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NEIGHBORHOOD CONTEXT AND THE GENDER GAP IN ADOLESCENT VIOLENT CRIME*

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Abstract

Although researchers consistently demonstrate that females engage in less criminal behavior than males across the life course, research on the variability of the gender gap across contexts is sparse. To address this issue, we examine the gender gap in self-reported violent crime among adolescents across neighborhoods. Multilevel models using data from the Project of Human Development in Chicago Neighborhoods (PHDCN) indicate that the gender gap in violent crime decreases as levels of neighborhood disadvantage increase. Further, the narrowing of the gender gap is explained by gender differences in peer influence on violent offending. Neighborhood disadvantage increases exposure to peer violence for both sexes, but peer violence has a stronger impact on violent offending for females than for males, producing the reduction in the gender gap at higher levels of disadvantage. We also find that the gender difference in the relationship between peer violence and offending is explained, in part, by (1) the tendency for females to have more intimate friendships than males, and (2) the moderating effect of peer intimacy on the relationship between peer violence and self-reported violent behavior.

Keywords

gender; violence; neighborhood; peer

Gender is one of the most substantiated and powerful correlates of criminal offending. In fact, gender is considered by many the strongest risk factor for delinquency (Giordano and Cernkovich 1997). The view that violence is predominantly a male phenomenon led early researchers to develop theories primarily of "male" offending. Accordingly, the first three quarters of the 20th century saw little theoretical or empirical research into the causes of female violence or explanations for the gender gap in crime. However, the last two decades have witnessed an expanding focus on the nature of female offending. As reviewed below, studies have investigated the applicability of criminological and sociological theories of crime to female criminal behavior, trends in female crime and gender rate ratios, and the structural covariates of sex-specific offending rates.1

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[1]Studies have also examined gendered crimes, gendered pathways to lawbreaking, and the development of gender-specific intervention and educational programs (e.g., see Daly, 1998a, 1998b; Galbavy, 2003; Maher, 1995; Miller, 2001; Miller and Mullins, 2006; Steffensmeier and Haynie, 2000).

Despite the growing focus on within- and between-gender variations in violent behavior, research on the variability of gender differences in violence across contexts is sparse. A few studies have examined the gender gap across relatively large areal units such as cities and countries, but researchers have yet to investigate the extent to which the gender gap varies as a function of the more localized context. This neglect is surprising since researchers have long suspected that the area of residence within a city influences the gender differential in offending (Sutherland and Cressey 1974:129). In addition, smaller, more homogenous areas such as neighborhoods may be able to detect patterns that larger, heterogeneous units cannot (Heimer, Wittrock, and Unal 2006). Our research contributes to the literature by investigating the gender gap in violence across neighborhoods in a multi-level framework. We hypothesize that the gender gap in violent offending will be reduced in more disadvantaged neighborhoods. We further propose that this narrowing of the gender gap will be produced by the tendency for neighborhood disadvantage to affect exposure to violent peers more strongly for females than for males. We test these hypotheses with data from the Project of Human Development in Chicago Neighborhoods (PHDCN), a dataset particularly well suited for studying individuals in their localized social environments.

PRIOR RESEARCH ON THE GENDER GAP

Previous research on the gender gap in offending has adopted both individual-level and aggregate-level designs. Individual-level studies typically compare levels of criminal involvement and assess the extent to which the risk factors for offending are similar for males and females. The evidence indicates that females engage in less criminal behavior than males across the life course, regardless of racial or ethnic distinctions, and for all but a handful of gender-specific offenses (Mears, Ploeger, and Warr 1998). This between-gender variation in offending has been verified cross-culturally, historically, and whether self-report, victimization, or official data are used (Heimer and De Coster 1999). The evidence also suggests that the predictors of male offending are similar to those of female offending. In other words, gender differences in offending rates are not due to the influence of different social forces, but rather because “males and females… are *differentially exposed* to the same criminogenic conditions… or *differentially affected* by exposure to the same criminogenic conditions” (Mears et al. 1998:252).

At the aggregate level, researchers have been particularly interested in documenting and explaining possible changes in the gender gap over time. Studies using data from the Uniform Crime Reports found evidence that the gender gap in arrests for violent offending decreased in the last two to three decades (e.g., Heimer 2000; O’Brien 1999; Steffensmeier 1980; Steffensmeier and Cobb 1981). Some research using incident-based counts from the National Crime Victimization Survey (NCVS) also found a decreasing gender gap over time (Lauritsen, Heimer, and Lynch 2009). However, analyses based on offender-based counts from the NCVS and self-report surveys of offending (e.g., Monitoring the Future) reported relative stability in the gender gap since the early 1980s (e.g., Schwartz et al. 2009). Such studies interpreted decreases in the gender gap in arrests and victimization surveys from a constructivist perspective, citing penal philosophy, policy reforms, social movements, and media attention, as well as methodological inconsistencies (Schwartz, Steffensmeier, and Feldmeyer 2009; Steffensmeier et al. 2005; Steffensmeier et al. 2006).

Another line of inquiry in aggregate-level studies of the gender gap has focused on the structural covariates of sex-specific offending rates. Similar to the results of individual-level analyses, the findings generally suggest that the structural correlates of female offending resemble closely those of male offending (Cernkovich and Giordano 1979). For example, in a study of the 178 largest U. S. cities in 1990 (population above 100,000), Steffensmeier and Haynie (2000) found that cities with higher levels of economic disadvantage had higher

rates of female and male arrests for serious crimes (i.e., homicide, robbery, aggravated assault, burglary, and larceny). Schwartz (2006a, 2006b) also found that structural variables exhibited comparable effects on male and female homicide rates in regression models based on data for U. S. counties, although the magnitudes of the coefficients sometimes varied across gender.

