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The Interrelationships Among Neighborhoods, Parental Behaviors, Peer Networks, and Adolescent Sex

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Abstract: Researchers have recently been examining the relationship between neighborhood characteristics and adolescent sexual behavior. Although there has been some support for this effect, the mechanisms through which neighborhood characteristics affect adolescent sex are unclear. Using a social disorganization framework, this study examines whether and how parenting behaviors and peer networks mediate the relationship between neighborhood structure and juvenile sex. To assess these interrelationships, this paper uses the responses of White, Black, and Latino youth ages 15 to 18 (N=4,738) surveyed through the National Longitudinal Study of Adolescent Health (Add Health). Findings suggest that mother's support, adolescent popularity, and minor peer delinquency explain somewhat the relationship between neighborhood characteristics and adolescent initial sex.

Keywords: adolescent sex, parenting behaviors, peer networks

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OVERVIEW

Over the past several decades, scholars have extensively examined adolescent initial sexual behavior. Early researchers primarily investigated the effect of individual-level predictors on adolescent sex. These investigations found that aspects of family background and parent-child relationships are important for understanding adolescents' sexual behavior (Manlove, Mincieli, Holcombe, 2006; Wilson & Donenberg, 2005; Xiaoming, Stanton & Feigelman 2000). Beyond individual level predictors, scholars have begun investigating the social contexts within which youth are embedded to determine whether and how macro-level processes affect adolescent initial sex. The purpose of this paper is to add to this body of literature by examining the interrelationships among neighborhood characteristics, parental behavior, peer networks and adolescent sex.

Adolescent Sex

Adolescent sexual activity remains an important area of concern. Approximately 15% of adolescents have sex by age 15 where this percentage increases to more than one-half by age 17 (Alan Guttmacher Institute, 2011). Although two-thirds of sexually active adolescents report using contraceptives at first sex, contraceptive use is often inconsistent and contraceptives are often used incorrectly (Alan Guttmacher Institute, 2011). Moreover, of teens that engage in early sex, many report that their initial coital experience is "unplanned," with 82% of teen pregnancies being unplanned (Alan Guttmacher Institute, 2011).

Apart from the risk of pregnancy, adolescents who engage in early and unprotected sex increase their chances of contracting a sexually transmitted infection (STI). Despite attempts to expose youth to information regarding sexual activity and its possible consequences, 15 million new cases of STIs occur in the US every year where half of those cases are youth and young adults (Alan Guttmacher, 2011). Finally, early engagement in pre-marital sex is linked to depression, low self-esteem and the perception of having little control over one's life (Rector, Johnson & Noyes, 2003).

Researchers have explored the sources of adolescent sexual behavior in view of these potentially serious consequences. As stated above, most work has examined the influence of micro-level processes, and found that micro-level processes or factors that influence an adolescent's decision to engage in sex include: 1) *parent-child relationships;* 2) *perceived parental support and monitoring*; and 4) *peer sexual attitudes and behavior norms* (Mendle, Brooks-Gunn, Emery, Harden, Turkheimer, D'Onofrio, Rodgers & Lahey, 2009; Menning, Holtzman and Kapinus, 2007; Pearson, Muller, and Frisco, 2006; Roche, Mekos, Alexander, Astone, Roche, & Ensminger, 2005; Wilson & Donenberg, 2005)

Aside from the effects of individual characteristics, adolescents are embedded within several social contexts which are likely to influence their behavior-- neighborhoods, schools, and peer networks being among the most significant. There is a growing body of literature assessing how living in socially disorganized communities, for example, affects adolescent sexual behavior. Social disorganization theory

proposes that neighborhoods characterized by high rates of poverty, residential instability, and ethnic heterogeneity are socially *dis*organized and essentially lack 1) social cohesion, and 2) informal social control (including the ability to adequately supervise teenagers). When a neighborhood lacks these components, residents cannot adequately come together to combat neighborhood-level criminality (Shaw & McKay, 1969; Sampson, Raudenbush, & Earls, 1997).

The body of literature examining these issues is relatively underdeveloped, although researchers have found some support for the notion those neighborhood characteristics, most notably disadvantage, are related to adolescent sexual behavior (Baumer & South, 2001; Cubbin, Santelli, Brindis, Braveman, Plotnick & Hoffman, 2005; Roche, 2005; South & Crowder, 1999).

