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Race/Ethnic Differences in Effects of Family Instability on Adolescents' Risk Behavior

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Abstract

We used data from the National Longitudinal Study of Adolescent Health ($N = 7,686$) to determine whether racial and ethnic differences in socioeconomic stress and social protection explained group differences in the association between family structure instability and three risk behaviors for White, Black, and Mexican American adolescents: delinquent behavior, age at first nonmarital sex, and age at first nonmarital birth. The positive association between mothers' union transitions and each outcome for White adolescents was attenuated by social protection. The association of instability with age at first sex and first nonmarital birth was weaker for Black adolescents, but not for Mexican American adolescents. The weaker association was explained by Black adolescents' more frequent exposure to socioeconomic stress in the context of union instability.

Keywords

Development/outcomes; Adolescence; Family Diversity; Family Structure; Social Context

A growing body of research has documented that family instability, defined as children's exposure to repeated changes in a parent's union status, has negative consequences for children's and adolescents' behavioral adjustment and school performance, independent of family structure at any point in time (Cavanagh & Huston, 2006; Fomby & Cherlin, 2007; Wu, 1996). The social significance of family instability has increased with its prevalence: today, approximately one-fifth of adolescents in the United States have experienced two or more changes in family structure (Cavanagh, 2008), a significant contrast to family organization during much of the twentieth century (Cherlin, 2009). The consequences of instability for children have become increasingly salient as the prevalence of births within cohabiting unions has increased (Chandra, Martinez, Mosher, Abma, & Jones, 2005) while cohabiting unions have remained relatively unstable union types compared to marriage (Manning, Smock, & Majumdar, 2004); as research has sought to explain why children born to single mothers who remain unmarried fare at least as well and perhaps better than children residing in stepfamilies (Cherlin & Furstenberg Jr., 1994); and as researchers have

evaluated the consequences of marriage promotion programs targeted at low-income single mothers (Graefe & Lichter, 2007).

Despite the increasing relevance of family instability to explain variation in children's behavioral and academic development, there has been little research to explain a provocative finding: instability appears to have a strong association with some aspects of behavioral development for White children, but not for Black children (Fomby & Cherlin, 2007; Wu & Martinson, 1993; Wu & Thomson, 2001). To address this discrepancy, we test two explanations that have been posited to explain racial and ethnic differences in children's adjustment to family change: *social protection* and *socioeconomic stress* (McLoyd, Cauce, Takeuchi & Wilson, 2000). We use nationally representative data to compare the relative importance of these mechanisms for explaining differences in the association of family structure instability with three risk behaviors for White, Black, and Mexican American adolescents: self-reported delinquent behavior, age at nonmarital sexual initiation, and age at first nonmarital birth.

Studies of family structure instability have added to earlier research that used static measures of family structure by testing the theory that repeated disruptions to the family system, caused by either the addition or departure of a parent's partner, may lead to behaviors with potentially deleterious long-term consequences. Although a full causal chain has not been identified, various explanations for why instability matters for children's behavior have been supported by empirical research. These include children's repeated exposure to poor union quality in the context of dissolving or newly forming unions (Fomby & Osborne, 2008), compromised parent-child relationships in response to persistent instability (Cavanagh, 2008), maternal stress following a family structure transition (Osborne & McLanahan, 2007), and co-occurring disruption to broader social contexts (Krohn, Hall & Lizotte, 2009).

A subset of literature testing the instability hypothesis has identified significant differences between Black and White children in the association of family structure transitions with some behavioral outcomes. In sum, this work indicates that family structure transitions, as measured by the entry into or exit from a household by a mother's married or cohabiting partners, have deleterious consequences for White children, but not for Black children. Using data from the 1979 National Longitudinal Survey of Youth (NLSY79), Wu and Thomson (2001) found that family structure transitions were associated with a higher risk of first intercourse at an early age for White women, but not for Black women. Wu and Martinson (1993) and Wu (1996) found that the effect of family structure instability on nonmarital births was weaker for Black than for White young women.

Using the NLSY79 and the Children of the NLSY (CNLSY), Fomby and Cherlin (2007) reported that White children aged 5 to 14 who experienced more family structure transitions had more externalizing behavior problems; and for children 10 to 14, transitions were positively associated with self-reported delinquent behavior after controlling for attributes of the mother's background. For Black children, these associations were absent. To date, research on family structure instability has not reported on the presence or absence of differences in the effect of family structure instability on these outcomes for racial and ethnic groups other than White and Black children.

Two hypotheses suggested by research on children's exposure to family conflict and divorce may explain why family instability has a stronger association with behavior for White adolescents than for Black adolescents (see McLoyd et al., 2000 for a review). First, Black adolescents, who tend to reside in more economically stressful environments than White adolescents, may absorb the addition or departure of a household member as one more

change in a context defined by turbulence (the *socioeconomic stress hypothesis*). Second, Black adolescents may have greater average access than White adolescents to extended kin and other adult role models inside or outside of the parental household, and those adults may help the child to absorb the impact of family structure change (referred to as the *protection hypothesis*). To our knowledge, these hypotheses have not been tested together previously in an attempt to explain racial and ethnic differences in the effects of family structure change.

Socioeconomic Stress Hypothesis

The socioeconomic stress hypothesis asserts that factors related to persistent poverty and unemployment overwhelm the effect of changes in family structure on adolescents' development, and racial and ethnic differences in exposure to these factors will explain observed racial and ethnic variation in the association of instability with adolescent outcomes. This hypothesis is grounded in family stress theory, which posits that a family's ability to recover from stressful circumstances is dependent on the nature of the stressor, the coping resources available in the family, and family members' perception of the event. Stressors may arise internally or externally, and may derive from any number of circumstances, including financial strain, a health crisis, or a change in family structure (Boss & Greenberg, 1984; Hill, 1949). To the extent that financial insecurity represents a source of strain and is overrepresented among non-White families, family stress theory would predict race differences in how adolescents respond to repeated family structure change. Specifically, characteristics such as relatively low educational attainment and labor force attachment and poor neighborhood quality may diminish coping resources in the face of family structure change, and may exacerbate the consequences of such change.

Evidence for the socioeconomic stress hypothesis comes from a variety of sources. In a meta-analysis of the effects of divorce on children in adulthood, Amato and Keith (1991) posited that many children of color experience more generally stressful environments that diminish the unique impact of a single event like a divorce. Additional evidence comes from a longitudinal study in which African American children in married-parent families that eventually divorced had lower family incomes prior to divorce and were less likely to have increased externalizing behavior problems following divorce compared to European-American children (Shaw, Winslow, & Flanagan, 1999). The authors concluded that among the African American families considered, the risk of divorce or separation is tied to poverty and unemployment, conditions that potentially influence adolescents' development at least as much as family structure instability itself. In a sample of middle school students, scholastic performance was lower among White students who had experienced a parental divorce since the second grade; among Black students, scholastic performance was lower among those who had experienced a divorce prior to kindergarten (Smith, 1997). The author concludes that White children's response to divorce was related to exposure to conflict and the emotional trauma of separation, and Black children's response resulted from the economic disadvantage associated with residing in a single-parent family.

