costs and Benefits to Caregivers*, 9 CHILD MALTREATMENT 251, 257-60 (2004).

45. *See* Cimmarusti, *supra* note 16, at 267.

46. *Id.* at 267.

47. *See id.*; Geen, *supra* note 1, at 136.

48. *See* Geen, *supra* note 1, at 136.

49. *See id.*

higher levels of depression and distress, possibly related to their anger at the parents' irresponsibility toward their children.[50] In addition, kin caregivers may experience stress in having to follow caseworker orders to restrict contact between the children in their care and other members of their family, especially the children's parents.[51] This may give rise to a significant degree of family conflict.[52]

Based on the relevant research, it appears that kin caregivers face a more stressful situation than non-kin foster parents. Rob Geen states, "[i]n sum, kinship caregivers are often required to provide the same nurturance and support for children in their care that non-kin foster parents provide, with fewer resources, greater stressors, and limited preparation."[53] This stress may impair the capacity and/or the willingness of kinship caregivers to provide adequate care for the children in their custody.[54]

Unfortunately, the support services provided to kinship caregivers differ in significant ways from those provided to non-kin caregivers. Studies indicate that agency caseworkers supervise and monitor kinship placements less than non-kin placements.[55] They visit the home less frequently and make fewer phone calls to kin caregivers.[56] Some researchers have speculated that caseworkers may view kinship placements as outside the public child welfare system or as inherently safer than non-kin placements.[57] Research has also shown that kin caregivers receive fewer services, either because the caseworker does not offer services or the caregiver does not request them, or if requested, the caseworker fails to provide them.[58] Most important, kin caregivers may not receive foster care

50. *See id.* at 136-37; Timmer et al., *supra* note 44, at 259-60.

51. Cimmarusti, *supra* note 16, at 268.

52. *Id.*

53. Geen, *supra* note 1, at 137.

54. *See generally id.*; Scannapieco & Hegar, *supra* note 18.

55. Geen, *supra* note 1, at 139.

56. *Id.*

57. *Id.*

58. *Id.*

payments.[59] In order to receive federal foster care matching funds, kin caregivers must be licensed as foster parents.[60] Although many states provide funds to kin caregivers who are not fully licensed, a state is not required to do so.[61] Therefore, kin caregivers may be denied foster care payments and have to rely on the much lower level of financial support provided by the general public welfare program. As one research team summarized, "[o]n average, kinship care homes receive less money and fewer services, and monitoring of the homes is less frequent."[62]

In terms of child functioning and outcomes, Gary Cuddeback, in his comprehensive review of research addressing kinship care, notes that comparisons between kin placements and non-kin placements are inconclusive.[63] For example, evidence that child functioning is better in one placement setting compared to the other is inconclusive, although some evidence suggests that kinship caregivers are less likely to maltreat children placed with them.[64] The evidence is also unclear as to adult functioning for those who have experienced foster care.[65] Cuddeback calls for more comparative research,[66] but concludes that "despite economic disadvantage and inequality with regard to training, services, and support, there is sparse evidence that kinship caregivers are less qualified to foster as demonstrated by the limited knowledge that has been developed from comparing the child outcomes of children in kinship and

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59. *See id.* at 137-39.

60. *See id.* at 137.

61. *See id.* at 138-39.

62. Scannapieco & Hegar, *supra* note 18, at 320-21 (citations omitted).

63. Gary S. Cuddeback, *Kinship Family Foster Care: A Methodological and Substantive Synthesis of Research*, 26 CHILD & YOUTH SERVICES REV. 623 (2004).

64. *See id.* at 627, 632; KRISTEN JOHNSON, NAT'L COUNCIL ON CRIME & DELINQUENCY, A RETROSPECTIVE SUPPORT ASSESSMENT STUDY OF FOSTER AND RELATIVE CARE PROVIDERS 15 (2005), *available at* http://www.nccd-crc.org/crc/pubs/frcp_ support_assmnt_sept05.pdf.

65. *See* Cuddeback, *supra* note 63, at 628.

66. In listing areas for further research, Cuddeback describes theoretical arguments that kinship care has certain advantages and then states "it is unknown if these advantages are more than theoretical as few studies have explored these issues. Indeed, it is necessary to examine if these theoretical advantages neutralize a kinship caregiver's lack of resources and support as evidenced by good child outcomes." *Id.* at 634.

non-kinship care."[67]

Kinship foster placements seem to fare better than non-kin placements in one important area—stability.[68] Disruption of foster care placements, defined as any exit from a particular foster home for a negative reason, is a significant problem.[69] Higher rates of disruption correlate with higher rates of subsequent reentry into foster care, high child welfare agency costs, and most important, high emotional costs for foster parents and foster children.[70] Affected children are more likely to exhibit behavioral problems and to experience higher rates of delinquency.[71]

Studies have consistently found that kinship placements are significantly more stable than non-kin placements. For example, one group of researchers report, "placement in a non-kin foster home increased the risk of placement disruption by a factor of just over 3. In other words, children in non-kinship placements were about three times more likely to experience a placement disruption during the study than children in kin placements."[72]

In practice, child welfare agency caseworkers appear to favor kinship placements generally and especially with regard to certain categories of children.[73] They appear to

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67. *Id.* at 633.

68. *See id.* at 629; Chamberlain et al., *Who Disrupts from Placement in Foster and Kinship Care?*, 30 CHILD ABUSE & NEGLECT 409 (2006).

69. Chamberlain et al., *supra* note 68, at 410.

70. *See id.*

71. *See id.* at 410-11.

72. *Id.* at 415.

73. Caseworkers appear to act on their beliefs favoring kinship placements more frequently when dealing with certain categories of children and not others. A recent study used administrative data for more than 2,000 children living in foster care in order to determine the factors that predict placement with kin as opposed to non-kin foster parents. Sandra K. Beeman et al., *Factors Affecting Placement of Children in Kinship and Nonkinship Foster Care*, 22 CHILD & YOUTH SERVICES REV. 37 (2000). The researchers found that caseworkers making placement decisions appear to consider a child's age, race, reason for placement, and disability status when making a decision about whether to place the child with kin or non-kin. *Id.* at 44-53. Caseworkers were more likely to place black children with kin as compared to white children or Native American children. *Id.* at 49-51. They were also more likely to place children who were two years or older with kin, with a higher percentage of infants being placed with non-kin foster parents. *Id.* at 46-47. In addition,

feel that children are better off in the care of kin.[74] They perceive children in kinship placements as having a stronger sense of belonging and experiencing more continuity in their lives.[75] Thus, despite the perception that kinship placements are more difficult to supervise, caseworkers often seem inclined to decide in favor of placement with kin.[76]

Interestingly, caseworkers' inclination to secure kin foster parents does not appear to distinguish among kin. All kin, and even kith,[77] appear to occupy a single category of potential placement options, while non-kin occupy a separate category. Of course, caseworkers investigate potential kin

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caseworkers were more likely to place children without a known disability with kin. *Id.* at 48. Finally, they were more likely to place children with kin if the reason for placement related to parental substance abuse. *Id.* at 49. Therefore, for black children over two years old who do not have a disability and whose parent has a substance abuse problem, a caseworker is likely to make a strong effort to secure a kinship foster placement. *See id.* at 51-53.

74. Cuddeback, *supra* note 63, at 632.

75. *Id.*

76. *See id.* at 632-33. A recent study appears to provide support for this inclination. Messing, *supra* note 15. The researcher conducting the study noted that public agencies and caseworkers often tacitly assume that the transition into kinship care is not traumatic for children, or at least that it is less so than that associated with placement in non-kin foster care. *Id.* at 1417. The study was, in part, designed to examine this assumption, noting a logical basis for the assumption, but little empirical research that can verify it. *Id.* The logical basis rests on normative beliefs about extended family. Namely, kinship care maintains family connections, places the child within a familiar environment, and builds on existing bonds. *Id.* at 1417-18. In some cases these beliefs hold true, but in others they do not. Nonetheless, caseworkers operate on these beliefs in favoring kinship placements. *See id.* at 1415-18.

In the small study, forty children living in informal kinship care outside the public child welfare system participated in small focus groups that discussed their kinship placements. *Id.* at 1422. Many of the children appeared to view their transition to kinship care as expected, not traumatic, and even a relief. *See id.* at 1423-24. Some children were confused, angry, or frustrated with the situation that required their move, but expressed the view that placement with a relative helped. *Id.* at 1424. Thus, caseworkers may be justified in their belief that placement with kin reduces the trauma of separation from parents. *See id.* at 1417, 1431. However, the study has limited application to children placed with kin through the formal foster care system. The lack of evidence to back up caseworker beliefs in this area calls for further research. *See id.* at 1430-31.

77. *See* Geen, *supra* note 1, at 132 (noting that many state child welfare agencies include persons beyond blood relatives in the definition of kin—e.g., godparents, family friends, or anyone else with a strong emotional bond to a child).

placements to help ensure that they will provide adequate care for a particular child. But requirements for kin are often more relaxed than those for non-kin.[78] And it appears that caseworkers often view any kin member as subject to the relaxed standard. The operating assumption seems to be bimodal in nature. Namely, any kin placement is preferable to a non-kin placement, with caseworkers failing to draw distinctions among types of kin when they decide where to place a child entering foster care.[79]

The research examining kinship care largely reflects this same bimodal approach. Many of these studies compare treatment of and outcomes for children in kinship care with those for children in non-kin care, testing the hypothesis that kinship placements lead to different treatment and outcomes. For example, Jill Duerr Berrick conducted an early study comparing the quality of care in kinship placements with that in non-kin placements.[80] In introducing the study, Berrick noted prior studies that had compared kinship to non-kin placements.[81] These prior studies revealed that reunification with parents takes longer for children in kinship placements and that these children are less likely to be adopted.[82] As a result, children placed with kin remain in foster care longer than children placed with non-kin.[83] However, prior studies also revealed that kinship placements are more stable than non-kin placements, involving less disruptions and moves.[84] In addition, children who have experienced kinship placements are less likely to experience subsequent reentry to the foster care system.[85]

Berrick's study itself addressed comparisons of the physical environment and the socio-emotional climate of the

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78. *See id.* at 137-39; *see also* Amy Jantz Templeman, *Licensing and Payment of Foster Care Options*, *in* KINSHIP CARE: MAKING THE MOST OF A VALUABLE RESOURCE, *supra* note 15, at 63.

79. *See generally* Geen, *supra* note 1, at 132-35; Karin Malm & Roseana Bess, *Identifying and Recruiting Kin to Act as Foster Parents*, *in* KINSHIP CARE: MAKING THE MOST OF A VALUABLE RESOURCE, *supra* note 15, at 25.

80. Berrick, *supra* note 9.

81. *Id.* at 273-74.

82. *See id.*

83. *Id.*

84. *See id.* at 274.

85. *Id.*

subject foster homes.[86] In reporting the results, Berrick noted several limitations of the study—the sample was small and self-selected, the study relied on self-reports, the study did not utilize a standardized instrument for the collection of data, the data came from one California county, and whites were more heavily represented among the non-kin sample while more minority individuals were included in the kin sample.[87] However, Berrick did not note as a weakness the sole categorization of foster homes as either "kin" or "non-kin." She failed to suggest any comparison among different types of kin.

Another study examined children in foster care who had significant behavior problems.[88] The study compared kin caregivers and non-kin caregivers in terms of their perceptions of the costs and benefits related to caring for challenging foster children.[89] The researchers were interested in why and to what extent children with extreme behavior problems are maintained in their placements, reasoning that there likely are emotional benefits to providing care for such a child and/or that providing care for such a child fulfills a personal or family duty.[90] The researchers further speculated that the benefits and duties related to foster children would differ for kinship care providers as compared to non-kin foster parents, citing prior studies that suggested that non-kin caregivers have a lower tolerance for their foster childrens' behavior problems.[91]

The study "compared kin and nonkin foster parents' perceptions of their children with behavior problems, their relationships with them, and the stress of caring for the children."[92] The study also compared kin and non-kin foster parents' persistence in parent-child interaction therapy—a treatment program that required the parents' active participation.[93] The researchers explained their hypotheses

86. *See id.*

87. *Id.* at 278.

88. *See* Timmer et al., *supra* note 44.

89. *Id.* at 251.

90. *See id.* at 252.

91. *See id.* at 251-54.

92. *Id.* at 253.