A few studies have also examined variation in the gender gap across aggregate units. One such study analyzed the percentage of arrests attributable to females (FP/A) using International Criminal Police Organization (INTERPOL) biennial data from 69 countries (Steffensmeier, Allan, and Streifel 1989). Applying multiple regression techniques and path analysis, the authors failed to find significant associations between FP/A and their measure of economic disadvantage (i.e., occupational segregation among females). Another study of the gender gap examined gender rate ratios (i.e., female arrest rates as a percentage of male arrest rates) from the UCR for the one hundred largest U. S. cities (in 1970) in each decade from 1970 through 2000 (Heimer et al. 2006). Using generalized linear mixed models, the authors regressed gender rate ratios for 400 city-years on numerous measures of economic hardship. Their findings indicated that females accounted for a greater share of arrests in economically distressed cities. Further, the gender gap in arrests decreased when females were socioeconomically disadvantaged relative to males. Studies have also investigated the relationship between a country's level of socioeconomic development and the relative involvement of females in crime. Such studies showed that development facilitates greater female involvement in crime, especially property offending (e.g., Shelley 1981; South and Messner 1987).

Several conclusions are warranted on the basis of previous research. First, the risk factors for male and female offending evidently overlap to a considerable degree. This implies that the gender gap should be explainable in large part by reference to the operation of such factors. Second, despite similarities in the factors that explain offending, the magnitudes of the effects of these factors sometimes vary across gender. It is therefore important to be sensitive to the possibility of "gendered" statistical interactions. Third, the evidence demonstrates convincingly that the gender gap is by no means a constant. Gender differences in the levels of involvement in crime clearly vary across place. Finally, while a good deal of research has been conducted at both the individual and aggregate level of analysis, *multilevel* analyses of gender differences in violent offending are conspicuous by their absence. Our research sets out to fill this gap in the literature by examining if, and how, neighborhood disadvantage serves as a contextual factor that moderates the well established individual-level effect of gender on violent crime for a sample of adolescents.

LINKING NEIGHBORHOOD DISADVANTAGE, GENDER, AND ADOLESCENT VIOLENT CRIME: THE ROLE OF PEERS

As noted above, prior research indicates that gender differences in violent offending can be accounted for largely with reference to a common set of risk factors. The underlying processes can be conceptualized as involving a causal chain linking gender (e.g., being "male") with a set of individual-level risks factors, which, in turn, are related to the likelihood of involvement in violence. Males tend to engage in more violence than do females largely because they exhibit higher "values" on the risk factors, creating the gender gap. Neighborhood disadvantage is another, albeit contextual, risk factor for crime. We hypothesize that neighborhood disadvantage moderates the effect of gender on violent offending, and it does so because it has a stronger effect on exposure to violent peers for females than for males. We explicate below the reasons for expecting that neighborhood disadvantage is related to exposure to violent peers, and for expecting that the strength of this relationship will be greater for females than for males.

A vast body of literature on peer influence indicates that exposure to violent peers is one of the strongest correlates of violent behavior (Agnew 1991; Elliott, Huizinga, and Ageton 1985; Warr 2002). However, the social contexts in which deviant peer affiliations are facilitated or deterred are less well understood (Brody et al. 2001:1231). Still, some theoretical and empirical work has linked neighborhood disadvantage to increases in one's tendency to associate with violent peers. This relationship has been confirmed anecdotally and empirically, in early (Park and Burgess 1924; Shaw and McKay 1942) as well as in more recent work (Akers 1998; Brody et al. 2001; Haynie, Silver, and Teasdale 2006; Matsueda and Heimer 1987). The mechanisms through which disadvantage leads to deviant peer associations can be traced back to the pioneering work of Shaw and McKay (1942). They hypothesized that various dimensions of neighborhood disadvantage (e.g., poverty, female-headed households, unemployment, and racial heterogeneity) combine to weaken social organization and social control in the community (Bursik and Grasmick 1993; Park and Burgess 1924; Shaw and McKay 1942; Sampson, Raudenbush, and Earls 1997). For example, a high concentration of single mothers can impede the development of community networks needed to sustain high levels of informal social control (Sampson and Lauritsen 1994), and low levels of neighborhood SES can limit the ability of parents to effectively monitor and supervise their children (e.g., Simons et al. 1993). Ineffective social controls in the community and family, in turn, permit "unstructured socializing" (Osgood and Anderson 2004) and therefore provide opportunities for youths to affiliate with violent peers (Elliott, Huizinga, and Menard 1989; Jensen and Eve 1976; Patterson, Reid, and Dishion 1992).

