



Kinship care and sibling placement: Child behavior, family relationships, and school outcomes[☆]

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ABSTRACT

Using Child Protective Services (CPS) and Long Term Foster Care (LTFC) samples from the National Study of Child and Adolescent Well-being (NSCAW), this study examines 2488 observations of 1415 different children to investigate relationships among kinship foster care, sibling placement, and child welfare outcomes, including youth behavior, family and caregiver relationships, and school performance. Although a growing body of literature has addressed issues of kinship placement and sibling placement, no prior studies have examined outcomes of both types of placement, including possible interactions when placements involve kinship foster care of sibling groups.

This article first provides an overview of research concerning outcomes of kinship foster care or joint placement of siblings in foster care. Following discussion of the study's samples and variables, the article presents both descriptive and regression analyses of outcomes. It concludes with a discussion of the substantive findings, their implications, and limitations.

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1. Introduction

1.1. Literature review

1.1.1. Siblings in foster care

The sibling relationships of children in out-of-home care have slowly become an important focus for child welfare research. Early U.S. and British studies of foster care, most of which used cross-sectional or retrospective designs and presented findings descriptively, noted the prevalence of siblings in the foster care population and the importance that the children attached to their sibling relationships (e.g., Isaacs, 1941; Maas & Engler, 1959; Parker, 1966; Theis & Goodrich, 1921; Trasler, 1960).

This early foster care research developed in the context of decades of interdisciplinary interest in other aspects of siblingship, particularly birth order and the impact of family constellation on child development. Cicirelli (1980), a pioneer who applied family system's theory to sibling research, noted that "as interactions within one subsystem decrease, the influence of the other subsystem on the individual is likely to increase"

(p. 112). He reported that adolescent siblings influence each other most strongly in areas where paternal influence is weak. This was consistent with earlier research reporting that the presence of siblings could mitigate negative effects on cognitive development from having an absent father (Sutton-Smith, Rosenberg, & Landy, 1968). More recently, researchers report some educational benefits of sibling relationships, despite a preponderance of findings that larger families may inhibit academic success (Downey & Condren, 2004).

As attention grew concerning foster children as members of sibling groups, some of the next generation of child welfare researchers incorporated questions about sibling relationships in their survey designs (e.g. Zimmerman, 1982). Numerous follow-up studies came to mixed conclusions about the outcomes of sibling placements, compared with placements of single children who might or might not have biological siblings (e.g. Boyne, Denby, Kettering & Wheeler, 1984; Festinger, 1986; Kadushin & Seidl, 1971; Schmidt, 1986; Thornton, 1991). By the mid-1990s, several scholars had published reviews of research on siblings in foster care or adoption (Begun, 1995; Festinger, 1990; Hegar, 1988; Rosenthal, 1993).

Researchers who followed these pioneers designed more sophisticated studies of siblings in the child welfare systems of several countries: Britain (Beckett & Groothues, 1999; Holloway, 1997; Kosonen, 1996; Maclean, 1991; Rushton, Dance, Quinton & Mayes, 2001; Wedge & Mantle, 1991); Canada (Drapeau, Simard, Beaudry, & Charbonneau, 2000; Thorpe & Swart, 1992); the Netherlands (Boer & Spiering, 1991; Boer, Versluis-den Bierman, & Verhulst, 1994); Boer, Westenberg, & van Ooyen-Houben, 1995), and the United States (Barth, Berry, Yoshikami, Goodfield & Carson, 1988; Brodzinsky & Brodzinsky, 1992; Rosenthal,

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Schmidt, & Conner, 1988; Shlonsky, Webster, & Needell, 2003; Smith, 1998; Staff & Fein, 1992; Welty, Geiger, & Magruder, 1997). Outcome studies from this era use measures including: placement disruption (Barth et al., 1988; Boer & Spiering, 1991; Boer et al., 1994; Holloway, 1997; Rosenthal et al., 1988; Staff & Fein, 1992; Wedge & Mantle, 1991); scores on Achenbach's (1991a) Child Behavior Checklist (Boer et al., 1994; Brodzinsky & Brodzinsky, 1992; Smith, 1998), and specially designed outcome measures (Drapeau et al., 2000; Rushton et al., 2001; Thorpe & Swart, 1992). In a review of research concerning sibling placement from this period, Hegar (2005) concludes from 12 outcome studies that "findings of the studies support the tentative conclusion that joint sibling placements are as stable as or more stable than placements of single children or separated siblings, and several studies suggest that children do as well or better when placed with their brothers and sisters" (p. 731).

More recent foster care studies of siblings include several published in a 2005 themed issue of *Children and Youth Services Review* edited by Shlonsky and colleagues (Leathers, 2005; Tarren-Sweeney & Hazzell, 2005; Webster, Shlonsky, Shaw & Brookhart, 2005; Wulczyn & Zimmerman, 2005), as well as three from other sources (Linares, Li, Shrout, Brody, & Pettit, 2007; Smith, Howard, Garnier, & Ryan, 2006; Wulczyn, Kogan & Harden, 2003). Each of these studies uses multivariate analysis and numerous control variables, and most focus on some aspect of placement outcomes. Some are longitudinal (though not all have run their intended course), designed to cover periods of up to several years (e.g. Leathers, 2005; Webster et al., 2005; Wulczyn & Zimmerman, 2005). Sample sizes range from about a hundred (Linares et al., 2007), to several thousand (Smith et al., 2006; Webster et al., 2005; Wulczyn & Zimmerman, 2005).

In the largest study, based on administrative data from New York for 1985 through 2000, Wulczyn and Zimmerman (2005) tracked 34,953 sibling groups. By examining placement changes over time, the researchers identified a significant pattern of siblings not initially placed together being reunited while in care. Another study by one of the same authors, also based on New York administrative data, reports a history of more placement changes among siblings placed together (Wulczyn et al., 2003). Smith et al. (2006), who examined a large administrative database of Illinois children adopted between 1995 and 2000, report an interaction among sibling placement, size of the sibling group, and adoption disruption. Shared placements of up to four siblings had 65% greater odds of disruption, and placements of more than four siblings had about 35% lower odds of disruption than children placed singly.