Despite this evidence that neighborhood characteristics are related to adolescent sexual behavior, many researchers have failed to fully account for the *mechanisms* through which neighborhood characteristics operate. Researchers who have examined these relationships have found some evidence that peer attitudes and behavior account for a small portion of the relationship between an aspect of neighborhood characteristics (most notably Baumer & South, 2001), as does parental supervision (Roche et al., 2005) but have been unable to fully explain the relationship. This paper seeks to incorporate the missing pieces of the puzzle to get a complete view of factors that contribute to adolescent sex.

Parenting Behaviors

One potential mechanism through which neighborhoods might impact adolescent initial coitus that has

had some attention in the literature is that of parenting practices. We know that parenting is significant in the lives of adolescents. Social capital theory posits that the family is the primary institution through which human and other forms of capital are passed (Coleman, 1988; Putnam, 2000). Wright, Cullen and Miller (2001) found that family social capital is positively related to increased moral beliefs concerning the wrongfulness of delinquent behavior, increased time studying, and making better grades. Parental support has also been found to reduce the number of delinquent friends with which adolescents associate and nurturing, supportive relationships between parents and children has been found to reduce the likelihood that adolescents will hang out with antisocial peers who model and encourage substance use (Melby, Conger, Conger, & Lorenz, 1993; Warr, 1993).

Neighborhood characteristics, however, are factors that can potentially obstruct "good" relationships between parents and children. Parents who do not have the social and/or economic resources needed to provide support with which to effectively socialize their children toward conventional behavior may be unable to effectively and successfully "parent" (support and monitor) their children (Sampson, Morenoff & Earls, 1997; Roche et al., 2005) which may, in turn, lead to adolescent sex.

Peer Networks

It has long been acknowledged that peers play a critical role in the lives of adolescents. As youth grow older, they seek independence from parents and turn to friends for guidance on behavioral issues (Markiewicz, Lawford, Doyle, &

Haggart, 2006). There is some evidence that friends are chosen because they express the same types of behavioral attitudes – particularly regarding drug use and adolescent sex. Communities' levels of social disorganization may affect the types (e.g., deviant versus non-deviant) of peer groups and the nature of peer relations (e.g., size, intensity), and thereby, the types of behaviors in which individual youth are involved. Peers may influence adolescents to engage in sexual behavior either by modeling deviant behaviors or by reinforcing deviant norms and attitudes.

Social network perspectives suggest that being a part of a peer network has a direct effect on adolescent behavior (Haynie, 2001). Conventional peers constrain delinquent behavior among adolescents by attaching high costs to negative behavior (i.e. dismissal from the group). Conversely, delinquent (refer to Figure 1)

peers encourage unconventional behavior by rewarding rule-breaking conduct. Those adolescents who are participants in delinquent peer groups are likely to be encouraged to engage in delinquency, so as to gain peer group acceptance.

Neighborhood structure, particularly poverty, heterogeneity, and instability, provides an opportunity structure wherein adolescents can "test" many curiosities-including alcohol and drug use. Researchers contend that sexual risks are associated with these other deviant behaviors and are reinforced in peer groups (Sutherland, 1974).

