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The Synergy of Family and Neighborhood on Rural Dating Violence Victimization

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Abstract

Introduction—Rural adolescents are at high risk for dating violence victimization (DVV), which has serious negative consequences. Understanding more about the conditions that increase DVV risk for rural adolescents is needed to inform prevention efforts. In response to calls for examining the influence of upper levels of the social ecology on adolescent dating violence, this study examined whether associations between the family context and physical DVV were conditioned by the characteristics of the neighborhoods in which the family resided.

Methods—Data were from a multi-wave longitudinal study of 3,236 rural adolescents nested in 65 block groups, which defined neighborhoods. Data were collected between 2003 and 2005. Multilevel growth curve modeling was conducted in 2014 to test hypothesized synergistic effects of the family and neighborhood on trajectories of physical DVV from grade 8 to 12.

Results—Low parental closeness was a DVV risk in residentially stable ($p < 0.001$), but not unstable, neighborhoods. Family aggression was a DVV risk, regardless of neighborhood characteristics ($p = 0.001$). Low parental monitoring and rule setting were not DVV risks and their effects were not moderated by neighborhood characteristics. Neighborhood ethnic heterogeneity was significantly ($p < 0.05$) positively associated with DVV, but neighborhood economic disadvantage, social disorganization, and violence were not associated with DVV. None of the effects varied by sex of the adolescent, across time (grade), or by the combination of sex and time.

Conclusions—Findings demonstrate the importance of considering the family and neighborhood, and particularly their synergistic effects in efforts to prevent adolescent DVV.

Introduction

Rural adolescents,^{1,2} especially those living in the South,³ are at particularly high risk of physical dating violence victimization (DVV), which results in many negative physical, psychological, and developmental consequences.^{4–7} Understanding more about the

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conditions that increase rural adolescent risk for physical DVV is needed to inform prevention efforts.

In response to numerous calls for research examining the influence of upper levels of the social ecology on adolescent dating violence,^{8,9} this study examined how the family and neighborhood, two important contexts in the lives of adolescents, work synergistically to influence DVV risk. A rich history of developmental research has demonstrated that family effects on numerous adolescent outcomes vary by the level of risks and challenges in the family's neighborhood.¹⁰⁻¹³ Whether family influences on DVV are conditioned by characteristics of the family's neighborhood has not been examined. However, if they do, this would have implications for developing and implementing interventions for preventing DVV among rural youth.

Numerous studies finding that family effects depend on neighborhood characteristics support an amplified disadvantages model.^{14,15-19} This model suggests that the risks of a problematic family are stronger in more-disadvantaged neighborhoods²⁰⁻²² based on the premise that the accumulation of risks has effects above and beyond single risks.^{22,23} Most of these studies have been conducted with urban youth,^{14,16,18,19} but this model has been supported in rural studies as well.^{15,17} Both the urban and rural studies used social disorganization theory (SDT) to characterize disadvantaged neighborhoods. SDT suggests that disadvantaged neighborhoods are characterized by high economic disadvantage, residential instability, and ethnic heterogeneity.²⁴ These risky structural characteristics disrupt neighborhood social organization, reducing the ability of residents to establish norms and values and maintain effective social control, resulting in increased neighborhood violence and crime. SDT was developed out of urban research, but SDT disadvantage indicators have also been associated with youth violence^{25,26} and intimate partner violence (IPV)^{27,28} in rural areas.

Exposure to aggression between family members^{29,30} and lack of parental monitoring,³¹⁻³³ rule setting,³¹ and closeness³⁴ have been found to increase DVV risk. According to the amplified disadvantages model, these family attributes should be significantly stronger DVV risks when the family lives in a more disadvantaged neighborhood. Lack of parental monitoring, rule setting, and closeness can increase adolescent exposure to violent neighborhood peers³⁵ and adult IPV.^{36,37} Such exposures can increase DVV risk by providing opportunity to date violent peers and increasing the likelihood of adopting pro-violence norms, including those specific to partner violence, that could keep them in an abusive relationship.^{15,36-38} Also, such exposures may reinforce pro-violence norms learned by adolescents exposed to family aggression, increasing the likelihood that adolescents living in disadvantaged neighborhoods remain in abusive relationships. Additionally, living in disadvantaged neighborhoods, with the associated police presence and surveillance,³⁹ produces stress. Adolescents without family support and closeness to buffer those stresses may come to rely on partners for support, decreasing the likelihood of leaving a partner who is depended on but abusive.

