The Association of Foster Care or Kinship Care With Adolescent Sexual Behavior and First Pregnancy

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ABSTRACT. *Objective.* **Each year more than 500 000 children enter out-of-home placement. Few outcome studies of these children specifically address high-risk sexual behavior and adolescent pregnancy. Our study investigated the relationship between living in kinship or foster care and high-risk reproductive behaviors in a nationally representative sample of women.**

Methods. **Data from 9620 women ages 15 to 44 years in the 1995 National Survey of Family Growth were analyzed in a cross-sectional study. Three groups—foster (n = 89), kinship (n = 513), and comparison (n = 9018)—were identified on the basis of self-reported childhood living situations. Bivariate and multiple linear regression analyses were performed. The outcome variables were age at first sexual intercourse and at first conception and the number of sexual partners.**

Results. **After adjustment for multiple predictor variables, foster care was associated with younger age at first conception (difference: 11.3 months) and having greater than the median number of sexual partners (odds ratio: 1.7, 1.0–2.8). Kinship care was associated with younger age both at first intercourse (difference = 6 months) and at first conception (difference: 8.6 months) and having greater than the median number of sexual partners (odds ratio: 1.4, 1.1–1.8). There were no differences between the kinship and foster groups.**

Conclusions. **A history of living in either foster or kinship care is a marker for high-risk sexual behaviors, and the risk is comparable in both out-of-home living arrangements. Recognition of these risks may enable health care providers to intervene with high-risk youth to prevent early initiation of sexual intercourse and early pregnancy.** *Pediatrics* **2001;108(3). URL: http://www.pediatrics.org/cgi/content/full/108/3/e46;** ***foster care, kinship care, adolescent pregnancy.***

ABBREVIATIONS. NSFG, National Survey of Family Growth; OR, odds ratio.

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In 1999 in the United States, approximately 547 000 children were in formal out-of-home placement on any given day.[1] Many more have spent some portion of their lives in foster care. The majority of these children are removed from the care of their biological parents because they have been physically abused (12%–25%), neglected (50%–75%), sexually abused (2.7%–9%), or abandoned (9%–23%) or have a parent who is incarcerated or otherwise unable to care for them (15%–30%).[2–6] Approximately 25% of foster children will live in 3 or more foster homes.[7]

During the past decade, the most common type of placement for these children shifted. Formal kinship care, defined as placement by a child welfare agency with relatives, is now the fastest-growing type of out-of-home placement.[8] Nationally, the percentage of children who are in out-of-home placement and were in formal kinship care increased from 18% in 1986 to 31% in 1990.[9] In some states, it is as high at 50%.[10] Increased use of kinship care has resulted from an increase in the number of children who need placement and a decreased availability of nonrelative foster homes.[11,12] However, a growing belief is that kinship care may decrease the child's separation anxiety because placement with familiar caregivers may be a pathway toward family preservation.[13,14]

The growth in the reliance on formal kinship care has outpaced research that assesses its value as an alternative to traditional foster care.[15] The majority of studies on the health and well-being of children in out-of-home care have focused on children in traditional foster care; few have evaluated children in formal kinship care,[15–17] and very few have compared the well-being and outcomes of children in formal kinship care.[18] Sixty percent to 80% of young children in traditional foster care have at least 1 medical problem; 25% have 3 or more. Approximately 60% have developmental delays on screening tests or experience mental health disorders.[3–7,19,20] (J. Landsverk, unpublished data). The scant literature that specifically addresses children in formal kinship care suggests similar rates of health and behavioral problems.[15,16] Furthermore, children in traditional foster care continue to have difficulties in adulthood, exhibiting greater educational, marital, and risk-taking behavior problems.[21–24] However, the majority of long-term studies have used small samples and often lack comparison groups; thus,

they may not apply to broader populations of children in out-of-home care.