We propose that the strength of the positive correlation between neighborhood disadvantage and exposure to peer violence is stronger for females than for males. That is, contextual disadvantage increases exposure to violent peers for both sexes, as outlined above, but the magnitude of this effect is larger for females than for males. Our reasoning is based on prior research that has attributed the gender gap in crime largely to the increased monitoring and supervision of females (e.g., Hirschi 1969; Jensen and Eve 1976; Hoffman-Bustamante 1973; LaGrange and Silverman 1999; McCarthy, Felmlee, and Hagan 2004; Sutherland and Cressey 1974). According to this argument, females engage in less offending than males because higher levels of supervision and control foster stronger emotional bonds between females and their families (Hagan, Gillis, and Simpson 1985) and more involvement in conventional activities in the home, school, and community (Gager, Cooney, and Call 1991). Moreover, the heightened supervision of females and the concomitant strong social bonds with conventional society serve to inhibit associations with violent peers (Morash 1986). In other words, neighborhood disadvantage should have a particularly strong effect on peer associations for females because of the gendered nature of informal social control: this informal social control serves as a more salient protective factor against violent peer associations for females than for males. Accordingly, when informal social control breaks down in disadvantaged neighborhoods, young female adolescents are especially likely to come into greater contact with violent peers.

In short, we propose that the gender gap in violent offending will decrease as levels of neighborhood disadvantage increase. Further, gender differences in the consequences of disadvantage for exposure to violent peers will be responsible for this narrowing of the gender gap. Stated more formally, our key hypotheses stipulate two cross-level interactions: (1) the effect of gender on violent offending should be attenuated as neighborhood disadvantage increases, and (2) the effect of neighborhood disadvantage on exposure to delinquent peers should be stronger for females in comparison with males.

RESEARCH DESIGN AND METHODS

Data

We assess our hypotheses with data from the Project of Human Development in Chicago Neighborhoods (PHDCN), a multi-wave interdisciplinary study of how individual, family, and contextual factors contribute to youth development. The PHDCN consists of several components, including a Community Survey (CS) and Longitudinal Cohort Study (LCS). The CS is a probability sample of 8,782 Chicago residents focused on assessing the social, economic, political, and cultural conditions in their communities. For the CS, Chicago's 865 census tracts were combined into 343 neighborhood clusters (NCs) based on spatial contiguity according to ecological boundaries and internal homogeneity with respect to race/ethnicity and SES. Each neighborhood cluster (NC), averaging 8,000 people, was smaller than the 77 community areas in Chicago and large enough to approximate a local "neighborhood." A three-stage sampling design was used to select city blocks within NCs, households within blocks, and one adult (18 or over) per household. This design ensured that the number of cases per NC could generate meaningful results from residents' aggregated responses (see Sampson et al. 1997).

The LCS, consisting of three waves of data, is a probability sample of participants in seven cohorts defined by age at baseline (0, 3, 6, 9, 12, 15, and 18). A stratified probability sample of 80 NCs selected from the 343 NCs and a simple random sample of households within these NCs identified eligible respondents in each cohort. Respondents and their primary caregivers were interviewed up to three times between 1994 and 2002; the average time between interviews was 2.5 years. 1,516 subjects from cohorts aged 12 (N=820) and 15 (N=696) years were interviewed at wave one. Of these, 99.1 percent or 1,502 subjects (814 and 688 from cohorts 12 and 15, respectively) who responded to at least one violent crime item over the three waves of data collection were included in this study. Analysis of attrition revealed no significant differences on key variables. Although response rates for wave two were 86.2 percent and 82.7 percent for the 12- and 15-year-old cohorts, respectively, and response rates for wave three were 74.9 percent and 71.3 percent, our modeling techniques allowed for the inclusion of all 1,502 respondents (see below). In addition, all 1,502 respondents had valid gender data. Only background variables contained missing data, less than 5 percent in all cases. We used multiple imputation techniques to address potential bias resulting from missing control variable data (Royston 2005). The average ages of respondents at wave one, two, and three were 13.53, 15.53, and 18.12 years, respectively. The youngest respondent at wave one was 10.80 years, while the oldest respondent at wave 3 was 22.28 years. Despite the variation, these ages correspond with the peak years of offending.

At least one subject resided in 78 of the 80 sampled NCs. Nine NCs had less than five subjects and were collapsed by race/ethnicity and SES to yield a macro-level sample size, N, of 70 and an average micro-level sample size within NCs, n, of 21. Despite differing views on the sample sizes needed to obtain unbiased cross-level interaction coefficients and minimize the probability of Type I errors, there is general agreement that the major consideration should be the macro-level sample size, and it is better to have a large number of groups with a few people than a small number of groups with many people (see, e.g., Hox 1995; Kreft and De Leeuw 1998:199-126; Snijders and Bosker 1999). The sample sizes in this study meet these guidelines. In addition, we gain power by using multiple observations across participants. The dependent variable (see below) consists of up to 24 violent crime items per individual over the three waves of data collection (average = 20). Therefore, the models have an average of 420 observations per neighborhood (21 people per neighborhood × 20 items per respondent).

Violent Behavior

Respondents were administered a Self-Report of Offending questionnaire (National Institute on Drug Abuse 1991) at each wave of data collection to determine participation in a series of violent crimes in the year preceding the interview. Self-reports were used because they are independent of and capture a broader range of behaviors than official measures of crime (Thornberry and Krohn 2002). Eight items indicating physical aggression are considered violent crimes: hitting someone outside of the house; attacking someone with a weapon; throwing objects such as rocks or bottles at people; carrying a hidden weapon; maliciously setting fire to a house, building, or car; forcefully snatching someone's purse or wallet; using a weapon to rob someone; and being involved in a gang fight. Previous research with the PHDCN has used these items to measure violent behavior (e.g., Raudenbush and Sampson 1999; Sampson, Morenoff, and Raudenbush 2005).