Webster et al. (2005) report findings concerning placement outcomes affecting 15,517 siblings who entered care in California in 2000. Those placed as intact sibling groups were almost twice as likely to be reunified with their families of origin, and those placed with at least one sibling also had significantly better odds of reunification than children placed separately from siblings. This pattern held, regardless of the size of the sibling group. Leathers (2005) also tracked placement outcomes as she followed, for five years through telephone interviews with caseworkers and foster parents, a sample of 197 adolescent children in traditional foster homes. Consistent placement with siblings was most likely to result in adoption or subsidized guardianship, and children who had been placed with siblings and then placed alone were at greater risk for further disruption than children than who had remained with siblings.

Linares et al. (2007) studied placement changes affecting 156 New York children in traditional foster care. The quality of sibling relationships was both stable and predictive of adjustment after about 14 months, in that more positive initial sibling relationships predicted better later adjustment, and the reverse. This was the case regardless of whether children were placed with their siblings. In another study of mental health outcomes, Tarren-Sweeney and Hazzell (2005) report on the initial phase of a longitudinal study of 347 children aged 4 to 11 in traditional foster care and kinship care in Australia. The

study uses the CBCL (Achenbach, 1991a) and the parental Assessment Checklist for Children, designed for foster care situations. Stability was not significantly related to sibling placement. Girls were more likely to be placed with a sibling, and girls co-resident with siblings were less likely than those separated from siblings to score in the clinical range on any CBCL scale. Co-resident girls had significantly lower scores for total problems, externalizing problems, and pseudo-mature behavior, and they had better peer relationships.

As this review points out, research concerning the outcomes of sibling placements has used a wide range of measures that fall broadly into the categories of placement stability and children's adjustment. Foster care studies not directly related to sibling placement have addressed interrelationships between these two types of outcome measures, a topic that is beyond the scope of this article (e.g. Newton, Litrownik, & Landsverk, 2000; Rubin, O'Reilly, Luan, & Localio, 2007; Rubin et al., 2008).

Recent studies of siblings in care have showed great improvements in methods, particularly standardized measures of adjustment, large sample sizes, and multivariate analysis. As researchers have gained access to larger samples and designed more complex studies, they have been able to begin to examine interactions among variables. Although the studies identified here have not explored interactions between sibling placement and kinship care, many do report associations between kinship foster care and shared placement of siblings (Kosonen, 1996; Shlonsky et al., 2003; Tarren-Sweeney & Hazzell, 2005; Welty et al., 1997; Wulczyn & Zimmerman, 2005), and other studies that focus on kinship care have reported the same pattern (Dubowitz, Feigelman, & Zuravin, 1993; Grogan-Kaylor, 2000; Harden, Clyman, Kreibel, & Lyans, 2004; Thornton, 1991). Because kinship and sibling placements both involve the preservation of parts of the foster child's family of origin during out-of-home care, it is important to identify any similarities in outcomes or any interactions between the two types of placement. Research on kinship foster care, as the second major theme of the present study, is reviewed in the following section.

1.2. Kinship foster care placements

Unlike siblings in the foster care system, whose presence has been acknowledged, if under-studied, for many decades, the care-giving role played by the relatives of children in state custody was largely unrecognized by policy-makers and researchers until the 1980s. Recognition of kinship caregivers in the child welfare system increased significantly after the U.S. Supreme Court ruled in *Miller v. Youakim* (1979) that states must pay relatives the foster care board rate if they become licensed as foster parents. There is still great variation in how states license and pay kinship foster homes and in how extensively they use kinship homes (Geen (2004); Scannapieco & Hegar, 1995; Testa, 1997, 2002). Even terminology concerning relative foster families has evolved unevenly around the country. Like many other authors, we reserve the term "kinship foster care" for situations where children remain in state custody while placed with relatives, or sometimes with other family connections such as godparents or close friends. In this study we refer to kinship foster care and non-kinship foster care.

Research developed first in the states that made early and extensive use of kinship foster care, including Illinois (Testa, 1997; Wulczyn & Goerge, 1992); California (Berrick, Barth, & Needell, 1994a,b; Courtney, & Needell, 1997), New York (Wulczyn & Goerge, 1992), and Maryland (Benedict, Zuravin, & Stallings, 1996; Dubowitz et al., 1993, 1994; Scannapieco, Hegar, & McAlpine, 1997). Because formal kinship foster care is a recent phenomenon, few outcome studies had appeared until the mid-1990s. When Scannapieco (1999) reviewed much of that research, she reported that comparisons of traditional and kinship foster care consistently had found kinship care to last longer, to result in reunification less often, and to be quite stable. In the past 10 years, numerous studies have addressed outcomes of kinship placement

(Altshuler, 1998; Brooks & Barth, 1998; Chapman, Wall & Barth, 2004; Clausen, Landsverk, Granger, Chadwick, & Litrownik, 1998; Chipman, Wells, & Johnson, 2002; Ehrle & Geen, 2002; Keller et al., 2001; Leslie et al., 2000; Pecora, Le Prohn, & Nasuti, 1999; Rosenthal & Curiel, 2006; Rubin et al., 2008; Shore, Sim, Le Prohn, & Keller, 2002), and extensive reviews of the literature have appeared (Cuddeback, 2004) or are underway (Winokur, Holtan, & Valentine, 2007). Although a detailed review is beyond the scope of this paper, some tentative conclusions emerge from the body of work. Several studies report elevated rates of behavior problems for children in kinship foster placement, compared with normative populations (Dubowitz et al., 1993; Keller et al., 2001; Starr et al., 1999). Studies comparing kinship and non-kinship foster care often report better behavior in kinship placements (Benedict et al., 1996; Berrick et al., 1994a,b; Brooks & Barth, 1998; Iglehart, 1994; Keller et al., 2001; Rubin et al., 2008). Some studies comparing longer-term outcomes for children or young adults from kinship and non-kinship placements report few differences or mixed outcomes (Cuddeback, 2004; Shore et al., 2002; Zuravin, Benedict, & Stallings, 1999), while others report better outcomes of several types for kinship placements (Chapman et al., 2004; Cuddeback, 2004; Winokur et al., 2008).