This paper assesses whether or not parental behaviors and adolescent peer groups are the informal social controls through which neighborhood structure influences adolescent involvement in sex.
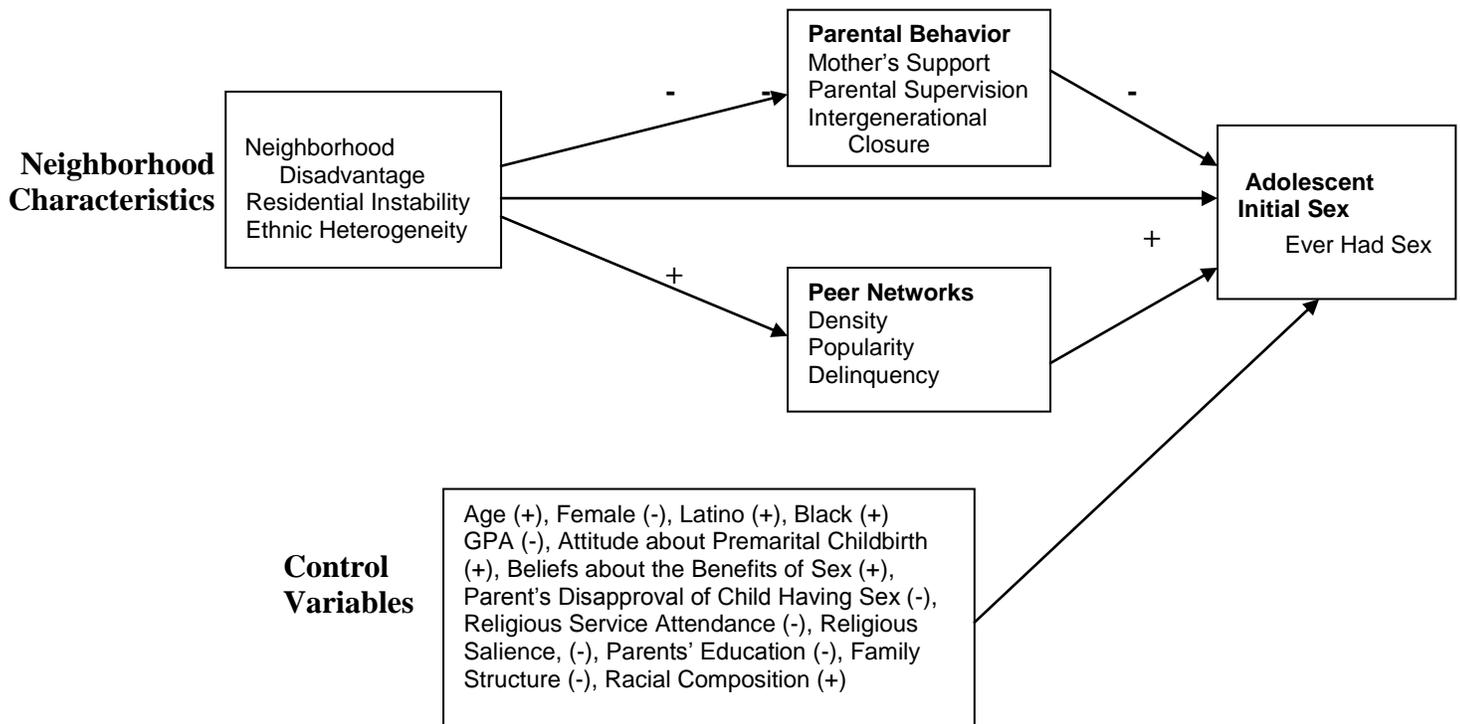
DATA AND METHODS

The data for this study are from the National Longitudinal Study of Adolescent Health (Add Health), (Udry, 1998). A nationally representative sample of 80 high schools and one of each of its "feeder schools" (middle or junior high schools) were chosen to participate in this study. If the high school chosen included grades seven through twelve, it acted as its own "feeder school." The sample of schools was stratified by region, urbanity, school type, ethnic mix, and size. From this sample of schools, a "core" group of students in grades seven through twelve was selected to be interviewed at home. One parent or guardian was also interviewed (most often the mother). These data are referred to as the core In-Home sample (Udry, 1998). All questions answered by the respondents were recorded on laptop computers. For general topics, respondents were read a question by the interviewer who recorded their answers on the laptop computer. For more sensitive questions, respondents listened to pre-recorded questions and proceeded to respond on the laptop themselves.

The data were collected in two waves (1994 and 1996) from the original core sample of seventh through eleventh graders (N=90,142). The Add Health Study did not follow up on Wave I twelfth graders in Wave II (i.e., those who graduated between the two Waves). Therefore, the core In-Home longitudinal sample from Wave I and Wave II is representative of U.S. seventh through 11th grade students only. Add Health researchers compiled the census tract and census block group location for each respondent (Udry, 1998). Researchers attached census tract information to respondents' data by geo-coding respondent home addresses to their 1990 neighborhood information. The neighborhood data are from the U.S. Census of Population and Housing 1990, Summary Tape File 3A (STF

3A). Add Health researchers provided pseudo-identification numbers with the census data so that respondents could be matched with their correct census tract and block groups. Some missing data exist on tract and block group, because Add Health researchers were unable to geo-code residential location for some respondents. However, for the Wave II, core home sample, only one percent (N=133) of the cases have missing data on the Census measures.

Sample

The analyses conducted in this study are specifically based on White, African-American, and Latino adolescents drawn from the Wave I and Wave II core longitudinal data sets who are 13 to 18, had not had sex at the time of first interview, who were not married at Wave II, and who attended one of the schools within which network data were calculated[2] (N=4,738). White, African-American, and Latino adolescents constituted the largest percentage of the sample that had sex at Time 2, as compared to a small percentage of youth who reported having sex at Time 2 in other racial and ethnic groups. Therefore, only White, African-American, and Latino youth were included in the sample.[3] By selecting youth who were not sexually active during Wave I, allows this analysis to address the issue of whether or not an adolescent has initiated sex by Wave II.

MEASURES

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2 Network data were calculated from schools where 50% of the student body completed the questionnaire. I selected students who attended one of these 145 schools.