Like formal kinship care, informal kinship care is increasing. This type of living arrangement is not sanctioned by a child welfare agency and may occur for reasons other than abuse and neglect. In 1970, 1.4% of children who were younger than 18 years were living with a relative without a parent; in 1997, this number had increased to 1.8%.[25] In 1997, 1.8 million children were in kinship care, 72% of whom were in an informal arrangement.[26]

High-risk sexual behavior and early pregnancy have an impact on the health and social well-being of adolescents and young adults. Teenage mothers are at greater risk for complications. They are less likely to receive early prenatal care and more likely to be poor.[27] Irrespective of these risk factors, young maternal age itself is associated with greater risk of low birth weight infants and of prematurity.[27] In addition, adolescent mothers may be less accessible and less sensitive to their toddlers and become engaged in negative verbal communication.[28] The children of teenage mothers also are at higher risk for maltreatment and for experiencing a change in their primary caregiver, making teenage pregnancy itself a risk factor for having children in out-of-home placement.[29] However, few studies have addressed this issue among teenagers who have lived in out-of-home placement.[30,31] Recognized predictors of adolescent pregnancy include membership in a racial/ethnic minority group, poverty, younger age at menarche, early initiation of sexual intercourse, history of sexual abuse, having an older boyfriend, having dropped out of school, or exhibiting other high-risk behavior (eg, substance abuse).[32,33] It remains more controversial whether childhood physical abuse is associated with early sexual intercourse and pregnancy.[34,35] Community environments, parent–child relationships, school connectedness, and peer behaviors also seem to play a role in the teenager's decision to initiate sexual behavior or become pregnant.[33,36–38] Few studies address the role of foster or kinship care as a risk factor for high-risk sexual behavior.

Using a nationally representative sample of women, we evaluated the association of foster or kinship care with high-risk sexual behavior and early pregnancy. First, we hypothesized that women who lived in foster or kinship care would initiate sexual intercourse and become pregnant at a younger age and have more sexual partners than women who never experienced out-of-home placement. Second, given the rapid shift toward placing children in kinship care, we explored whether there was a difference in these outcomes between those who lived in foster care and those who lived in kinship care.

METHODS

Study Design

This study was a cross-sectional study of the reproductive outcomes of women who lived in either foster or kinship care, compared with women who had neither of these experiences.

Data Collection

The data used in these analyses were from Cycle 5 of the National Survey of Family Growth (NSFG), a nationally representative survey of 10 847 civilian, noninstitutionalized women aged 15 to 44 years conducted in 1995. Women in this survey were identified from the 1993 National Health Interview Survey. Participation in the NSFG was voluntary. Data were collected from face-to-face interviews and self-administered audio questionnaires from January to October 1995. Black and Hispanic women were oversampled in the survey. Details of the survey, sampling design, and implementation have been described.[39,40]

Study Population

From the total number of survey respondents, we used the respondents' self-report of their childhood living arrangements to define 3 subgroups: foster care, kinship care, and a comparison group. The foster group ($n = 89$) was composed of respondents who stated that they lived with a foster mother and/or a foster father during at least 1 living situation. The kinship group ($n = 513$) consisted of respondents who lived with any relative and without either of their biological parents during at least 1 living situation. If the respondent experienced both of the above arrangements, then she was placed in the foster group because this was hypothesized to be the higher risk group. The comparison group ($n = 9018$) was composed of the remainder of women surveyed. Women were excluded from the analysis if they were foreign born; if they were in the foster or kinship groups and had experienced only 1 living situation, to exclude women who never lived with their biological parents and never experienced a change in their primary caregiver; or if they lived in a group home at any time during their childhood, because this population may differ from those in either foster or kinship care and is at risk for worse outcomes.[41]

Dependent Variables

Age at first sexual intercourse was defined as the age that the respondent reported having her first voluntary sexual intercourse. The age at first conception was defined as the age at first pregnancy. Number of sexual partners was identified using a variable recoded by the staff at the NSFG to include information from both the interviewer-administered and self-administered audio questionnaires. Although this was a continuous variable, it was highly skewed and was, therefore, dichotomized at the level of the 50th percentile for the number of sexual partners in the comparison group (median number of sexual partners was 3).