Race/ethnic differences in socioeconomic context at the neighborhood level also may explain group differences in the association of family structure instability with adolescent risk behavior. In neighborhood contexts where nonmarital family organization and family structure instability are more pervasive, the dissolution and formation of unions within an adolescent's household may be relatively less stressful to adolescents to the extent that those changes are more normative, whether family instability is characterized locally by changes in cohabiting union status (Edin & Kefalas, 2005) or by divorce and remarriage. At the same time, adolescents residing in neighborhoods characterized by high levels of concentrated poverty and minority racial segregation are relatively more likely to engage in delinquency and early family formation (Baumer & South, 2001; Billy, Brewster, & Grady, 1994;

Wilson, 1987). Concentrated neighborhood poverty may influence adolescents' risk-taking behavior through greater exposure to social disorganization and lower social cohesion (Billy et al., 1994), peer attitudes that promote risk-taking behavior (Baumer & South, 2001), and a perceived shortage of long-term economic prospects (MacLeod, 2008).

Compositional differences between the families of Black adolescents and White adolescents that are predictive of union disruption also may be indicative of socioeconomic strain. Among children in married unions, compositional factors include age at first birth, nonmarital childbearing, educational attainment, and age at union formation (Sweeney & Phillips, 2004). Black adolescents are also more likely than are White adolescents to have been born to single mothers or into cohabiting unions, family forms that are associated with a higher likelihood of poverty, lower educational attainment, and unemployment (Manning & Lichter, 1996; McLanahan & Sandefur, 1994).

Protection Hypothesis

An alternative explanation for the racial differences observed in the effects of partner instability is the *protection hypothesis*, which asserts that children of color are insulated from the impacts of parental separation and the conflict that precedes separation by having access to a broader network of kin and kinlike figures who can provide emotional and instrumental support both to children and to parents during disruptive periods. This hypothesis derives from family systems theory, which posits that disruption to a functional family system causes deleterious effects for children independent of the *type* of family structure children are in. For example, prior work has assessed changes in relations between the mother-child dyad following a family structure transition (Cavanagh & Huston, 2008). We consider a broader context of kinship and mentoring relationships that includes contact with adult kin as well as adult nonkin to whom adolescents are connected through neighborhood or social institutions such as church and school. Adolescents engaged in a broader system of connectedness with adults may be better able to absorb the impact of nuclear family change if the extended support system remains otherwise stable. Our argument focuses primarily on relationships with adult kin and participation in religious networks because we anticipate greater ethnic variation in the frequency and quality of these relationships than in other relationships. Empirical support includes evidence that adolescents who report high levels of parental involvement and attachment to school and/or religious institutions are more likely than otherwise similar adolescents to abstain from delinquent behavior (Cook, Buehler, & Henson, 2008) and to defer sexual initiation (Small & Luster, 1994) and less likely to experience a nonmarital birth (Bearman & Brueckner, 2001).

The protection hypothesis is founded on two premises. The first is that embeddedness in broader social networks protects children against negative emotional and social effects of conflict between parents and union instability (McLoyd et al., 2000). Kin and nonkin social support may operate directly by providing a resource for adolescents seeking emotional or instrumental support (Hetherington & Kelly, 2002; Mason, Cauce, Gonzales, Hiraga, & Grove, 1994), or indirectly by providing support to parents, thereby enabling parents to maintain positive parenting practices with adolescents during disruptive periods (Mason et al., 1994; Taylor, 1996).

The second premise is that non-White adolescents and families have greater access to kin networks and use them more than do White adolescents and families. Research shows that organization in African American families has historically extended beyond the nuclear household (Newman, 1999; Sarkisian, 2007; Wilson, 1986); that Black families are more likely to reside in extended kin households than are White families (Casper & Bryson,

1999); and that noncoresident Black kin are more likely to reside near one another (Parish, Hao, & Hogan, 1991; Wilson, 1986). Critics argue that structural and socioeconomic factors have diminished the capacity for kin support in Black families over time (Brewster & Padavic, 2002; Wilson, 1987), but recent research indicates that instrumental kin support such as child care in Black families remains available and effective (Richardson, 2009; Sarkisian & Gerstel, 2004).

Adolescents also may differ by race in their contact with unrelated adults through religious institutions. Nearly three-quarters of Black adolescents and two-thirds of Hispanic adolescents reside in families that attend religious services at least monthly, compared to half of White adolescents. Among Black female adolescents, moderately frequent attendance at places of worship is associated with lower odds of being sexually active, independent of personal and family religiosity (Ball, Armistead, & Austin, 2003), and overall, teens with greater religious orientation and more frequent church attendance are more likely to defer sexual initiation until late adolescence (Sinha, Cnaan, & Gelles, 2007).

Incorporating Mexican American Families

With some exceptions, research identifying ethnic differences in the effect of family structure instability on adolescent outcomes has been restricted mostly to comparisons of Black and White adolescents, although Hispanics represent a growing share of the U.S. population. Osborne and McLanahan (2007) found that family instability in early childhood was associated with significantly higher predicted behavior problem scores for Hispanics compared to non-Hispanic Whites at age 3. Using data from the National Longitudinal Study of Adolescent Health (Add Health), Heard (2007) found that the association of family instability with adolescents' self-reported grades was similar for Black, White, and Hispanic groups, but Hispanics were distinctive in that time spent residing outside of a parental household with relatives or foster parents was not associated with negative academic consequences.

Given the variety of family structure experiences and norms among Hispanic subgroups, our analysis is restricted to Mexican American adolescents with U.S.-born or foreign-born parents. Compositionally, Mexican American families are similar to Black families in their rates of poverty and involvement in extended kin networks (Sarkisian, Gerena, & Gerstel, 2007), suggesting that hypotheses to explain differences in the effects of instability between Black and White adolescents may be germane for Mexican Americans as well. However, low-income Mexican Americans have higher rates of marriage compared to Blacks (Raley, Durden, & Wildsmith, 2004), and descriptive evidence supports the notion that among Latinos in the United States, cohabitation is a distinctive family form characterized by greater prevalence of childbearing, more frequent pregnancy intendedness, and more stability compared to cohabiting unions among non-Latino couples (Manning, 2004; Osborne, Manning, & Smock, 2007). These attributes of Latinos' cohabiting unions and marriages imply that children born into those unions experience greater stability compared to Black children, which may in turn imply a distinctive pattern of effects of instability on adolescent outcomes. We explore these competing explanations to determine whether the effects of family structure instability among Mexican Americans are distinctive or whether they resemble patterns observed among White or Black adolescents.

Risk Behaviors

The behaviors considered here – delinquency, sexual initiation, and nonmarital childbearing – are connected by the pattern of observed racial differences in their association with family structure instability in previous research. Beyond that, the three outcomes complement one another for analysis because they cohere around a chain of behavior, with early delinquency

found to be associated with early sexual initiation (Whitbeck, Yoder, Hoyt, & Rand, 1999) and greater risk-taking with contraceptive methods (Pugh, DeMaris, Giordano, & Groat, 1990). Early sexual initiation in turn is associated with an elevated risk of adolescent pregnancy (Pugh et al., 1990). The likelihood of each outcome increases with exposure to socioeconomic stress in childhood (Agnew, Matthews, Bucher, Welcher, & Keyes, 2008; Duper, Lacourse, Willms, Leventhal, & Tremblay, 2008) and decreases with exposure to social support (Paul, Fitzjohn, Herbison, & Dickson, 2000; Richardson, 2009), making the set of outcomes appropriate for consideration in the current framework. Finally, each of these behaviors in adolescence has been linked with negative repercussions throughout the life course, making them important “red flags” for problematic future socioeconomic, family-building, and health outcomes (Furstenberg, 2007; O'Donnell, O'Donnell, & Stueve, 2001; Taylor, 2009). We recognize that there are gender and age differences in reporting delinquency and sexual activity, and we control for those demographic characteristics in our empirical analysis.