The current study used longitudinal data to test the hypothesis that the associations between family risk and DVV will be stronger in more-disadvantaged neighborhoods, defined by

high poverty, residential instability, ethnic heterogeneity, social disorganization, and violence than in less-disadvantaged neighborhoods. This hypothesis was tested with a trajectory of DVV from grade 8 to 12 as the outcome, which made it possible to determine whether the hypothesized synergistic effects varied across adolescence. The study also examined whether the hypothesized synergy varied by sex of the adolescent; the preponderance of DVV studies find similar prevalence rates of DVV for boys and girls,⁴⁰ and sex differences have been found in family influences,^{41,42} neighborhood influences,^{43–45} and their synergy,^{46,47} though little consistency has been found across studies in sex differences. Because of the long-held misconception that rural areas are idyllic crime- and violence-free communities, little violence research has been conducted in rural communities.^{48–51} This study expands the research on how neighborhoods condition family influences among rural adolescents.

Methods

Data Collection

The study was conducted in two primarily rural counties in North Carolina. One hundred percent of the Census Tracts in one county and 67% in the other were designated as rural.⁵² The largest city in the former had 8,696 residents and the latter had 16,095 residents. The percentages of participants who were black (38.1%), living below the poverty level (20.4%), and unemployed (9.0%) were higher in study counties than in the state (21.6%, 12.3%, and 5.5%, respectively) and the U.S. (12.9%, 12.4%, and 4.8%, respectively).⁴⁵

Four waves of data were collected between 2003 and 2005 in school from adolescents enrolled in the public school systems in the two counties. Adolescents were in grades 8–10 at Wave 1 and 10–12 at Wave 4; response rates ranged from 76.9% to 72.8%. Data were collected every 6 months for the first three waves, and there was a 1-year interval between Waves 3 and 4. Neighborhood was defined using U.S. Census block groups based on participants' geocoded addresses.⁵³ Parents could refuse consent for their child's participation by returning a written form or by informing investigators via telephone. The IRB at the investigators' university approved data collection protocols.

Analytic Sample

The analytic sample (N=3,236) included adolescents who completed at least one wave of data; approximately 85% completed at least two waves of data. Half of the sample was male and 49% was black, 40% white, and 11% of other race/ethnicity. The sample was nested within 65 block groups.

Measures

A short version of the Safe Dates Physical DVV scale was administered at each wave.^{1,54} Adolescents were asked if they had ever been on a date, defined as *including informal activities like meeting someone at the mall, park, or at a basketball game as well as more formal activities like going out to eat or to a movie together*. Adolescents answering *yes* were asked how many times certain abusive acts had been done to them, not in play or self-defense, during the past 3 months. The six acts that followed ranged from *slapped or*

scratched you, to assaulted you with a knife or gun. Responses ranged from 0 for *never* to 3 for *ten or more times*. Items were summed at each wave (average $\alpha=0.95$). The prevalence of experiencing any act in the prior 3 months ranged from 8.40% in grade 8 to 12.44% in grade 12.

All family variables were time varying and person-mean centered⁵⁵ and were scored such that higher scores indicated greater family risk. “Low parental monitoring” was measured by determining the proportion of the adolescent’s friends and their friend’s parents that the parent had not met, and then averaging the two. “Low parental rule setting” was the average of items about whether each parent *has rules that I must follow, tells me times when I must come home, and makes sure I don’t stay up too late*⁵⁶ (average $\alpha=0.85$). “Low parental closeness” was the average of the following in reference to each parent⁵⁶: *How often does he/she hug or kiss you, How close do you feel toward her/him, and How close do you think he/she feels toward you* (average $\alpha=0.80$). *Family aggression was the average of three items*⁵⁷: *We fight a lot in our family, Family members sometimes get so angry they throw things, and Family members sometimes hit each other* (average $\alpha=0.87$).