Violent crime is relatively rare in the sample. Although 2,380 violent crimes were reported, estimates of the prevalence of robbery (0.51 percent), forceful purse snatching (0.69 percent), arson (0.93 percent), attacking someone with a weapon (4.16 percent), and gang fighting (6.31 percent) were all less than 10 percent. These offenses were followed by carrying a hidden weapon (10.68 percent) and throwing objects (13.32 percent). Even the most prevalent offense, hitting someone (26.48 percent), was reported by less than 30 percent of subjects. Although some of these crimes are infrequent, the estimates are consistent with national norms (Brener et al. 1999).

Our analysis focuses on whether or not the respondent reported involvement in each violent crime item at each time point. This allows us to use a multivariate, multilevel Rasch model, the simplest item response (IRT) model, to predict the odds of engaging in each violent crime item (Raudenbush, Johnson, and Sampson 2003; Sampson et al. 2005). The three-level model nests violent crime item responses within persons within neighborhoods. The level-one model (items within persons) produces a latent variable (θ) representing each person's propensity to engage in violent crime. This is a continuous variable assumed normally distributed on a logit metric and serves as the outcome variable for the person- and neighborhood-level models (Osgood, McMorris, and Potenza 2002).

Although item response scaling accounts for the varying seriousness and frequency of the violent crime items, it does not overcome the basic problem that the resulting latent scale can be weighted toward the minor forms of criminal violence in our scale. To investigate this issue, we created a dependent variable limited on a priori grounds to the five items that are clearly violent (attacking with a weapon, carrying a hidden weapon, arson, robbery, and gang fighting). The results of this model were consistent with those for the full model, described in more detail in the Statistical Models section below.[2]

Neighborhood Context

Based on previous research, this study examines ten variables constructed from the 1990 decennial census (Morenoff and Sampson 1997; Sampson et al. 1997). These ten variables were combined into three indices of neighborhood structural differentiation based on factor analysis: concentrated disadvantage, immigrant concentration, and residential instability.

[2]We conducted further sensitivity analyses to confirm that the findings were not due to the operationalization of the dependent variable or the model used. In one model, the violent crime items were combined additively and a two-level hierarchical linear model was estimated. In a second model, individuals were coded with a one if they responded affirmatively to any one of the violent crime items, and zero otherwise, and a two-level multilevel logistic model was estimated. The results of these models were consistent with those presented herein.

Concentrated disadvantage is comprised of the percent of families below the poverty line, percent of households receiving public assistance, percent of non-intact families with children, percent of population unemployed, median household income in 1989, and percent of population Non-White. These variables are highly interrelated and load on a single factor (all loadings ≥ 0.83) using principal components analysis with oblique rotation. The variables were combined into a scale using a weighted factor regression score such that high levels reflect high levels of disadvantage. This is a well-established scale (Wikstrom and Loeber 2000) that has been validated in Chicago (see Sampson and Raudenbush 1999:640; Sampson et al. 1997:920).

Immigrant concentration, constructed by the sum of z-scores for percent Latino and percent foreign-born (r = .91), captures neighborhood heterogeneity. Residential instability is operationalized by the percentage of owner-occupied homes and percentage of residents living in the same house as five years earlier (also constructed by summing the standardized variables; r = .89). These two variables serve as neighborhood-level controls in the analysis.

Peer Violence

On a scale ranging from one (“None of them”) to three (“All of them”), respondents reported how many of their friends engaged in each of four violent behaviors in the year preceding the baseline interview: getting into a physical (fist) fight with schoolmates/co-workers or friends; hitting someone with the idea of hurting them; attacking someone with a weapon with the idea of hurting them; and using a weapon or force to get money or things from people. These items were standardized and summed to form a peer violence scale (α = 0.70) on which higher values represent higher levels of peer violence. We acknowledge that this scale suffers the potential for same-source bias; that is, respondents’ perceptions of their friends’ behaviors may reflect their own behaviors (see Haynie et al. 2006:155–156). In addition, the PHDCN does not provide an indicator of the specific number of friends involved in violence. As a result, our measure would be equivalent for respondents who report that all of their friends are violent but have only three friends and respondents who report that all of their friends are violent but have ten friends. Finally, the PHDCN does not provide the gender composition of the peer group. Therefore, we cannot distinguish same-sex and mixed-gender peer groups. Nonetheless, it is widely recognized that the number of delinquent friends is a robust predictor of adolescent delinquency (Elliot et al. 1985; Warr 2002). In addition, unlike previous studies, the scale contains violent crime items that overlap with those comprising the dependent variable.

Background Variables

In addition to gender, the following demographic variables were measured: age; race/ethnicity; immigrant generational status (first, second, third and higher); internalizing (i.e., being anxious, depressed, and over-controlled) and externalizing (i.e., being aggressive, hyperactive, noncompliant, and under-controlled) problem behaviors; victimization; self-control; and IQ. Racial/ethnic groups were categorized as Hispanic, African-American, White, or “Other” (i.e., Asian, Pacific Islander, American Indian, or Other). Victimization is a binary variable (1 = yes; 0 = no) coded in the affirmative if an individual was hit, attacked with a weapon, shot at, shot, sexually assaulted, or threatened in the year preceding the wave two interview. Self-control is an index defined by lack of inhibitory control, present-orientation, sensation seeking, and lack of persistence (see Gibson et al. 2010). IQ is measured by the Wechsler Intelligence Scale for Children vocabulary test (Sampson et al. 2005; Wechsler 1949).