Method

Add Health (Udry, 2003) is a nationally representative, school-based longitudinal study of students who were in grades 7–12 during the 1994–1995 school year. A sample of 80 high schools and 52 middle schools from the United States was selected with unequal probability of selection. The sample is representative of U.S. schools with respect to region of country, urbanicity, school size, school type, and ethnicity (Harris, Florey, Tabor, Bearman, Jones, & Udry, 2003). A sample of rostered students was drawn from each participating school for a follow-up home interview with the adolescent and the adolescent's parent (usually the mother). Adolescents who participated in in-home interviews ($N=20,745$, response rate=79%) and who were not high school seniors at Wave I were reinterviewed in 1996 and 2000. Wave I high school seniors were excluded in Wave II and reintroduced in Wave III. Results from the weighted sample adjusted for complex sampling design are representative of adolescents who were enrolled in 7th to 12th grade in the 1994–1995 school year (Chantala & Tabor, 1999).

Exclusions and Attrition

To replicate prior research, we restricted our analysis to include only adolescents who always resided with their biological or adoptive mother (excluding 3,948 adolescents, or 19 percent of the sample). We included eligible adolescents whose mothers provided in-home interviews and complete histories of their own unions (excluding 6,182 eligible adolescents, or 36 percent). We included adolescents whose mothers self-identified as non-Hispanic White, non-Hispanic Black, or Mexican American and who participated at Wave I and Wave III (excluding 2,533 eligible adolescents, or about 20 percent), regardless of whether they participated at Wave II. Approximately 800 eligible adolescents (4.6 percent) were lost due to missing data on independent variables. Our baseline analytic sample included 7,686 adolescents. As a result of these exclusions, the analytic sample was distinctive from the overall sample. Adolescents in the analytic sample experienced .10 fewer family structure transitions on average and resided in higher-income households and neighborhoods at Wave I. Mothers of adolescents in the analytic sample were more often non-Hispanic White than are mothers of excluded adolescents. The two groups were statistically equivalent in their adolescent delinquency scores and age at first nonmarital birth, but the analytic sample experienced somewhat later sexual initiation. Because of the relatively better circumstances of adolescents in the analytic sample, we expected that our analysis would provide a conservative test of our hypotheses.

Dependent Variables

We developed analytic models for three dependent variables for which differential associations with family structure instability by race for Black and White adolescents have been established: self-reports of delinquent acts committed in the year before the Wave I interview; age at first nonmarital intercourse, as reported by Wave III; and age at first nonmarital birth, as reported by Wave III. Self-reported delinquency was a summed score based on 15 items addressing how frequently in the last year an adolescent engaged in a variety of behaviors, ranging from rowdy public behavior to theft and assault. Respondents recorded their responses to these items using audio computer-assisted self-interviews in order to reduce nonresponse and increase validity. Response values to each item ranged from 0 (never) to 3 (5 or more times). The summed score had a valid range from 0 to 45 ($\alpha=.95$ for the full sample). We used responses from Wave I, rather than from Wave II, in order to preserve sample size, but the association between family structure instability and delinquency at either wave was similar. The other two dependent variables were based on the adolescent's report of having had nonmarital sexual intercourse or a nonmarital birth at Wave II or Wave III. The analysis of sexual initiation excluded adolescents who had first intercourse before the Wave I interview, and the nonmarital birth analysis excluded adolescents who experienced a live birth before Wave I or up to 10 months after the Wave I interview. Analyses included boys and girls, and models included a control variable for gender.

Independent Variables

Race and ethnicity were based on the mother's reported self-identification, with multiracial mothers recoded into the category that mothers reported best described their own race. If the mother did not report her own race, we relied on the interviewer's recorded observation. We focused on mother's race and ethnicity because our primary interest is in how her union history relates to her adolescent's development, and we expected union history to be associated with a mother's own race. For expository convenience, we assign the mother's race/ethnic classification to her adolescent in our discussion of results.

The number of family structure transitions an adolescent experienced from birth to Wave I was based on mother's self-reported union history, mother's self-reported current union status, the adolescent-reported household roster, and the adolescent's report of the relationship with his/her biological father. A transition was defined as a mother's entry into or exit from a cohabiting or marital union. Transitions from cohabitation to marriage and from separation to divorce were not counted as additional transitions. In describing their union histories, mothers reported on their three most recent unions. In addition, mothers reported their union status at the time of their adolescent's birth. If she was single at birth and reported marrying or cohabiting with the biological father later, that was counted as an additional transition. In total, an adolescent might have experienced up to nine reported changes in family structure by Wave I. Because the mother's union history was truncated at the third most recent union, the number of transitions is potentially underestimated.

Based on prior research, we expected to find that family structure instability had selective independent effects on child outcomes above and beyond adolescents' particular family structure at any single point in time. Therefore, our model of family structure history accounted for family structure at birth and at the time of the Wave I interview. At each time point, family structure was characterized by whether the adolescent's mother was single, married, or cohabiting. If the mother was married or cohabiting at the time of the child's birth, we assumed she resided with the child's biological (or adoptive) father. If the mother was married or cohabiting at Wave I, she might have been residing with the child's biological (or adoptive) father or with another partner. Due to small cell sizes in some

categories, our model of Wave I family structure accounted only for the mother's marital status, and not the relationship of the mother's partner to the adolescent.

We employed a variety of indicators to test the *socioeconomic stress* hypothesis. Attributes related to the adolescent's home environment included mother's age at adolescent's birth; mother's highest level of education at Wave I; family income as a percentage of the federal poverty level in 1994 (with regression-based imputed values assigned for 7.5 percent of cases with missing data); mother's employment status at Wave I; and mother and adolescent health status at Wave I (excellent or good vs. fair or poor). Six attributes related to the adolescent's neighborhood context. The first was an average score based on a 5-item scale assessing mother's perception of neighborhood quality, with a higher score indicating more perceived problems in the neighborhood. The remaining five indicators were drawn from aggregated 1990 Census data reported at the tract level for the adolescent's neighborhood. These attributes were converted to standardized scores for analysis. They included a composite measure of socioeconomic status at the Census tract-level (based on the proportion of adult residents who were unemployed, the average income in the tract, the proportion of adult residents with a college degree, and the proportion of adult residents who were in a managerial or professional occupation); the proportion of residents who were African American; the proportion of residents who were Hispanic; the proportion of households that were female-headed; and the proportion of housing units that were owner-occupied.

