DO THEY HAVE TO LIVE HERE, TOO?:
Co-resident sibling composition and the academic outcomes of youth.

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INTRODUCTION

As divorce, remarriage and non-marital childbearing rates have risen over the past several decades, the number of children and adolescents being raised in "non-traditional" family forms (e.g. single parent and stepparent families) has also risen dramatically (Booth & Dunn 1994; Cherlin & Furstenberg 1994; Coleman et al. 2000; Hetherington & Stanley-Hagan 2000; Teachman et al. 2000). The changing structure of American families has often been viewed with alarm by the general public, politicians, educators and child welfare advocates. As a result, much research has been dedicated to understanding the ways in which living in a non-traditional family affects the well-being of young people.

One of the most consistent findings in this area of research is that children and adolescents who are raised by both biological parents experience higher levels of well-being than do those who are raised in single parent or stepparent families (Cherlin & Furstenberg 1994). On average, they tend to have better academic outcomes (Astone & McLanahan 1991, 1994; McLanahan & Sandefur 1994; Pong 1997; Zill 1996), experience better mental health (Amato 1993, 2000), exhibit fewer behavioral problems, and engage in fewer high-risk activities like drinking, drug use, and sexual activity (Day 1992; Hoffman & Johnson 1998; McLanahan & Sandefur 1994).

While many studies have attempted to uncover explanations for the disadvantaged outcomes of children in non-intact families, most have failed to capture an adequate picture of overall family composition (i.e. a full accounting of all people living in the household). Family

structure is generally measured using only the legal and biological relationships between a child and his/her parent(s). Yet, the family composition of children living in single parent and stepparent families tends to be much more complicated than that of children living in two biological parent homes (Tillman 2003; Zill 1988). Children growing up without both biological parents are much more likely to live with step- and/or half-siblings and to experience a change in sibling composition at an older age (Beer 1989; Tillman 2003). Siblings undoubtedly play a major role in the everyday lives of young people (Blake 1986, 1989; Downey 1995; Goldscheider & Goldscheider 1998; Steelman et al. 2002).

Little is known, however, about how living with step- and/or half-siblings affects an adolescent's risk for poor outcomes. Limited research has found that the presence of step- and/or half-siblings has a negative affect upon the academic outcomes of adolescents in stepfamilies and that the longer these children live with "non-traditional" siblings, the more likely they are to experience academic disadvantage (Tillman 2003). These broad findings have led me to focus more specifically on the effects of co-resident sibling composition, and to concentrate on additional important questions that have yet to be answered.

The primary aim of this project is to examine the effects of sibling composition on the grades and school-related behavior of American youth. Using the *National Longitudinal Study of Adolescent Health* (Add Health), this paper addresses three specific research questions: 1) Is the presence of non-traditional siblings associated with poorer academic outcomes (college expectations, GPA, school behavior) for youth in all family types? 2) Is the disadvantage associated with non-traditional siblings conditioned by the age and gender of the siblings involved? and 3) Can the negative association between sibling composition and adolescent

academic outcomes be explained by family relationship factors, such as family relationship quality, parent-child conflict, and parental involvement?

Sibling Composition and Academic Outcomes

Research has indicated that siblings have a significant affect on the academic and behavioral outcomes of young people. For example, we know that the number of co-resident siblings is negatively associated with adolescent academic achievement (Blake 1986, 1989; Downey 1995; Steelman et al. 2002). Yet, because most empirical research on family structure effects ignores the structure of sibling-sibling relationships in a household, we know very little about how the *kinds* of siblings present in the home influence these outcomes. We also do not know whether the presence of non-traditional siblings (step- and/or half-siblings) similarly affects the outcomes of youth in the various family forms.