Family-level variables include: family size; primary caregiver marital status (1 = married; 0 = not married); number of years living at current residence; household socioeconomic status

(SES); family structure; primary caregiver employment status (1 = employed full-time or part-time; 0 = not employed); and number of siblings. Household SES was constructed as a standardized scale of parent's income, education, and occupational status. Family structure was created with the following classification scheme: (1) two parents, both biological; (2) two parents, one/both non-biological; (3) one parent, biological; and (4) one parent, non-biological. Appendix A reports descriptive statistics for all variables separately by gender.

Statistical Models

We follow closely the approach employed by Sampson et al. (2005:226–227) by using a multilevel logistic regression model to estimate the odds that a respondent will engage in a specific violent offense. This allows us to use all 30,160 violent crime item responses generated by the 1,502 respondents in our sample. Any subject responding to at least one violent crime item in at least one of the three waves of data collection is included in the analysis, which avoids the loss of vast amounts of data due to missing data on the dependent variable (Osgood et al. 2002). This method simultaneously utilizes the benefits of item response and hierarchical linear models, applying item response theory to the dependent variable in a random-effects setting. It "takes into account (a) the fact that some violent offenses are rarer than others, (b) changes over time within subjects in propensity to violence, and (c) the dependence of violence on individual, family, and neighborhood characteristics" (Sampson et al. 2005:226).

This model is also known as a multivariate, multilevel Rasch model, a three-level model with dichotomous items nested within persons nested within neighborhoods (see De Boeck and Wilson 2004; Raudenbush et al. 2003). In the level-one model, the log-odds of an affirmative response to item i in wave t by person j in neighborhood k, η_{tijk}, varies as a quadratic function of age, criminal propensity, and item severity, ψ_{tijk}:

$$\eta_{tijk}=\pi_{0jk}+\pi_{1jk}D_{tjk}+\pi_{2jk}D^{2}_{tjk}+\psi_{tijk} \quad (1)$$

Here, D_{tjk} is the age of person jk at wave t centered over waves one, two, and three. π_{0jk}, π_{1jk}, and π_{2jk} concurrently represent an individual's trajectory of offending over the three waves of the study.

The level-two model holds item responses constant across persons but allows each person's propensity to violence at that person's mean age during the study, π_{0jk}, to vary as a function of (1) the mean person propensity within neighborhood k, β_{0k}; (2) individual-level covariates, $X_{1k}, \ldots X_{nk}$; and (3) a normally distributed random person effect, μ_{jk}:

$$\pi_{0jk}=\beta_{0k}+\beta_{1k}X_{1k}+\ldots+\beta_{nk}X_{nk}+\mu_{jk} \quad (2)$$

The level-one model produces a latent variable representing an individual's propensity to engage in violence. This latent variable is assumed normally distributed on a logit metric and serves as the outcome in the level-two model. It is an index of the self-reported violent crime items weighted to account for item variation in seriousness and frequency.

The level-three model allows neighborhood mean propensities, β_{0k}, to vary as a function of the grand mean propensity to crime in the sample, γ_{00}, concentrated disadvantage (and the neighborhood-level control variables), and a random neighborhood effect, υ_k:

$$\beta_{0k}=\gamma_{00}+\gamma_{01}(\text{Disadvantage})_k+\upsilon_k \quad (3)$$

The level-three model can be expanded to test the hypothesis about the gender/disadvantage cross-level interaction. This is accomplished by allowing the slope of gender, $\beta_{GENDERk}$, to vary randomly across neighborhoods:

$$B_{GENDERk}=\gamma_{GENDERk}+\alpha_k \tag{4}$$

If the slope of gender varies significantly across neighborhoods, concentrated disadvantage can be added to the model to see if it explains the random slope:

$$B_{GENDERk}=\gamma_{GENDER0}+\gamma_{GENDER1}(\text{Disadvantage})_k+\alpha_k \tag{5}$$

The full model incorporating the cross-level interaction is:

$$\begin{aligned}\eta_{tijk}=&\gamma_{00}+\upsilon_k+\mu_{jk}+\alpha_k+\pi_{1jk}D_{tjk}\\&+\pi_{2jk}D^2_{tjk}\\&+\psi_{tijk}+\beta_{1k}X_{1k}\\&+\ldots+\beta_{nk}X_{nk}\\&+\gamma_{GENDER0}(\text{GENDER})_{jk}\\&+\gamma_{01}(\text{Disadvantage})_k\\&+\gamma_{GENDER1}(\text{GENDER}*\text{Disadvantage})_k\end{aligned} \tag{6}$$

The models were estimated using generalized estimating equations (HGLM) with robust standard errors and allowing for underdispersion in the HLM 6 program.3

To test our hypothesis about the differential effect of neighborhood disadvantage on exposure to violent peers for males and females, we estimated a multilevel model predicting peer violence with a gender/disadvantage cross-level interaction. Using these models, the current study moves beyond existing research by examining not only if, but (if so) why, the gender gap in violent offending varies as a function of neighborhood context.

RESULTS

Does the Gender Gap Vary by Neighborhood Context?