Factors pertaining to the *protection hypothesis* reflect children's connectedness with adults and social institutions. We tested four sets of protective factors. First, coresidence with extended kin was based on the adolescent-reported household roster (not residing with kin at Wave I; residing with kin who were present in the household for at least the last quarter of an adolescent's life; and residing with kin who were present for more than one quarter of an adolescent's life). This categorization distinguished between short-term coresidence that might have arisen from prior union instability and long-term kin arrangements. Because kin coresidence was based on the adolescent's household roster at Wave I, our measure only captured coresidence that was ongoing.

Second, neighborhood embeddedness was represented by three indicators: the mother's identification of either contact with kin or being born in the neighborhood as the primary reason for residing in her current neighborhood; a two-item summed scale based on a maternal report of willingness to intervene in solving neighborhood problems, with a higher score indicating greater willingness; and an average score from a 4-item series of questions asking adolescents about their contact with neighbors and perceived neighborhood safety ($\alpha=.72$), with a higher score indicating more frequent contact and greater perceived safety.

Third, quality of relationships with adults was represented by two variables. Mother/adolescent relationship quality was represented by a single-item adolescent report from Wave I indicating the adolescent's general satisfaction with the relationship, with a higher score indicating greater satisfaction (scale=1 to 5). Protective relationships with others was represented by the adolescent's average score in response to seven items about his/her sense that adults, peers, and family members cared about him/her, with a higher score indicating more positive feelings ($\alpha=.98$). We also included an indicator of whether an adolescent was involved in a romantic relationship at Wave I because we expected that romantic unions would be predictive of sexual initiation and nonmarital childbearing, and adolescents who experienced family structure instability would be more likely than those from stable families to enter romantic relationships in adolescence (Cavanagh, Crissey, & Raley, 2008).

Fourth, connection to social institutions was represented by three variables. Adolescent's weekly or more frequent attendance at religious services during the last year was a dichotomous self-reported measure. The adolescent's report of positive school attachment was based on an average score from a 6-item scale assessing students' feelings of connectedness at school and satisfaction with the school environment ($\alpha=.80$). His/her report of negative school attachment was based on a 4-item scale assessing the frequency of problems with peers, teachers, or coursework ($\alpha=.87$).

Our control measures included adolescent's gender and age at Wave I, mother's nativity, and a dichotomous indicator of whether an adolescent considered religion very important or fairly important (1) or not important (0). Tolerance statistics for the independent variables were acceptable (Menard, 1995), with minimum values around .33 among measures of neighborhood ethnic composition.

Our models estimated predicted outcome scores on three dependent variables as a function of the number of family structure transitions an adolescent experienced by Wave I, other family structure indicators, and indicators of socioeconomic stress and social protection. The adolescent's number of delinquent behaviors exhibited in the year prior to Wave I was estimated using a negative binomial regression to account for the skewed distribution of the dependent variable. Age at first nonmarital sexual intercourse and age at first nonmarital childbirth by Wave III were predicted using Cox proportional hazard models. All models were weighted and account for complex survey design. Because our analyses included Census tract-level data, we treated observations as clustered at the tract level, rather than at the school level.

Research Design

The first stage of our analysis estimated the strength of the association between the number of family structure transitions experienced and each of the outcomes considered for non-Hispanic White, Black, and Mexican American adolescents in a pooled model with interaction terms to determine whether between-group differences could be identified. The second stage of our analysis tested the socioeconomic stress hypothesis against the protection hypothesis to explain racial and ethnic differences in the association of instability with adolescent outcomes. Our one-tailed hypothesis was that family structure instability is *less* consequential for non-Whites compared to Whites. Therefore, although our tables report two-tailed significance tests for our race/ethnicity interactions with family structure instability in order to be consistent with significance tests for other variables, our discussion emphasizes one-tailed tests.

Results

Descriptive Results

Table 1 presents unweighted summary statistics for the analytic sample. Within each race/ethnic category, summary statistics are reported for adolescents who have experienced no transitions or one or more transitions. Black adolescents experienced about fifty percent more maternal union transitions by Wave I on average compared to White adolescents, and Mexican American adolescents experienced about the same number of transitions as Whites. White adolescents were less likely to experience any family change, but those who did experienced it slightly more frequently than Black or Mexican American adolescents (group differences not statistically significant). The nature of union status changes also varied by race and ethnicity. Black adolescents who experienced family instability were more likely than adolescents in other race/ethnic groups to have been born to a single mother and to return to residing with a single mother by Wave I. Mexican Americans who experienced

family structure change were more likely than Whites to be born to single mothers, but the majority of transitioning Mexican Americans were in married families by Wave I.

White adolescents had more socioeconomic resources on average compared to Black and Mexican American adolescents, at both the household and neighborhood levels (race-ethnic group differences significant at $p < .05$). All race-ethnic groups were more likely to have fewer socioeconomic resources when they experienced union transitions compared to when they had not. Black adolescents were less likely than White adolescents to experience a dropoff in their access to social protection when they had experienced family structure instability. Specifically, Black adolescents had high relationship quality with their mothers regardless of instability and only small differences in their relationship quality with other adults. Black adolescents also reported higher religiosity and more frequent church attendance compared to White adolescents regardless of their instability history, and their levels of positive and negative school attachment did not vary significantly by instability experience. Mexican American adolescents were mixed, experiencing the absence of social protection on relationship quality with mother and other adults and poorer school attachment when they had experienced family structure transitions, but heightened social protection in terms of mother's perception of neighborhood connectedness.

With regard to the dependent variables, White adolescents who have experienced family structure transitions had significantly higher delinquency scores compared to those in stable families. Black adolescents' delinquency scores were similar to those in stable White families regardless of union instability, and Mexican American adolescents had higher delinquency overall. Black adolescents were more likely than Whites to begin having sexual intercourse and to do so at younger ages, and Hispanic adolescents delayed sexual initiation relative to White adolescents. White adolescents had the greatest difference by transition experience in the proportion ever having sexual intercourse. White and Black adolescents both more often had nonmarital births when they experienced union instability, but the group difference is greater for Whites. Mexican American adolescents were more likely than either other racial/ethnic group to experience a nonmarital birth, regardless of prior family structure instability. The average age of sexual initiation and nonmarital childbearing generally did not vary by race/ethnicity or family structure instability.

Multivariate Results

Delinquency—Table 2 reports selected unstandardized coefficients representing the main effects of family structure transitions and race and ethnicity and the interaction terms between family structure transitions and race/ethnicity. The baseline model indicated a positive main effect of family structure transitions in predicting adolescent self-reported delinquent behavior. For every additional family structure transition a White adolescent (the reference category for race/ethnicity) experienced, his or her predicted delinquency score increased by a factor of 1.085 ($\exp(.082) = 1.085$; $p < .001$). The main effects of race and ethnicity for Black and Mexican American adolescents were statistically nonsignificant. The interaction terms between race/ethnicity and family structure transitions were also nonsignificant, indicating that there was no difference by race or ethnicity in the association of family structure instability with adolescents' self-reported delinquent behavior. These results failed to replicate the racial differences found by Fomby and Cherlin (2007).