93. *See id.* at 251-61.

and expectations:

> Previous research led us to hypothesize that even when their foster children are referred to mental health treatment, kin foster caregivers will report lower levels of problems. If kin foster caregivers have a greater personal investment in their foster children's welfare, we would expect kin foster parents to endorse greater parenting stress and personal psychological distress. We would also expect them to persist in a personally demanding therapy that promised to reduce behavior problems and improve the caregiver-child relationship.[94]

The study's results provided support for the researchers' hypotheses. The researchers found that non-kin foster parents perceived their foster children as having more intense behavior problems even though the number of problem behaviors did not vary by foster parent category.[95] They also found that kin foster parents exhibited higher levels of depressive symptoms and parental distress, possible indicators of higher levels of parental investment in the challenging child.[96] In addition, the researchers found that kin caregivers were more likely to complete treatment than non-kin caregivers, noting that kin caregivers with clinical levels of parent distress were more likely to complete treatment than both non-kin and kin caregivers who had normal levels of parent distress.[97] Despite the researchers' focus on differential levels of parental investment and their notation of differences among kin caregivers in terms of levels of distress, they did not suggest or explore the possibility of predictable differences among types of kin.[98]

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94. *Id.* at 253-54.

95. *See id.* at 253, 260.

96. *See id.* at 259-60.

97. *Id.* at 259.

98. Several researchers have collected and reported data on the types of relatives involved in kinship care placements. For example, in a study investigating the service needs of kinship care providers, the researchers noted that prior studies had indicated that "relatives who most frequently provide kinship care are maternal grandmothers (over 50% of the time), followed by aunts (up to 33% of the time)." Scannapieco & Hegar, *supra* note 18, at 317. In another study, researchers reported data from a national survey designed to compare kinship with non-kin foster care placements. Forty-three percent of the children in kinship foster care lived with a grandparent, 37% lived with an aunt

C. *A Possible New Line of Comparative Research*

In light of the limited, inconclusive findings on treatment within and outcomes for kinship foster care placements, and in light of growing reliance on kin as foster parents, inquiries into differences among various types of kin that also include comparisons with non-kin placements may be warranted. This line of research could have practical implications for caseworkers who are making decisions on where to place a particular child. Jill Duerr Berrick recognized in her early study of kinship foster care:

> Many child welfare workers currently make placement decisions without written guidelines, training, or screening tools for assessing kinship homes. While this approach may result in suitable placements for many children, individual discretion may become a faulty mechanism for assessing all kin caregivers. Because kinship foster care is developing so rapidly across the country, it may be advisable to take a proactive approach to kinship care policy. General guidelines concerning the caregiver, the home, and the neighborhood should be developed in order to provide more uniform standards for child welfare workers in their selection of kin.[99]

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or uncle, while the relationship with the caregiver for 20% of the children was not reported. Ehrle & Geen, *supra* note 9, at 24-25. In a third illustrative study, researchers investigated what factors contribute to resilience among African-American children in kinship care. They interviewed thirty kinship caregivers, reporting that there were nineteen grandmothers, seven aunts, three great aunts, and one uncle. Johnson-Garner & Meyers, *supra* note 27, at 257. All of these researchers simply noted the relationship between kin caregiver and child as a demographic variable. They did not use this factor in analyzing the service needs of kin caregivers, the differences between kinship and non-kin placements, or the resilience of African-American children, respectively.

Gary Cuddeback, in his comprehensive summary of research related to kinship foster care, noted that grandparents are often called upon to provide care and are often the focus of research studies. Cuddeback, *supra* note 63, at 625-26. However, none of the studies discussed by Cuddeback appear to address the type of kin used for foster care placements. Cuddeback does suggest a number of methodological improvements, stating at one point that "[r]esearchers should be explicit about comparing groups of licensed and unlicensed foster families, as differences in licensure status might explain differences in the levels of training and support and number of services received by kinship and non-kinship families, and these differences should be accounted for when examining child outcomes." *Id.* at 634. However, he fails to suggest that researchers should be explicit about comparing the types of kin used as foster parents.

99. Berrick, *supra* note 9, at 279.

In conjunction with other relevant considerations such as extent of prior relationship and financial capacity, the research proposed in this Article may help provide guidance to caseworkers who must select a particular kin caregiver for a child coming into foster care—a caregiver who must be able to handle the heightened stress of kinship foster care. And by including a comparison to non-kin foster care placements, such research may clarify whether kinship placements provide better treatment and outcomes generally.

One researcher has completed a study that, while not directly on point, suggests the proposed line of inquiry. Mark Testa conducted a study that examined the quality of permanent placements secured for children in foster care.[100] He designed the study to address whether the permanency outcomes achieved within public child welfare systems that consider both subsidized guardianships and adoptions to be permanent placements are inferior to those achieved within systems that consider only subsidized adoptions to be permanent placements.[101] Testa defined outcomes in terms of three primary permanency goals, namely intent, continuity, and belongingness.[102] According to Testa, intent measures the degree to which members of a home intend their relationship to last indefinitely.[103] Continuity measures the degree to which a permanent family relationship survives geographical moves and temporal change.[104] Belongingness measures the degree to which "a permanent family is rooted in [relevant] cultural norms and has definitive legal status."[105] Testa's study addressed four questions that relate to the permanency goals he identified and defined:

> (1) Are more children discharged to permanent homes if caregivers are given the choice of subsidized adoption or guardianship as compared to caregivers offered subsidized adoption alone? (2) Do the intentions of raising a child to adulthood differ for caregivers who can choose between adoption and guardianship as compared to caregivers who can select only adoption? (3) Do children express

100. Testa, *supra* note 10.

101. *Id.* at 512-18.

102. *Id.* at 503.

103. *Id.*

104. *See id.*

105. *Id.*

> any lesser sense of belonging in families that adopt or become guardians as compared to families that only adopt? (4) Are the homes of guardians and adoptive parents any more likely to disrupt than the homes of caregivers who can only become adoptive parents?[106]

Testa does not formulate specific hypotheses for each of the four questions. Instead, he draws on a theoretical framework that leads him to pose what he views as the "critical empirical question":

> whether the biological bonds and social attachments of kinship [most often present for caregivers considering a permanent guardianship arrangement] are sufficiently lasting to ensure a relative's intention of raising a child to adulthood, or whether the commitment must be made legally binding through adoption to give a child a life-long family.[107]

The theoretical framework rests on the concept of gift relationship as a form of social capital.[108] Testa asserts that foster care is a type of gift relationship that substitutes for the parental investment normally received from biological parents.[109] This substitute form of investment is very costly and subject to defection. Because the dependent child cannot reciprocate, other factors must support the maintenance of this gift relationship—the caregivers' empathy for the child, the caregivers' duty to the child, and the caregivers' receipt of financial support.[110] According to Testa, these three factors entail different strategies, "[p]lacement with kin (empathic solution), adoption or guardianship (dutiful solution), and long-term care in higher-cost specialized foster . . . care (payment solution), or some combination of all three, are analytically distinct solutions to the dilemma of maintaining children in lasting gift relationships."[111] Because placement with kin is one of the identified strategies to maintain the gift relationship,

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106. *Id.* at 502.

107. *Id.* at 514.

108. *See id.* at 513; Mark F. Testa & Kristen Shook Slack, *The Gift of Kinship Foster Care*, 24 CHILD & YOUTH SERVICES REV. 79 (2002).

109. Testa, *supra* note 10, at 513.

110. *See id.* at 513-14.

111. *Id.* at 514.

Testa incorporates this variable into the study. He states, "[b]ecause of the rapid growth of kinship foster care, child welfare research must now take into account the biological relationship of the children to their foster parents."[112] Accordingly, Testa developed an index of genealogical relatedness that includes four categories: (1) grandparents, (2) aunts and uncles, (3) more distant relatives, and (4) non-relatives.[113] Testa used this index to incorporate the degree of biological relatedness into the study's analysis.

The study's design called for the comparison of permanency measures for an experimental group with those for a control group.[114] Beginning in January 1997, the Illinois Department of Children and Family Services randomly assigned kinship and non-kin foster parents with eligible children to one of the two groups.[115] An eligible child was one who had been in state custody for at least two years and who had been residing continuously in his or her foster home for at least one year.[116] Foster parents assigned to the experimental group could pursue subsidized guardianship or adoption, while foster parents assigned to the control group could only pursue subsidized adoption.[117]

The foster parents and children involved in the study participated in two rounds of interviews and assessment.[118] The researchers conducted the first round in 1998 and the second in 2000.[119] The study used the interviews and assessments to measure subjective aspects of permanence such as intent and belonging.[120] The study also used the interviews in conjunction with agency administrative data to measure the continuity and stability of each placement and to ascertain each child's permanency status (i.e., adoption achieved, guardianship achieved, permanent

112. *Id.* at 517.

113. *Id.*

114. *Id.* at 514-18.

115. *Id.* at 514.

116. *Id.* at 514-15.

117. *Id.* at 514-15.

118. *Id.* at 515.

119. *Id.*

120. *Id.* at 516.

placement planned, caregiver undecided).[121]

The study found that the experimental group experienced a higher level of allowed permanency outcomes, with adoptions achieved in 65% of cases in the control group and adoptions and guardianships achieved in 71% of cases in the experimental group at round two.[122] However, the experimental group experienced a lower rate of adoption outcomes at 54%.[123] This finding led Testa to pose the question of whether the net gain in overall permanency outcomes was worth the loss in adoption outcomes.[124] Testa addressed this question by comparing the measures of permanence for a child experiencing adoption to those for a child experiencing guardianship.[125] As noted above, Testa examined variables other than group assignment that might affect the measures of permanence, one of which was the degree of relatedness.[126]

Testa began the analysis by comparing the odds of achieving permanence for child subjects after their assignment to either the experimental group or the control group.[127] Consistent with previous findings, the odds of "achieved or planned permanent placement" differed significantly between the two groups both at round one and round two.[128] For example, Testa explained that "with respect to the child's permanency status at round one, the percentage difference for group assignment shows that the odds of age-eligible children achieving permanence were seventy-two percent larger in the experimental group than in the control group."[129] Testa also noted the significant differences that correlated with degree of relatedness, indicating kinship's strong effect on permanence.[130] For example, at round one the odds of achieving permanence

121. *See id.* at 517.

122. *Id.* at 519-20.

123. *Id.*

124. *Id.* at 520.

125. *Id.* at 520-21.

126. *Id.* at 521-28.

127. *Id.* at 521-24.

128. *See id.*

129. *Id.* at 521.

130. *Id.* at 522.

were 54% lower for children living with non-kin foster parents than for children living with grandparents, and 34% lower for children living with aunts or uncles.[131]

Interestingly, when Testa turned to the measure of caregivers' intent to raise the child in their care to adulthood, he found no significant difference based on assignment to the experimental group or the control group.[132] This finding "suggests that the intention to provide a stable home for a child is independent of the permanency options that are available to the families."[133] However, the differences by degree of relatedness were significant for this measure, with grandparents significantly more likely to intend to raise the child to adulthood than both relatives other than aunts or uncles and non-relatives.[134] (The difference between grandparents and aunts and uncles was not statistically significant.[135]) Testa summarized the findings on the degree of relatedness variable:

> The odds of achieved and planned permanence decline the farther the genealogical distance between the caregiver and the child. This pattern holds up in the presence of statistical controls for the ages of the child and caregiver. Degree of genealogical relatedness is also predictive of caregivers' intention to raise the child to adulthood. The farther the degree of relatedness, the less likely caregivers are to signal their intent to provide a lasting home for the child.[136]

The study's findings for the permanency measures of belongingness and continuity mirrored those for intent. There were no significant differences between families assigned to the experimental group and those assigned to the control group.[137] But as to the relationship between degree of relatedness and belongingness, Testa stated, "[t]he odds of feeling a part of the family are three times as

131. *See id.* at 522.

132. *See id.*

133. *Id.* at 523.

134. *See id.*

135. *See id.*

136. *Id.* at 522-23.