While only about 4% of youth in two-biological parent families live with non-traditional siblings (usually half-siblings), high percentages of youth in non-intact families live within a non-traditional sibling composition at some point during their childhood (Tillman 2003). The majority of youth in stepfamilies gain new siblings at the time of stepfamily formation, or soon thereafter. Nearly 50% of new stepfamilies are established in the form of complex households with children from both parents (Ganong & Coleman 1994), and over half of remarried parents form blended families by giving birth to at least one child after marriage (Wineberg 1990). Youth in single parent families also often live with non-traditional siblings, particularly half-siblings. At any given time, over 20% of youth in single mother homes and 5% of youth in single father homes live in a complex or blended family (Tillman 2003).

Limited research has found that, controlling for sibship size, the presence of non-

traditional siblings may negatively affect the outcomes of adolescents. For example, youth living with step- and/or half-siblings are significantly more likely to leave home at a young age for reasons other than schooling (Goldscheider & Goldscheider 1998). Among adolescents living in stepfamilies, the presence of co-resident step- and/or half-siblings is also associated with lower levels of academic achievement and higher levels of school-related behavior problems (Ganong & Coleman 1988; Tillman 2003; Zill 1988).

Theoretical Background

Many explanations for the negative effects associated with living in a non-intact family draw on Stress Theory, centering on the idea that the multiple life changes generated by alterations in parental union status accumulate to produce detrimental levels of stress for both parents and children. Parental union changes are associated with many other important changes in family lifestyle and resources (McLanahan & Booth 1989; McLanahan & Sandefur 1994; Menaghan et al. 1997). For example, family structure change is often accompanied by changes in economic status, residential moves, and a weakening of ties with non-resident parents, extended family, and friends (Cherlin 1992; McLanahan & Sandefur 1994). Many youth in non-intact families also experience an alteration in co-resident sibling composition following a new union formation (Ganong & Coleman 1994; Wineberg 1990).

The presence of non-traditional siblings may lead to heightened levels of stress for youth within all types of families. Regardless of whether an adolescent's non-traditional sibling composition arose from family structure change (as opposed to being the "new" sibling born into a existing family unit), the presence of co-resident step-siblings and/or half-siblings increases the complexity and ambiguity of family relationships. Ambiguous family roles and uncertainty

regarding appropriate family relationships may result in poor communication and more difficult sibling and parent-child interactions (Cherlin 1978; Zill et al. 1993). The difficulties that arise from the presence of non-traditional siblings may, however, be compounded when an adolescent is also contending with the stress and ambiguity that is associated with family structure change.

Overall, the stress that results from these conditions may lead to poorer academic and behavioral outcomes for young people. Previous research has found that children who experience positive sibling relationships are more likely to exhibit social competence and responsibility, whereas those whose sibling relationships are marked by rivalry and aggression are more likely to express antisocial behavior (Hetherington & Jodl 1994). Compared to relationships between full-siblings, relationships between step-siblings tend to be more emotionally withdrawn and to provide less positive socio-emotional support (Burns 2000; Ganong & Coleman 1994). The family dynamics of households that contain half-siblings also seem to be more difficult than those of households containing only full-siblings. Although some research suggests that the relationships children have with their half-siblings are similar in terms of both conflict and emotional closeness to the relationships they have with full-siblings (Burns 2000; Hetherington & Jodl 1994), many families that contain half-siblings exhibit structural inequality between children. In stepfamilies with half-siblings, at least one child lives with two biological parents while other children live with only one. This inequality can lead to higher levels of conflict and insecurity, particularly for those children who are living with only one biological parent (Beer 1989). Rather than leading to poor sibling relationships, however, the presence of half-siblings may have a greater negative effect upon the relationships between children and their parents and the functioning of the family as a unit.

In general, the stress generated by the presence of non-traditional siblings may undermine

the quality of family relationships, may increase conflict, and may negatively affect the level of investment that parents make in their children. These difficult family dynamics may lower an adolescent's academic expectations, may motivate youth with non-traditional siblings to concentrate less on their studies and to obtain less academic assistance if they are having trouble, and may spill over into the behavior of young people at school.