Accounting for family structure at birth and at Wave I in model 2 reduced the magnitude of the main effect of family structure transitions by 25 percent and reduced the associated significance level from $p < .001$ to $p < .01$. Model 3 indicated that the socioeconomic stress hypothesis did little to explain the association between the main effect of family structure instability and delinquent behavior. The main effect of family instability remained statistically equivalent to its effect in model 2.

Model 4 shows that indicators of social protection had relatively more explanatory power and better model fit than did indicators of socioeconomic stress. The main effect of family structure transitions was reduced by about 90 percent compared to model 2 and lost statistical significance. The main effect for Mexican American ethnicity was positive and statistically significant at the $p < .001$ level, indicating that Mexican American adolescents would have had higher predicted delinquency scores in the absence of ethnicity-specific social protection. Better relationship quality with one's mother, better relationship quality with adults, and long-term coresidence with extended kin were negatively associated with lower predicted delinquency scores. Negative school attachment, adolescents' report of poor neighborhood embeddedness, and involvement in a romantic relationship predicted higher delinquency scores. In stepwise regressions (not shown), relationship quality with adults and negative school attachment had the strongest effect on reducing the magnitude of the main effect of family structure instability. These relationships held in the full model presented in the last column of table 2.

Age at first nonmarital intercourse—Table 3 presents selected coefficients from the proportional hazard model estimating age at first nonmarital intercourse. The covariates in each model were identical to those used to predict delinquent behavior scores. In the proportional hazard models framework, the exponentiated value of the coefficient is the hazard ratio. The hazard ratio represents the relative risk of experiencing an event when the value of a selected variable is $x + 1$ compared to when the value of that variable is x . A one-unit increase in the number of transitions experienced was associated with an elevated risk of first intercourse for White adolescents ($\exp(.083) = 1.086$, $p < .001$). The main effect of race for Black adolescents was positive and significant ($\exp(.349) = 1.417$, $p < .001$). However, the interaction term for Black adolescents who have experienced at least one family structure change was *negative* (i.e., the hazard ratio of .925 is less than one) and significant at $p < .025$ in a one-tailed test, indicating that there was a weaker association of family structure instability with nonmarital sexual initiation for Black adolescents than there was for White adolescents. In fact, for Black adolescents, the main effect of family structure change and the interaction term nearly perfectly offset each other. These results replicate findings in Wu and Thomson (2001). For Mexican American adolescents, the interaction term between ethnicity and family structure change was small and statistically nonsignificant, indicating that White and Mexican American adolescents were similar in the association of family structure transitions with the risk of nonmarital sexual initiation.

Model 2 accounted for family structure at birth and at Wave I. The main effect of family structure instability was reduced by about 40 percent ($\exp(.051) = 1.052$, $p < .05$) and the interaction term between Black race and family structure instability was reduced by approximately 10 percent ($\exp(-.068) = .934$). Given that our hypothesis of group difference was a one-tailed test – that is, we expected that family structure instability was *less* consequential for Black adolescents compared to Whites – we emphasize that the change in the significance level associated with the interaction term remained significant at $p < .05$.

Model 3 added indicators of socioeconomic stress to model 2. Accounting for family-level and neighborhood-level socioeconomic characteristics reduced the magnitude of the direct effect of race for Black adolescents ($\exp(.161) = 1.175$, $p < .10$) and reduced the magnitude of the interaction term between Black race and family structure instability by another five percent, giving some support to the hypothesis that race differences in the effect of family structure instability are attributable to group differences in the socioeconomic status correlates of instability. However, the interaction term remained statistically significant at the $p < .05$ level in a one-tailed test. Stepwise regressions (not shown) indicated that family-level socioeconomic characteristics including maternal age at birth and mother's post-high school education reduced the main effect of family structure instability, and neighborhood-

level socioeconomic characteristics including neighborhood socioeconomic status reduced the main effects of race and ethnicity. The covariates added to model 3 significantly improved model fit compared to model 2.

Model 4 added covariates measuring social protection to model 2. Social protection factors reduced the magnitude of the main effect of family structure instability ($\exp(.026)=1.026$, $p<.10$). For White adolescents, the elevated risk of early sexual initiation associated with family structure transitions was explained by the co-occurrence of instability and diminished social protection. Accounting for social protection slightly reduced the risk of nonmarital sexual initiation for Black adolescents compared to model 2. Social protection factors also have a very marginal attenuating effect on the interaction term between Black race and family structure transitions compared to model 2 ($\exp(-.066)=.936$, $p<.05$ in a one-tailed test), indicating that race differences in the association of instability with sexual initiation were only partially attributable to group differences in social protection among those adolescents who experienced family structure transitions. Stepwise regressions (not presented) showed that relationship quality with adults, frequent church attendance, negative school attachment, and romantic involvement reduced the association between family structure instability and sexual initiation. This pattern of relationships held in the full model, where the main effect of family structure instability was statistically nonsignificant and the negative race/instability interaction for Black adolescents remained significant at the $p<.05$ level (one-tailed test).

Age at first nonmarital birth—Table 4 presents selected coefficients from the proportional hazard model estimating age at first nonmarital birth. These models echoed the preceding results for age at first intercourse. In the baseline model, the risk of experiencing a nonmarital birth by Wave III increased by 26 percent with each additional family structure transition ($\exp(.228)=1.26$, $p<.001$). The main effects of race and ethnicity were positive and significant for Black and Mexican American adolescents. The negative interactions between race/ethnicity and family structure instability were similar in magnitude for both non-White groups, but only the interaction for Black adolescents was statistically significant at $p<.01$ ($\exp(-.177)=.84$). Again, these results were consistent with prior work that has demonstrated race differences in the association of family structure instability with nonmarital births (Wu, 1996; Wu & Martinson, 1993).

In model 2, accounting for family structure at birth and at Wave I reduced the magnitude of the main effect for family structure transitions and Black race, but both remain significant at $p<.001$. The magnitude of the negative interaction term for Black race and instability was reduced slightly, and the significance level decreased from $p<.01$ to $p<.025$ (one-tailed test).

Model 3 added indicators of socioeconomic stress to model 2. Accounting for socioeconomic stress reduced the main effect of family structure instability by about 17 percent and the main effects of race and ethnicity by a similar proportion. Socioeconomic factors also reduced the magnitude of the interaction term between Black race and family structure by approximately 16 percent, and reduced statistical significance to $p<.05$ (in a one-tailed test). The chi-square statistic for overall model fit indicated a significant improvement over model 2. Household-level and neighborhood-level indicators of socioeconomic stress contributed about equally to improve model fit. Maternal age at birth, mother's post-high school education, and higher neighborhood socioeconomic status were associated with a lower risk of nonmarital childbearing, and higher proportions of female headship in a neighborhood were associated with an increased risk.

Model 4 added indicators of social protection to model 2. Including those factors reduced the magnitude of the positive main effect of family structure transitions by about 23 percent

($p < .01$) and reduced the negative interaction term between Black race and family instability by about nine percent ($p < .025$ in a one-tailed test). Social protection factors did not attenuate the main effects of race and ethnicity relative to model 2. Overall, social protection factors better explained the main effect of family structure instability than did indicators of socioeconomic stress (model 3); but socioeconomic stress indicators better explained the negative interaction between Black race and family structure instability compared to social protection factors. Quality of relationship with adults and frequency of church attendance had the strongest attenuating effect on the main effect of family structure instability, and positive school attachment attenuates the race/instability interaction term for Black adolescents. With social protection factors accounted for, the magnitude of the positive effect of Mexican American ethnicity and the negative interaction term between Mexican American ethnicity and family structure transitions both increased and were larger than the analogous effects for Black adolescents. However, the negative interaction term for Mexican Americans did not achieve statistical significance, suggesting a sample size limitation.