3 Groups in the "other" category were American Indian, Asian or Pacific Islander, Chinese, Filipino, Japanese, Asian Indian, Korean, and Vietnamese.

The dependent and independent variables for the analyses are presented in Table 1. Note that the dependent variable (adolescent initial sexual behavior) was measured during Wave II (collected between April 1996 and August 1996) of the study. The independent variables were measured during Wave I and Wave II.Measuring the Dependent Variable Adolescent initial sex was defined as having (1) or not having sex (0) by Wave II. supervision, parental interaction, parental membership in community organizations and parental monitoring of neighborhood children.

Measuring the Independent Variables

Neighborhood Variables

A goal of this research was to assess the direct and indirect impact of neighborhood characteristics on adolescent sex. Following the tradition of the social disorganization literature (Bursik & Grasmick, 1993; Kornhauser, 1978; Sampson & Groves, 1989), the following traditional measures of disorganization were included in the analyses that follow: neighborhood economic disadvantage, ethnic heterogeneity, and residential instability. *Neighborhood disadvantage* is created by taking the average of three z-scored census tract items: 1) the proportion of families below poverty, 2) the unemployment rate, and 3) the proportion of households with public assistance income. Higher scores on this variable signal higher levels of neighborhood social disadvantage. *Ethnic heterogeneity* is a variable measured by the proportion of the community that is foreign born. Finally, the proportion of individuals aged 5 or older who lived in a different house five years earlier is used to measure *residential instability*. It was hypothesized that neighborhood disadvantage, residential instability, and ethnic heterogeneity are positively related to adolescent initial sex. That is, adolescents living in neighborhoods characterized with higher levels of neighborhood disadvantage, residential instability, and ethnic heterogeneity are at an increased risk for transitioning to first sex. It was also proposed that higher levels of each of the neighborhood characteristics defined above would be associated with lower levels of mother's support and

Parenting Behaviors

Questions were asked that measured parent/child closeness as well as the monitoring behavior of parents. To measure parent/child closeness, respondents reacted to statements such as "Most of the time, your mother is warm and loving toward you." Response choices were, "1) not at all, 2) very little, 3) somewhat, 4) quite a bit, and 5) very much." They were also asked to respond to statements such as "Overall, you are satisfied with your relationship with your mother." Response choices were 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, 5) strongly agree. Exploratory factor analysis showed that these variables load on the same construct to measure parent/child closeness. To measure parental monitoring practices, respondents were asked questions such as, "How often is she [mother] at home when you leave for school?" Answer choices were 1) never, 2) almost never, 3) some of the time, 4) most of the time, 5) always. Factor analyses showed that these variables included to measure parental monitoring practices load on the same construct.

As implied by social capital theory, a second aspect of collective parental supervision is intergenerational closure (Coleman, 1990). Intergenerational closure is comprised of three sets of variables which gauge collective socialization: parents' interaction with parents of child's friends, parental membership in community organizations, and neighborhood parental

monitoring. As an example of these questions, *Number of peers' parents with whom adolescents' parents interact*, is measured by asking parents to think about all of [child's] friends and to respond to "How many parents of [child's] friends have you talked to in the last four weeks?" Response choices ranged from 0-6 where 6 equals 6 or more. Each of the variables used measured an aspect of social capital among neighborhood parents and their children.

Another goal of this research was to examine whether and how peer networks mediate the relationship between neighborhood structure and adolescent sexual behavior. The Add Health dataset has detailed social network data. During the in-school survey, respondents were asked to nominate five of their closest friends. Based upon this information, three aspects of peer networks were examined in this paper. *Peer density* measures membership cohesion and interaction as determined by the number of friends in the network. Specifically, it is defined as the number of friendship ties present in the friendship network divided by the number of possible friendship ties based on a respondent's friends' nominations and those who nominated the respondent. *Adolescent popularity* is a network variable that indicates the number of times the respondent is nominated by other students in the school. Finally, *peer delinquency* is comprised of three variables that ask about peer smoking, peer truancy, and peer drinking in the past twelve months. Answer choices ranged from 0) never, 1) once or twice, 2) once a month, 3) 2 or 3 days, 4) once or twice a week, 5) three to five days a week, and 6) nearly everyday. It was hypothesized that peer density, adolescent popularity and peer delinquency are positively correlated with adolescent sexual behavior.

Control Variables

In addition to the above independent variables, several sociodemographic controls are also included in the models that follow. Control variables include age, gender, race, grade point average (G.P.A.), the adolescents' attitude about premarital childbirth, adolescents' positive beliefs about having sex, parents' disapproval of the child's involvement in sex, religious service attendance and salience, family socioeconomic status (parents' education), family structure, and racial composition of the community.