Changes in Age Order of Siblings

Along with sibship size and type, previous research indicates that birth order and spacing are significant predictors of educational outcomes (Powell & Steelman 1993, 1995; Steelman & Powell 1985). Less is known, however, about how *changes* in age order that result from the creation of a non-traditional sibling configuration may affect adolescent outcomes. When an adolescent gains step- and/or half-siblings, the age order of children in the home will often change. Oldest, youngest, and only children often lose their place in the age hierarchy, upsetting family roles and leading to the possibility of jealousy and resentment (Beer 1988). Some adolescents with non-traditional siblings do not face age order changes, however. For example, the "new" sibling born into a family that already includes children from a parent's previous union experiences no age order change, even though their half-siblings do. While all of the siblings in this scenario face stress associated with living in a non-traditional sibling composition, the older siblings may be even more disadvantaged as a result of their changing age order.

Changes in Gender Composition of Siblings

Research findings on the academic effects of sibling gender composition are mixed.

Although having sisters is less harmful than having brothers with respect to grade-point average, and having brothers is more harmful than having sisters with respect to school behavior, no sex composition effects have been found for standardized test scores (Powell & Steelman 1990). If and how *changes* in gender composition that result from the creation of a non-traditional sibling composition affect the outcomes of youth remains unknown. As with age, the changing gender composition of a sibling group may upset established family roles and relationships. The addition of opposite-sex step-siblings also introduces the possibility of sexual attraction between members of an adolescent sibling group (Beer 1988). Thus, youth who face gender composition changes when non-traditional siblings are added to their families may face more stress and more difficult family dynamics.

Hypotheses

Hypotheses about the effects of sibling composition on academic outcomes are drawn from the above arguments and are rooted primarily in Stress Theory. Given the greater likelihood of stressful and ambiguous relationships in families that contain non-traditional siblings, I expect that all youth living with step-siblings and/or half-siblings will experience worse academic outcomes (college expectations, grades, and school-related behavior) than those who live with only biological and/or adoptive siblings. However, I expect the negative effect of non-traditional siblings to be greater for children living in non-intact families than children living in two biological parent families. I also expect that the negative affects of non-traditional siblings will be amplified when the addition of those siblings leads to changes in a sibling group's gender composition or age order. Finally, I expect that factors such as family relationship quality, parent-child conflict, parental expectations for academic attainment, and parental supervision,

will help to explain the detrimental effects of non-traditional sibling compositions.

METHODOLOGY

Data

Data come from the *National Longitudinal Study of Adolescent Health* (Add Health), a nationally representative study of adolescents in grades 7 through 12 in the United States in 1995. The study includes in-depth face-to-face interviews with adolescents and their parents (conducted separately), which provide detailed information regarding child outcomes, family composition, and sibling relationships during adolescence. Add Health used a multistage, stratified, school-based, cluster sampling design. Included in the sample were students from 80 public and private high schools, as well as students from one junior high or middle school feeding into each high school (Harris et al. 2003).

Add Health involves multiple waves of data collection and several data collection components. This research utilizes data collected from In-Home interviews during Wave I (1994-1995) and Wave II (1996) and selected data from the Wave I Parental Questionnaire and the Wave I School Administrator Questionnaire. Of particular importance to this study, the adolescent in-home interviews include detailed household rosters that record information about all other people living in the respondent's household. To complete this roster, respondents were asked to clearly specify the biological and legal relationships between themselves and all other household members. The analytic sample includes 12,603 respondents who participated in both waves of the study and had a completed Parental Questionnaire with valid family structure information.

Measures

All independent and control variables are constructed using data collected at Wave I and the dependent variables are constructed using data collected at Wave II. Although the two waves of data collection are only one year apart, using data from both waves helps to control for the temporal order of events.