In the full model (model 5), accounting for both socioeconomic stress and social protection reduced the magnitude of the main effects of family structure instability and race and ethnicity and the associated interaction terms more than in either partial model. The main effect of family structure transitions remained statistically significant at $p < .05$. Other family structure indicators were more sharply attenuated. The interaction term between Black race and family structure transitions was significant at $p < .05$ in a one-tailed test, but the magnitude diminished by about 20 percent compared to model 2.

Supplemental analyses—We tested interactions between race/ethnicity and each indicator associated with our hypotheses and did not find evidence of moderating effects. We concluded that group differences in the effect of instability on the risk behaviors considered can be attributed to variation in the *levels* of social protection and socioeconomic stress experienced, rather than to group differences in *how* they are experienced. Recent work (Cavanagh & Huston, 2008; Cooper, Osborne, Beck, & McLanahan, 2008; Krohn et al., 2009) suggests that the direct association between family structure change and behavioral adjustment is stronger for boys than for girls. In models split by gender, we found a similar magnitude and significance of family instability effects for boys and girls, with one exception: the effect of instability in predicting sexual initiation for Black boys was significantly weaker than the effect for White boys in the baseline model (consistent with the pooled model presented in table 3). White and Black girls shared a similar increase in the risk of sexual initiation when they had experienced family structure instability.

Discussion

We used longitudinal data from the Add Health study to provide the first extensive test of two hypotheses that have been posited to explain race/ethnic differences in the effects of family structure for adolescents (McLoyd et al., 2000). We asked whether racial and ethnic variation in socioeconomic stress or socially protective factors explain reported differences in the association between family structure transitions and three risk behaviors for White, Black, and Mexican American adolescents: self-reported delinquency, age at first nonmarital sexual intercourse, and age at first nonmarital birth. Indicators pertaining to socioeconomic stress and social protection were drawn from the context of the adolescent's household, neighborhood, and social institutions at Wave I.

We found that among White adolescents, social protection factors attenuated the effect of family structure transitions on each of the three outcomes. The same was true for Black and Mexican American adolescents with regard to delinquency, but those groups diverged in regard to the other behaviors considered. In considering the relative risk of sexual initiation,

socioeconomic stress factors had a relatively greater, but still very small, attenuating effect on the negative interaction term between race/ethnicity and family structure instability for Black adolescents. The consistently small and nonsignificant interaction terms between ethnicity and family structure transitions for Mexican American adolescents indicated that they were statistically similar to non-Hispanic Whites in their response to instability with regard to sexual initiation. Our interpretation is that White adolescents who experienced family structure instability had less access to social protection compared to co-ethnic adolescents in stable family structures. Among Black adolescents, levels of social protection were similar regardless of family structure transition history, but those who have experienced instability resided in economically disadvantaged circumstances, and those circumstances had more impact than did family structure change on adolescents' risk of sexual initiation. In other words, if Black adolescents had socioeconomic circumstances comparable to Whites', the effect of family instability on the risk of sexual initiation would have been somewhat greater.

Both exposure to socioeconomic stress and diminished social protection partially explained the association between instability and the risk of nonmarital childbearing for White adolescents. Again, socioeconomic factors overwhelmed the effect of family structure change for Black adolescents. Assessing the *magnitude* of the ethnicity/instability interaction term for Mexican Americans, their story is similar to that for Black adolescents, but the interaction term did not achieve statistical significance, likely because of small sample sizes and relatively infrequent family instability in the Mexican American population.

Why might White adolescents have less access to social protection compared to other race/ethnic groups when they experience family instability? We speculate that lower social protection among White adolescents may result from relatively greater residential mobility following family structure change; or from selection effects such that among White parents, but not among parents in other race/ethnic groups, family structure instability may be caused in part by pre-existing weaker social ties. Black adolescents, in contrast, may be more likely to continue to coreside with kin or to make relatively short moves following a union transition and thereby maintain social connections (Parish et al., 1991). Socioeconomic stress may be more salient for Black adolescents if mothers' union transitions more often occur in the context of cohabitation, which is typically associated with fewer household income gains compared to marriage (Manning & Lichter, 1996); or if mothers who begin their union trajectories from a relatively disadvantaged position are more likely to experience subsequent transitions and thus struggle to accumulate economic advantage.

We generally found that both individual-and neighborhood-level socioeconomic factors had an attenuating effect on family instability, as well as having direct effects on each of the risk behaviors considered, but the relevant factors varied by outcome. For example, maternal age at birth, maternal education, and proportion of female-headed households in a tract had a stronger attenuating effect on instability compared to other measures in predicting nonmarital births, and mother's perception of neighborhood problems and proportion of owner-occupied housing in a tract were more salient in predicting delinquent behavior. We argue that household-level attributes attenuated the effect of instability on risk behaviors by revealing a spurious association. That is, mothers who had their first child at a young age may be likely to experience subsequent union instability and to influence their child to initiate sexual activity early. Neighborhood-level factors, on the other hand, may function as mediators between union instability and risk behaviors, particularly if parents and children are likely to relocate to lower-quality neighborhoods following union dissolution.

This is one of the first studies to include Mexican Americans in an assessment of race/ethnic variation in the association between family structure change and adolescent risk behaviors. In statistical terms, Mexican Americans appeared similar to non-Hispanic White adolescents in their response to family structure instability, although there is some ambiguity pertaining to nonmarital childbearing. This similarity is striking, given that the socioeconomic profile of Mexican Americans is more like that for Black than for White adolescents. We speculate that the likeness between Whites and Mexican Americans in the effects of family structure change on adolescent behavior may be attributable to the fact that family instability is relatively infrequent and therefore less normative in both groups, despite their different locations on the socioeconomic ladder. Where family instability occurs in Mexican American families, supportive kin and kinlike figures may be less effective in providing instrumental and emotional support just because repeated transitions are relatively uncommon events.

It is important to emphasize that neither hypothesis we tested *fully* explained why Black adolescents were less affected by family structure change with regard to sexual initiation or nonmarital childbearing. In part, this may be a measurement problem, as we lacked retrospective data on socioeconomic stress and social protection, and more fine-grained measures of type and frequency of contact with nonresidential kin and adult nonkin may have been more informative. We posit that tests of alternative hypotheses may be warranted, particularly those that consider normative attitudes and behavior. Together, our descriptive and multivariate data suggest that family instability may be less consequential for adolescents' development where it is more statistically normative, but further explication of that hypothesis requires a discussion of how statistical and cultural norms overlap. An alternative next step would be to move from an ecological focus to a process focus in order to identify how the accumulation of destabilizing events impacts adolescents' mental health and psychosocial functioning by eroding access to social connections. Such an approach would articulate how individuals internalize and then respond to the events they experience, potentially leading to a fuller causal model.