Neighborhood variables were time invariant (from the first assessment) with higher scores indicating greater risk. “Economic disadvantage,” “residential instability,” and “ethnic heterogeneity” were based on 2000 U.S Census data.⁵³ “Social disorganization” and “neighborhood violence” were based on adolescent reports on their neighborhood, aggregated by block group. “Economic disadvantage” was a composite of the proportion of residents below poverty, unemployed, receiving public assistance, and living in female-headed households ($\alpha = 0.86$).⁴³ “Residential instability” was a composite of the proportion of residents who had lived in the neighborhood for <5 years and of renter-occupied homes.²⁴ “Ethnic heterogeneity” ranged from 0 to 1 and was calculated by summing the squared proportions of each racial/ethnic group in the neighborhood and subtracting that number from 1.⁵⁸ “Social disorganization” was the average of five questions about adolescents’ perceptions of whether neighbors know each other, socialize, and intervene to stop adolescent misbehavior ($\alpha = 0.83$).²⁴ “Neighborhood violence” was the average of four questions about their perceptions of safety and violence in their neighborhood ($\alpha = 0.78$). Table 1 presents descriptive statistics on the neighborhood risk indicators, which are as high or higher than in other rural violence studies.^{25–28,50}

Statistical Analysis

Hypotheses were tested using hierarchical linear growth modeling with time nested within individuals nested within neighborhoods (three-level model). All analyses were conducted in 2014 using SAS, version 9.2. Repeated measures of DVV were logged and models were estimated with robust SEs to adjust for non-normality. First, fit indices (e.g., Bayesian information criterion, likelihood ratio tests) were used to determine the average shape of the DVV trajectory from grade 8 to 12 (flat, linear, curvilinear).⁵⁹ In the best-fitting model, grade was significantly and positively associated with DVV ($\beta=0.0218$, CI = 0.01011, 0.03351, $p=0.0003$), indicating that the average shape of the DVV trajectory was a steady increase from grade 8 to 12.

Next, analyses assessed the main effects of the family variables on DVV. Then the main effects of the neighborhood variables on DVV were assessed. Finally, the hypothesized interactions between the family and neighborhood variables were examined. Each set of analyses further examined whether the effect of the focal variables (i.e., family, neighborhood, or their synergy) varied by sex (focal variables by sex interactions), across grade levels (focal variables by grade interactions), and by sex and across grade levels (focal variables by sex by grade interactions). To decrease the likelihood of making a Type I error, multivariable Wald tests were used to determine if sets of interactions significantly contributed to the models. If a set contributed to the model ($p < 0.05$), the significant individual interactions in that set were retained; post hoc analyses assessed the nature of the interaction(s). Non-significant sets were deleted from further consideration. All models controlled for race/ethnicity, family structure, parents' education, and whether the adolescent had failed a school year, had moved during the study period, and had dated. Missing data were handled through multiple imputation using SAS PROC MI and PROC MIANALYZE. Ten data sets were imputed using multiple Markov Chain Monte Carlo methods.

Results

Table 2 presents the correlations, averaged across waves, between study variables. Low parental rule setting, low parental closeness, and high family aggression were significantly associated with more DVV. Low parental monitoring was not associated with DVV. Neighborhood ethnic heterogeneity was the only neighborhood variable significantly associated with DVV. Although statistically significant, these correlations tended to be small. Associations among family and among neighborhood variables were generally as expected.

None of the sets of interactions involving sex or grade contributed significantly to any of the models, indicating that the main effects and hypothesized synergy did not vary by sex and/or grade level. Therefore, all of these interactions were dropped from all models. The conclusions of all models were the same with and without the demographic covariates.

Table 3 presents the final reduced family main effects model. Low parental closeness was significantly associated with DVV, such that decreases in parental closeness were associated with elevated DVV ($\beta = 0.07$, CI = 0.02, 0.12, $p < 0.01$). Also, an increase in family aggression was significantly associated with elevated DVV ($\beta = 0.04$, CI = 0.02, 0.06, $p < 0.01$). Low parental rule setting and low parental monitoring were not associated with DVV.

Table 4 presents the final reduced neighborhood main effects model. Neighborhood ethnic heterogeneity was significantly positively related to DVV ($\beta = 0.14$, CI = 0.02, 0.25, $p < 0.05$). However, none of the other neighborhood variables were associated with DVV.