Table 1 presents coefficient estimates from Equation 2 above. To reduce collinearity and make the results interpretable for an average person in the sample, the independent variables were grand-mean centered (see Raudenbush and Bryk 2002:31–35). The significant positive coefficient for “Male” indicates that across all neighborhoods in the sample, the odds of engaging in violent crime are 77 percent [($e^{\wedge 0.573}$ – 1) * 100%] higher for males than females. Peer violence also exhibits a significantly positive effect on involvement in violent crime (0.643**). As discussed, these findings are consistent with prior research on gender differences and the role of peers in offending (Agnew 1991; Heimer and De Coster 1999; Mears et al. 1998; Warr 2002). Table 1 also reveals that individuals who have been victimized are more likely to engage in violent behavior (.818**); individuals with lower levels of self-control are more likely to be violent (−0.135**); youths with two non-

[3]Two major assumptions of the model are: (1) additivity – item severities and person propensities contribute additively to the log-odds of a positive item response; and (2) local independence – item responses are independent Bernoulli random variables. These assumptions imply that the set of item responses taps a single construct, herein “the propensity to commit (violent) crime” (Raudenbush et al. 2003: 177).

biological parents are more likely than youths with two biological parents to be violent (0.257*); non-transient youths (−0.014*) and those with more siblings (−0.061*) are less likely to be violent; and first generation immigrants are less likely than third generation immigrants to engage in criminal behavior (−0.591**). These findings comport with previous research (e.g., Pratt and Cullen 2000; Sampson et al. 2005; Sampson et al. 1997; Van Voorhis et al. 1988.

To examine if gender differences in offending vary as a function of the neighborhood context, we allow the coefficient for "Male" to vary randomly across neighborhoods (not shown). Bayesian Information Criterion (BIC) statistics indicate that the model with the cross-level interaction explains significantly more variation in violent crime than the model without the interaction ($p < .001$). We also estimated a baseline model without level-two or level-three covariates to examine how the variation in violence is apportioned. The model indicated that approximately 14.8 percent, 73.5 percent, 6.6 percent, and 5.2 percent of the reliable variation in self-reported violence lies between item responses, individuals, neighborhoods, and the sexes, respectively.

To investigate the source of the variability in gender across neighborhoods, we model the propensity of violence as a function of the cross-level gender/disadvantage interaction. Model 1 in Table 2 shows a preliminary analysis with gender and age as the sole individual-level predictors and concentrated disadvantage as the sole neighborhood-level predictor. The coefficient for the gender/disadvantage interaction is negative and significant (−0.178**), indicating that a one standard deviation increase in concentrated disadvantage reduces the slope of "Male" by 0.178 units. This finding indicates that gender differences in violent offending decrease as concentrated disadvantage increases, consistent with our first hypothesis.4 Figure 1 depicts the relationship between violence and concentrated disadvantage for males and females separately. Even though violent crime is positively associated with concentrated disadvantage for both sexes, the gap between male and female offending decreases as concentrated disadvantage increases.5

Model 2 in Table 2 introduces additional variables to determine if the cross-level gender/disadvantage interaction persists with controls for the additional neighborhood characteristics and for compositional differences across neighborhoods in the individual- and household-level variables. After accounting for all of the control variables, there is no longer significant unobserved heterogeneity across neighborhoods ($\chi^2 = 80.60$, d.f. = 69, $p = .102$; not shown). Less than 1 percent of the reliable variation in self-reported violence lies between neighborhoods. In addition, the gender/disadvantage interaction is still significant (−0.207**), net of the control variables, once again indicating that gender differences in violent offending decrease as concentrated disadvantage increases. To illustrate, at the mean of disadvantage, the odds of offending are 77 percent [$(e^{\wedge 0.579} - 1) * 100\%$] higher for males than for females; at one standard deviation above the mean of disadvantage, the gender coefficient is 0.372 (0.579 + -0.207), which translates to a gender difference of only 45 percent. The gender gap continues to decrease at a constant rate until it reaches non-

[4]We explored other ways that the gender gap may vary by neighborhood context. For example, we examined interactions between gender and the percentage of the neighborhood female and adolescent (age 17 and younger). In addition, we examined gender/age and gender/race interactions at the individual-level. These interactions were not significant. We also acknowledge the possibility that the narrowing gender gap might reflect methodological limitations that cannot be addressed with the data. For example, it could be an artifact of differential male/female response bias in the self-reported violence measure or the repeated measurement problem that has been well-documented in self-report delinquency research (Lauritsen, 1998).

[5]To illustrate further the narrowing gender gap along with increasing neighborhood disadvantage, we computed the percentage of respondents engaging in at least one violent crime at three levels of disadvantage: 1.5 standard deviation below the mean, at the mean, and 1.5 standard deviation above the mean (see Appendix B). The results indicate that the female rate of offending has a larger absolute change (89.5%, from 34.4% to 65.2%) than the male rate of offending (20.1%, from 66.2% to 79.5%) as the level of disadvantage increases.

significance at 1.4 standard deviations above the mean of concentrated disadvantage (p = .064). Ten percent, or seven of our 70 neighborhoods, have levels of disadvantage above this value.