Sibling Composition. Sibling composition measures the biological relationship between the adolescent and all co-resident siblings,[1] as reported by the adolescent while completing the household roster during Wave I. There is some evidence that individuals, particularly those in stepfamilies, are not always consistent in the way that they identify their relationships with step- and half-siblings (White 1998). However, the manner in which data on household members is collected in the Add Health reduces concern over whether youth who have positive relationships with non-traditional siblings will be more likely than those with negative relationships to report the existence of those siblings or more likely to refer to them simply as "brothers" or "sisters". During the data collection, respondents were asked to indicate their relationship to each other individual living in their home. If they responded that an individual was their "brother" or "sister" of any kind, they were then asked to indicate more specifically whether that person was a full-, step-, half-, adoptive or foster sibling.

For this study, adolescents are classified as having simple (n=10,518), complex (n=289), simple-blended (n=1,695), or complex-blended sibling relationships (n=101). Simple sibling relationships are those that include either no siblings or only biological and/or adopted siblings. All other sibling composition groups include step-siblings and/or half-siblings, either alone or in

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[1] The Add Health data do not include information on siblings who live outside of the respondents' households. As a result, the analyses cannot address the impact that non-resident siblings have had upon the respondents' academic outcomes.

conjunction with biological/adopted siblings. Complex sibling relationships are those that include step-siblings; simple-blended relationships are those that include half-siblings; and complex-blended relationships are those that include both step- and half-siblings. To determine whether the impact of living in non-traditional sibling compositions (i.e. complex, simple-blended or complex-blended) is affected by duration of exposure, the analyses also contain measures of the proportion of life during which the respondent has lived in their current sibling composition.

Family Structure. Utilizing measures of both sibling composition and family structure provides a more comprehensive depiction of current household composition than is available in most studies. Family structure captures both the biological and legal relationships between the adolescent and all co-resident parent figures, as reported by the adolescent at Wave I. I classify adolescents as living in two biological parent families (n=7,243), single mother families (n=2,825), single father families (n=385), married stepfather families (n=1,515), married stepmother families (n=316), and cohabiting stepfather families (n=293).

Sibling Age Order and Gender Composition Variables. Sibling age order and gender composition variables are measured at Wave I and are obtained from the same household rosters that provided information on sibling composition. Adolescents' current age order is classified as one of the following: oldest child in home, middle child in home, youngest child in home or only child in home. A measure of age order change captures whether or not the adolescent had experienced a change in their age order as a result of the introduction of a co-resident non-traditional sibling (determined using information on the age of each co-resident sibling and the length of time the respondent has lived with each sibling). Age Order Change is measured as a set of dummy variables: No age order change, move up in age order, move down in age order, missing age order information.

Adolescents' current sibling gender composition is classified as one of the following: more male children in home, more female children in home, and even male-female ratio. A measure of gender composition change captures whether or not the adolescent had experienced a change in gender composition as a result of the introduction of a non-traditional sibling. Gender Composition Change is measured as a set of dummy variables: no gender composition change, change to more same-sex siblings, change to more opposite-sex siblings, change to an even male-female ratio of siblings.

Family Relationship Variables. All family relationship variables, with the exception of Parent's College Expectations, are measured at Wave I and are obtained from adolescent self-reports. Parent's College Expectations are obtained from the Wave I Parental Questionnaires.

Parent's College Expectations measure how upset the parent would be if their child did not attend college. These expectations were measured on an ordinal scale, ranging from 1 (low) to 5 (high). The *Overall Family Relationship* variable is measured as an index ($\alpha = 0.74$) that represents the mean item score of five questions (See Appendix A). Original responses to the items are ordinal, ranging from 1 (not at all) to 5 (very much). *Parent-Child Conflict* is a dummy variable indicating whether respondents have had a serious argument about their behavior with their resident mother and/or resident father during the past month. Youth who responded in the affirmative for both resident parent-figures, or for one resident parent-figure if living in a single parent home, are assigned to the parent-child conflict category. Others are assigned to the non-conflict category. *Parental Supervision* is measured as a count variable that ranges from 0 to 4. The variable is constructed from four yes/no questions, and indicates whether a resident parent-figure was home most or all of the time when the adolescent goes to school, comes home from school, eats the evening meal, and goes to bed at night.