Missing Data

Missing data on the neighborhood contextual variables account for less than one percent of the cases (N=55). Large missing data problems, however, were generated from the parental portion of the survey, which constituted both independent and control variables. To avoid substantial reduction in cases, I use the best subset regression substitution for those key parental variables (Allison, 2002). In this procedure, I obtained value estimates for variables with missing values by regressing the variable for which values needed to be estimated on other key variables. The estimated values were then substituted for the missing values.[4]

ANALYTIC PROCEDURE

Logistic regression was used in all models due to the dichotomous dependent variable (engagement in sex). Further, all estimates reported were adjusted by use of

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4 Imputed variables include all *intergenerational variables* (number of peers' parents with whom adolescents' parents interact, parents' monitoring neighborhood children, neighbors' monitoring neighborhood children, parental membership in parent/teacher organizations, parental membership in civic organizations), *peer delinquency* variables (peer smoking, peer drinking, and peer truancy), parent's education, and family structure.

the weight and strata information provided with Add Health to offer more accurate population estimates. To examine the mediating effects of parenting behaviors and peer networks in the relationship between neighborhood characteristics and adolescent sexual behavior the multivariate analyses proceeded in two steps. The first model included neighborhood characteristics and control variables. In the second model, parental behavior and peer network variables were added to the baseline model to assess how neighborhood characteristics' effect on adolescent initial sex were altered by the inclusion of the parent and peer variables.

RESULTS

Table 1 presents descriptive statistics for the dependent and key independent variables included in the analyses. Note that among adolescents who had not had sex during the first interview, 19% had sex by the time of the second interview. Turning to the neighborhood factors, the typical adolescent resided in a neighborhood with low levels of disadvantage. For example, the average level of disadvantage was -.02 (range -1.54-3.94). The typical adolescent resided in a community in which 59% of the population changed residences in the prior 5 years. The standard deviation was 12%. Finally, the average proportion of foreign-born residents in a neighborhood was 7% (s.d. 9%).

Turning to key parenting and peer variables, respondents characteristically reported feeling supported by their mother (4.34, range 1-5), and reported relatively high levels of parental supervision (12.28, range 3-17). Interestingly, parents, on average, reported having contact with a reasonable number of parents of their child's friends (2.41, range 0-6), but were only moderately involved in community groups, with 39% of parents being members of their local parent/teacher organization and 15% being a member of a community civic or social organization. Parents typically reported a good deal of neighborhood monitoring of youth. In fact, the average parent respondent reported that she probably would tell a neighbor if her neighbor's child was getting into trouble (4.26, range 1-5), and that this is likely true for her neighbor, as well (3.93, range 1-5). In turning to peer networks, the descriptive statistics show that adolescents do not tend to be members of extremely dense networks (.29, range .06-1) are somewhat popular (4.81, range 0-27), and on average, have friends who do not characteristically participate in cigarette smoking, truancy, or drinking.

Table 1. Means and Standard Deviations for Dependent and Independent Variables N=4,738

Variables	*Mean*	*Standard Deviation*	*Range*
Dependent Variable			
Initial Sex	0.19	--	0-1
Independent Variables			
Neighborhood Disadvantage	-0.02	0.95	-1.54-3.96
Residential Instability	0.59	0.12	0.14-0.81
Ethnic Heterogeneity	0.07	0.09	0-0.45

Mother's Support	4.34	0.71	1-5
Parental Supervision	12.28	2.47	3-17
Number of Peers' Parents with whom Adolescents' Parents Interact	2.41	1.86	0-6
Parental Membership in Parent/Teacher Organizations	0.39	--	0-1
Parental Membership in Civic/Community Organizations	0.15	--	0-1
Parents' Monitoring of Neighborhood Children	4.26	0.82	1-5
Neighbors Monitoring of Adolescents	3.93	0.87	1-5
Peer Density	0.29	0.14	.06-1
Peer Popularity	4.81	3.75	0-27
Peer Cigarettes Smoking	0.88	1.06	0-6
Peer Truancy	0.37	0.55	0-6
Peer Drinking	0.49	0.65	0-6
Control Variables			
Age	15.65	1.40	13-18
Female	0.54	--	0-1
Latino	0.06	--	0-1
Black	0.18	--	0-1
GPA	2.94	0.73	1-4
Adolescents' Attitude About Premarital Childbirth	0.18	0.38	0-1
Adolescents' Positive Beliefs About Having Sex	2.30	0.87	1-5
Parents' Disapproval of Child's Involvement in Sex	4.35	0.79	1-5
Religious Service Attendance	2.40	1.28	1-4

Religious Salience	3.24	1.45	1-4.5
Parent's Education	5.92	2.14	0-9
Family Structure	0.78	--	0-1
Percent Black	0.13	0.14	0-0.59

Bivariate Results

Table 2 presents the significant bivariate relationships between the dependent and independent variables these results. Primary attention is focused on the relationship between adolescent initial sex, neighborhood structure, parenting behaviors, and peer networks.