Investigating the Source of the Narrowing Gender Gap

Our speculative interpretation of the narrowing gender gap (elaborated above) is predicated on the hypothesis that levels of neighborhood disadvantage affect exposure to violent peers more strongly for females than for males. Table 3 tests this hypothesis by regressing peer violence on gender, concentrated disadvantage, and their interaction. The significant positive coefficients for male (0.225**) and concentrated disadvantage (0.200**) reveal that males have more violent peers than females and that neighborhoods with higher levels of disadvantage tend to have higher concentrations of violent peers. However, contrary to our hypothesis, the gender/disadvantage interaction term fails to reach significance (p = .653), indicating that exposure to violent peers increases at approximately the same rate for males and females as the level of neighborhood disadvantage increases.

We are thus confronted with a puzzle. The gender gap in violent offending decreases along with neighborhood disadvantage, as expected, but this decrease cannot be attributed to a greater impact of disadvantage on exposure to violent peers for females. A possible alternative mechanism that might account for the narrowing gender gap on logical grounds is a more pronounced impact of violent peers on female offending than on male offending. That is, males and females may differ in their *susceptibility* to the influence of violent peers. Thus, the comparable increase in exposure to violent peers associated with rising levels of neighborhood disadvantage (as shown in Table 3) would produce a greater “yield” in violent behavior for females if the effect of violent peers on offending were stronger for females than for males.

Table 4 tests this speculative hypothesis by adding a gender/peer violence interaction term to the full model presented in Table 2. Consistent with our hypothesis, the negative and significant gender/peer violence interaction term (−0.408*) indicates that the effect of peer violence on self-reported violent offending is significantly stronger for females than for males. The results in Table 4 also reveal that disadvantage no longer exhibits a significant moderating effect on the relationship between gender and violent offending; that is, the gender/disadvantage interaction term is not significant (p = .149). Thus, the cross-level gender/disadvantage interaction observed in Model 2 of Table 2 can be accounted for statistically by a gender/peer violence interaction.[6]

Explaining the Disproportionate Influence of Peers on Females

Taken as a whole, our analyses reveal that the gender gap in violent offending narrows as neighborhood disadvantage increases, and that this narrowing can be explained statistically as a result of two effects: (1) there is a comparable increase in exposure to violent peers for males and females as neighborhood disadvantage increases, and (2) exposure to violent peers has a more pronounced impact on violent offending for females than for males. Our latter finding is consistent with some prior work yet inconsistent with other studies. Indeed, the literature is divided as to whether males or females are more susceptible to peer influence.

[6]An anonymous reviewer suggested that the significant gender difference in self-control (see Appendix A) might provide an alternative interpretation for the narrowing of the gender gap. In response to this suggestion, we included a gender/self-control interaction in our main model. The interaction term is positive and significant (β = 0.163; p =.013), indicating that the effect of self-control is greater for females than for males. However, including this interaction term in the models does not affect the gender/disadvantage and gender/peer violence interactions.

Some research indicates that peer influence is equally predictive of female and male delinquency (e.g., Simons, Miller, and Aigner 1980; Smith 1979; Smith and Paternoster 1987). Other studies suggest that males are actually more influenced by peers than their female counterparts. For example, theoretical work by Messerschmidt (1993) and Sutherland and Cressey (1974) implies that male peers value and encourage aggressive behavior more than female peers. Consistent with this view, some empirical research indicates that levels of peer delinquency and aggression have a stronger influence on males than on females (Heimer and De Coster 1999; Johnson 1979; Piquero et al. 2005).

In contrast, recent qualitative research on the gendered nature of offending suggests a distinctive pathway through which disadvantage might affect violent offending for females, possibly leading to a stronger peer influence for females than for males. In disadvantaged neighborhoods, young women must negotiate high rates of physical, sexual, and emotional abuse in family, peer, and residential contexts (Brunson and Stewart 2006; Jones 2004; Reisig, Holtfreter, and Morash 2006). Much of the research on female offending has therefore highlighted the “blurred boundaries” between women’s experiences with victimization and their subsequent involvement in criminal behavior (Daly and Maher 1998; Miller 2001:151–177). For example, critical to Daly’s (1998b) pathways to offending framework is the premise that women often become involved in crime for survival and in reaction to violence. That is, “women use violence as a protective measure, in response to their vulnerability to or to their actual victimization” (Miller and Mullins 2006:42). Miller (2008) explicitly discusses female retaliation to relationship abuse and violence in disadvantaged neighborhoods. Similarly, Jones (2009) and Maher (1995) focus on how girls negotiate conflict and violence in inner cities, particularly by surrounding themselves with violent males who afford them protection but also abuse them, precipitating violent retaliation. If peer effects on female offending work through victimization as well as mechanisms that are likely to be comparable for the sexes (e.g., social learning processes and differential association), the influence of peers would be stronger for females than for males.

This victim retaliation dynamic yields two empirical predictions that can be assessed with our data: (1) the relationship between peer violence and victimization should be stronger for females than for males, and (2) the relationship between victimization and self-reported violence should be stronger for females than for males. We have tested the first prediction by regressing victimization (measured at wave two) on gender, peer violence, and a gender/peer violence interaction (measured at wave one). The gender/peer violence interaction coefficient fails to reach significance ($\beta = -0.067$; $p = .540$; not shown), indicating that the effect of peer violence on victimization is comparable for males and females. We have examined the second prediction by adding a gender/victimization interaction to the model presented in Table 4. The coefficient fails to reach significance ($\beta = -0.079$; $p = .539$; not shown), indicating that the effect of victimization on offending is comparable for males and females. Taken together, these findings indicate that peer effects on violent offending work through victimization similarly for both sexes. In other words, our proposed victim retaliation dynamic does not explain the disproportionate effect of peers on females.