Family SES and Control Variables. All socioeconomic and control variables are measured at Wave I and, with the exception of the family socioeconomic variables, are obtained from adolescent self-reports. Family socioeconomic information is obtained from the Wave I Parental Questionnaires.

Since economic deprivation is associated with both academic outcomes (Amato 1993; Thomson et al.1994) and non-intact family structures (Amato 1993; Pong 1997; Thomson 1994; Thomson et al.1994), this analysis includes controls for: resident mother's employment status (full-time/not full-time), the highest level of education obtained by a co-resident parent figure, and total family income in 1994. To test for the existence of non-linear effects, both parents' education and family income are measured as a set of dummy variables.

Residential mobility has been shown to hinder the maintenance of strong social ties, which are important to the development of the kinds of social resources that can help adolescents deal with stress and can facilitate academic success (Astone & McLanahan 1991). The analyses control for the proportion of life that respondents have lived at their current residence.

Other variables that are associated with both adolescent academic outcomes and current family structure are also included in the analytic models. These variables include: the respondent's self-reported race/ethnicity (White, Black/Afro-Caribbean, Hispanic, or Asian), gender, years of age, number of co-resident siblings (Downey 1995; Steelman et al. 2002), and immigrant generation status (Tillman et al. *forthcoming*; Portes & Rumbaut 1996). A measure of immigrant generation status is also included in the models to address potential bias in linking the Add Health parent data to the adolescent data, since immigrant adolescents are more likely than non-immigrants to have incomplete parental questionnaire data (Harker 2000). Finally, the analyses include measures of school location (urban, suburban, rural), region of country (West, South, Northeast and Midwest), and school type (public, private).

Researchers have long questioned whether outcome differences between children living in different family structures stem from unobserved factors that predated the transition into the current family structure (Capaldi & Patterson 1991; Cherlin et al. 1991). Although this debate continues, some recent research has suggested that the correlations between family structure and youth outcomes are largely causal, and that family structure transitions during adolescence do not have a strong relation to the preexisting characteristics of young people and their families (Painter & Levine 2000).

The inclusion of individual-level control variables in this study does help account for some pre-existing differences that may be associated with both family structure assignment and youth outcomes. In particular, controlling for the proportion of life spent in the respondent's current family may also help to account for differences among stepfamilies in the quality of parental relationships, especially among cohabiting stepfamilies. Cohabiting unions that quickly transform into marriage may be similar in relationship quality to unions that begin with marriage, while those that continue for long periods without marriage may be selective of parents with more problematic relationships (Brown & Booth 1996).

Dependent Variables. The three dependent variables are college expectations, grade-point average (GPA) and school-related behavior problems. College expectations are assessed through the adolescents' responses to a question regarding the likelihood of attending college. These expectations were originally measured on an ordinal scale, ranging from 1 (low) to 5 (high). Because the distribution is very highly skewed, responses were dichotomized to indicate high college expectations (responses of 5) versus lower college expectations (1-4). GPA is a self-reported, continuous variable ranging from 1 (D/F) to 4 (A), which measures grades for the past academic year. School-related behavior problems are measured as an index ($\alpha = 0.70$)

representing the mean item score across four self-reported, five-category ordinal items (having trouble getting along with students, getting along with teachers, paying attention in school, and getting homework done) with responses ranging from "never" to "every day." This index approximates a continuous linear scale ranging from 0 to 4.

Analysis plan

Logistic regression analysis will be used to study the effects of sibling composition on academic expectations, and OLS regression analysis to study the effects on GPA and school-related behavior problems. Once differentials in academic outcomes by sibling composition are established, the analyses will examine: 1) the extent to which the differentials are explained by individual and family background characteristics (e.g. family structure, race/ethnicity, gender, SES, etc.); 2) the extent to which the disadvantage associated with non-traditional siblings can be explained by (or conditioned by) age order and gender composition changes; 3) the extent to which the disadvantage associated with non-traditional siblings can be explained by family relationship factors; and 4) whether the mechanisms underlying the academic outcomes of adolescents are similar across family structure types.