137. *Id.* at 524.

high for foster children living with grandparents, aunts and uncles as compared to foster children living in unrelated foster homes. The odds are twice as high for children living with other relatives."[138] And as to the relationship between degree of relatedness and continuity of family care as measured by whether or not the child is residing at the same home he or she was in at the time of assignment to one group or the other, Testa found, "[t]he odds of remaining in the same home are higher the closer the degree of genealogical relatedness."[139]

As a final step in the analysis, Testa measured what he termed the "stability of the gift relationship" by examining the probability of placement disruption through June 30, 2004.[140] He found that the risk of removal from a caregiver's home both before and after discharge from public custody was unrelated to the group assignment but strongly associated with degree of relatedness, child's age, and household income.[141] He then introduced what he termed "social capital investment" variables, namely years of residence in the home prior to round one and the expectation of raising the child to adulthood.[142] Testa noted that the introduction of these variables reduced the kinship effect, but he also noted that the kinship effect was still significant.[143] He asserted that these findings suggest "that accumulated and projected time spent together may be as critical as blood ties in engendering the feelings of commitment and trust that bind children and adults into a permanent family."[144]

Testa's findings reveal the significant effects of degree of relatedness on desired aspects of permanence for foster children. The closer the kinship relationship between foster parent and foster child, the more likely the child is to achieve a permanent placement characterized by a high level of intended commitment, belongingness, and continuity/

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138. *Id.*

139. *Id.*

140. *Id.* at 525-26.

141. *Id.*

142. *Id.* at 526.

143. *See id.* at 526-27.

144. *Id.* at 527.

stability.[145] Testa concluded on this point:

> In this study, kinship appears to be the common denominator underlying caregivers' intent to raise a child to adulthood, children's sense of belonging, and the continuity and stability of care both before and after legal permanence. In general, the closer the degree of genealogical relatedness, the more lasting and stable is the home.[146]

These findings concerning the significant effects of the degree of relatedness on the caregiver/child relationship would likely not surprise researchers in the field of

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145. *See id.* at 529.

146. *Id.* at 533. In a previous study of kinship foster care placement disruptions, Mark Testa and Kristen Shook Slack hypothesized that placements of children with closely related kin would be less likely to disrupt than placements with more distant kin. Testa & Slack, *supra* note 108, at 89. An analysis of the data related to 983 foster children placed with kin in the Chicago area failed to support the hypothesis. *See id.* at 94-95. Testa and Slack noted that "differences within kinship foster care by degree of relatedness disappear once we control for age, employment, own child rearing responsibilities, and other characteristics of the caregivers." *Id.* at 95.

One can distinguish the degree of relatedness hypothesis formulated and tested by Testa and Slack from the hypotheses formulated in this Article in two ways. First, the hypotheses formulated in this Article primarily address the relative quality of care within stable kinship placement settings. They do not only, or even primarily, address the situation of kinship placements that are unstable to the point of requiring a child's move to a new placement. In this sense, the hypotheses in the immediate Article are more closely akin to the degree of relatedness hypothesis formulated and tested by Mark Testa in his subsequent piece. Testa, *supra* note 10. This subsequent study measured the quality of permanence within relatively stable placements and found that differences in degree of relatedness between caregiver and foster child explained the quality of permanence to a significant degree. *See id.* at 521-24.

Second, Testa and Slack do not distinguish among kin with an equivalent degree of relatedness to the foster child. They group all grandparents together, all aunts and uncles together, and all cousins together. Other than overarching control variables for "male caregiver" and "paternal relative," they do not appear to make fine distinctions based on paternity certainty effects, sex effects, and preferential investment effects. *See* Testa & Slack, *supra* note 108, at 84-92. In other words, the hypothesis they test seems to arise solely from consideration of degree of relatedness effects. In contrast, the hypotheses in this Article depend on finer distinctions among kin that arise from a broader collection of behavioral biology research. *See infra* notes 331-51 and accompanying text.

Because of the differences between Testa and Slack's hypothesis and the hypotheses formulated in this Article, further research and testing of the hypotheses formulated here is warranted.

behavioral biology. Several researchers in this field have conducted studies that reveal the power of kinship to evoke favorable treatment.[147] This research suggests that children are more likely to receive favorable treatment in kinship foster placements as opposed to non-kin foster homes. This research also suggests that the level of favorable treatment may vary among kin, depending on the degree of relatedness between the kin caregiver and the child. In addition, behavioral biology research addressing paternity certainty and sex effects may allow for further distinctions among potential kinship caregivers.[148] Thus, work in the field of behavioral biology may provide a theoretical foundation that buttresses and extends Testa's gift relationship concept and allows for the formulation of testable hypotheses concerning kinship foster care placements. More specifically, these hypotheses may spur research that could extend Testa's findings on measures of permanency to measures of child development in foster care and adult outcomes for foster children. And this research may have significant implications for policies and practices that address the placement of children in foster care.

II. BEHAVIORAL BIOLOGY RESEARCH

Researchers in the field of behavioral biology have developed several theories related to human behavior and kinship that provide a foundation for the formulation and exploration of two hypotheses concerning kinship foster care. The first hypothesis is that on average children are likely to experience better treatment and outcomes in kinship foster care than in non-kin foster care.[149] As noted in the previous section, researchers in the field of child welfare have begun to test this hypothesis, but without the foundation and insights provided by behavioral biology research. The second hypothesis is that children in kinship

147. *See infra* notes 232-36 and accompanying text.

148. *See infra* Part IV.

149. *See supra* notes 63-70, 80-97 and accompanying text. It should be noted that there are reasons to question whether non-kin foster parents on average invest at a level equivalent to non-kin adoptive parents who tend to invest heavily in their adoptive children. *See* David J. Herring, *The Multiethnic Placement Act: Threat to Foster Child Safety and Well-being?*, 41 U. MICH. J. L. REFORM 89, 115 n.181 (2007).

foster care are likely to experience on average better treatment and outcomes when placed with some types of kin rather than others.[150] For example, behavioral biology theory and research indicates that a child is likely to fare better if placed with his or her maternal grandmother rather than his or her paternal grandfather.[151]

A. *Evolutionary Concepts*

The concepts of inclusive fitness and degree of relatedness provide the theoretical foundation for the first hypothesis and an important theoretical component for the second hypothesis. These concepts begin from the widely accepted premise that there has been natural selection pressure favoring a trait of altruism toward kin.[152] For example, an individual who possesses a trait of altruism toward offspring would reap net reproductive benefits as long as the reproductive costs incurred in assisting the offspring are less than half the reproductive benefits realized by the offspring.[153] This has frequently been the case in evolutionary environments. Therefore, as reproduction occurs over time, the trait of offspring altruism becomes prevalent, if not universal, throughout the particular population. The same ratio of costs and benefits holds for other first-degree relatives who have the potential for reproductive success (i.e., siblings).[154] For second-degree kin (i.e., grandchildren, aunts, and uncles), the reproductive costs to self must be less than one-quarter of the reproductive benefits to kin.[155] Although this is less frequently the case, it is a situation that has often been present within evolutionary environments. For third-degree kin—e.g., cousins, great grandchildren—the reproductive

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150. *See infra* Part II.B.

151. *See, e.g.*, Testa, *supra* note 10 at 522-34.

152. *See* ROBERT TRIVERS, SOCIAL EVOLUTION 109 (1985).

153. *See* William D. Hamilton, *The Genetical Evolution of Social Behavior*, 7 J. THEORETICAL BIOLOGY 1, 16 (1964); *see also* DAVID J. BULLER, ADAPTING MINDS 352-54 (2005).

154. *See* Hamilton, *supra* note 153, at 16; *see also* BULLER, *supra* note 153, at 353-54.

155. *See* Hamilton, *supra* note 153, at 16; *see also* BULLER, *supra* note 153, at 354.

costs to self must be less than one-eighth of the reproductive benefits to kin in order for natural selection to favor the trait.[156]

The overall result of this natural selection pressure is that an individual is likely to favor those he or she perceives as members of his or her kin group, providing them with forms of beneficial treatment that, on average, within environmental settings that were prevalent across evolutionary history, tended to increase kin members' reproductive success directly and the altruist's reproductive success indirectly.[157] And while individuals are likely to favor kin over non-kin, not all kin are likely to receive the same degree of beneficial treatment.[158] This is because the closeness of the biological relationship (degree of relatedness) varies among different types of kin. To illustrate, evolutionary theory posits that natural selection has generally favored heritable tendencies to provide more benefits to a son or daughter than to a grandchild, niece, or nephew.[159]

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156. *See* Hamilton, *supra* note 153, at 16; BUSS, *supra* note 6, at 231-52. These concepts are often quantified through the somewhat flawed descriptive device of shared genes. For example, an individual shares with a son or daughter approximately 50% of genetic material that varies in a population. *See* BULLER, *supra* note 153, at 351-52. If a son or daughter survives and successfully reproduces, the resulting child (i.e., the grandchild) will possess approximately 25% of the original individual's genes. *Id.* at 352. Likewise, individuals share approximately 25% of genetic material with other second-degree kin (i.e., a niece or a nephew). *Id.* Furthermore, an individual shares with a cousin approximately 12.5% of genetic material, *id.*, and a child of a cousin will possess approximately 6.25% of the original individual's genes. *Id.* Based on this declining genetic interest in a kin member's reproductive success as the degree of relatedness declines, evolutionary theory posits that natural selection has generally favored heritable tendencies to provide more benefits to a son or daughter than to a grandchild, niece, or nephew. *See id.* at 354-55. It also follows that an individual is likely to provide more benefits to a grandchild, niece, or nephew than to a cousin. *See id.* Targeting altruistic behavior in this way increases the likelihood that more of an individual's genetic material will pass to future generations. *See id.* Thus, it is likely that an individual will discriminate among kin in providing benefits or favorable treatment. *See* BULLER, *supra* note 153, at 351-55; TRIVERS, *supra* note 152, at 113-14; *see also* BUSS, *supra* note 6.

157. *See* Hamilton, *supra* note 153, at 16.

158. *See id.*

159. *See* BULLER, *supra* note 153; BUSS, *supra* note 6; TRIVERS, *supra* note 152; Hamilton, *supra* note 153. It is important to note that the evolutionary concepts related to kinship discussed in this Article have nothing necessarily to do with an individual actor's conscious understanding or calculation of

The concept of paternity certainty also affects inclusive fitness and provides a third theoretical component for the second hypothesis. Evolutionary theory recognizes that males face an adaptive problem in terms of being certain that the offspring they care for are genetically related to them.[160] Internally gestating females do not face this problem.[161] In almost every circumstance females can be certain that the offspring they care for are genetically related to them.[162] For humans, a woman is aware that she has carried a child for nine months and has given birth to the child now in her care.

In contrast, males cannot be so certain.[163] As a result, males face a significantly higher risk of providing care to offspring that are not biologically related to them.[164] For humans, a man may act on a false belief that another man's child is his own. Therefore, biological relationships through male lineage are less certain than those through female lineage.[165] As a team of researchers explained, reduced paternity certainty decreases

> the probability of genetic relatedness in a way that compounds multiplicatively over kinship links through males. Thus if under a given mating regime a man has a paternity certainty of 0.8, he has a grandpaternity certainty through his wife's sons of 0.64 but a corresponding grandpaternity certainty through his wife's daughters of 0.8. Under such a regime a woman's maternity certainty is of course 1.0, and her grandmaternity certainty through daughters and sons is 1.0 and 0.8, respectively.[166]

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relatedness. The concepts help explain behavioral tendencies that exist within a population, whether the mechanism for these behavioral tendencies involves conscious thought or not. Therefore, an individual may behave in a way that favors perceived kin in the complete absence of conscious calculation of relatedness.

160. *See* BUSS, *supra* note 6, at 200-01.

161. *See id.*

162. *See id.*

163. *See id.*

164. *See id.*

165. *See id.* at 200-02, 246-52.

166. Steven J.C. Gaulin et al., *Matrilateral Biases in the Investment of Aunts and Uncles: A Consequence and Measure of Paternity Uncertainty*, 8 HUM. NATURE 139, 140 (1997).