Independent Variables

Demographic variables included in the analyses were race/ethnicity (self-reported), age at the time of interview, educational status, and whether respondent lived in a rural or an urban environment at the time of the interview. Maternal and paternal education were defined using the variable for the educational status of the woman and man that the respondent perceived as having raised her. Mother's marital status refers to the status of the respondent's mother at the time the respondent was born. This variable and the parental education variables will be used as a proxy for household income during the respondent's childhood because no survey questions directly addressed economic factors during her childhood. A measure of the desire for first sexual intercourse was derived from a rating of how much the respondent desired her first experience of sexual intercourse (not necessarily her first voluntary intercourse). Childhood sexual abuse was considered to have occurred in women whose first sexual encounter occurred before 18 years of age and who responded that they did not want it to occur or that it was a rape.

Statistical Analysis

The data were analyzed using SUDAAN Statistical Software (Release 7.5; Research Triangle Institute, Research Triangle Park, NC) to account for the multistage, cluster sampling design in the NSFG. Bivariate analyses were performed using χ^2 and student's t tests. Differences in outcome and predictor variables were assessed between the comparison group and both foster and kinship groups and between the foster and kinship groups.

Multivariate analyses were performed using multiple linear

regression for the age at first voluntary sex and age at first conception, and multiple logistic regression was used for the median number of sexual partners. Separate models were constructed for the foster and kinship groups, in relation to the comparison sample, for each dependent variable. The analyses for the age at first conception excluded women who had never been pregnant. The analyses for the age at first voluntary sexual intercourse and for the number of sexual partners excluded women who were not sexually active. Among the women who were excluded from the analyses because they had not been sexually active or pregnant, the differences among the foster, kinship, and comparison groups paralleled those presented in Table 1 for the group as a whole.

To control for potential confounding, we included demographics, respondent and parental education, maternal marital status, and desire for first sexual encounter variables in each model. In addition, the age at first voluntary sex was added to the model in which the number of sexual partners was the dependent variable. The contribution of each variable in explaining the variance of the model was calculated in the multiple linear regression models. In the multiple logistic regression model, the −2 log likelihood test was performed to assess the significance of each independent variable in the model. Odds ratios and 95% confidence intervals were calculated for all significant variables.

Given the sample sizes of each subgroup and using the age at first conception as an example, we estimated that the study had the power to detect a difference of 4.2 months in the foster group and 1.8 months in the kinship group, relative to the comparison group. When comparing the foster and kinship groups with each other, we estimated that the study could detect a difference of 4.5 months.

RESULTS

The results of the bivariate comparisons are presented in Table 1. Although non-Hispanic white women composed the majority of all 3 groups, the kinship group was almost 30% black. In contrast, the foster and comparison groups were 11.2% and 13.4% black, respectively. In addition, the percentage of women who were in the foster group and reported an unwanted first sexual experience before 18 years of age (the proxy variable for sexual abuse) was more than double that in the comparison group (17.7% vs 8.1%); 12.5% of the kinship group reported having this experience. Both foster and kinship groups differed significantly from the comparison group. Regarding the outcomes of interest, a history of living in either foster or kinship care was associated with a greater likelihood of being sexually active (foster vs comparison group: $P = .05$; kinship vs comparison group: $P < .01$) and having been pregnant (foster vs comparison group: $P < .01$; kinship vs comparison group: $P < .01$). Among the dependent variables, there were no significant differences between the foster and kinship groups. Because of this, multivariate regressions comparing the foster and kinship groups are not presented.

Predictors of First Consensual Sexual Intercourse

The mean age of first intercourse in the foster group was 7.2 months younger and in the kinship group was 12 months younger than in the comparison group (Table 1). After adjustment for known risk factors (Table 2), having lived in foster care was not a significant predictor of a younger age at first sex. However, kinship care was associated with initiation of consensual sex 6 months earlier ($P < .001$). The full regression model for the kinship group explained 22.8% of the variance and for the foster group explained 22.5% of the variance in the age at first voluntary sexual intercourse.