To adjust for the multistage, stratified, school-based, cluster sampling design, I will use the robust estimator of variance in STATA. I also control for differential sampling probabilities among individuals by utilizing the Add Health grand sample weights in all estimation procedures (Chantala & Tabor 1999).

DESCRIPTIVE RESULTS

The first table presents the sibling composition and family structure distributions of adolescents in grades 7-12. Of the 12,603 respondents, 84% live in a simple sibling composition,

12.9% in a simple-blended sibling composition (with half-siblings), 2.3% in a complex sibling composition (with step-siblings) and 0.8% in a complex-blended sibling composition (with both half- and step-siblings).

<<TABLE 1 ABOUT HERE>>

Adolescents living in the various sibling compositions differ in terms of their sibling group characteristics and family structure. Youth in simple sibling compositions have spent a greater proportion of their lives with their current sibling group, they have fewer co-resident siblings, and they are much less likely to live in stepfamilies (and more likely to live with two biological parents) than youth with non-traditional sibling compositions. On average, youth living in complex compositions have lived with their current sibling group for the smallest proportion of their lives and are most likely to be the youngest child in their home and to have experienced no change in age order. Youth living in simple-blended compositions, on the other hand, are most likely to be the oldest child in the home and to have experienced a move up in age order. Youth living in complex-blended sibling compositions tend to have the highest number of co-resident siblings, including the highest number of non-traditional siblings, are among the most likely to live in families with more sons than daughters, are least likely to be the youngest child in the home, and are least likely to live with two biological parent families (and most likely to live with married stepfathers and married stepmothers).

Table 1 also indicates that sibling composition is associated with race/ethnicity. For example, youth living in a simple-blended sibling composition are less likely to identify themselves as White and more likely to identify themselves as African American than are youth in the other sibling compositions. Youth living in complex-blended compositions are the least likely to identify themselves as African American.

The descriptive results also indicate that academic outcomes vary according to sibling composition (See Table 2). Chi-square tests indicate that, compared to adolescents in almost all other sibling compositions, those in simple compositions at Wave I have significantly higher college expectations, higher GPAs and fewer school-related behavior problems at Wave II (Chi-square tests not shown). In terms of college expectations and grades, youth in complex and simple-blended sibling compositions appear to face similar levels of disadvantage. However, those living in complex compositions report the highest levels of school-related behavior problems.

<<TABLE 2 ABOUT HERE>>

Table 2 also presents weighted means of the family background, family relationship, and control variables. In terms of socioeconomic resources, adolescents living in simple sibling compositions and complex sibling compositions tend to fare the best. Those in simple-blended compositions are the most disadvantaged. Youth in complex-blended sibling compositions, the most rare sibling configuration, have a more contradictory socioeconomic profile than other youth. Youth living with both kinds of non-traditional siblings are the least likely to have a working mother, have spent the smallest proportion of their lives in their current residence and are most likely to attend private school.

Family relationship variables indicate that youth in simple sibling compositions also tend to report the highest quality of family relationships and to be the subject of very high parental expectations. Despite their relatively advantaged socioeconomic position and high levels of parental supervision, youth who have complex sibling compositions are also subject to the lowest levels of parental expectations.

Overall, descriptive results indicate that adolescents living with non-traditional siblings

tend to have lower college expectations, lower grades and more behavior problems at school than their peers who do not have step- or half-siblings. Youth with non-traditional siblings are also less likely to live with both biological parents, tend to have more siblings and to come from poorer socioeconomic backgrounds, and generally experience less supportive, lower quality family relationships. These factors may help to explain the academic disadvantages associated with co-resident non-traditional siblings.

FUTURE ANALYSES

Multivariate analysis will be employed to determine the following: 1) the extent to which academic differentials are explained by individual and family background characteristics (e.g. family structure, race/ethnicity, gender, SES, etc.); 2) the extent to which the disadvantage associated with non-traditional siblings can be explained by (or conditioned by) age order and gender composition changes; 3) the extent to which the disadvantage associated with non-traditional siblings can be explained by family relationship factors; and 4) whether the mechanisms underlying the academic outcomes of adolescents are similar across family structure types.