Three recent studies have particular relevance for this article because the researchers used designs similar to ours (Chapman et al., 2004; Rosenthal & Curiel, 2006; Shore et al., 2002). Chapman and colleagues (2004) used an earlier version of the National Study of Child and Adolescent Well-being (NSCAW) database to explore differences in children's perceptions of kinship foster care, non-kinship foster care, and care in group homes. They report that children in kinship foster care are generally more satisfied with numerous aspects of their placements than children in other types of care. The other two studies, like ours, compare the adjustment and mental health of children in kinship and non-kinship foster care, using multiple informants such as teachers, foster parents, and the children themselves. Shore and colleagues (2002) studied children served by the private Casey Family Programs, while Rosenthal and Curiel (2006) used samples from NSCAW, as we do in this article. In both studies, non-kinship foster parents perceived higher levels of behavioral problems in children than did kinship foster parents, although teachers either assessed the two groups to be similar (Shore et al., 2002) or noted more problems among children in kinship foster care (Rosenthal & Curiel, 2006).

Attachment theory frequently underpins studies of kinship foster care, as well as of sibling placement decisions (e.g. Herrick & Piccus, 2005; Hindle, 2007; Ryan, 2002; Whelan, 2003). In a theoretical article presenting a case study, Hegar (1993) argues for maximizing what placement offers a foster child along three dimensions: attachment, kinship, and the promise of permanence. In her framework for assessing placement options, she suggests that placement with siblings can offer advantages of attachment and kinship, whether children are placed with adult kin or not. The present study builds on the empirical literature reviewed here and on the concept of siblings as kin to explore how outcomes for foster children are affected by placement with or without siblings and in kinship or non-kinship foster homes. Our working hypothesis is that shared placement with siblings may convey some of the same benefits as placement in kinship foster care. For that reason, children placed in non-kinship foster homes may benefit the most from sibling placement.

2. Methods

2.1. Study samples

The NSCAW data includes two representative national samples. The Child Protective Services (CPS) sample comprises 5501 children representative of those whose families were referred for investigation by child protective services during a 15-month period from October 1999 to December 2000. The Long Term Foster Care (LTFC) sample

comprises 727 children representative of those who had been in out-of-home placement for approximately one year before the sample selection in late 1999 and early 2000 and who continued to be in out-of-home care when the sampling frame was produced. In both samples, only children from birth to age 14 at the time of sample selection were eligible for inclusion in the study (see Dowd et al., 2007, for more detail on the sample selection). Restricted Release Version 5.2 of the NSCAW, used for this study, contains five waves of data for the CPS sample and four for the LTFC sample. In both samples, the second wave was abbreviated, so data from it is excluded from this study. In the CPS sample, the first wave of measurements occurred about two to six months subsequent to the closing of the investigation associated with the CPS referral. The third wave occurred about 18 months subsequent to the investigation, and the fourth and fifth waves were gathered after about 36 months and 59 to 96 months, respectively. Only limited data from the fifth wave of the CPS sample is used in the present study. In the LTFC sample, the first wave of data was gathered about 12 months subsequent to placement; the third wave was about 30 months subsequent to placement, and the fourth was about 48 months subsequent (Dowd et al.).

The NSCAW gathers data from youth, caregivers, teachers and caseworkers. In the current study, caregivers are either kinship foster parents or non-kinship foster parents. In situations with two caregivers in the home, the one having greater familiarity with the child (primary caregiver), typically the mother, responded to the caregiver section of the instrument.

Both NSCAW samples are clustered, multistage samples. Cases are selected from 92 primary sampling units. These 92 units were selected from a sampling frame consisting of 46 states and the District of Columbia. Observations are weighted to reflect the probability of selection and to adjust for non-response. The complex sampling design requires specialized software for analyses, and this analysis uses STATA's survey analysis procedures (StataCorp, Version 8.0, 2003). The sampling weights used are wave specific.

Due largely to widely varying sampling weights, many analyses using NSCAW data have large design effects. For instance, the design effect for a large number of Wave 1 CPS sample means averaged 6.54 (Biemer et al., 2005). This conveys that a simple random sample 6.54 times smaller generates, on average, the same precision (sampling error) as the Wave 1 CPS sample. For instance, a Wave 1 CPS sample of 1000 cases generates the same precision as a simple random sample of about 153 cases ($1000/6.54 = 153$). Given large design effects, the statistical power of most analyses in this paper is much lower than might be anticipated from the sample sizes.

A methodological limitation in our analysis is that Stata's complex survey procedures do not allow for modeling within-child (within-case) correlations in outcomes, but instead presume independence. Yet, in reality, within-case correlations (across survey waves) in the NSCAW samples tend to be positive. When within-case correlations are not modeled properly, parameter estimates can be affected. Stata's generalized estimating equations (GEE) procedures can model such correlations but cannot handle all aspects of the NSCAW design (StataCorp, Version 8.0, 2003). To determine whether the 12 models presented in Table 2 could be improved, we re-ran them using GEE with: 1) Wave 1 weights, 2) the child designated as the case (clustering unit), 3) an unstructured correlation matrix, and 4) robust standard errors. For 10 of the 12 models, the significance levels ($p > .05$, $p < .05$, or $p < .01$) in the GEE analyses for "kinship foster care" and "sibling in the home" were identical to those presented in Table 2. In the other two models, the significance level of one coefficient differed from that in Table 2 ($> .05$ vs. $\leq .05$ and $\leq .05$ vs. $\leq .01$). The similarity in results suggests that the effects of not modeling the correlations are reasonably small, as is not uncommon (Singer & Willett, 2003).