This difference in probability as to genetic relationship is likely, on average, to give rise to discrimination among kin for purposes of providing benefits.[167] For example, a grandparent is likely to provide more favorable treatment to his or her daughter's child than to his or her son's child because, throughout human evolutionary history, there has been a higher probability that helping a daughter's child achieve reproductive success will enhance a grandparent's inclusive fitness. The general result is that patrilineal kin are likely to receive less favorable treatment than matrilineal kin.[168]

The concept of sex effects, or sex-specific reproductive strategies, provides a fourth theoretical component that supports the second hypothesis. Evolutionary theory predicts that internally gestating females are likely, on average, to invest more in offspring care than males.[169] This prediction applies to human females.[170] Women have a significantly lower potential rate of reproduction than men because they must invest heavily in a period of pregnancy that precludes additional reproduction.[171] As a result, women have a higher stake than men in each biologically related child, both children of their own and of kin. In contrast, men are able to reproduce with minimal investment of time and resources.[172] In fact, a significant proportion of men may maximize their fitness by investing more of their resources in mate acquisition rather than child care for either their own children or the children of kin.[173] As a result, a significant number of men may tend to invest more in

167. *See* BUSS, *supra* note 6, at 246-52.

168. *See id.*; Gaulin et al., *supra* note 166; Joonghwan Jeon & David M. Buss, *Altruism Towards Cousins*, 274 PROC. ROYAL SOC'Y B 1181, 1181 (2007). Again, it is important to note that the evolutionary concepts related to kinship discussed in this Article have nothing necessarily to do with an individual actor's conscious understanding or calculation of relatedness. The concepts help explain behavioral tendencies that exist within a population, whether the mechanism for these behavioral tendencies involves conscious thought or not. Therefore, an individual may behave in a way that favors perceived kin in the complete absence of conscious calculation of relatedness.

169. *See* BUSS, *supra* note 6, at 107-08, 200-02.

170. *See id.* at 108, 201.

171. *See id.* at 107, 172.

172. *See id.* at 108.

173. *See id.* at 201-02, 220-23.

maximizing the quantity of future children rather than in the survival and quality of children in being.[174] Two researchers recently addressed this difference in behavioral tendencies between women and men, providing a specific illustration:

> As women grow older, their fertility decreases and the mortality risk associated with reproduction increases. Investing in their grandchildren, nieces, and nephews becomes the best way for older women to enhance their inclusive fitness. On the other hand, grandfathers and uncles can employ a different reproductive strategy. As men grow older, they can use their resources to gain extra mating opportunities, father children by other women, or invest in the children of their younger wives.[175]

The difference in investment strategies gives rise to the probability that women will invest significantly more in kin.[176]

In summary, a fundamental component of evolutionary theory, inclusive fitness, allows one to formulate a hypothesis that children are likely to receive better treatment in kinship foster care placements than in non-kin placements. Inclusive fitness, in conjunction with the concept of degree of relatedness, also allows one to formulate a hypothesis that children in kinship foster care are likely to receive better treatment from certain types of kin. On average, close kin are likely to invest more and provide more benefits than more distant kin.[177] The evolutionary concept of paternity certainty provides additional support for the formulation of the second hypothesis. Matrilineal kin are more certain than patrilineal kin that those who are

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174. *See id.* Not all men will engage in this particular strategy because there are multiple stable male strategies, ranging from high investment in child care to no investment. However, in comparison to the range of female strategies, there is a wider range of male strategies that may work to maximize a particular man's reproductive success, including no investment in child care at all. The result is that, on average, men will invest less in child care than women. *See id.*

175. Brad R. Huber & William L. Breedlove, *Evolutionary Theory, Kinship, and Childbirth in Cross-Cultural Perspective*, 41 CROSS-CULTURAL RES. 196, 199 (2007) (citations omitted).

176. *See* Gaulin et al., *supra* note 166, at 145-46.

177. *See, e.g.*, BUSS, *supra* note 6, at 260 ("Genetic relatedness . . . is a key predictor of investment by kin. The closer the kin, the heavier the investment.").

purportedly related to them share their genetic material, and thus, are more likely to invest in purported kin.[178] In addition, the possibility of a sex-specific reproductive strategy supports the formulation of the second hypothesis. Women are likely to invest more in kin in their care than men.[179] It may be helpful to provide a simple illustration of the implications of the second hypothesis—one could reasonably expect that a close female matrilineal relative (e.g., maternal grandmother, maternal aunt) will provide better treatment to a kin member in her care than a more distant patrilineal relative (e.g., a patrilateral great uncle, a male patrilateral cousin).

B. *Empirical Research*

It is important to recognize that empirical research supports each of the relevant evolutionary concepts. As to inclusive fitness and degree of relatedness concepts, many studies indicate that animals tend to provide more benefits to those who are closely related to them.[180] Studies of humans also indicate that individuals provide more assistance to kin than to non-kin.[181] In addition, individuals

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178. *See, e.g.*, *id.* at 246 (stating that the maternal grandmother is expected to invest the most in grandchildren because she is "100% certain that her genes are carried by her grandchildren. She is undoubtedly the mother of her daughter, and her daughter is certain of her genetic contribution to her children").

179. *See, e.g.*, *id.* at 220-23 ("Women will be more likely than men to channel energy and effort directly toward parenting rather than toward securing additional matings.").

180. *See, e.g.*, David J.C. Fletcher, *The Behavioral Analysis of Kin Recognition: Perspectives on Methodology and Interpretation*, *in* KIN RECOGNITION IN ANIMALS 19, 25-26 (David J.C. Fletcher & Charles D. Michener eds., 1987); Warren G. Holmes & Paul W. Sherman, *The Ontogeny of Kin Recognition in Two Species of Ground Squirrels*, 22 AM. ZOOLOGIST 491 (1982); Paul W. Sherman, *Nepotism and the Evolution of Alarm Calls*, 197 SCIENCE 1246, 1249-50 (1977); Paul W. Sherman, *Kinship, Demography and Belding's Ground Squirrel Nepotism*, 8 BEHAV. ECOLOGY & SOCIOBIOLOGY 251 (1981).

181. *See, e.g.*, Eugene Burnstein et al., *Some Neo-Darwinian Decision Rules for Altruism: Weighing Cues for Inclusive Fitness as a Function of the Biological Importance of the Decision*, 67 J. PERSONALITY & SOC. PSYCHOL. 773, 777 (1994); Martin Daly et al., *Kinship: The Conceptual Hole in Psychological Studies of Social Cognition and Close Relationships*, *in* EVOLUTIONARY SOC. PSYCHOL. 265 (Jeffrey A. Simpson & Douglas T. Kenrick eds., 1997); Daniel J. Kruger, *Evolution and Altruism: Combining Psychological Mediators with Naturally*

tend to provide more assistance to closer kin as opposed to more distant kin, especially in dire, life-threatening situations.[182] These studies identify and illuminate a range of kin-favoring behavior, revealing that individuals tend to discriminate among close kin, more distant kin, and unrelated individuals in order to vary the extent of their altruistic behavior.[183] The studies establish that willingness to help and helping behavior increases as genetic relatedness increases.[184]

1. *Grandparent Investment—Historical Population Studies.* Studies of caregiver investment at the grandparental level have extended kinship research beyond the basic concepts of inclusive fitness and degree of relatedness. Early studies in this area noted a relationship between the sex of the grandparent and developmental effects on the grandchild.[185] The relationship between grandchildren and their maternal grandmother appears to be especially close and beneficial.[186] And in terms of differential grandparental care, several studies indicate that the presence within the household of a maternal grandmother generally increases a child's probability of survival, whereas the presence of a paternal grandfather appears to have much less positive effect, possibly even decreasing a child's probability of

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Selected Tendencies, 24 EVOLUTION & HUM. BEHAV. 118, 122 (2003).

182. *See* Burnstein et al., *supra* note 181, at 774-76; Daly et al., *supra* note 181.

183. *See* Daly et al., *supra* note 181; Justin H. Park & Mark Schaller, *Does Attitude Similarity Serve as a Heuristic Cue for Kinship? Evidence of an Implicit Cognitive Association*, 26 EVOLUTION & HUM. BEHAV. 158, 159 (2005); BUSS, *supra* note 6, at 237-46. As stated previously, it is important to note that the evolutionary concepts related to kinship discussed in this Article have nothing necessarily to do with an individual actor's conscious understanding or calculation of relatedness. The concepts help explain behavioral tendencies that exist within a population, whether the mechanism for these behavioral tendencies involves conscious thought or not. Therefore, an individual may behave in a way that favors perceived kin in the complete absence of conscious calculation of relatedness.

184. *See* Burnstein et al., *supra* note 181, at 774-76; Josephine D. Korchmaros & David A. Kenny, *An Evolutionary and Close-Relationship Model of Helping*, 23 J. SOC. & PERS. RELATIONSHIPS 21, 22 (2006).

185. *See* Elizabeth R. Chrastil et al., *Paternity Uncertainty Overrides Sex Chromosome Selection for Preferential Grandparenting*, 27 EVOLUTION & HUM. BEHAV. 206, 219 (2006).

186. *See id.*

survival.[187]

A number of the studies that have produced the latter set of findings draw on historical population data. One study used population registers from a village in central Japan, covering the period 1671 to 1871.[188] The registers included detailed information on the members of each household and on births, ages, and deaths.[189] The primary purpose of the study was to examine the effects of grandparental presence on the probability of a child's death, with a focus on grandmothers.[190] More specifically, the researchers formulated and tested two hypotheses.[191] First, based on the "grandmother hypothesis" that menopause is an adaptation that allows older, postreproductive women to more fully invest in their children's children, the researchers predicted that the presence of a grandmother, either maternal or paternal, within the household would reduce the likelihood of a child's death.[192] The researchers expressly declined to make any predictions related to the presence of a grandfather.[193] Second, based on concepts of parental investment and paternity certainty, the researchers predicted that the reduction in child mortality would be larger for households that include a maternal grandmother than for those that include a paternal grandmother.[194]

When the researchers analyzed the data for all children, they noted that the presence of a paternal grandmother and both types of grandfather increased the likelihood of child

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187. *See id.*

188. *See* Cheryl Sorenson Jamison et al., *Are All Grandmothers Equal? A Review and a Preliminary Test of the "Grandmother Hypothesis" in Tokugawa, Japan*, 119 AM. J. PHYSICAL ANTHROPOLOGY 67 (2002).

189. *See id.* at 70-71.

190. *Id.* at 67-68.

191. *See id.* at 70.

192. *See id.*

193. *See id.*

194. *See id.* The researchers noted that it would be difficult to fully test the latter hypothesis. Patrilocal residence was much more common in Japanese villages than matrilocal residence. Thus, the number of households with a maternal grandmother present was likely to be small and conclusions about differences between the two types of households would be tenuous at best. *See id.*

death.[195] Only the presence of a maternal grandmother reduced the likelihood of child death, with a child in the study population "35% less likely to die if the maternal grandmother [was] present in the home."[196] While the researchers acknowledged that their finding regarding the effect of maternal grandmothers is not statistically significant, they noted that it is strongly suggestive.[197] The researchers also examined girls separately, noting that the negative effect of paternal grandfather presence is statistically significant for female children.[198] In addition, the researchers examined boys separately, noting, "for male children, the effect of the maternal grandmother's presence is most powerfully demonstrated: her presence *decreases* the likelihood of child death by 52%, while the presence of the paternal grandmother *increases* the odds by 38%."[199] The finding of a negative effect for paternal grandmother presence was statistically significant while the finding of a positive effect for maternal grandmother presence did not reach statistical significance.[200] However, the researchers again asserted that this latter finding is highly suggestive.[201] The researchers concluded:

> Our findings regarding maternal grandmothers are in support of our predictions: coresiding mother's mothers exerted a consistently positive (though not statistically significant) effect on the survival of grandchildren. The effects of paternal grandmother coresidence were more equivocal: their presence was somewhat advantageous to girls and, surprisingly, was strongly and statistically significantly disadvantageous to boys.[202]

The researchers did not offer an explanation of how the presence of grandmothers reduced child mortality. On one hand, they speculated that the effects may result from grandmothers' active participation in providing sustenance

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195. *Id.* at 71.

196. *Id.*

197. *Id.*

198. *Id.*

199. *Id.*

200. *Id.*

201. *Id.*

202. *Id.* at 73.

or preventing harm.[203] On the other hand, they wondered if the effects result from grandmothers' provision of wisdom and knowledge that helps the household get through difficult times.[204] In the end, the researchers called for further research in this area and the continued use of historical population data.[205]

Another research team conducted a study using church register entries from Ostfriesland, Germany from 1720 to 1874.[206] Their detailed analysis found that when a maternal grandmother had been alive at the time of a child's birth, the child experienced less risk of infant mortality during the first five years of life.[207] The influence of maternal grandmothers was greatest when children were six to twelve months of age.[208] During this period, a child's mortality risk was approximately 1.8 times greater if the maternal grandmother had been dead at the child's birth, with a significant effect also found for the second year of life.[209] The researchers also found that the existence of a paternal grandmother had no significant positive effect on a child's survival, with a statistically significant negative effect during the first month of life.[210] The existence of a paternal grandmother at birth approximately doubled the risk of infant mortality during this initial period.[211] The researchers speculated that this finding was the result of conflict between mothers-in-law and daughters-in-law.[212] In addition, the researchers found that grandfathers did not

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203. *Id.* at 74.