Note that the neighborhood characteristics are associated with an increase in the likelihood that adolescents will engage in sex at the bivariate level except for ethnic heterogeneity. That is, neighborhood disadvantage and residential instability are positively associated with coitus among youth. Adolescents who live in neighborhoods with higher levels of disadvantage and higher levels of instability have an increased risk of engaging in coitus. On the other hand, adolescents who reside in neighborhoods characterized by higher levels of ethnic heterogeneity are *less* likely to engage in sex. This finding is contrary to the expectation of social disorganization theory, but is supported by findings from earlier research.

Many of the variables hypothesized to mediate the effect of neighborhood characteristics on adolescent sexual activity are significantly related to juvenile sex at the bivariate level. As expected, among the parental behavior variables, adolescents who report higher levels of mother's support and parental supervision are less likely to engage in sex. Likewise, greater intergenerational closure tends to decrease the risk of adolescent sexual activity at the bivariate

level. That is, as parents interact with more parents of their children's friends, adolescents' risk of early engagement in sex decreases. Parental involvement in parent/teacher and civic organizations also result in a decreased risk of teens having sex. Contrary to expectations, adolescents whose parents monitor neighborhood children and whose neighbors supervise community youth are *more likely* to have sex at this level. Among the peer network variables, peer density, adolescent popularity, and some minor peer delinquency are significantly related to adolescent sex at the bivariate level. Adolescents who are members of more dense networks are less likely to have sex. As expected, teens who are popular within their peer groups are more likely to participate in coitus. In addition, the results indicate that adolescents whose peers report higher levels of truancy (but not those who engage in more smoking or drinking) are more likely to have sex at the bivariate level.

Finally, the bivariate results reveal that individual-level theoretical controls (i.e., gender, race) are significantly associated with adolescent sexual activity. Being 1) female, 2) Latino, 3) Black, 4) approving of having a child before marriage, 5) having positive attitudes about the benefits of having sex, and 6) residing in neighborhoods with a high percent Black population increase the likelihood of sexual risk taking among adolescents compared with those adolescents who do not have

these characteristics and who do not reside in neighborhoods with a high percent Black population. Finally, religious service attendance, religious salience, high levels of parents' education, and living in a two-parent household are all significantly and negatively related to the likelihood of an adolescent engaging in sex. In other words, adolescents who report higher levels of church attendance, higher levels of religious salience, live in a two-parent household, and have parents who attain high levels of education are less likely to engage in sexual activity.

Table 2. Bivariate Correlations for Adolescent Risky Sex by Independent Variables N=4,738 (cont.)

	Bivariate Correlations	Control Variables	Bivariate Correlations
Intergenerational Closure			
Parental Membership in Civic/Community Organizations	-.007**	Parent's Education	-.054*
Parents' Monitoring of Neighborhood Children	.028*	Family Structure	-.097*
Neighbors Monitoring of Adolescents	.016*	Percent Black	.085*
Peer Networks			
Peer Density	-.059*		
Adolescent Popularity	.062*		
Peer Cigarette Smoking	.139		
Peer Truancy	.107*		
Peer Drinking	.157		

*p< .05   **p< .01

Multivariate Results

This section reveals the multivariate results presented in Table 3.

Model 1 of Table 3 presents the results of the logistic regression analysis of the main effects of the community-level and control variables on adolescent sex. The table presents the unstandardized regression coefficients and the standard errors for the coefficients. The asterisks (*) indicate that the t-statistic of a given coefficient is significant at least at the .05 level.