Following discussion of sample characteristics, the results section presents descriptive analyses for selected dependent variables. These analyses are limited to the CPS sample and therefore reflect

characteristics of the population from which it was selected. After the descriptive analyses, regression analyses were conducted for twelve dependent variables using observations from the two NSCAW samples. Combining the samples enhances statistical power, an important consideration since many of the regressions, even with samples combined, involve 1000 or fewer observations (see [Tables 2 and 3](#)). A dummy variable indicates the NSCAW sample (CPS or LTFC) from which each observation derives, allowing examination of any effects of sampling method on outcomes. Because of the combined samples, the regression results do not generalize statistically to a specific, single population. However, given the richness of the NSCAW design, the results have applicability to a range of youth in kinship and non-kinship foster care in varied locations across the United States.

2.2. Dependent variables

Six of the 12 dependent variables in this study derive from Achenbach's behavioral instruments, including reports by foster parents, youth, and teachers concerning internalizing (withdrawn, isolated, worried, etc.) and externalizing (acting-out, aggressive, etc.) behaviors by youth. Specifically, foster parent reports utilize the Child Behavior Checklist ([Achenbach, 1991a](#)); youth use the Youth Self Report (YSR: [Achenbach, 1991c](#)), and teachers use the Teacher Report Form ([Achenbach, 1991b](#)). The CBCL is administered for youth aged four to 18, and the YSR is used for those aged 11 to 18. Although teachers completed reports for youth aged 5 to 18, the regressions on teacher reports are for youth aged 6 to 18 (see [Table 3](#)). Standardized scores rather than raw scores are analyzed. The reliabilities of the internalizing and externalizing scales of all three instruments are excellent, about .90 or higher ([Dowd et al., 2007](#)).

For the six behavioral variables, standard deviations (using sampling weights) ranged from a minimum of 9.74 to a maximum of 12.01. Using 10.0 as an approximation, regression coefficients (*B*s) of about 2.00 (or –2.00) convey small effect sizes; those of about 5.00 (or –5.00) convey medium effects, and those of about 8.00 (or –8.00) convey large effects ([Cohen, 1988](#)).

Two subscales of the Relatedness Scale, part of the Research Assessment Package for Schools, assess perceptions of the caregiver by children ages 11 and older. Parental Emotional Security “asked how true it was that the child felt good, mad, or happy with his or her caregiver” ([Dowd et al., 2007](#), Appendix III-B, p. 22). Involvement probed the “caregiver's interest in, time spent with, and things done to help the child” ([Dowd et al., Appendix III-B, p. 22](#)). Reliabilities of these two subscales were moderate (.65 to .76; [Dowd et al.](#)). Higher scores convey more positive perceptions of the caregiver.

Three individual survey questions probed the youth's relationship with the primary caregiver and family. One question, administered to children aged 11 and older, probed: “How close do you feel to your [primary caregiver]. Would you say ... not at all, a little bit, somewhat, quite a bit, or very close.” In addition, children aged 6 and older responded “Yes” or “No” to the following questions: 1) “Do you like living with the people you live with?” and 2) “Do you feel like you're part of this family?” (referring to the family with which the child lives).

The final outcome measure addresses school performance relative to school peers. Teachers evaluated a child's performance in each academic subject as: far below grade, somewhat below grade, at grade level, somewhat above grade, or far above grade. These responses were coded, respectively, from 1 (far below) to 5 (far above). Given ratings on at least two subjects, responses were summed and then averaged to determine a mean level of school performance. The estimated standard deviation of the mean school performance variable is .84, indicating that regression coefficients (*B*s) of .17 (or –.17), .42 (or –.42), and .68 (or –.68) convey, respectively, small, medium, and large effect sizes ([Cohen, 1988](#)).

2.3. Predictor variables

All predictors are categorical variables that are dummy coded (1/0) and defined as follows:

- Kinship vs. non-kinship foster care status is based on the NSCAW variable “chdoohpl.”
- Sibling placement is measured using the household roster section of the NSCAW caregiver instrument. A placement is categorized as a sibling placement if a biological sibling of the child is living in the kinship or non-kinship foster home. The reader should recognize that, in this paper, as in some of the prior research ([Barth et al., 1988](#); [Boer et al., 1994](#); [Holloway, 1997](#); [Rushton et al., 2001](#)), non-sibling placements include both: 1) placements in which the study child has biological sibling(s) not placed with the child, and 2) placements of children who have no biological sibling(s).
- Child gender is self-explanatory.
- A child's age is categorized as: birth to less than six years; six years to less than 13 years, or 13 years to 18 years. Age refers to age at the time of administration of the given survey wave.
- Child ethnicity is categorized as: White/Non-Hispanic, Black/Non-Hispanic, Hispanic, or Other ethnicity. The “Other” category includes Asian American, Native American, and additional ethnic groups. To streamline discussion in subsequent sections, we describe children's ethnicity as White, Black, Hispanic, or Other.
- A family is coded as a two-parent family if the household roster section of the caregiver instrument lists two or more persons with any of the following codes: mother or father (biological, adoptive, step, or foster), aunt or uncle, and grandparent. If less than two such persons were listed, the family is a one-parent family.
- Household income comprises four categories: less than \$15,000, \$15,000 to less than \$30,000, \$30,000 to less than \$50,000, and \$50,000 and more.
- The education of the primary caregiver/respondent is categorized as less than high school degree, high school degree, or high school degree plus any post-secondary education.
- A poor county is one in which more than 5% of families with children have incomes below 50% of the poverty level.
- As discussed above, a dummy variable tracks whether study children were in the CPS or the LTFC sample.
- Wave 1 of the CPS study followed reasonably soon after closure of the investigation that led to the child's inclusion in the CPS sample. Because outcomes might be affected by the proximity of a period of family crisis, we constructed a dummy variable to distinguish Wave 1 CPS observation (coded as 1) from all other observations (CPS and LTFC alike, coded as 0).