Predictors of Age at First Conception

The mean age of first conception in the foster group was 21.6 months younger and in the kinship group was 22.8 months younger than in the comparison group (Table 1). After adjustment for the effects of the covariates (Table 3), foster care was associated with an age at first conception that was 11.3 months younger ($P < .05$). Similarly, kinship care was associated with a reduction by 8.6 months ($P < .001$). The

TABLE 1. Comparison of Demographic and Outcome Variables in the Foster, Kinship, and Comparison Groups (National Survey of Family Growth, 1995)

Independent Variables	Foster ($n = 89$)	Kinship ($n = 513$)	Comparison ($n = 9018$)	Significance Levels (P Values)		
				A*	B*	C*
Age (mean, y)	31.6	30.5	30.0	NS	NS	NS
Race (%)						
Non-Hispanic white	71.4	56.2	76.8			
Black	11.2	29.5	13.4	NS	<.001	<.01
Hispanic	10.8	10.9	7.5			
Respondent's education (mean, y)	12.2	11.9	12.9	<.05	<.001	NS
Maternal figure's education (mean, y)	11.9	10.4	12.0	NS	<.001	<.05
Paternal figure's education (mean, y)	12.6	10.9	12.1	NS	<.001	<.01
Respondent now lives in rural area (%)	23.4	12.5	15.2	NS	NS	NS
Unwanted first sexual experience before 18 y (%)	17.7	12.5	8.1	<.05	<.01	NS
Respondent's mother was single at time of respondent's birth (%)	20.6	16.5	4.6	<.01	<.01	NS
Mean age at first voluntary sexual intercourse (y)†	16.8	16.4	17.4	<.05	<.001	NS
Mean age at first conception (y)‡	19.2	19.1	21.0	<.001	<.001	NS
Percent above the median number of sexual partners (median = 3)†	74.7	73.6	62.5	<.01	<.001	NS

NS indicates not significant.
* A = foster vs comparison; B = kinship vs comparison; C = foster vs kinship.
† Women who were not sexually active were excluded from the analyses for this variable.
‡ Women who had never conceived were excluded from the analyses for this variable.

TABLE 2. Multiple Linear Regression Models for the Age at First Voluntary Sexual Intercourse

Independent Variables	β Coefficient*	*P* Value
Foster model		
Intercept	9.96	
Foster care	−0.26	.35
Black	−0.55	<.001
Hispanic	+0.52	<.001
Respondent had single mother	−0.32	<.01
Unwanted first sex	−1.11	<.001
Age of respondent	+0.09	<.001
Respondent's education	+0.37	<.001
Kinship model		
Intercept	9.99	
Kinship care	−0.51	<.001
Black	−0.53	<.001
Hispanic	+0.51	<.001
Respondent had single mother	−0.26	.03
Unwanted first sex	−1.11	<.001
Age of respondent	+0.09	<.001
Respondent's education	+0.37	<.001

Full model included the following independent variables: report of living in foster or kinship care, race, unwanted first sexual experience in a minor, age at first voluntary sexual experience, age of the respondent at time of interview, respondent's education, education level of the respondent's maternal and paternal figures, whether respondent had single mother when respondent was born, and rural living status (current) of the respondent. Only those variables that were significant are listed in the table.
* β coefficient represents the effect of each independent variable in units of 1 year.

TABLE 3. Multiple Linear Regression Models for the Age at First Conception

Independent Variables	β Coefficient*	*P* Value
Foster model		
Intercept	7.32	
Foster care	−0.94	.04
Black	−1.62	<.001
Hispanic	+0.45	.01
Respondent had single mother	−0.53	.01
Unwanted first sex	−1.97	<.001
Age of respondent	+0.14	<.001
Respondent's education	+0.73	<.001
Kinship model		
Intercept	7.38	
Kinship care	−0.72	<.001
Black	−1.60	<.001
Hispanic	+0.42	.02
Unwanted first sex	−1.92	<.001
Age of respondent	+0.14	<.001
Respondent's education	+0.72	<.001

Full model included the following independent variables: report of living in foster care, race, unwanted first sexual experience in a minor, age at first voluntary sexual experience, age of the respondent at time of interview, respondent's education, education level of the respondent's maternal and paternal figures, whether respondent had single mother when respondent was born, and rural living status (current) of the respondent. Only those variables that were significant are listed in the table.
* β coefficient represents the effect of each independent variable in units of 1 year.

full regression models explained 30.3% and 30.1% of the variance in foster and kinship models, respectively, for the age at first conception.