204. *Id.*

205. *See id.* at 74.

206. *See* Eckart Voland & Jan Beise, *Opposite Effects of Maternal and Paternal Grandmothers on Infant Survival in Historical Krummhörn*, 52 BEHAV. ECOLOGY & SOCIOBIOLOGY 435 (2002).

207. *See id.* at 438. The researchers controlled for the death of a child's mother during the first two years of a child's life by excluding children who experienced such maternal death. *See id.*

208. *Id.* at 439-40.

209. *Id.* at 439, 440 tbl.4, model 3(c).

210. *Id.* at 439-41.

211. *Id.* at 439.

212. *Id.* at 441.

increase the survival chances of their grandchildren.[213] As was the case for the study using historical data from a Japanese village, the German researchers recognized that they could not ascertain how maternal grandmothers had a positive effect on child survival.[214] The historical records do not include information on actual grandmother behavior.[215]

Another researcher examined the parish and census records of Cambridgeshire, England from 1770 to 1861 in order to test a hypothesis that grandmothers reduce the risk of child deaths directly by "grandmothering."[216] The findings supported the hypothesis, indicating that child survival to age five years increased from 81% to 90% if the maternal grandmother was alive at the time of the child's birth.[217] The researcher noted that these results were consistent with the German study:

> Voland and Beise found that children between 6 and 12 months of age were approximately 1.8 times more likely to die if the maternal grandmother was dead at the child's birth. In the present study, children were 1.9 times more likely to die before the age of 5 if their maternal grandmother had died before they were born.[218]

The researcher also noted no significant relationship between child survival and the survival of other grandparents (i.e., maternal grandfather, both paternal grandparents).[219]

This researcher was unable to identify what maternal grandmothers did to increase the likelihood of child survival, but he noted that the mean maternal grandmother's age at the child's birth was fifty-eight, indicating that these grandmothers were predominantly postmenopausal.[220] The researcher used this fact to theorize that these grandmothers would have been available to care for their grandchildren

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213. *Id.*

214. *Id.*

215. *Id.*

216. Gillian Ragsdale, *Grandmothering in Cambridgeshire, 1770-1861*, 15 HUM. NATURE 301, 301-03 (2004).

217. *Id.* at 313.

218. *Id.* (citations omitted)

219. *Id.*

220. *Id.* at 314.

because their own children would have been weaned.[221] He then noted other studies showing that the presence of a maternal grandmother is associated with child weight gain.[222] This finding suggests that maternal grandmothers influence child health by either supplying food or feeding children.[223]

One of the child weight gain studies examined data collected between 1950 and 1970 from two villages in rural Gambia—Keneba and Manduar.[224] As to child nutritional status during the first five years of life measured by height and weight, the only kin to have a consistent positive effect were maternal grandmothers.[225] Children with living paternal grandmothers were significantly taller and heavier than those without paternal grandmothers during the first year of life, but this positive effect disappeared in later childhood and was not significant overall.[226] The presence of a grandfather had no significant effect on nutritional status.[227] As to mortality, the presence of a maternal grandmother had a significant positive effect during the second year of life.[228] The effect was also positive in infancy and later childhood, but it was not statistically significant.[229] In contrast, "[p]aternal grandmothers, maternal grandfathers, and paternal grandfathers all had no significant effect on child survival."[230] The researchers noted an interesting finding that distinguishes among maternal grandmothers. Maternal grandmothers who were alive at the time of a child's birth and still reproductively active themselves had a slightly less positive effect (not statistically significant) on child weight and survival and a significantly less positive

221. *Id.*

222. *Id.*

223. *Id.*

224. *See* Rebecca Sear et al., *Maternal Grandmothers Improve Nutritional Status and Survival of Children in Rural Gambia*, 267 PROC. ROYAL SOC'Y B 1641 (2000).

225. *See id.* at 1642-44.

226. *Id.* at 1644.

227. *See id.* at 1646.

228. *See id.* at 1645-46.

229. *Id.*

230. *Id.* at 1646.

effect on child height than those who were not reproductively active (postmenopausal).[231]

In summary, the findings from historical population data studies indicate the significant positive effect of maternal grandmothers who are not reproductively active. These grandmothers are more likely to invest in grandchildren in a way that yields positive results in terms of child nutrition and survival. In contrast, these studies indicate that no other types of grandparent have a significant positive effect on child nutrition or survival.

2. *Grandparent Investment—Contemporary Subjects Studies.* Several researchers have examined differential grandparental investment using contemporary subjects. Euler and Weitzel conducted a study that replicated an earlier unpublished study by DeKay.[232] DeKay had used American undergraduate students as subjects and asked them to rate the investment of each of their grandparents in their care and well-being.[233] The measures of grandparental investment assessed by the subjects were time invested, knowledge conveyed, gifts provided, and emotional closeness established.[234] The results were consistent with those predicted by the consideration of differential paternity certainty.[235] Namely, maternal grandmothers invested the most in their grandchildren, followed by maternal grandfathers, paternal grandmothers, and paternal grandfathers.[236]

Euler and Weitzel used a sample of German individuals.[237] They questioned the subjects about the degree of grandparental solicitude they had received from each

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231. *See id.* at 1644, 1646.

232. Harald A. Euler & Barbara Weitzel, *Discriminative Grandparental Solicitude as Reproductive Strategy*, 7 HUM. NATURE 39 (1996).

233. *See* BUSS, *supra* note 6, at 247-48, describing and citing W.T. DeKay, Grandparental Investment and the Uncertainty of Kinship, Paper presented to the 7th annual meeting of the Human Behavior and Evolution Society, Santa Barbara, Cal. (1995).

234. *See id.* at 247.

235. *See id.* at 247-48.

236. *See id.*

237. Euler & Weitzel, *supra* note 232, at 44.

grandparent until the age of seven.[238] The results were consistent with those of DeKay. The maternal grandmother was the most caring, followed by the maternal grandfather, the paternal grandmother, and the paternal grandfather.[239] The difference in the level of care was statistically significant between each type of grandparent.[240] For example, the maternal grandfather provided significantly more care for grandchildren than did the paternal grandmother.[241] Euler and Weitzel also found that residential proximity, age of the grandparent, and the availability of other grandparents did not explain the differences in grandparental care.[242] As another team of researchers noted, "[t]hese studies suggest that patterns of grandparental investment are a robust phenomenon not easily explained by alternatives such as grandparental gender, residential distance, grandparental age, or number of living grandparents."[243]

Pashos conducted a study to further investigate the paternity certainty explanation for differential grandparent investment in grandchildren.[244] The study used German and Greek subjects.[245] The Greek subjects were divided into two groups, one consisting of urban Greeks who had experienced a social environment similar to the German subjects and another consisting of rural Greeks who had experienced a patrilineal social environment that designates paternal grandparents as intensive caregivers.[246] Each subject was an adult who had living grandparents during childhood.[247] Each subject completed a questionnaire that

238. *Id.* at 44-45.

239. *See id.* at 46.

240. *See id.*

241. *See id.*; Alexander Pashos, *Does Paternal Uncertainty Explain Discriminative Grandparental Solicitude? A Cross-cultural Study in Greece and Germany*, 21 EVOLUTION & HUM. BEHAV. 97, 98 (2000).

242. Euler & Weitzel, *supra* note 232, at 46-48.

243. Simon M. Laham et al., *Darwinian Grandparenting: Preferential Investment in More Certain Kin*, 31 PERSONALITY & SOC. PSYCHOL. BULL. 63, 64 (2005) (citations omitted).

244. Pashos, *supra* note 241, at 99.

245. *Id.*

246. *Id.* at 99-100.

247. *Id.* at 100.

asked them to estimate how much each grandparent had cared for them.[248] The results of the study for the German subjects and the urban Greek subjects replicated those of Euler and Weitzel.[249] Both groups rated maternal grandparent care significantly higher than paternal grandparent care except that the difference between grandfathers did not reach significance (p=.0619) for urban Greeks, possibly because of a smaller sample size.[250] Both groups also rated grandmothers significantly higher than grandfathers.[251] In contrast, the rural Greeks rated paternal grandparent care higher than maternal grandparent care, with male grandchildren accounting for this difference in perceived levels of care.[252] Consistent with German and urban Greek subjects, the rural Greeks rated grandmothers higher than grandfathers.[253]

Pashos used these findings to assert that the two effects—higher levels of care from maternal grandparents or paternal grandparents and higher levels of care from grandmothers or grandfathers—must be distinguished.[254] The consistently higher rating for grandmother care may be explained by more intense female caregiving in humans, an explanation consistent with the evolutionary concept of sex effects.[255] However, the inconsistent results concerning higher maternal or paternal grandparent investment call into question the explanatory power of the evolutionary concept of paternity certainty.[256] Pashos asserted that the matrilineality effect may be explained by "a socially engendered favoring of maternal relatives in Western industrial societies as opposed to the favoring of paternal [grandparents] seen in the partrilateral culture of rural

248. *Id.* This basic line of inquiry was adapted from, and consistent with, the questions posed in Euler and Weitzel's study. *See id.* at 100-01.

249. *Id.* at 107.

250. *Id.* at 102-03.

251. *Id.* at 102.

252. *Id.* at 103.

253. *Id.* at 102-03.

254. *Id.* at 97, 107.

255. *See id.* at 108.

256. *See id.*

Greece."[257] In other words, the social environment may have more explanatory power concerning the different levels of care provided by maternal and paternal grandparents than the biological concept of differential paternity certainty.

In presenting a study of differential investment by aunts and uncles, McBurney, Simon, and Gaulin challenged Pashos's assertion concerning matrilineality effect.[258] After acknowledging Pashos's assertion, they explained their disagreement, arguing that differential paternity certainty explains the matrilineal bias:

> It seems more reasonable to us to consider the rural Greek data to reflect the effect of a patriarchal system acting to override a (universal) matrilateral bias. Supporting this interpretation is the bias shown in Pashos's rural Greek data toward investing in grandsons over granddaughters. The patrilateral bias was significant toward grandsons only. Granddaughters reported a slight and nonsignificant patrilateral bias.
>
> Further, Pashos interprets the proximate cause of the matrilateral bias in western cultures to be the stronger family bonds of women compared with those of men. Indeed, we believe that this phenomenon may well be the proximate cause of matrilateral bias; our question concerns the ultimate cause, for which paternity certainty is the only current contender.[259]

A subsequent study provides support for the statement by McBurney, Simon, and Gaulin.[260] It should be noted at the outset that this study does not squarely address Pashos's findings because the participants were drawn from Western industrial societies—the German subjects used previously by Euler and Weitzel, along with American subjects from randomly chosen school districts in Virginia.[261] Nonetheless, the study did test a sex chromosome selection hypothesis that predicted that paternal grandmothers are likely to invest more in granddaughters and that paternal grandfathers are likely to invest more in

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257. *Id.* at 97; *see also id.* at 107-08.

258. Donald H. McBurney et al., *Matrilateral Biases in the Investment of Aunts and Uncles: Replication in a Population Presumed to Have High Paternity Certainty*, 13 HUM. NATURE 391, 398-99 (2002).

259. *Id.*

260. *See* Chrastil et al., *supra* note 185.

261. *See id.* at 209-10.

grandsons.[262] If the data supported this hypothesis, it would help confirm and explain to some extent Pashos's rural Greek findings of more investment by paternal grandparents than maternal grandparents.