In addition to the predictors listed above, combinations of selected variables formed the interaction terms presented below. Observe that some predictors (e.g., child gender and child ethnicity) have constant values across all waves for a given case. Other predictors (e.g. child age, kinship vs. non-kinship care, sibling vs. non-sibling placement) have the potential to change values across waves.

This study includes an available observation for a given child if the child resided in kinship or non-kinship foster care at the time of that wave of data collection. For instance, if a child from the LTFC sample was in kinship foster care at Wave 1, with the birth family at Wave 3, and in non-kinship foster care at Wave 4, then the authors included Waves 1 and 4 and excluded Wave 3 from the analyses. Each wave is a separate record in the data set.

2.4. Regression method

As discussed above, we carried out regressions on twelve outcome measures using Stata's survey procedures. The same predictors were used in all regressions, as presented in the Predictors section above. Dummy-coded categories of selected predictors were multiplied

together to form interaction terms. Each regression checked systematically for the following possible interactions: kinship placement $\times$ sibling placement, kinship placement $\times$ child is female, sibling placement $\times$ child is female, kinship placement $\times$ child age group, sibling placement $\times$ child age group, kinship placement $\times$ child ethnicity, sibling placement $\times$ child ethnicity, kinship $\times$ study sample (CPS vs. LTFC), sibling placement $\times$ study sample, child is female $\times$ child age group, child is female $\times$ child ethnicity, and child age group $\times$ child ethnicity. With the interaction terms involving ethnicity included, the regression on whether the children liked living with the persons they lived with resulted in rejection of some observations. For this regression only, the authors dichotomized the ethnicity variable into “other than White/Non-Hispanic” and “White/Non-Hispanic.”

Because kinship placement and sibling placement were the primary foci of this paper, the authors retained the kinship placement and sibling placement variables in all regressions. We chose the .05 level of significance in deciding whether to retain the kinship placement $\times$ sibling placement interaction term. For all other predictors, the regression models used a backward elimination process that eliminated first the variables with the highest significance levels. The analysts eliminated predictors not directly related to placement with siblings or in kinship foster care when p exceeded .05. To reduce the risk of type 1 error, we chose to eliminate interaction terms if p exceeded .01. When an interaction was significant, we included in the regression both predictors used in forming that interaction, regardless of their levels of significance.

In regressions on foster parent reports of child behavior, all three categories for the age variable appear (child younger than 6, 6 to 12, 13 to 18). The other 10 regressions exclude children younger than school age (six) and involve only two age categories (6 to 12, and 13 to 18). To save space, the authors have omitted from Tables 2 and 3 all terms not meeting criteria for inclusion in the final regression models. When a categorical variable has more than two categories, the first line for that variable in Tables 2 and 3 conveys the variable's reference category and also presents significance test results for the variable taken as a whole. The same strategy is followed for interaction effects that comprise multiple categories; the first line presents the reference categories for both variables involved in the interaction, as well as the significance test for the interaction effect taken as a whole. Coefficients are exponentiated in logistic regressions.

3. Results

3.1. Sample characteristics

The initial merged CPS/LTFC data file contained 4072 observations of 2472 different youth who resided in kinship or non-kinship foster care. Outcome data pertained only to children aged four or older, which reduced the study sample to 2488 observations of 1415 different children. Seventy percent of observations (1735 of 2488) are from the CPS sample, and 30% (753) are from the LTFC sample. Fifty-seven percent of observations (1417 of 2488) involve non-kinship foster care, and 43% (1071) involve kinship care. In 34% of observations (829 of 2454, 34 cases missing), a biological sibling of the child being studied resided in the foster home. There was no such sibling in 66% of cases (1625). Fifty-two percent of observations involve girls (1306 of 2488). Forty percent of observations involve youth who are Black; 39% are of White youth; 14% involve Hispanic youth; and 7% of observations are of other ethnicities. The median age for children at the time of observation was 10 years.

3.2. CPS population estimates for selected family relationship outcomes

Table 1 presents estimated population proportions for three family relationship outcomes for the CPS population (children, aged birth to 14, referred for child protective services investigation in parts of

Table 1

Estimated CPS population proportions for selected family relationship variables.

	Feels “very close” to caregiver	“Like[s] living with people ... live[s] with”	Feels like “part of this family”
<i>Observation at Wave 1</i>			
Non-kinship care	*	*	
Not a sibling placement	.25 (.07)	.76 (.08)	.76 (.07)
Sibling placement	.69 (.15)	.95 (.03)	.87 (.06)
Kinship care			
Not a sibling placement	.30 (.09)	.93 (.04)	.92 (.05)
Sibling placement	.40 (.14)	.92 (.06)	.98 (.01)
<i>Observation at Wave 3 or 4</i>			
Non-kinship care	**	**	
Not a sibling placement	.34 (.07)	.93 (.03)	.91 (.02)
Sibling placement	.73 (.11)	.99 (.01)	.87 (.07)
Kinship care			
Not a sibling placement	.52 (.11)	.95 (.02)	.97 (.02)
Sibling placement	.74 (.08)	.98 (.01)	.95 (.02)

Note: Standard errors in parentheses. Significance tests pertain to sibling vs. nonsibling placement.

* $p \leq .05$; ** $p \leq .01$.

1999 and 2000). Estimates are presented for eight subgroups defined by: 1) observation wave (Wave 1 vs. a subsequent wave); 2) type of placement (kinship vs. non-kinship foster care), and 3) sibling status (biological sibling in home vs. no such sibling).