Logistic regression analysis will be used to study the effects of sibling composition on academic expectations, and OLS regression analysis to study the effects on GPA and school-related behavior problems.

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APPENDIX A: CONSTRUCTION OF INDICES

Resident Family Relationship Index (5 items): Cronbach's Alpha = 0.74

Questions pertain to resident family members. Answers range from 1 (not at all) to 5 (very much).

1. How much do you feel that your parent(s) care about you?
2. How much do you feel that people in your family understand you?
3. How much do you feel that you want to leave home? (recoded in opposite direction)
4. How much do you feel that you and your family have fun together?
5. How much do you feel that your family pays attention to you?

School-Related Behavior Problems Index (4 items): Cronbach's Alpha = 0.70

Answers range from 0 (never) to 4 (everyday).

1. How often do you have trouble getting along with other students?
2. How often do you have trouble getting along with your teachers?
3. How often do you have trouble paying attention in school?
4. How often do you have trouble getting your homework done?

	All Sibling Compositions (Full Sample)	Simple Sibling Composition	Complex Sibling Composition	Simple-Blended Sib Composition	Complex-Blended Sib Composition
Table 1: Weighted Means of Sibling, Family Structure, Race/Ethnicity and Gender Measures by Sibling Composition					
Sibling Measures:					
Proportion of Life Spent Living w/Current Sibling Comp.	0.94	0.97	0.38	0.87	0.86
Number of Siblings in Home	1.50	1.36	2.47	2.08	3.39
Number of Traditional Siblings in Home	1.24	1.36	0.89	0.57	0.47
Number of Non-traditional Siblings in Home	0.25	0.00	1.58	1.51	2.83
More Male Children in Home	0.40	0.39	0.46	0.38	0.49
More Female Children in Home	0.36	0.36	0.33	0.36	0.33
Even Male-Female Ratio in Home	0.25	0.25	0.21	0.26	0.17
Gender Composition Change due to Non-traditional Sibs	0.07	0.00	0.39	0.42	0.38
Gender Comp. Change - More Same-Sex Sibs	0.01	0.00	0.11	0.07	0.12
Gender Comp. Change - More Opposite-Sex Sibs	0.02	0.00	0.14	0.11	0.14
Gender Comp. Change - Even Male-Female	0.04	0.00	0.14	0.25	0.12
Oldest Child in Home	0.41	0.39	0.43	0.58	0.56
Middle Child in Home	0.18	0.16	0.29	0.25	0.39
Youngest Child in Home	0.23	0.24	0.20	0.17	0.05
Only Child in Home	0.18	0.22	0.00	0.00	0.00
Missing Age Order Information	0.00	0.00	0.08	0.00	0.00
Age Order Change due to Non-traditional Sibs	0.12	0.00	0.56	0.76	0.76
Age Order Change - Move Up in Age Order	0.08	0.00	0.25	0.52	0.47
Age Order Change - Move Down in Age Order	0.03	0.00	0.20	0.24	0.13
Missing Age Order Change	0.00	0.00	0.08	0.00	0.00
Family Structure:					
Two Biological Parent Families (n=7,243)	0.59	0.47	0.14	0.15	0.04
Single Mother (n=2,825)	0.22	0.40	0.05	0.37	0.04
Single Father (n=385)	0.03	0.04	0.00	0.01	0.02
Married Stepfather (n=1,515)	0.12	0.07	0.48	0.36	0.57
Married Stepmother (n=316)	0.02	0.01	0.28	0.05	0.31
Cohabiting Stepfather (n=293)	0.03	0.02	0.01	0.06	0.02
Race/Ethnicity:					
White (n=6,929)	0.69	0.70	0.71	0.60	0.76
African American (n=2,489)	0.14	0.13	0.11	0.22	0.06
Hispanic/Latino (n=2,096)	0.12	0.12	0.16	0.14	0.12
Asian (n=954)	0.04	0.04	0.02	0.02	0.03
Gender:					
Male (n=6156)	0.50	0.50	0.52	0.48	0.48
Female (n=6447)	0.50	0.50	0.48	0.52	0.52
N	**12,603**	**10,518**	**289**	**1,695**	**101**
Weighted % of Full Sample	**100.0**	**84.0**	**2.3**	**12.9**	**0.8**