Predictors of the Number of Sexual Partners

In bivariate analyses, women in the foster group had twice the odds of reporting having had more than the median number of sexual partners (odds ratio [OR]: 2.0; 95% confidence interval: 1.2–3.1). Women in the kinship group also were more likely to report having had greater than the median number of sexual partners (OR: 1.8; 95% confidence interval: 1.5–2.3). After adjustment for the covariates, foster and kinship care remained significant predictors of having had more than the median number of sexual partners (foster group OR: 1.7; kinship group OR: 1.4) This pattern did not change substantially when other cutoffs (eg, the 75th and 95th percentiles) were used for the number of sexual partners (Table 4).

DISCUSSION

In our study, living in either foster or kinship care was significantly associated with high-risk reproductive behaviors among this nationally representative sample of women. Foster care was associated with having a younger age at first conception and more than the median number of sexual partners. Kinship care was associated with a younger age at both first consensual sex and first conception and with having more than the median number of sexual partners. Adjusting for multiple variables that have been associated with these outcomes did not negate the findings. Of interest, there were no significant differences between the foster group and the kinship group for any of these outcomes. It must be noted, however, that our data cannot implicate placement into foster and kinship care as the direct cause of these high-risk behaviors. Rather, out-of-home place-

TABLE 4. Multiple Logistic Regression Model for Having Greater Than the Median* Number of Sexual Partners

Independent Variables	OR (95% CI), Bivariate Analysis†	OR (95% CI), Multivariate Analysis
Foster model		
Foster care	2.0 (1.2–3.1)	1.7 (1.0–2.8)
Black	1.7 (1.5–2.0)	1.4 (1.2–1.7)
Hispanic	0.6 (0.6–0.7)	0.8 (0.7–0.9)
Unwanted first sex	3.3 (2.6–4.0)	2.0 (1.6–2.6)
Age at first sex	0.8 (0.7–0.8)	0.7 (0.6–0.7)
Age of respondent	1.04 (1.04–1.05)	1.0 (1.0–1.1)
Respondent's education	1.19 (1.16–1.22)	1.2 (1.1–1.2)
Kinship model		
Kinship care	1.8 (1.5–2.3)	1.4 (1.1–1.8)
Black	1.7 (1.5–2.0)	1.5 (1.2–1.7)
Hispanic	0.6 (0.6–0.7)	0.8 (0.7–0.9)
Unwanted first sex	3.3 (2.6–4.0)	2.0 (1.5–2.5)
Age at first sex	0.8 (0.7–0.8)	0.7 (0.6–0.7)
Age of respondent	1.04 (1.04–1.05)	1.0 (1.0–1.1)
Respondent's education	1.19 (1.16–1.22)	1.2 (1.1–1.2)

Full model included the following independent variables: report of living in foster or kinship care, race, unwanted first sexual experience in a minor, age at first voluntary sexual experience, age of the respondent at time of interview, respondent's education, education level of the respondent's maternal and paternal figures, whether respondent had single mother when respondent was born, and rural living status (current) of the respondent. Only those variables that were significant are listed in the table. CI indicates confidence interval.
* Median = 3.
† ORs in the bivariate analyses represent the effect of each independent variable individually, without controlling for the other variables in the full model.

ment serves as a marker, reflecting the high-risk homes from which these women were removed.