However, the researchers found little support for this hypothesis.[263] Instead, they found strong support for the paternity certainty hypothesis, replicating the ranking results drawn from Euler and Weitzel's German subjects and from Pashos's German and urban Greek subjects.[264] They concluded by stating, "[w]ith little or no support for the alternative models of differential grandparent care and support for the paternity uncertainty model from the collected data, we suggest that paternity uncertainty is the dominant factor involved in differential grandparental care."[265]

A recent study replicates the results of previous studies and introduces a new level of complexity to the analysis of differential grandparent investment.[266] The researchers in this study explored an unexpected finding from DeKay's study and Euler and Weitzel's study, among others.[267] Namely, maternal grandfathers tend to invest more in, and tend to be emotionally closer to, their grandchildren than paternal grandmothers.[268] This was an unexpected finding because both types of grandparent had the same degree of paternity certainty related to their grandchildren. On one hand, maternal grandfathers are somewhat uncertain their daughters are biologically related to them, but are certain that their grandchildren are biologically related to their daughters. On the other hand, paternal grandmothers are certain their sons are biologically related to them, but are somewhat uncertain that their grandchildren are biologically related to their sons. Therefore, both maternal grandfathers and paternal grandmothers have one uncertain biological link to their grandchildren, and based solely on paternity

262. *See id.* at 208.

263. *See id.* at 215-18.

264. *See id.* at 215-20.

265. *Id.* at 220.

266. *See* Laham et al., *supra* note 243, at 64.

267. *See id.*

268. *See id.*

certainty concepts, are likely to invest equally in their grandchildren.[269]

DeKay recognized that his findings were not completely consistent with the paternity certainty explanation. He suggested that paternity certainty may be lower in the most recent generation than in the more distant generation.[270] If true, this would imply that biological relatedness with their grandchildren is more certain for maternal grandfathers than for paternal grandmothers because any uncertainty for maternal grandfathers would have arisen in the more distant generation rather than the most recent generation.[271] However, DeKay's explanation lacks support. There is little evidence of different rates of paternity certainty across generations, with the available evidence indicating no such difference.[272]

Euler and Weitzel also recognized the unexpected findings. They suggested that grandparent behavior coincides with that of their child, the linking parent.[273] Accordingly, the parents of the high investing parent (the mother) will invest more in their grandchildren than the parents of the low investing parent (the father).[274] Therefore, one could expect a maternal grandfather to invest more than a paternal grandmother.[275] Euler and Weitzel could not test this hypothesis using their full data set because they could not disentangle the confounding effect of coresidence.[276] For example, maternal grandfathers may invest more because they live with and follow the behavior of high investing maternal grandmothers and paternal grandmothers may invest less because they live with and follow the behavior of low investing paternal grandfathers.[277] And when Euler

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269. *See id.* It should be noted that sex effects fail to explain these findings because the findings contradict the expectation that women will invest more in related children than men. *See* Gaulin et al., *supra* note 166, at 141.

270. *See* Laham et al., *supra* note 243, at 64.

271. *Id.*

272. *Id.*

273. *See* Gaulin et al., *supra* note 166, at 141.

274. *See id.*

275. *See id.*

276. *See id.*

277. *See id.*

and Weitzel examined only grandparents who were widowed or did not live with another grandparent, the pattern reversed, with paternal grandmothers investing more than maternal grandfathers.[278] The data did not support their suggestion that grandparental investment is linked to levels of parental investment.[279]

The researchers who designed a study to examine the unexpected findings formulated a different hypothesis based on the concept of diffusion of grandparental resources. They termed their hypothesis the "preferential investment in more certain kin hypothesis" and explained, "[t]his hypothesis states that the greater observed investment of mothers' fathers is caused by the fact that fathers' mothers typically have genetically more certain alternate investment outlets available."[280] In other words, a paternal grandmother often has other grandchildren produced by a daughter. She will be more certain of her biological relation to the grandchild produced by her daughter and will tend to invest more in this grandchild than in the grandchild produced by her son. Because of this allocation of grandparental investment, the son's child loses in relation to the daughter's child, receiving fewer resources from the paternal grandmother. In contrast, the maternal grandfather has no better investment target. He may have other daughters who have children, but he can be no more certain that these grandchildren are biologically related to him. Therefore, a particular grandchild is not likely to experience a comparative reduction in grandparental investment because his or her cousin is a superior investment target for the maternal grandfather.[281]

After explaining their hypothesis, the researchers noted that the finding of higher investment by maternal grandfathers should disappear when paternal grandmothers do not have grandchildren through their daughters.[282] This prediction provided the foundation for a study that would test their preferential investment hypothesis. The study

278. *Id.*

279. *See id.*

280. Laham et al., *supra* note 243, at 64.

281. *See id.*

282. *Id.*

had three important aspects. First, the researchers sought to replicate the previous differential grandparental investment studies using Australian subjects.[283] Second, the researchers would test their preferential investment in more certain kin hypothesis.[284] Third, the researchers would account for the effects of coresidence in measuring grandparental investment by maternal grandfathers and paternal grandmothers in order to determine the independent effect of individual preferential investment strategies.[285]

The study used 787 Australian subjects.[286] The subjects rated their closeness to each of their grandparents.[287] They also reported how often they saw each of their grandparents before entering college.[288] In addition, they reported how many aunts and uncles they had on their mother's side and their father's side, and how many biological children each of these relatives had.[289]

The results of the study replicated the results of previous grandparental investment studies.[290] The Australian subjects felt closer to maternal grandmothers than maternal grandfathers, closer to maternal grandfathers than to paternal grandmothers, and closer to paternal grandmothers than to paternal grandfathers.[291] The finding that the subjects felt closer to maternal grandfathers than paternal grandmothers allowed for a test of the preferential investment hypothesis. Further analysis of this difference revealed that the preference for maternal grandfathers over paternal grandmothers was statistically significant for paternal grandmothers who had grandchildren via their daughters, but this preference was not statistically significant for paternal grandmothers who did not have grandchildren via daughters.[292] In other words, the

283. *Id.* at 66.

284. *Id.*

285. *See id.*

286. *Id.*

287. *Id.*

288. *Id.*

289. *Id.*

290. *Id.*

291. *Id.*

292. *See id.* at 66-68.

preference disappeared when paternal grandmothers did not have a grandchild who was more certain to be biologically related to them and who would draw comparatively more grandparent investment. In addition, the data revealed that paternal grandfathers invested significantly less when they had other grandchildren through their daughters.[293] All of these findings were consistent with the predictions of the "preferential investment in more certain kin" hypothesis.[294] Finally, the data on degree of exposure to a particular grandparent revealed a gender difference, with greater exposure to grandmothers than grandfathers for both maternal and paternal grandparents, but this data failed to explain the difference in investment between maternal grandfather and paternal grandmother.[295] Therefore, the study did not provide evidence that maternal grandfathers were perceived to invest more because of incidental contact arising from the high investment behavior of their co-parent, the maternal grandmother.[296] The researchers concluded by noting, "[t]he current findings add a layer of complexity to our understanding of grandparental relations and future work should integrate the effects of alternate investment outlets [(other grandchildren)] with other evolutionary and sociocultural mechanisms."[297]

This study reveals that research inspired by evolutionary concepts such as paternity certainty and sex effects can result in a more complex, sophisticated, and accurate understanding of kinship relationships—one that requires knowledge of the particular extended family situation. For example, in assessing likely grandparental investment, it is not sufficient simply to know the type of grandparent. One needs to also know the nature and number of grandchildren who are related to the particular grandparent. To illustrate, a paternal grandmother who does not have other grandchildren is likely to invest more in her grandchild than a paternal grandmother who has other grandchildren, especially grandchildren via a daughter.[298]

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293. *See id.* at 68.

294. *See id.* at 64, 66-68.

295. *Id.* at 68-69.

296. *See id.*

297. *Id.* at 71.

298. *See id.* at 67-69.

3. *Investment by Aunts and Uncles.* Several researchers have begun to use paternity certainty and sex effects concepts in investigating kin other than grandparents.[299] These researchers have examined differential investment by other second-degree relatives, namely aunts and uncles.[300] An early study involved 285 subjects who completed a questionnaire that asked separately about the level of concern shown by matrilateral and patrilateral uncles and that shown by matrilateral and patrilateral aunts.[301] The questionnaire related only to biologically related aunts and uncles, not their spouses who are also referred to as aunts and uncles in American society.[302]

The results of the study indicated that matrilateral aunts invest the most, followed by patrilateral aunts, matrilateral uncles, and patrilateral uncles.[303] These results replicated those of the grandparent studies in terms of sex effects—women invest significantly more than men in their second-degree relatives (grandsons, granddaughters, nieces, and nephews).[304] The results also replicated those of the grandparent studies in terms of the impact of paternity certainty—matrilateral relatives invest significantly more than patrilateral ones.[305] The sex effect was larger than the laterality effect, but both were statistically significant.[306] As to the laterality effect, the researchers used the study data to calculate that matrilateral aunts invest approximately 25% more than patrilateral aunts and matrilateral uncles invest approximately 15% more than patrilateral uncles.[307]

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299. *See, e.g.*, Gaulin et al., *supra* note 166; McBurney et al., *supra* note 258.

300. *See* Gaulin et al., *supra* note 166; McBurney et al., *supra* note 258.

301. *See* Gaulin et al., *supra* note 166, at 141-42.

302. *Id.* at 142. This latter study design element makes apparent the absence of a confounding spouse effect in examining aunts and uncles as opposed to grandmothers and grandfathers. Whereas grandparents often live with another biologically related grandparent and may be affected by the behavior of this other kin member, aunts and uncles usually do not live with a partner who is biologically related to their niece or nephew. *Id.* at 140-41.

303. *See id.* at 143-44.

304. *See id.* at 145.

305. *Id.*

306. *Id.* at 146.

307. *Id.* at 148.

Another team of researchers replicated these results with Orthodox Jewish subjects, using these subjects because they come from a population thought to have a higher level of paternity certainty than the general population.[308] The continued relevance of sex effects and matrilateral bias in this population underscored the robust nature of the original findings.[309] In addition, the researchers speculated that the failure to obtain different results using a high paternity certainty population indicated that "[t]he degree of bias found in these two studies, as well as in studies of German grandparents, reflects the upper bound of the reaction range found in the ancestral environment of this trait."[310] In other words, reduction in matrilateral bias is likely limited by the level of paternity certainty obtained in ancestral environments and is not altered by current conditions that raise a population's level of paternity certainty above the level that existed within those ancestral environments.[311]

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308. McBurney et al., *supra* note 258, at 391. The researchers designed their study to address the question raised by Gaulin and his colleagues in the original study—"Is the observed matrilateral bias in kin investment by aunts and uncles a response to (pre-)historically typical levels of paternal uncertainty in human populations or is it more facultatively dependent on actual current values?" *Id.* at 392; *see also* Gaulin et al., *supra* note 166, at 149. The researchers stated that their study pursued this question by replicating the earlier study with a population expected to have a high paternity certainty. They sought to test whether the level of maternal bias found in previous studies "was facultatively tuned to modern, western societies within an unknown range from zero certainty to some high level, or whether it represented the highest degree of paternity certainty typically experienced in ancestral environments." McBurney et al., *supra* note 258, at 392.

309. *See* McBurney et al., *supra* note 258, at 394-98.

310. *Id.* at 398 (citations omitted).

311. *See id.* at 400. It should be noted that two researchers have completed a study of relationships among cousins that supports a hypothesis of differential altruism among cousins that is sensitive to varying probabilities of paternity certainty. Jeon & Buss, *supra* note 168. The study's findings indicated that subjects were most willing to help their mother's sister's children, followed in descending order by mother's brother's children, father's sister's children, and father's brother's children, although the last two comparisons were not statistically significant. *Id.* The researchers concluded by stating, "The current research is important because it shows that the laterality bias resulting from paternity uncertainty exists not only in investment in kin of the next generations, as others have demonstrated, but also in kin altruism towards the same generation, which this study is the first to demonstrate." *Id.* at 1186. Another recent study examined indirect and direct care provided by various

In summary, the behavioral biology research supports several hypotheses concerning the level of investment by individuals in particular types of kin. The hypotheses are based on evolutionary concepts such as degree of relatedness, sex effects, paternity certainty, and preferential kin investment that help identify and explain behavioral tendencies that exist even in the absence of any conscious understanding or calculation of biological relatedness. First, it is likely that individuals will invest significantly more in those perceived to be kin than those perceived to be non-kin and significantly more in those perceived to be closely related kin than those perceived to be more distant kin.[312] Second, it is likely that, as to a particular type of kin member, women will invest significantly more than men.[313] Third, it is likely that, as to a particular type of kin member, individuals who have a lower level of paternity uncertainty will invest significantly more than individuals who have a higher level of paternity uncertainty.[314] The research indicates that this latter hypothesis introduces further complexity. If an individual has multiple kin related to him or her to the same degree, and perceives cues that, consciously or unconsciously, make him or her more certain about their biological relationship, that individual is likely to target investment to those perceived to be the more certain kin and reduce investment in those perceived to be the less certain kin.[315] For example, a grandmother who has grandchildren through both her daughter and her son is

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relatives at the birth of a child using data from sixty distinct cultures. *See* Huber & Breedlove, *supra* note 175. This cross-cultural study confirmed the sex effects as to the most important investment—the provision of direct care. Aunts provide significantly more direct care than uncles and grandmothers provide significantly more direct care than grandfathers. *Id.* at 214. The study also confirmed the impact of level of paternity certainty. As to direct care, the higher the society's paternity certainty level, the larger was the investment by biologically uncertain kin such as maternal grandfathers, paternal grandmothers, and patrilateral aunts. *Id.* at 214-15.