Estimates are reported for: 1) whether the child feels “very close” to the respondent/primary caregiver, 2) whether the child “likes living with the people [he or she] ... lives with,” and 3) whether the child feels like “part of the family.” For the “very close” variable, we report the proportion responding “very close” on the five-point closeness question. For the other two variables, we report the proportion responding “yes.”

Particularly for the “likes living with” and “part of the family” variables, the proportion of positive responses is quite high. In general, reported proportions are higher when the observation is subsequent to Wave 1. This is as expected because observations at Wave 1 occurred at a time of crisis, shortly subsequent to the closing of a maltreatment investigation.

Two results hold for the first two family relationship variables (feels “very close” and “likes living with”) but not for the third (“part of the family”). First, for most comparisons, higher proportions of positive responses are observed in sibling placements than in other placements. For instance, for observations at Wave 1 involving children in non-kinship foster placements, the proportion of children who feel “very close” to caregivers is 25% for children not in sibling placements and 69% for children in sibling placements. The second result is that the difference in percentages between sibling and non-sibling placements is more pronounced for children in non-kinship placements than in kinship placements. For example, for the “very close” variable at Wave 1, this difference is 44% ($69\% - 25\% = 44\%$) for children in non-kinship homes but only 10% ($40\% - 30\% = 10\%$) for children in kinship homes. The larger sibling advantage for non-kinship placements was anticipated, in that the authors had hypothesized that the presence of a sibling might confer some of the same advantages of kinship placement and have greater effect on outcomes in non-kinship foster homes.

3.3. Regression models

3.3.1. Child behavior

Table 2 presents regressions related to child behavior. From the perspectives of caregivers, kinship foster care is associated with lower reported problems on both the internalizing and externalizing scales

Table 2
Regression on behavior problem scores.

	Foster parent		Youth		Teacher	
	Internalizing	Externalizing	Internalizing	Externalizing	Internalizing	Externalizing
Number of observations	2453	2453	1000	1000	936	936
Type of regression	Linear	Linear	Linear	Linear	Linear	Linear
Youngest age included	4	4	11	11	6	6
Constant	56.89**	59.57**	48.08**	52.87**	57.07**	54.52**
Kinship foster home	−3.22**	−3.12*	.46	−.08	2.73	3.50*
Sibling in the home	−1.61	−1.18	−4.38**	1.58	−1.93	−.48
Child is female	−2.69*		3.96*	.35	−6.13**	
Child's age (youngest group)						
Child's age is 6 to 12 years				4.04**		−3.04*
Child's age is 13 to 18 years				**		**
Child's ethnicity (White)			**	**		**
Black			−2.98	−11.08**		7.70**
Hispanic			2.26	−.77		5.77*
Other			−2.56	−6.14*		1.33
Wave 1 CPS observation	2.54**					
LTFC sample						1.25
LTFC × kinship home						−6.11**
Kinship × (child is female)				−7.64**		
Sibling (non) × ethnicity (White)						**
Sibling × Black						−4.50
Sibling × Hispanic						−10.34**
Sibling × Other						−.49
Gender (male) × ethnicity(White)				**		
Female × Black				13.15**		
Female × Hispanic				−3.57		
Female × Other				7.15*		

** $p \leq .01$.

* $p \leq .05$.

of the CBCL. Sibling placement does not predict foster parent reports on either scale.

Sibling placement is associated with lower reports by youth of internalizing problems. Kinship care is not predictive. Sibling placement does not predict externalizing behavior, as reported by youth. Kinship care interacts with gender to predict youth reports of externalizing behaviors. The non-significant coefficient for kinship care conveys that kinship care does not predict externalizing behavior for boys ($B = -.08$). To determine the effect of kinship care for girls, sum the terms for kinship and for the kinship × female interaction [$(-.08) + (-7.64) = -7.72$, $p < .01$]. Therefore, kinship foster care predicts reduced externalizing for girls, based on self-reports.

Youth reports about externalizing behaviors also reveal interaction between ethnicity and gender, particularly for Black youth. The regression model predicts substantially lower externalizing problems for Black males relative to White males ($B = -11.08$). For Black females, the reduction in problems conveyed by the negative coefficient for Black is, in effect, “cancelled out” by the positive female × Black interaction term ($-11.08 + 13.15 = 2.07$, $p > .05$).

The regression on teachers' reports of children's internalizing behaviors has straightforward results. Neither sibling placement nor kinship foster care is predictive of reported behaviors. The regression does predict lower internalizing scores for girls ($B = -6.13$). However, interpretation of teacher's externalizing reports is complex due to two interactions. First, NSCAW sample type (LTFC vs. CPS) interacts with type of foster care ($B = -6.11$). For children in the CPS sample, kinship care predicts greater externalizing problems ($B = 3.50$). In the LTFC sample, it trends towards predicting fewer problems ($3.50 - 6.11 = -2.61$, $p = .101$). The second interaction involves sibling placement and ethnicity. For non-sibling placements, the regression model predicts higher levels of externalizing behavior problems for Black youth ($B = 7.70$) and for Hispanic youth ($B = 5.77$), relative to White youth. The interaction term for sibling placement is negative for both Black youth ($B = -4.50$) and Hispanic youth ($B = -10.34$). Thus, particularly for Hispanic youth, sibling placement mitigates externalizing behavior. For Hispanic youth, sibling placement predicts lower externalizing behavior reports ($-4.50 - 10.34 =$

-10.82 , $p < .01$). A similar pattern among Black youth, just misses statistical significance ($-4.50 - 4.98 = -9.48$, $p = .053$). Finally, being age 13 or older predicts reduced externalizing problems ($B = -3.04$).