Simple sibling composition includes only full-biological or adopted siblings.
Complex sibling composition includes step-siblings, alone or in conjunction with full-biological and/or adopted siblings.
Simple-blended sibling composition includes half-siblings, alone or in conjunction with full-biological and/or adopted siblings.
Complex -blended sibling composition includes both step- and half-siblings, alone or in conjunction with full-biological and/or adopted siblings.

Table 2: Weighted Means of Academic, Socioeconomic, Control, and Family Relationship Variables, by Sibling Composition

	All Sibling Compositions (Full Sample)	Simple Sibling Composition	Complex Sibling Composition		Simple-Blended Sib Composition		Complex-Blended Sib Composition
Academic Outcome Variables:							
High College Expectations (0-1)	0.54	0.56	**0.44**	*	**0.44**	*	0.54
Self-Reported GPA (1-4)	2.84	2.86	**2.67**	*	**2.68**	*	2.83
School-Related Behavior Problems (0-4)	0.98	0.97	**1.11**	*	**1.06**	*	1.00
Family SES Variables:							
Mother's Working Status (full-time/not full-time)	0.49	0.49	0.47		0.47		**0.32**
Parents < H.S. Education	0.12	0.11	0.10		**0.18**		**0.06**
Parents Have H.S. Education	0.31	0.30	0.29		0.36		0.35
Parents > H.S. Education	0.54	0.56	0.56		**0.41**		0.56
Parents Education Missing	0.03	0.03	0.05		0.05		0.03
Family Income <= $15,999	0.14	0.12	**0.07**		**0.25**		**0.09**
Family Income $16,000-$34,999	0.21	0.20	0.20		0.25		0.22
Family Income $35,000-$59,999	0.25	0.26	0.25		0.20		0.23
Family Income > $59,999	0.20	0.22	**0.26**		**0.12**		0.20
Family Income Missing	0.20	0.20	0.22		0.18		0.26
Proportion of Life Spent in Current Residence	0.45	0.47	**0.33**		**0.32**		**0.25**
Public School	0.93	0.93	0.94		0.97		**0.90**
Private School	0.07	0.07	0.06		0.03		**0.10**
Control Variables:							
Age	15.51	15.51	15.54		15.50		15.61
1st Generation Immigrant	0.05	0.05	0.05		0.05		**0.01**
2nd Generation Immigrant	0.11	0.11	**0.06**		0.10		0.13
3rd Generation Immigrant	0.84	0.84	0.89		0.85		0.86
Urban School	0.25	0.25	0.26		0.27		0.26
Rural School	0.16	0.16	0.14		0.14		0.18
Suburban School	0.59	0.59	0.61		0.59		0.57
Residence in West	0.17	0.17	0.18		0.16		0.18
Residence in South	0.38	0.38	0.37		0.38		0.35
Residence in Northeast	0.13	0.13	0.11		0.12		0.14
Residence in Midwest	0.33	0.32	0.33		0.35		0.33
Family Relationship Variables:							
Parent's Expectations for College Degree (1-5)	3.96	3.99	**3.65**		**3.83**		4.09
Overall Family Relationship Quality (1-5)	4.02	4.04	3.93		3.88		**3.81**
Parent-Child Conflict (0-1)	0.39	0.39	0.39		0.41		0.42
Parental Supervision (0-4)	2.93	2.94	**3.05**		2.85		**3.06**
N	12,603	10,518	289		1,695		101

*p<0.05 (Reference category = Simple Sibling Composition)