Table 5 shows the results from assessing the hypothesized synergy of the family and neighborhood variables on DVV. The set of interactions between neighborhood residential instability and the family variables significantly contributed to the model (Wald = 2.53, $p = 0.04$); the significant individual interaction that was retained was between low parental

closeness and residential instability ($\beta=-0.23$, CI = $-0.42, -0.04$, $p<0.01$). Figure 1 shows the nature of this interaction. Contrary to what was hypothesized, low parental closeness was a risk for DVV for adolescents residing in residentially stable ($\beta = 0.09$, CI = $0.04, 0.15$, $p = 0.001$), but not unstable ($\beta = 0.01$, CI= $-0.02, 0.05$, $p=0.44$), neighborhoods. Family aggression continued to be significantly associated with DVV ($\beta=0.04$, CI= $0.02, 0.06$, $p=0.001$), as did neighborhood ethnic heterogeneity ($\beta = 0.14$, CI = $0.03, 0.25$, $p<0.01$), both in the expected direction.

Discussion

The hypothesis that the associations between family risks and DVV would be stronger in more-disadvantaged neighborhoods was not supported. However, characteristics of the family, the neighborhood, and their synergy were associated with DVV, suggesting that these contexts and their interplay need to be considered in DVV prevention efforts.

Low parental closeness and residential instability worked together to influence victimization, but not in the hypothesized direction. Low parental closeness was associated with elevated DVV in residentially stable, but not unstable, neighborhoods. One potential explanation for this finding stems from the idea that neighborhood attributes may alter an adolescent's interpretation of the family environment, producing neighborhood-conditioned effects of the family.^{21,60-62} For example, Roche and colleagues⁶⁰ suggested that in disadvantaged neighborhoods with many risks, adolescents may view rule setting as appropriate and caring parenting, whereas in advantaged neighborhoods, adolescents may view it as overcontrolling, and thus rebel. The interaction found in the current study may also be explained by varying interpretations of family characteristics. Residentially stable as compared with unstable neighborhoods have more long-term residents and homeowners, likely housing more established families. Thus, adolescents living in stable as compared with unstable neighborhoods may have more opportunities to witness close parent-adolescent relationships among neighbors, and those without close parental relationships may be more negatively affected as a result of these comparisons.

Family aggression was strongly positively associated with elevated DVV, regardless of neighborhood characteristics. Adolescents exposed to family aggression may adopt normative beliefs that are accepting of dating violence,^{34,63} have dysfunctional family relationships that lead to increased dependence on partners, and develop low self-worth, each of which could increase adolescent risk for becoming involved in and remaining in abusive relationships. Decreasing family aggression should be a goal of family-based programs for preventing DVV.

Although low parental closeness and family aggression played a role in risk for DVV, low parental monitoring and rule setting did not. Together, these findings suggest that the parent-adolescent relationship (warmth and aggression) may be more influential on DVV than actual parenting practices (monitoring and rule setting), an assertion that has direct relevance for informing family-based DVV prevention programs. However, this assertion needs further examination given that, in comparison with studies of dating violence perpetration, few

DVV studies have examined both the parent–adolescent relationship and specific parenting practices in the same study.

Ethnic heterogeneity was the only significant neighborhood variable. Neighborhood ethnic heterogeneity has frequently been associated with violence in rural studies^{25,26,64}; however, it has not been examined in DVV studies. SDT purports that ethnic heterogeneity contributes to lack of communication between neighbors and formation of social ties, leading to the lack of social control^{65,66} that, as described earlier, can create a higher-risk environment for DVV. As expected, ethnic heterogeneity and social disorganization were positively correlated. However, ethnic heterogeneity continued to be associated with DVV when social disorganization was controlled, suggesting that other processes link ethnic heterogeneity and DVV risk.

In general, the evidence was not strong that neighborhood characteristics influenced DVV risk or conditioned family effects, raising the question of whether SDT indicators appropriately capture disadvantage/risk in rural neighborhoods.^{48–51} Although SDT indicators of disadvantage are often higher in rural than urban areas,^{49,67–69} they may not relate to violence in SDT expected ways. For example, economic disadvantage was protective against, rather than a risk for, violence in some rural studies.^{25,26,50} Also, studies examining violence against rural women suggest that social organization is a risk rather than protector because strong rural patriarchal beliefs, paired with strong social cohesion, may promote community norms discouraging victims from seeking help.^{48,70–72} These opposite associations were not found, but few significant associations were. Clearly, more research is needed to identify neighborhood DVV risks for rural adolescents. The only study to examine neighborhood effects on DVV had an urban focus.⁷³

Limitations

This study had a number of limitations. Neighborhood boundaries were defined by U.S Census block groups, but other neighborhood boundaries may be more meaningful.⁷⁴ Rural communities are heterogeneous (e.g., in types of social controls and inter-relationships between neighborhood characteristics)^{48,71,72,75,76} and thus findings may generalize only to counties similar to the study counties. Also, the data are 9 years old, which could limit generalizability of the findings to present day. Additionally, associations could be different when considering types of DVV (e.g., cyber, psychological, and sexual) other than physical.