3.3.2. Family relationships

Table 3 presents the regressions concerning children's relationships with caregivers and family. On the Emotional Support subscale of the Relatedness Scale, sibling placement predicts increased support. For this subscale, kinship care interacts with ethnicity. The coefficient for kinship care ($B = -.09$) conveys the non-significant effect of kinship care for White youth. What stands out in the interaction between kinship care and ethnicity is the coefficient when ethnicity is other than Black, White, or Hispanic ($B = .51$), suggesting that kinship care predicts increased emotional support for this group of children ($-.09 + .51 = .42$, $p < .05$). Neither kinship care or sibling placement predicted scores on the Involvement scale.

The ordinal logistic regression model on perceived closeness to the primary caretaker conveys an interaction between sibling placement and sample type (see Table 3). Given that the proportional odds assumption holds, results for an ordinal regression model can be interpreted in terms of odds with respect to any of the response categories (Long, 1997). When interpreting the response of “very close”: 1) for CPS sample children, the odds of responding “very close” are 3.09 times greater when a sibling is present than when this is not so and 2) for LTFC sample children, the odds of responding very close are 54% lower when a sibling is present than when this is not so ($3.09 \times .15 = .46 = 54\%$ lower; $p < .05$).

The results regarding whether youth like living with the people with whom they live also demonstrate interaction between source of sample and sibling placement. In the CPS sample, the odds of responding “yes” for youth living with siblings are 3.24 times those for youth living without siblings. In the LTFC sample, the situation is reversed, though the difference in odds is not significant. In this sample, the odds of responding yes for youth living with siblings are .45 times (that is, 55% less; $3.24 \times .14 = .45$, $p = .15$) those of youth living without siblings. In the CPS sample, the odds of responding yes for

Table 3
Regressions on family relationship variables and school performance.

	Emotional support	Involvement	Closeness to primary caregiver	Likes living with people	Feels like part of family	School performance
Number of observations	987	990	978	1823	1759	790
Type of regression	Linear	Linear	Ordinal logistic	Binary logistic	Binary logistic	Linear
Youngest age included	11	11	11	6	6	6
Constant	3.41**	3.30**				2.73**
Kinship foster home	-.09	.01	1.57	1.8	3.19**	.19
Sibling in the home	.17*	.05	3.09**	3.24**	1.06	.03
Child is female	-.16*					
Child's ethnicity (White)						**
Black	.02					-.29
Hispanic	.05					-.70**
Other	-.12					-.57**
Low income county				.47*		.31*
Wave 1 CPS observation			.53*	.32**		
LTFC sample			1.33	1.57		
LTFC $\times$ sibling in home			.15**	.14**		
Kinship $\times$ sibling						-.69*
Kinship (non) $\times$ ethnicity (White)	**					
Kinship $\times$ Black	.11					
Kinship $\times$ Hispanic	-.17					
Kinship $\times$ Other	.51*					
Sibling (non) $\times$ ethnicity (White)						**
Sibling $\times$ Black						.28
Sibling $\times$ Hispanic						.74*
Sibling $\times$ Other						.97**

** $p \leq .01$.

* $p \leq .05$.

those surveyed at Wave 1 were 68% lower than the odds of those surveyed at later waves.

3.3.3. Academic performance

Just as in prior regressions, interpretation of academic performance is complex due to interaction effects (see Table 3). Neither kinship care ($B = .19$) nor sibling placement ($B = .03$) achieves significance. However, the kinship $\times$ sibling interaction is significant ($B = -.069$, $p < .05$), conveying that the combination of kinship care and sibling placement predicts lower academic performance. Yet, sibling placement also interacts with ethnicity. In particular, the sibling $\times$ Hispanic ($B = .74$) and sibling $\times$ Other ($B = .97$) interactions convey better performance. So does the sibling $\times$ Black interaction ($B = .28$), though it does not achieve significance ($p > .05$). In essence, for Hispanic children and children whose ethnicity is "Other," the sibling $\times$ ethnicity interaction "cancels out" the negative effects of the kinship $\times$ sibling interaction. This same cancelling out occurs for Black children, but to a lesser degree. In sum, the combination of kinship care and sibling placement predicts lower academic performance primarily for White children.

Viewing the prior paragraph's discussion from a different perspective, children of Hispanic, Black, and Other ethnicities who are in kinship care perform about as well in school when siblings are present as they do when they are not. On the other hand, children from these ethnic groups in non-kinship placements perform better when siblings are present.

4. Discussion and implications

As child welfare research has become more sophisticated and able to examine multiple variables and their interactions, interpretation has become similarly complex. This study is no exception. In this final section, the authors review the most important substantive findings, consider the limitations of the present study, and relate the findings to those of other researchers and to issues of practice and policy.

4.1. Substantive findings

This study confirms findings in other studies of very different perceptions between teachers and others when assessing behaviors of

children (e.g. Rosenthal & Curiel, 2006; Shore et al., 2002). For example, although kinship foster parents identified internalizing or externalizing problems in children significantly less often than non-kinship foster parents, teachers (for the CPS sample only) assessed children in kinship foster homes as more often having externalizing problems (see Table 2). There was a similar conflicting pattern between teachers' behavioral evaluations of older youth and of Black youth and the self-assessments of the foster children. In both situations, teachers' perceptions of the prevalence of externalizing behavior were opposite to those of the youth themselves. Similar, though less striking, differences appear between children's self-reports and teachers' perceptions of Hispanic youth or those in the ethnicity category of "Other." From the perspective of teachers, Hispanic children placed with siblings were less likely to manifest externalizing problems. On a measure of school performance unrelated to the behavioral assessments, Hispanic children and children of "Other" ethnicity who were not in kinship care performed at a higher level when placed with their siblings.

From the viewpoint of youth, being placed with a sibling was significantly related to lower levels of internalizing problems (e.g. depression, self-blame) (see Table 2). Also, girls placed in kinship foster care reported lower levels of externalizing behaviors (e.g. anger, aggression) than did girls placed in non-kinship settings. Among the most interesting findings are those that reflect the perceptions foster children express concerning their placements. This study reveals that children and youth who are placed with one or more siblings are significantly more likely than others to feel emotionally supported, to feel close to a primary caregiver (CPS sample only), and to like living with the people in the home (CPS sample only) (see Table 3).