312. *See, e.g.*, BUSS, *supra* note 6, at 230-46; Euler & Weitzel, *supra* note 232, at 44-45 (stating that maternal grandparents invest the most, followed by paternal grandmothers, maternal grandfathers, and paternal grandfathers); Gaulin et al., *supra* note 166, at 144 (stating that "matrilateral relatives invest significantly more than patrilateral relatives").

313. *See, e.g.*, Gaulin et al., *supra* note 166, at 144.

314. *See, e.g.*, *id.*

315. *See, e.g.*, *id.* at 147.

likely to invest most in her daughter's children and invest comparatively less in her son's children.[316]

III. IMPLICATIONS OF BEHAVIORAL BIOLOGY RESEARCH FOR KINSHIP FOSTER CARE

The behavioral biology research addressing kin has implications for the placement of children in foster care.[317] This research allows the development of a rank listing of kin based on the expected level of parental investment. Such a rank listing facilitates the development of a research agenda related to foster care placements. It also provides guidance to child welfare agencies and caseworkers in making important decisions related to foster care placements.

A. *Development of a Research Agenda*

Foster care systems provide a natural setting for applied research that tests hypotheses concerning kinship. Public systems are relying heavily on kin to serve as foster parents and there is now a large amount of data on foster care placements in general and kinship placements in particular, allowing for well-designed comparative studies.[318]

The first element of the research agenda is the comparison of non-kin foster care placements with kin placements. The behavioral biology research allows for the

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316. *See* Laham et al., *supra* note 243, at 64.

317. *See generally* David J. Herring, *Foster Care Safety and the Kinship Cue of Attitude Similarity*, 7 MINN. J. L. SCI. & TECH. 355 (2006); Testa, *supra* note 10, at 501-02.

318. *See, e.g.*, Berrick, *supra* note 9; Ehrle & Geen, *supra* note 9; Testa, *supra* note 10. *See generally* Cuddeback, *supra* note 63 (discussing data related to kinship placements and care). Such applied research would not challenge the goals for foster care as determined by public officials. This research would simply produce new knowledge that is relevant to the achievement of these goals. One public goal is to improve conditions experienced by children in foster care through the placement of foster children with adult caregivers who are likely to invest significant resources as evidenced by emotional closeness, financial support, and educational support, among other measures. Another public goal is to achieve adequate outcomes for foster children, both in terms of child development and adult functioning. (Measures of outcomes include attachment, physical health, mental health, educational attainment, delinquent behavior, criminal behavior, employment, and social relationships.) *See* Herring, *supra* note 149, at 113 (citing Cuddeback, *supra* note 63, at 627-32).

formulation of a hypothesis that, on average and controlling for other variables, children are likely to receive better care and achieve better outcomes in kinship placements than in non-kin placements. As discussed above, researchers have begun to test this hypothesis and it appears feasible to collect and analyze the relevant data.[319] Additional research in this area through carefully designed comparative studies is warranted.[320] These studies should use measures of foster parent investment such as emotional closeness,[321] level of concern for child's welfare,[322] financial support, and educational support. Researchers could obtain the necessary data through reviews of foster care case files and/or the administration of questionnaires to foster children and foster parents.[323] The studies should also use measures of child development and adult functioning outcomes such as attachment, physical health, mental health, educational attainment, delinquent behavior, criminal behavior, employment, and social relationships.[324] The results of such studies could produce new knowledge relevant to assessing the risks and benefits of relying heavily on kin as foster parents.[325]

The behavioral biology research also allows for the formulation of numerous hypotheses that not only distinguish between kin and non-kin foster parents, but also distinguish among types of kin in the foster parent role. For

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319. *See, e.g.*, Berrick, *supra* note 9; Ehrle & Geen, *supra* note 9. *See generally* Cuddeback, *supra* note 63 (discussing data related to kinship placements and care).

320. *See* Cuddeback, *supra* note 63, at 633-35.

321. *See, e.g.*, Laham et al., *supra* note 243, at 66.

322. *See, e.g.*, Gaulin et al., *supra* note 166, at 142.

323. *See, e.g.*, Beeman et al., *supra* note 73, at 41; Berrick, *supra* note 9, at 274-76; Herring, *supra* note 14, at 882-85; Testa, *supra* note 10, at 514-18; Timmer et al., *supra* note 44, at 254-56.

324. *See, e.g.*, Peter J. Pecora et al., *Improving Family Foster Care: Findings from the Northwest Foster Care Alumni Study* (2005), *available at* http://www.casey.org/NR/rdonlyres/4E1E7C77-7624-4260-A253-892C5A6CB9E1/923/CaseyAlumniStudyupdated082006.pdf. *See generally* Cuddeback, *supra* note 63, at 627-28.

325. This type of information may help address and inform conflicting caseworker beliefs about the adequacy and desirability of kinship placements. *See* Berrick, *supra* note 9, at 274; Cuddeback, *supra* note 63, at 632-33; Geen, *supra* note 15, at 15-17.

example, the research allows for the formulation of a hypothesis that, on average and controlling for other variables, children are likely to receive better care in placements with their maternal grandmothers than with their paternal grandmothers.[326] Using measures of parental investment and child development/adult functioning outcomes, researchers could design studies to test such a hypothesis.

The results from this type of comparative study could support the development of heuristic decision rules that would be useful in making placement decisions within a chaotic, information-poor context that requires quick action.[327] This is a situation frequently encountered when a child first comes into foster care.[328] And it must be recognized that the initial placement decision is a high stakes matter—mistakes made at the early stages of a foster care case often lead to inadequate care and subsequent placement disruptions and difficult moves that present a significant risk of harm to affected children.[329] These harmful conditions and disruptions should be eliminated, or at least minimized. In the absence of, or in combination with, more detailed information on a particular child's situation,[330] reliance on heuristic placement decision rules developed through rigorous empirical research may result in less placement disruption, better treatment, and better outcomes for foster children.

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326. *See supra* notes 185-265 and accompanying text.

327. *See generally* JOHNSON, *supra* note 64, at 2-4.

328. *See generally* David J. Herring, *Child Placement Decisions: The Relevance of Facial Resemblance and Biological Relationships*, 43 JURIMETRICS 387, 401-05 (2003); John Ruscio, *Information Integration in Child Welfare Cases: An Introduction to Statistical Decision Making*, 3 CHILD MALTREATMENT 143 (1998).

329. For a discussion of the harms related to placement disruptions, see Chamberlain et al., *supra* note 68; Sigrid James, *Why Do Foster Care Placements Disrupt? An Investigation of Reasons for Placement Change in Foster Care*, 78 SOC. SERVICE REV. 601 (2004); Pecora et al., *supra* note 324, at 40-52.

330. This may include, for example, information indicating a previous close, longstanding relationship with a particular relative. *See* Testa, *supra* note 10, at 526-34. *See also* JOHNSON, *supra* note 64, at 3-4 (discussing the role of caseworker discretion in supplementing simple actuarial assessments).

B. *Development of a Rank Listing of Kin*

In discussing their study of matrilateral bias in the investment of aunts and uncles, Gaulin, McBurney, and Brakeman-Wartell provide a glimpse of the possibility for developing heuristic placement decision rules. Using calculations based on degree of relatedness and various levels of paternity certainty, the researchers produce a ranking of second-degree kin by expected level of investment.[331] These calculations indicate that one would expect maternal grandmothers to invest the most.[332] Matrilateral aunts and uncles are likely to invest at the next highest level, followed closely by maternal grandfathers and paternal grandmothers.[333] Patrilateral aunts and uncles are expected to invest less, with paternal grandfathers expected to invest the least.[334]

One could construct a preliminary hierarchy of kinship placement preferences based on the researchers' calculations, with preference given to maternal grandmothers, followed in order by matrilateral aunts and uncles, maternal grandfathers and paternal grandmothers, patrilateral aunts and uncles, and paternal grandfathers. However, the behavioral biology research reveals that expected investment does not follow neatly from simple considerations of paternity certainty. For example, the calculations do not take into account sex effects. As the researchers' findings indicate, aunts tend to exhibit more concern for their nieces and nephews than do uncles, with patrilateral aunts appearing to invest more than even matrilateral uncles.[335]

Making the analysis even more complex, initial consideration of both paternity certainty effects and sex effects may fail to accurately predict levels of investment. For example, as discussed above, maternal grandfathers tend to invest more than paternal grandmothers despite an equal degree of paternity certainty and sex effects that

331. *See* Gaulin et al., *supra* note 166, at 147-49.

332. *See id.* at 149.

333. *See id.*

334. *See id.*

335. *See id.* at 143-46.

would run counter to the observed pattern of investment.[336] The research of Laham, Gonsalkorale, and von Hippel notes that many paternal grandmothers have grandchildren through their daughters—grandchildren whom they can be more certain are biologically related to them.[337] These paternal grandmothers appear to prefer to invest in their daughters' children, investing comparatively less in their sons' children as a consequence.[338] In contrast, while maternal grandfathers may also have to allocate their investment among several grandchildren, they have no grandchildren other than their daughters' children for whom they are more certain of their biological relationship. Thus, while maternal grandfathers may reduce their investment in each grandchild as the number of their grandchildren increases, this reduction in investment is likely to be equal across all daughters' children. In other words, there is no reason to expect that maternal grandfathers will systematically prefer investment in another type of grandchild at the expense of their daughters' children.[339]

All of these considerations and findings indicate the usefulness of an assessment of the entire extended family situation in determining placement preferences. Such an assessment would allow caseworkers to determine if a potential kin foster parent is likely to invest more in a child other than the proposed foster child. For example, if a caseworker is considering placement with paternal grandmother, it would be helpful to know that the grandmother lives near and has a close relationship with two of her daughter's children. In such a situation, with all other factors indicating that the paternal grandmother would provide adequate care for the child (e.g., no indication that paternal grandmother has a serious substance abuse problem), a caseworker may reasonably expect the paternal grandmother to invest less in the foster child.[340]

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336. *See supra* notes 266-98 and accompanying text.

337. Laham et al., *supra* note 243, at 66-71.

338. *See id.*

339. *See id.*

340. *See id.* at 67.

Of course, this type of assessment would be appropriate for all potential foster parents. A non-kin foster parent who has his or her own minor children or other relatives in which she or he invests heavily would be likely to invest less in a foster child. In addition, a maternal grandmother who has her own minor children or a number of other grandchildren nearby (both physically and emotionally) is also likely to invest less in a grandchild in her custody through a foster care placement. But the behavioral biology research extends beyond this general common-sense reasoning and provides reason for concern as to patrilineal relatives in particular.[341] Patrilineal kin are likely to prefer more certain matrilineal kin through investment and caregiving behavior.[342] In assessing paternal grandparents and patrilateral aunts and uncles, it would be useful to know the number of matrilineal relatives and the nature of their relationship to the proposed kin foster parent. If the proposed foster parent has more certain kin of the same degree as the foster child nearby, a caseworker could reasonably expect less parental investment.

Considering together paternity certainty effects, sex effects, and preferential investment effects, one could adjust the Gaulin, McBurney, and Brakeman-Wartell hierarchy of second-degree kin for purposes of foster care placement decisions. The rank ordering would appear as follows:[343]

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341. *See id* at 69-71; Gaulin et al., *supra* note 166, at 145-50.

342. *See* Jeon & Buss, *supra* note 168, at 1183-86; Laham et al., *supra* note 243.