The study has many strengths. The proposed hypotheses were theoretically based. Having a trajectory as the outcome allowed for examining associations and identifying the typical pattern of physical DVV across grades 8 to 12. Sex differences were statistically examined and models adjusted for neighborhood clustering and individual-level variables that could confound neighborhood effects. Also, the study addressed an important gap in research on the interplay of family and neighborhood contexts by focusing on rural adolescents. Additional strengths are the large sample size and high response rates.

Conclusions

The findings demonstrate the importance of considering the family and neighborhood, and particularly their interplay, in DVV prevention efforts. The effectiveness of family-based

DVV prevention programs may vary depending on where the family resides; more specifically, promoting parent–child closeness could be an effective DVV prevention approach among adolescents in more-stable neighborhoods, but have no effect on DVV in more-unstable neighborhoods where environmental risk may override family influence. Decreasing family aggression, however, could be effective at preventing DVV regardless of where the family lives, and targeting ethnically heterogeneous neighborhoods for DVV prevention may be warranted. More DVV research is needed that draws on the rich history of examining the synergy of family and neighborhood contexts and examines the etiology of DVV among rural adolescents.

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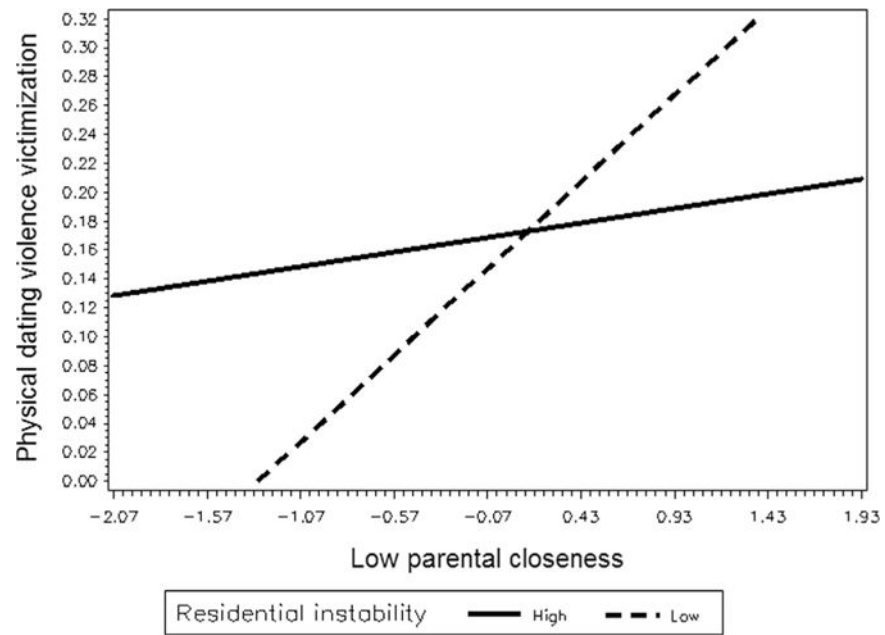


Figure 1. Synergistic effects of low parental closeness and neighborhood instability on the physical dating violence victimization trajectory.

Table 1

Descriptive Information on Neighborhood-Level Variables

	Mean (SD)	Range
Neighborhood economic disadvantage	0.12 (0.06)	0.03–0.28
Proportion of residents below the poverty level	0.17 (0.11)	0.03–0.53
Proportion of residents unemployed	0.07 (0.05)	0.00–0.24
Proportion of residents receiving public assistance	0.18 (0.09)	0.03–0.43
Proportion of female-headed households	0.04 (0.04)	0.00–0.22
Residential instability	0.72 (0.22)	0.14–1.25
Proportion of residents who lived in neighborhood <5 years	0.29 (0.19)	0.09–0.76
Proportion of renter-occupied homes	0.43 (0.09)	0.21–0.62
Ethnic heterogeneity	0.42 (0.12)	0.00–0.75
Social disorganization	1.31 (0.20)	0.46–2.54
Neighborhood violence	1.28 (0.28)	0.01–2.69

Note: Means calculated at the block-group level (N=65 block groups).