Table 1 presents in greater detail some of the findings concerning the variables concerned with care giving and family relationships for the CPS sample. Shortly after their initial placements (i.e., Wave 1), children in kinship foster homes are more likely than others to feel like part of the family, as might be expected. At this time, children in non-kinship foster care who were placed without a sibling were least likely to respond favorably to the questions about feeling like part of the family and liking the people in the home. At later stages of service (e.g., Waves 3 and 4), the picture changes and children in most types of placements also report feeling like part of the family and liking the people in the home.

The results in Table 1 offer preliminary support to the working hypothesis that the benefits of sibling placement may be greater in non-kinship placements than in kinship homes. Yet, the kinship $\times$ sibling interaction achieved significance in only one of the twelve regressions presented in Tables 2 and 3, the regression on school performance. Therefore, we find only limited support for this hypothesis.

In the regressions involving feelings of closeness and liking living with the people in one's family, sample type interacted with sibling placement. In each of these regressions, the positive benefits of sibling placement are limited to children in the CPS sample. Although this study does not measure length of residence in the foster setting, it is highly likely that children in the LTFC sample had longer average residences than did those in the CPS sample. In that case, these interactions suggest that the presence of a sibling is particularly important for children who have been in their foster settings for short periods of time.

4.2. Study limitations

Caution is required in interpreting the regression results in this study. In particular, these analyses control only partially for confounding variables that have the potential to bias the associations between outcomes and kinship placement or sibling placement. Due in part to the large number of interaction terms examined, some observed associations may reflect sampling error rather than real differences. On the other hand, statistical power was limited for many analyses (see Study Samples within Methods). Within-child correlations were not modeled, and this affected the results, at least to some degree (see Study Samples within Methods).

Though study sample, CPS or LTFC, was not a significant predictor in any regressions, the three interactions involving study sample suggest caution in extrapolating results to the CPS and LTFC populations. In interpreting the interactions involving sample type, the reader should recognize that the CPS sample represents a larger population of children than does the LTFC sample. Using sample weights for calculations and focusing on the 2488 records involving children aged four and older, the 1735 records for the CPS sample represent 477,660 "measurement occasions" (waves) while the 753 LTFC sample records represent only 52,231 such units. Some study limitations are inherent in the NSCAW database itself. Chapman and colleagues (2004), working with earlier NACAW data, note that the largely favorable responses of children about their placements may reflect perceived social desirability. However, that would not explain the comparatively more favorable responses of children in kinship care found in both this study and by Chapman and colleagues (2004) or the more favorable responses in this study of children placed with siblings. Finally, for the Achenbach behavior scales, the different norms for different age groups may have affected results.

4.3. Implications for practice, policy, and research

Like much of the research cited above in the literature review, this study confirms modest benefits for children who are placed in kinship foster care or who share placements with siblings. Particularly in the realm of family relationships, the benefits of sibling placement appear to be most pronounced for those who have resided in their foster homes for shorter time periods.

Also like much of the recent prior research, interpretation of the results is complicated by the presence of interactions among variables of interest. For example, Tarren-Sweeney and Hazzell (2005) reported greater mental health benefits for girls in sibling placements, and this study reports better perceived behavior by girls in kinship placements. Our study also finds that, in the non-kinship care setting, Hispanic children and those in the "Other" ethnicity category had better school performance when placed with siblings. Finally, teachers rated Hispanic youth lower on externalizing problems when the youth were placed with siblings. Obviously, child placement practice and policy cannot

respond to findings about a single gender or specific ethnic status by making different placement decisions for targeted groups, but it may be helpful for practitioners and policy makers to bear in mind that kinship or sibling placements may be particularly beneficial to groups of children who are already very much at risk in the child welfare system.

This study also confirms recent research reporting differences between the perceptions of teachers and other reporters using Achenbach (1991a,b,c) scales (Rosenthal & Curiel, 2006; Shore et al., 2002). Other studies have raised questions about the accuracy of kinship foster parents' perceptions of their children's educational (Iglehart, 1994) or medical needs (Berrick et al., 1994a,b; see also Hegar & Scannapieco, 2005). Keller and colleagues (2001) sum up this concern:

Kinship foster parents may rate their children less critically than non-relative foster parents out of family pride, familiarity with the child, greater tolerance and empathy, an ability to regard the child's behavior in context, or unwillingness to have the child viewed negatively by others. (p. 934–5).

A pattern of conflicting and questionable assessments suggests that studies use multiple reporters of children's behavior whenever possible and that they explore further any differences in perceptions. Keller and colleagues (2001) note that independent assessors would be helpful.

Our study of kinship foster care and sibling placement did not find striking evidence of statistical interaction between these variables. Both types of placements appear to offer advantages, particularly from the perspectives of the children and how they feel about their placements. However, because sibling groups are frequently placed in kinship foster homes, those placements offer a promising setting for future research concerning the effects of two types of placements that offer kinship connections.

At least since passage of the Adoption and Safe Families Act in 1997, U.S. federal policy has favored kinship placements for foster children. Preference for placing children with relatives also dates to earlier U.S. statutes, English law, and the cultural traditions of many ethnic cultures (see Geen, 2004; Hegar, 1999; Hegar & Scannapieco, 1995). Statutes also have begun to address shared sibling placement and contact between separated siblings in foster care (see Kernan, 2005; Shlonsky et al., 2005). Although policy making often is driven more by value choices and advocacy than by research, it is important that research keep pace with the policy environment in order to provide continuous feedback concerning the effects and direction of social policy. Research concerning kinship foster care and sibling placement is expanding and developing in ways that do offer guidance as child placement policies develop.

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