Neighborhood characteristics impact adolescent sex beyond individual-level predictors. Consistent with social disorganization theory higher levels of neighborhood disadvantage increases the likelihood that adolescents will engage in sex. On the other hand, a higher level of ethnic heterogeneity reduces slightly the likelihood that adolescents will have sex, which is at variance with social disorganization theory. That is, for each unit increase in neighborhood disadvantage, there is a .152 increase in the likelihood that an adolescent will participate in coitus. Consistent with prior research for each unit increase in ethnic heterogeneity, the likelihood that an adolescent will engage in initial sex decreases by 1.59. An interpretation of this finding may be that a higher concentration of foreign born in a community may result in a shared acceptance of conventional adolescent sexual behavior, and thereby, delay the transition of first sex among youth (Browning and Olinger-Wilbon 2004). Among the control variables, as adolescents get older, females, Latinos, adolescents' who support premarital childbirth, and adolescents' who positively view having sex are at an increased risk of participating in coitus. All of these associations are in the expected direction with the exception of being female. Finally, G.P.A., parents' disapproval of their child's involvement in

sex and living in a two-parent home decrease the likelihood of participation in early coitus among youth.

Model 2 adds the parenting variables and peer variables to examine whether or not they mediate the relationship between neighborhood characteristics and adolescent sex. Note that neighborhood disadvantage remains statistically significant and that although this factor does not operate principally through parenting behaviors, the strength of its effect is somewhat diminished, (b=.152 Model 1, b=.139 Model 2). Net of all other variables, with each unit increase in neighborhood disadvantage, the likelihood that adolescents will engage in initial sex increases by .139. Additionally, the impact of ethnic heterogeneity is reduced to non-significance in Model 2. Although these effects are small, these findings indicate that a portion of the relationship between neighborhood characteristics and juvenile sex can be explained by parenting variables. Among the parenting variables, the results indicate that the primary factor influencing the likelihood that adolescents will engage in sex is mother's support. That is, for each unit increase in mother's support, the likelihood of adolescents engaging in adolescent initial sex decreases by .311. The parental supervision factor is not significant net of neighborhood characteristics and individual-level factors. Similarly none of the intergenerational closure variables achieve significance in Model 2.

Two peer variables are associated with initial sex: adolescent popularity and peer drinking. Popularity among adolescents increases the likelihood of engaging in coitus, as expected. With every 1-unit increase in the level of adolescent popularity, the likelihood increases by .051 that youth will engage in coitus. Adolescents whose friends drink are more

likely to have initial sex. For each unit increase in peer drinking, the likelihood that adolescents will engage in initial sex increases by .357. Peer density, cigarette smoking, and truancy do not have net effects. The control variables that were significant in Model 1, remain significant and in the same direction in Model 2. In sum, key parenting and peer variables directly affect whether or not an adolescent will transition to first sex and reduce somewhat the relationship between neighborhood characteristics and adolescent initial sexual behavior.

Table 3. Logistic Regression Model for Adolescent Sexual Participation[1] N=4,738

	MULTIVARIATE MODELS		
	Model 1	**Model 2**	**Model 3**
Neighborhood Variables			
Neighborhood Disadvantage	.152* (.077)	.139* (.081)	.013 (.100)
Residential Instability	-.543 (.624)	-.703 (.610)	-.691 (.611)
Ethnic Heterogeneity	-1.59* (.856)	-1.20 (.904)	-1.16 (.889)
Parental Behavior Variables			
Mother's Support		-.311** (.061)	-.312** (.061)
Parental Supervision		.000 (.027)	.002 (.027)
Intergenerational Closure			
Number of Peers' Parents with whom Respondents' Parents Interact		-.022 (.034)	-.024 (.033)
Parental Membership in Parent/Teacher Organizations		.177 (.128)	.176 (.129)
Parental		.189	.186

Membership in Civic Organizations	(.162)	(.164)
Intergenerational Closure		
Parents' Monitoring of Neighborhood Children	.090 (.075)	.089 (.076)
Neighbors Monitoring of Adolescents	.026 (.070)	.029 (.071)
Peer Networks		
Peer Density	-.357 (.447)	-.360 (.441)
Adolescent Popularity	.051** (.014)	.052** (.014)
Peer Cigarette Smoking	.093 (.055)	.093 (.055)
Peer Truancy	.010 (.092)	.008 (.092)
Peer Drinking	.357** (.092)	.362** (.092)
Interaction		
Number of Peers' Parents with whom Respondents' Parents Interact * Neighborhood Disadvantage		.051* (.027)

Table continues...

Table 3. Logistic Regression Model for Adolescent Sexual Participation[1] N=4,738 (cont.)