Table 2
Correlations Between Family, Neighborhood, and Physical Dating Violence Victimization

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Physical DV	—	—	—	—	—	—	—	—	—
(2) Low parental monitoring	0.00	—	—	—	—	—	—	—	—
(3) Low parental rule-setting	0.09 ^{**}	0.01	—	—	—	—	—	—	—
(4) Low parental closeness	0.09 ^{**}	0.07 ^{**}	0.43 ^{**}	—	—	—	—	—	—
(5) Family aggression	0.19 ^{**}	0.03 [*]	0.18 ^{**}	0.31 ^{**}	—	—	—	—	—
(6) Economic disadvantage	0.00	0.01	0.04 ^{**}	0.02 [*]	-0.01	—	—	—	—
(7) Residential instability	0.00	-0.01	0.02	0.01	-0.01	0.72 ^{**}	—	—	—
(8) Ethnic heterogeneity	0.03 [*]	-0.00	0.04 ^{**}	0.04 ^{**}	0.06 ^{**}	0.06 ^{**}	0.07 ^{**}	—	—
(9) Neighborhood violence	-0.00	0.02 [*]	0.05 ^{**}	0.04 [*]	0.03 [*]	0.71 ^{**}	0.70 ^{**}	0.22 ^{**}	—
(10) Social disorganization	0.01	0.01	0.06 ^{**}	0.03	0.02	0.49 ^{**}	0.44 ^{**}	0.29 ^{**}	0.46 ^{**}

Note: Boldface indicates statistical significance

* $p < 0.05$;

** $p < 0.01$.

DVV, dating violence victimization.

Table 3

Reduced Family Main Effects Model

Effect and variable	β (95% CI)
Intercept	0.16** (0.14, 0.19)
Grade	0.01 (-0.01, 0.02)
Low parental monitoring	0.00 (-0.00, 0.00)
Low parental rule-setting	0.02 (-0.01, 0.05)
Low parental closeness	0.07* (0.02, 0.12)
Family aggression	0.04* (0.02, 0.06)

Note: Controlling for sex, race/ethnicity, family structure, parental education, failed school year, moving status, and dating status. Boldface indicates statistical significance

* $p < 0.01$,

** $p < 0.001$.

Table 4

Reduced Neighborhood Main Effects Model

Effect and variable	β (95% CI)
Intercept	0.16** (0.14, 0.18)
Grade	0.01 (-0.00, 0.02)
Neighborhood disadvantage	0.09 (-0.28, 0.45)
Residential instability	0.03 (-0.06, 0.13)
Ethnic heterogeneity	0.14* (0.02, 0.25)
Neighborhood violence	-0.05 (-0.15, 0.04)
Social disorganization	0.01 (-0.08, 0.10)

Note: Controlling for sex, race/ethnicity, family structure, parental education, failed school year, moving status, and dating status. Boldface indicates statistical significance

*
 $p < 0.05$;

**
 $p < 0.001$.

Table 5

Reduced Model Testing Hypothesized Synergic Effects of Family and Neighborhood on Dating Violence Victimization

Effect and variable	β (95% CI)
Intercept	0.16 *** (0.14, 0.19)
Low parental monitoring	0.00 (-0.00, 0.00)
Low parental rule-setting	0.02 (-0.01, 0.05)
Low parental closeness	0.07 ** (0.02, 0.12)
Family aggression	0.04 ** (0.02, 0.06)
Neighborhood disadvantage	0.09 (-0.27, 0.46)
Residential instability	0.03 (-0.06, 0.13)
Ethnic heterogeneity	0.14 * (0.03, 0.25)
Neighborhood violence	-0.05 (-0.15, 0.04)
Social disorganization	0.01 (-0.08, 0.09)
Low parental closeness \times Residential instability	-0.23 ** (-0.42, -0.04)

Note: Controlling for sex, race/ethnicity, family structure, parental education, failed school year, moving status, and dating status. Boldface indicates statistical significance

* $p < 0.05$;

** $p < 0.01$;

*** $p < 0.001$.