343. This rank ordering would be subject to adjustment based on informed caseworker discretion and additional behavioral biology or other research. *See* JOHNSON, *supra* note 64, at 3-4. In addition, this ranking of kin approach could be extended to third-degree relatives such as cousins. If such relatives are adults who could provide adequate care as foster parents, preliminary research indicates that mother's sister's children are likely to be the most willing to help their minor cousins, followed by mother's brother's children, father's sister's children, and father's brother's children. *See* Jeon & Buss, *supra* note 168, at 1184-85.

—Maternal grandmother (mother's mother);
—Matrilateral aunt (mother's sister);
—Patrilateral aunt (father's sister);[344]
—Matrilateral uncle (mother's brother);
—Maternal grandfather (mother's father);[345]
—Paternal grandmother (father's mother);
—Patilateral uncle (father's brother);
—Paternal grandfather (father's father).

As noted above, the rank listing assumes that patrilateral relatives have more certain kin nearby. The listing also assumes that kin foster parents do not have their own minor children in their homes or otherwise nearby, either physically or emotionally.[346] If caseworkers have information that rebuts either assumption for a particular proposed kin foster parent, they could reasonably adjust the initial rank listing. For example, all else being equal, if a paternal grandmother has no daughters, a

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344. The patrilateral aunt is preferred over the matrilateral uncle because Gaulin et al., *supra* note 166, at 146 indicate that typically the sex effect is stronger than the paternity uncertainty effect on relationships with nieces and nephews.

345. The maternal grandfather is preferred over the paternal grandmother because Laham et al., *supra* note 243 indicate that typically the preferential investment effect is stronger than the sex effect on relationships with grandchildren. *See also* Euler & Weitzel, *supra* note 232; Pashos, *supra* note 241.

346. The rank list of second-degree kin is based on an assumption that the potential kin foster parent has no minor children of his or her own in the household or otherwise nearby, either physically or emotionally. This is a fairly reasonable assumption for grandparents, but may be questionable for aunts and uncles, many of whom are likely to be of reproductive age. *See generally* Ehrle & Geen, *supra* note 9, at 28 (stating that 70% of children in voluntary kinship arrangements lived with a caregiver over fifty years old, compared with only 42% of children in kinship foster care and 26% in non-kin foster care). If a kin member's own children are nearby, it is likely that they will prefer to invest in such first-degree kin, and thus, to invest less in second-degree kin. *See generally* Case et al., *supra* note 8, at 278 (finding that adopted children fare significantly better with a mother who does not have biological children in the household). This is a factor that confounds the rank preference for second-degree relatives who are candidates to serve as foster parents. The assumption here allows the construction of a list that disregards this confounding factor, but it is a factor that calls for research on the effects of the presence of first-degree kin within kin foster homes and possible adjustment of the rank listing.

caseworker may reasonably favor her over a maternal grandfather in light of likely sex effects.[347] Or a caseworker may reasonably favor a maternal grandfather who has no minor children over a matrilateral aunt who has three of her minor children in her home.[348]

However, such adjustments to the initial rank listing require additional information that may be difficult to obtain in a timely fashion in many cases. The typically chaotic situation surrounding the placement of children in foster care often makes careful, extensive fact gathering very difficult.[349] And child welfare agencies are often resource-poor—a condition that often precludes timely investigation of extended family situations.[350] The bottom-line result is an absence of information at the point of a critical placement decision. In such a situation, the preliminary rank listing of kin may be a helpful heuristic device for making appropriate kinship foster care placement decisions that achieve goals identified and defined by public officials, such as minimizing child maltreatment and optimizing child development outcomes.[351]

C. *Benefits Provided by a Rank Listing of Kin*

A preliminary rank listing of second-degree kin serves three beneficial functions. First, it provides the foundation for the formulation of useful testable hypotheses. The listing would have the capacity to generate numerous hypotheses about comparisons among various types of kinship placement. For example, researchers could use the listing to hypothesize that children placed with their maternal grandmother are

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347. *See generally* Laham et al., *supra* note 243.

348. *See generally* Case et al., *supra* note 8.

349. *See generally* Herring, *supra* note 328, at 401-05 (discussing the realities of the foster care system).

350. *See generally* IRA M. SCHWARTZ & GIDEON FISHMAN, KIDS RAISED BY THE GOVERNMENT 15-34 (1999) (discussing factors contributing to abuse and neglect in out-of-home placements and the role of the state institutional review team in developing a systematic approach to this problem); Herring, *supra* note 328 at 401-05 (discussing risks faced by children in foster care and foster care policies); James A. Rosenthal et al., *A Descriptive Study of Abuse and Neglect in Out-of-Home Placement*, 15 CHILD ABUSE & NEGLECT 249 (1991) (discussing the state of the "broken" child welfare system).

351. *See, e.g.*, JOHNSON, *supra* note 64, at 2-4; Ruscio, *supra* note 328.

likely to feel closer to their foster parent than children placed with their paternal grandmother. In addition, maternal grandmothers are likely to invest more resources in their foster children than paternal grandmothers. And children placed with their maternal grandmother are likely to achieve better adult outcomes than children placed with their paternal grandmother, achieving higher levels of education, employment, and mental health.

Researchers could use data from public agencies and data gathered from kinship foster parents and former foster children to test their hypotheses. Such a research agenda could produce new knowledge that would be potentially useful in making foster care placement decisions. For example, the research may indicate that on average children are likely to realize significantly better outcomes when placed with matrilineal relatives than when placed with patrilineal relatives. This type of research finding, supported by rigorous empirical analysis, would provide useful guidance in making kinship placement decisions.

The research may also reveal confounding factors that constitute important new knowledge. For example, studies may determine that the rank listing does not appropriately rank placements in terms of adult outcomes when kin caregivers have their own minor children in the household. Such findings would indicate that children fare worse when placed with foster parents who have their own minor children in the home. This would introduce a preferential kin investment factor currently not included in the listing[352]—a factor that potentially would be relevant to the assessment of both kin and non-kin foster parents.

The second beneficial function of the rank listing is the possible immediate use of the listing by caseworkers in the field. In the crush of time and resource shortages that preclude full investigations before caseworkers must make placement decisions, the listing could provide useful guidance. For example, in a situation where two or more kin step forward as potential foster parents, a caseworker could use the rank listing to decide on the appropriate

352. *See supra* note 346 for a discussion of the rank list's assumption that the potential foster parent has no minor children of his or her own in the household.

placement.[353] The caseworker would utilize the rank listing to help decide which kin member is likely to invest the most in caring for the particular foster child. This use of the listing would constitute an informed approach to predicting the level of parental investment—an approach likely to be superior to reliance on caseworker hunches and hopes.[354]

The third beneficial application also puts the rank listing to immediate use by caseworkers in the field. Caseworkers could use the listing to recognize kin placements that likely present a risk of relatively low parental investment and poor outcomes. Caseworkers could then factor this recognition into their decisions about the appropriate level of monitoring and support services for particular placements.[355] Caseworkers appear to do this already in some form, with non-kin foster placements subject to more monitoring and a higher level of support services than kinship placements.[356] The behavioral biology research indicates that this allocation of limited public resources may be reasonable.[357] The rank listing would allow caseworkers to extend this approach of resource allocation through distinctions among kin placements. For example, everything else being equal, a caseworker may reasonably decide to visit a child placed with his or her paternal grandmother more often than a child placed with a maternal grandmother. The caseworker may also reasonably decide to arrange for more in-home and educational support services for the child placed with a paternal grandmother. By using the rank listing in this way, a caseworker acquires a tool that may help achieve an appropriate allocation of limited monitoring and support services—an achievement that is critical within resource-poor public systems that are

353. *See generally* Malm & Bess, *supra* note 79, at 50-58 (discussing a caseworker's choice among possible kin placements).

354. *See* JOHNSON, *supra* note 64, at 2-4; Ruscio, *supra* note 328, at 143. Rigorous research should be conducted to test this proposition.

355. *See* JOHNSON, *supra* note 64, at 1, 28 (recommending that agencies target support services to foster and relative care providers at the greatest risk of a negative outcome).

356. *See* Ehrle & Geen, *supra* note 9, at 16-17; Scannapieco & Hegar, *supra* note 18, at 320-21.

357. *See supra* notes 180-84 and accompanying text.

stretched to provide adequate services to foster families.[358]

In summary, behavioral biology research allows for the development of a rank listing of second-degree kin in terms of their likely level of investment in a related foster child. This rank listing could serve three beneficial functions within public child welfare systems. Most important, the listing provides a basis for the formulation of a research agenda that would produce new knowledge relevant to the development of sophisticated foster care placement policies and practices. In addition, public agencies and caseworkers could use the rank listing immediately in the field. First, agencies and caseworkers could use the listing in choosing among second-degree kin who step forward to serve as a foster parent for a particular child. The listing would not dictate a specific placement decision, but it would provide a factor worth considering. Second, agencies and caseworkers could use the listing to make decisions concerning the level of monitoring and support services that is appropriate for particular foster care placements. The listing would constitute a useful tool in the effort to achieve an optimal allocation of public resources and services within public foster care systems. Each of the three beneficial functions would contribute to the improvement of conditions in foster care, thus furthering public goals for foster child development and outcomes.

CONCLUSION

Public child welfare agencies rely heavily on kin to serve as foster parents.[359] However, there are concerns about the appropriateness and adequacy of kinship placements.[360] And while research comparing kinship placements to non-kin placements has begun,[361] insufficient research compares conditions and outcomes among different types of kin placements.[362] This leaves public agencies and caseworkers without potentially valuable research-based

358. *See generally* JOHNSON, *supra* note 64, Ruscio, *supra* note 328.

359. *See* Geen, *supra* note 1, at 133-35.

360. *See* Berrick, *supra* note 9, at 274; Cuddeback, *supra* note 63, at 632-33; Geen, *supra* note 15, at 15-17.

361. *See* Berrick, *supra* note 9; Ehrle & Geen, *supra* note 9.

362. *See supra* notes 80-99 and accompanying text.

guidance in deciding among kin members who have requested, or could be recruited, to serve as a foster parent for a particular child. It also leaves agencies and caseworkers without potentially valuable research-based tools for assessing the risk of low parental investment and the need for relatively high levels of monitoring and support services. Because agency caseworkers often must make placement and service decisions quickly and in the absence of full investigations of potential kin foster parents, the lack of a research-based heuristic device for decision-making constitutes a serious gap in foster care policy and practice.[363]

Behavioral biology research could help to address this gap. Several well-established and robust concepts from evolutionary theory support the formulation of relevant hypotheses.[364] The concept of inclusive fitness supports the formulation of a hypothesis that, all else being equal, children are likely to receive more resources and fare better in kinship placements than in non-kin placements.[365] The concepts of degree of relatedness, paternity certainty, sex effects, and preferential kin investment support the formulation of a hypothesis that children are likely to receive more resources and fare better when caseworkers place them with certain types of kin rather than others. In fact, these concepts allow for a preliminary rank listing of second-degree kin, with, for example, maternal grandmothers expected to invest the most, paternal grandmothers expected to invest somewhat less, and paternal grandfathers expected to invest the least.[366]

The rank listing of second-degree kin could serve three beneficial functions within public foster care systems. First, the rank listing provides a foundation for the formulation of numerous hypotheses about the relative levels of parental investment expected for various types of kinship placements. The testing of these hypotheses could produce new knowledge that may add a valuable element of complexity and sophistication to the process of deciding on particular kinship foster care placements. Researchers

363. *See supra* notes 327-30 and accompanying text.

364. *See supra* notes 156-76 and accompanying text.

365. *See supra* notes 59-64, 100-21 and accompanying text.

366. *See supra* notes 349-65 and accompanying text.

should pursue this line of inquiry, using the natural experiment provided by public foster care systems.[367] In the end, this research could help to improve conditions in foster care, resulting in better child development and adult functioning outcomes for children living in foster care. Second, public agencies and caseworkers could put the rank listing to immediate use in deciding among second-degree kin available to serve as foster parents. Third, agencies and caseworkers could also put the rank listing to immediate use in determining the level of monitoring and support services that is appropriate for a particular foster care placement. Public actors could reasonably use the listing in these ways even though it has not been fully tested and researched in the field because the listing is likely to make a beneficial contribution within the context of a largely unguided, time-constrained initial placement decision process.

367. Legal scholars should participate in such research projects. *See generally* Herring, *supra* note 14.