	MULTIVARIATE MODELS		
	Model 1	**Model 2**	**Model 3**
Control Variables			
Age	.283** (.036)	.213** (.037)	.213** (.037)
Female	.484** (.113)	.382** (.115)	.377** (.115)
Latino	.511* (.288)	.585* (.301)	.574* (.301)
Black	.021 (.154)	.151 (.169)	.164 (.170)
GPA	-.434** (.090)	-.410** (.091)	-.410** (.090)
Adolescents' Attitude about Premarital Childbirth	.291** (.125)	.265** (.125)	.268** (.125)
Adolescents' Positive Beliefs about Having Sex	.253** (.046)	.260** (.048)	.257** (.048)
Parents' Disapproval of Child's Involvement in Sex	-.452** (.062)	-.433** (.061)	-.435** (.061)
Religious Service Attendance	-.052 (.077)	-.054 (.077)	-.054 (.077)
Religious Salience	-.056 (.065)	-.042 (.066)	-.045 (.066)
Parent's Education	-.012 (.023)	-.037 (.025)	-.036 (.025)

Family Structure	-.355**	-.400**	-.406**
	(.140)	(.138)	(.139)
Percent Black	.791	.753	.791
	(.547)	(.567)	(.564)
Constant	-2.72*	-1.22	-1.22
	(.699)	(.869)	(.867)
Logistic Regression χ^2	559.16	556.92	574.78

*p<.05   **p<.01 (One-tailed tests)

[1]Numbers in parentheses are standard errors of the coefficients.

DISCUSSION AND CONCLUSIONS

Consistent with prior research the results indicate that mother's support, adolescent popularity, and peer drinking explain a portion of the relationship between neighborhood disadvantage and adolescent initial sex and somewhat explains the effect of ethnic heterogeneity on youth coitus. Several explanations for this phenomenon are plausible. First, as suggested earlier, living in neighborhoods with high levels of disadvantage may obstruct parents from obtaining needed resources (e.g. time, energy, finances) with which to effectively support their children. This may result in adolescents turning to peers for support and advice, and ultimately, participating in sex. In addition, being a popular member of a peer group in a disadvantaged neighborhood may result in the availability of more sex partners from which to choose, and therefore, a greater opportunity to have sex. Those adolescents who are popular may have greater "network privilege" that may include choice of sexual partners. Finally, when peers engage in minor delinquency (such as drinking), it is likely they will also engage in related behaviors (such as teen sex). Adolescents who are members of delinquent peer groups may also engage in other delinquent behaviors, as well, including early sex. Although the findings suggest that parenting and peer behaviors explain a portion of the relationship between neighborhood characteristics and initial sex, future research should examine other mechanisms through which neighborhood disadvantage operates that are not captured in this study. For example, future research should fully measure neighborhood level collective efficacy.

Collective efficacy considers neighborhood residents' shared ability to informally control their neighborhood, including the ability to garner support from outside of the community. As indicated by the work of Sampson, Raudenbush and Earls (1997), it is important to examine collective efficacy to see whether and how this variable mediates the relationship between neighborhood characteristics and individual-level deviant behavior. Particular to adolescent sex, neighborhood residents that can collectively mobilize may be more likely to supervise neighborhood children

and also to lobby for outside organizations that educate youth on adolescent initial sex (e.g. Planned Parenthood, etc.) as well as other risk behaviors (Browning, Leventhal, and Brooks-Gunn (2005), examining gender differences in the timing of first intercourse, found that for boys collective efficacy delays the onset of sexual intercourse, while for girls this is only true when levels of parental supervision are low. These findings support the need for continued examination of neighborhood supervision in reducing the likelihood of adolescents' engagement in initial sex. The current study, nevertheless, offers some explanations for the relationship between neighborhood composition and adolescent sexual behavior.

There are several important limitations to note in this study. First, only one aspect of sexual behavior was examined—initial onset. To have a full picture, particularly of adolescent sex, an array of additional issues need to be examined (e.g. condom use, number of partners, frequency of sex).

A second limitation is the possibility of selectivity bias. To gauge the effects of parenting behaviors, peer factors, and neighborhood characteristics on sex, only those adolescents who had not had sex at the time of the first interview to examine their sexual behavior at the time of the second interview were selected. Selecting out those youth may have potentially introduced selection effects. That is, adolescents excluded from this study (those who engaged in sex) may be significantly different from those included (those who had not engaged in sex) prior to the second interview.

A final limitation of this research is that there is no measure of peer sexual behavior, only involvement in minor delinquency. There was no way to determine peer sexual attitudes and behavior using the Add Health data. Having the opportunity to do so would have provided a more clear understanding of the sexual attitudes of peers within peer networks and, thus, the effects of peer sexual behavior on subsequent adolescent initial sex.

Despite these concerns, however, this paper provides some evidence that examining the mechanisms through which neighborhood composition impacts adolescent coitus (especially investigating parenting behaviors and peer networks) is beneficial in understanding and, consequently, addressing this behavior.

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