A child who has been placed in either foster or kinship care may need closer attention with regard to high-risk sexual behaviors. However, preventive services for these youths may not be readily available. A recent survey of all 50 states and the District of Columbia, performed by the Child Welfare League of America, revealed that child welfare agencies often lack programs that target sexuality among youths in out-of-home care.[42] This study found that only 10 states had written policies that address sexuality education or family planning. One third of the states had caseworker training programs, whereas only 11 states provided training for foster parents. Although it is crucial that child welfare agencies address this need nationwide, health care providers may be in the best position to identify these children and to initiate early intervention services.

Kinship care is gaining in use across the country as an alternative to traditional foster care, despite potential concerns. Kinship care can be viewed as a child-centered, family-focused pathway to family preservation. Children who are placed with relatives are more likely to maintain a continuity of schools[13] and to know their caregiver. They also may experience fewer placements overall but often remain in care longer than those who are placed in foster care.[15,17,43] Concerns exist, however, regarding the placement of a child with family members who raised the parent from whom the child has been taken away.[13,44] In addition, kinship caregivers may be less likely to enforce court-ordered restrictions on parental visitation.[13] Across states, there are inconsistent licensing criteria for kinship caregivers,[9,13] who also may receive fewer support services and less supervision than traditional foster parents.[13,15] Assessing the long-term outcomes of children who are raised in kinship care, relative to foster care, may give greater insight into the effects of these different types of placements.

In our study, the women in the foster and kinship groups did not differ from each other, clinically or statistically, with regard to any of the outcomes that we assessed. These findings suggest that living in kinship care rather than foster care does not decrease the risk for a female child for adverse long-term sexual and reproductive outcomes. The survey does not distinguish women in the kinship group who were formally placed in out-of-home care by a child welfare agency from those who changed caregivers informally. Thus, the kinship group is heterogeneous, including women who changed living situations for reasons other than abuse and neglect.

This study has several limitations. First, this survey was not designed to examine either foster or kinship care. There was no randomization to either the foster or kinship groups, which could lead to a selection bias in placement. It is not possible to determine whether children who experienced more severe abuse or exhibited worse behavior tended to experience one type of out-of-home placement more frequently than the other. Other variables that are relevant to foster care, such as the duration and number of placements, were not addressed in this study. However, despite the lack of adjustment for these placement variables, no differences were seen between the 2 groups.

Second, the NSFG did not collect information on the specific reason that a woman lived in either foster or kinship care. Rates of physical or sexual abuse are unavailable. This is important because out-of-home placement could be a proxy for sexual abuse in this study. The literature suggests a prevalence of childhood sexual abuse between 15% and 32% in the general population,[45–48] which often is underreported. It is likely that women in the comparison group also experienced some form of abuse. To address this issue, we examined how much each respondent desired her first sexual experience as a surrogate for sexual abuse. Although this variable likely underestimates the true prevalence of sexual abuse, substantial differences were evident between the comparison and study groups, and this variable was highly significant in all of the models. This suggests that this proxy variable captured much of the true sexual abuse.

A third limitation is that this study represents placement in foster care during the period 1951 to the early 1990s. More recent developments in foster care systems are not reflected here. In addition, secular changes could have an effect on the outcomes evaluated in this article. We attempted to control for this "cohort effect" by adjusting for the age of the respondent in the analyses. The effect of secular change may be 1 reason that being an older respondent is protective in the models.

Last, the outcomes studied are based on the respondent's self-report; thus, they are subject to recall bias. However, the NSFG has been validated extensively and uses methods that are designed to minimize this bias as much as possible.[39,40]

The findings in this study have several important clinical ramifications. Most important, pediatric and adult health care providers should recognize that female patients who are currently in foster or kinship care or have a history of such a living situation are at greater risk for the earlier initiation of sexual activity and for the long-term ramifications of those behaviors. Second, this population of children and young adults may benefit from collaborative interventions and reproductive counseling from health care, education, and child welfare professionals. Last, kinship care may not be more protective than traditional foster care with regard to long-term sexual and reproductive behaviors. Although the findings of this study do not examine other potential benefits of kinship care, more research on formal and informal kinship care, with a focus on long-term outcomes, is needed to understand the effect of the shift toward favoring kinship care for children in out-of-home placement.

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