The strengths of our study include that the sample was nationally representative of students in middle and high school and had sufficient sample size to include the largest Hispanic subgroup in the United States. Our measures of union transitions were mother-reported and included changes in cohabitation status. Limitations include the exclusion of high school dropouts from the study design. As a result, our assessment of the effect of family structure instability on delinquency and nonmarital childbearing may have been underestimated. The total count of family structure transitions was capped because the survey instrument did not record a mother's complete union history. Finally, in order to replicate prior research, we excluded adolescents who had not always resided with their mothers. A more complex portrait of family instability would include adolescents residing with biological fathers, grandparents, and other kin and nonkin.

In sum, group differences in both social protection and socioeconomic stress partially explained race/ethnic differences in the effect of family instability on adolescent risk behavior. This perspective points to how the social context beyond the nuclear family, and changes in that context, impact adolescents' responses to family change. Given the importance of social protection, schools, churches, and other social institutions may be instrumental in helping adolescents maintain continuity in their public lives when they are experiencing disruption at home. As family change becomes increasingly a part of childhood experience, social institutions may be expected to absorb the impact of those changes in order to prepare children and adolescents for adulthood.

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Table 1
Descriptive Statistics by Race and Family Structure Transition Status, National Longitudinal Study of Adolescent Health (N=7,686)

Variables	White						Black						Mexican American					
	No changes n = 3606			>=1 change n = 1950			No changes n = 679			>=1 change n = 923			No changes n = 327			>=1 change n = 201		
	M	SD		M	SD		M	SD		M	SD		M	SD		M	SD	
Wave I delinquency score	3.71	4.64		4.38	5.24	*	3.64	4.14		3.82	4.86		4.45	4.90	*	4.67	4.94	*
Proportion ever had nonmarital intercourse	0.82			0.86		*	0.87			0.88		*	0.78			0.80		
Age at first nonmarital intercourse	16.84	2.12		16.23	2.05	*	16.36	2.12	*	15.99	2.14	*	17.00	2.30	*	16.60	2.13	*
Proportion ever had nonmarital birth	0.13			0.20		*	0.21		*	0.26		*	0.28		*	0.28		*
Age at first nonmarital birth	20.30	1.91		20.20	1.84		20.10	1.96		20.10	1.87		20.50	1.98		19.50	1.94	*
Mother's total union transitions overall	.63 (1.08)						.99 (1.17) *						.63 (1.03)					
Mother's total union transitions, conditional on any	1.81			1.11						1.71			1.64			1.07		
Mother is US-born	0.96			0.97			0.94			0.98		*	0.36		*	0.45		*
Adolescent is female	0.53			0.54			0.56			0.57		*	0.49		*	0.48		
Adolescent's age at wave I	16.17	1.70		16.19	1.70		16.11	1.79		16.13	1.67		16.79	1.65	*	16.45	1.77	*
Born to single mother (vs. married)	0.01			0.35		*	0.21		*	0.53		*	0.01		*	0.53		*
Born to cohabiting mother (vs. married)	0.01			0.03		*	0.02		*	0.09		*	0.01		*	0.04		*
Mother is single at wave I (vs. married)	0.01			0.36		*	0.21		*	0.52		*	0.01		*	0.31		*
Mother is cohabiting at wave I (vs. married)	0.01			0.11		*	0.02		*	0.14		*	0.01		*	0.08		*
Mother's age at adolescent's birth	26.06	4.93		24.24	5.19	*	26.49	5.57	*	23.93		*	24.61	5.38	*	23.97	5.67	*
Mother has less than high school diploma or GED	0.07			0.09		*	0.12		*	0.13		*	0.63		*	0.55		*
Mother has high school diploma or GED	0.33			0.32			0.28		*	0.31		*	0.15		*	0.22		*
Mother has attended college	0.60			0.59			0.60			0.56		*	0.22		*	0.23		*
Wave I household income as prop. of FPL ^a	3.76	3.76		3.00	3.39	*	2.87	2.45	*	2.11	1.98	*	2.01	1.57	*	1.71	1.42	*
Mother is unemployed	0.03			0.05		*	0.07		*	0.09		*	0.09		*	0.13		*
Adolescent is in good/excellent health	0.95			0.93		*	0.94		*	0.90		*	0.91		*	0.89		*
Mother is in good/excellent health	0.91			0.88		*	0.84		*	0.84		*	0.75		*	0.82		*
Proportion of tract w/black household head (Z-score)	-0.44	0.40		-0.40	0.46		1.32	1.19	*	1.30	1.20	*	-0.25	0.57	*	-0.32	0.46	*
Proportion of tract w/Hispanic hh head (Z-score)	-0.39	0.36		-0.36	0.43		-0.32	0.53	*	-0.30	0.52	*	1.28	1.13	*	0.96	1.06	*
Proportion of tract w/female hh head (Z-score)	-0.39	0.58		-0.27	0.68	*	0.70	1.23	*	0.85	1.31	*	-0.12	0.65	*	-0.11	0.58	*

Variables	White						Black						Mexican American					
	No changes <i>n</i> = 3606			>=1 change <i>n</i> = 1950			No changes <i>n</i> = 679			>=1 change <i>n</i> = 923			No changes <i>n</i> = 327			>=1 change <i>n</i> = 201		
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>	
Proportion of tract w/owner-occupied housing (Z-score)	0.41	0.74		0.29	0.78	*	-0.03	1.01	*	-0.31	1.10	*	-0.13	1.03	*	-0.23	0.93	*
Mother's perception of neighborhood problems	1.64	0.41		1.70	0.45	*	1.61	0.43	*	1.70	0.48	*	1.75	0.51	*	1.69	0.46	*
Neighborhood socioeconomic status index (Z-score)	0.07	0.69		-0.01	0.63	*	0.01	0.57	*	-0.02	0.54	*	-0.13	0.41	*	-0.07	0.48	*
Adolescent has lived with extended kin up to 1/4 of life	0.02			0.03		*	0.04		*	0.05		*	0.04		*	0.07		*
Adolescent has lived w/extended kin> 1/4 of life	0.02			0.03		*	0.07		*	0.09		*	0.06		*	0.07		*
Quality of relationship with mother	4.24	0.66		4.18	0.69	*	4.30	0.66	*	4.30	0.71	*	4.22	0.69	*	4.10	0.75	*
Quality of relationship with other adults	4.05	0.58		3.95	0.60	*	4.09	0.60	*	4.08	0.62	*	4.09	0.59	*	3.94	0.68	*
Adolescent in a romantic relationship	0.31			0.37		*	0.37		*	0.37		*	0.32		*	0.24		*
Adolescent's perception of neighborhood connection	0.82	0.24		0.79	0.26	*	0.84	0.23	*	0.79	0.26	*	0.76	0.29	*	0.72	0.28	*
Mother's perception of neighborhood connection	0.70	0.80		0.77	0.79	*	1.14	0.83	*	1.13	0.83	*	0.72	0.79	*	0.81	0.80	*
Live in neighborhood to be near kin or where mother born	0.49			0.51		*	0.45		*	0.49		*	0.50		*	0.38		*
Religion is very/fairly important to adolescent	0.77			0.70		*	0.90		*	0.86		*	0.89		*	0.89		*
Frequency of church attendance	0.42	0.49		0.29	0.46	*	0.58	0.49	*	0.48	0.50	*	0.44	0.50	*	0.39	0.49	*
Adolescent has positive school attachment	4.71	0.59		4.63	0.61	*	4.50	0.62	*	4.49	0.61	*	4.69	0.52	*	4.58	0.60	*
Adolescent has negative school attachment	1.03	0.68		1.12	0.74	*	0.95	0.71	*	0.99	0.74	*	0.85	0.65	*	1.03	0.76	*

Note: All values are unweighted. All attributes except experience of sexual initiation and nonmarital birth measured at Wave I.

^aFPL is an abbreviation for federal poverty level.

* Comparison to white adolescents with no changes significant at $p < .05$.

Selected Coefficients from Negative Binomial Regression Analysis Predicting Self-Reported Delinquent Behavior in the Last Year, Wave I (N=7,303)

Table 2

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE B	B	SE B	B	SE B	B	SE B	B	SE B
Number of maternal union transitions	0.08	***	0.02	0.06	**	0.02	0.01	0.02	0.01	0.02
Mother is Black (vs. White)	-0.02	0.06	-0.06	0.06	-0.08	0.08	0.05	0.06	0.01	0.07
Mother is Mexican-American (vs. White)	0.17	0.10	0.17	0.10	0.20	†	0.38	***	0.10	0.12
Mother is Black x transitions	-0.02	0.04	-0.02	0.04	-0.03	0.04	0.02	0.03	0.02	0.03
Mother is Mexican American x transitions	0.04	0.08	0.03	0.07	0.01	0.07	0.00	0.08	-0.01	0.08
Prop. of tract w/owner-occupied housing (Z-score)					-0.08	*	0.03		-0.05	†
Mother's perception of neighborhood problems					0.12	**	0.05		0.02	0.05
Neighborhood SES index (Z-score)					0.08	*	0.04		0.06	0.04
Adolescent has lived w/extended kin up to 1/4 of life							0.07	0.10	0.08	0.10
Adolescent has lived w/extended kin> 1/4 of life							-0.22	**	0.09	*
Quality of relationship w/mother							-0.08	**	0.03	**
Quality of relationship w/other adults							-0.40	***	0.04	***
Adolescent's perception of neighborhood connection							0.23	**	0.25	***
Adolescent has negative school attachment							0.51	***	0.51	***
Intercept	1.07	***	0.21	1.05	***	0.21	1.11	***	0.25	***
Constant	0.13	**	0.03	0.13	***	0.03	0.11	**	2.87	***
F	14.66		10.66		6.08		53.62		-0.27	***

† p<0.10,

* p<0.05,

** p<0.01,

*** p<0.001 (two-tailed)

Table 3

Selected Coefficients from Cox Proportional Hazard Analysis estimating Risk of First Nonmarital Sexual Intercourse (N=5,392)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE B	B	SE B	B	SE B	B	SE B	B	SE B
Number of maternal union transitions	0.08	***	0.02	0.05	*	0.03	0.04	0.03	0.03	0.01
Mother is Black (vs. White)	0.35	***	0.07	0.28	***	0.07	0.16	†	0.09	0.27
Mother is Mexican American (vs. White)	-0.13		0.14	-0.13		0.14	0.00	0.16	-0.09	0.14
Mother is Black x transitions	-0.08	*	0.04	-0.07	†	0.04	-0.07	†	0.04	-0.07
Mother is Mexican American x transitions	0.02		0.09	0.02		0.08	0.01	0.08	0.02	0.09
Mother's age at adolescent's birth						0.00	-0.02	***	-0.02	***
Mother has less than high school diploma/GED						0.07	-0.05		-0.06	0.07
Mother has at least some college						0.04	-0.11	**	-0.09	*
Proportion of tract w/black household head (Z-score)						0.04	0.06		0.03	0.04
Proportion of tract w/Hispanic household head (Z-score)						0.05	-0.10	*	-0.08	†
Proportion of tract w/female household head (Z-score)						0.03	0.04		0.04	0.03
Proportion of tract w/owner-occupied housing (Z-score)						0.03	0.06	*	0.05	†
Adolescent has lived w/extended kin up to 1/4 of life							0.25	**	0.09	**
Adolescent has lived w/extended kin> 1/4 of life							-0.01	0.10	-0.01	0.10
Quality of relationship with mother							0.04	0.04	0.03	0.04
Quality of relationship with other adults							-0.22	***	-0.23	***
Adolescent's perception of neighborhood connection							0.32	***	0.33	***
Frequency of church attendance							-0.20	***	-0.17	***
Adolescent has negative school attachment							0.13	***	0.13	***
<i>Chi-square</i>	57.99		78.00				140.61		478.21	
Person-year observations	18,367		18,367				18,367		18,367	

† p<0.10,

* p<0.05,

** p<0.01,

*** p<.001 (two-tailed)

Table 4
Selected Coefficients from Cox Proportional Hazard Analysis Estimating Risk of First Nonmarital Birth (N=7,685)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	B	SE B	B	SE B	B	SE B	B	SE B	B	SE B
Number of maternal union transitions	0.23 ***	0.04	0.17 ***	0.05	0.14 **	0.05	0.13 **	0.05	0.11 *	0.05
Mother is Black	0.97 ***	0.13	0.84 ***	0.15	0.67 ***	0.18	0.82 ***	0.15	0.72 ***	0.18
Mother is Mexican American	1.27 ***	0.21	1.29 ***	0.22	1.13 ***	0.27	1.37 ***	0.22	1.22 ***	0.28
Mother is Black x transitions	-0.18 **	0.06	-0.17 *	0.07	-0.14 †	0.07	-0.16 *	0.07	-0.14 †	0.07
Mother is Mexican American x transitions	-0.14	0.14	-0.17	0.14	-0.14	0.13	-0.20	0.16	-0.17	0.16
Mother's age at adolescent's birth					-0.04 ***	0.01			-0.04	0.01
Mother has less than high school diploma/GED					0.17	0.13			0.14	0.13
Mother has at least some college					-0.43 ***	0.10			-0.43 ***	0.10
Wave I income as proportion of federal poverty level					-0.06 †	0.03			-0.07 *	0.03
Proportion of tract w/black household head (Z-score)					-0.11	0.08			-0.12	0.08
Proportion of tract w/Hispanic household head (Z-score)					-0.31 **	0.09			-0.28 **	0.09
Proportion of tract w/female household head (Z-score)					0.16	0.06			0.18 **	0.06
Neighborhood socioeconomic status index (Z-score)					-0.27 *	0.11			-0.25 *	0.11
Quality of relationship with mother							0.01	0.07	-0.01	0.06
Quality of relationship with other adults							-0.29 **	0.09	-0.28 **	0.09
Frequency of church attendance							-0.33 **	0.11	-0.26 *	0.11
Adolescent has negative school attachment							0.11 †	0.06	0.11 *	0.06
<i>Chi-square</i>	211.76		233.69		423.01		378.25		550.85	
Person-year observations	43,405		43,405		43,405		43,405		43,405	

†
p<0.10,

*
p<0.05,

**
p<0.01,

p<.001 (two-tailed)