We can also turn to developmental and social psychological research for insight as to why peers might have an amplified effect for females. Although there are disagreements in the literature, some research suggests that females tend to have more intimate friendships than males (Berndt 1992; Clark and Reis 1988:628–636). These gender differences in emotional and psychological attachment to friends appear to be consistent across the life course (Rawlins 1988) and particularly apparent when examining dyadic relationships (Baumeister and Sommer 1997) and comparing females’ and males’ same-gender relationships (see Cross and Madsen 1997:17–18). Further, research has found that “Females, regardless of

their level of involvement in delinquency, are likely to be involved in more intimate relationships [than males]" (Giordano, Cernkovich, and Pugh 1986:1193).

Criminological research also suggests that the effect of peers on behavior depends on the quality of the peer relationship. For example, Agnew (1991) found that peer delinquency is inconsequential when individuals rate the quality of the friendship as low, but has a significant and substantial effect when friendship quality is high. Although research in this area is relatively sparse, some researchers have called for the estimation of models that take into account the interactive effects of peer delinquency and the nature of the peer relationship (Elliot et al. 1989; Thornberry et al. 1994).

Taken together, these bodies of literature suggest two empirical predictions: (1) females should have more intimate relationships with peers than males, and (2) the effect of peer violence on self-reported violence should be stronger when the peer relationship is characterized by higher levels of intimacy. To test these predictions, we have constructed a measure of intimacy by adding three trichotomous items (1 = not true; 2 = somewhat true; 3 = very true) measured at wave one from the Provision of Social Relations protocol: I have at least one friend that I could tell anything to; I feel very close to some of my friends; and my friends would take the time to talk about my problems ($\alpha = .63$). The scale ranges from 3 – 9 with a mean of 7.98 for females (standard deviation = 1.31) and 7.29 for males (standard deviation = 1.56). Higher levels on the scale reflect higher levels of intimacy.

To examine the first prediction, we have regressed intimacy on gender. Consistent with our prediction, the bivariate regression indicates that females are significantly more likely to have intimate peers than males (β for "Male" = −0.689; $p < .001$; not shown). Table 5 examines the second prediction by adding a peer violence/intimacy interaction to the full model presented in Table 4. The interaction coefficient is positive and significant (0.090*), indicating that the effect of peers on violent behavior increases as the level of peer intimacy increases. In other words, consistent with our second prediction, peers are more influential when the quality of the friendship is more intimate. However, the male/peer violence interaction term remains significant (−0.370*) in the model, although it has been reduced by approximately 10 percent (from −0.408 to −0.370). As a result, we have only partially explained why females are disproportionately influenced by their peers.

SUMMARY AND DISCUSSION

Our research contributes to the literature by examining if, and how, neighborhood context moderates the well established individual-level effect of gender on violent crime. The results of multilevel regression analyses support our motivating hypothesis that gender differences in levels of offending are sensitive to the local context. Specifically, hierarchical logistic models yield a significant cross-level gender/neighborhood disadvantage interaction. In disadvantaged neighborhoods, the difference between male and female offending is attenuated. Our initial explanation for the narrowing of the gender gap, however, is not supported. We speculated that the effect of neighborhood disadvantage on exposure to violent peers would be stronger for females than for males. Contrary to this hypothesis, our regression models indicate that exposure to violent peers increases at approximately the same rate for males and females as the level of disadvantage increases.

We thus raised the logical possibility that the effect of peers is greater for females than for males. We find that the positive coefficient for the effect of violent peers on violent offending is in fact significantly stronger for females than for males. Further, the cross-level gender/disadvantage interaction disappears when the gender/peer interaction is taken into account. The observed narrowing of the gender gap that accompanies increased levels of

neighborhood disadvantage is thus statistically explained by the tendency for violent peers to influence females more strongly than males.

We proposed two possible interpretations of the stronger effect of violent peers on females than on males. The “victim retaliation” interpretation suggests that the relationships between (1) exposure to violent peers and victimization and (2) victimization and violent offending should be moderated by gender. Neither of these predictions is supported by the data.

We then turned to developmental and social psychological research for insight as to why peers have an amplified effect on females. We proposed two empirical predictions: (1) females should have more intimate peers than males, and (2) the effect of peer violence on self-reported violence should be moderated by intimacy. Analyses substantiate our predictions about the interrelationships among gender, intimacy, and peer influence and partially explain why females are disproportionately influenced by their peers.

We recognize that there are limitations associated with our analyses. First, neighborhood-level variables have been attached to individuals based on where they lived at wave one. Respondents could have moved during the study, creating measurement error for neighborhood of residence. Moreover, a general issue confronting the “neighborhood effects” research on crime is determining the appropriate geographical unit to attach to individuals, that is, the neighborhoods in which offenders reside or the neighborhoods in which their offenses occur (Sampson, Morenoff, and Gannon-Rowley 2002:469). The PHDCN data do not include information on location of offenses, yet knowing where individuals offend is important for interpreting the mechanisms underlying any observed neighborhood effects. Second, one may ask, how bad were the bad, and how good were the good neighborhoods in the study? Because the PHDCN examined individuals in the city of Chicago and “did not go beyond its official boundaries into a wider region” (Sampson et al. 1997:923), the average neighborhood in this study was likely more criminogenic than the average U. S. neighborhood. Although poverty rates and median household incomes in Chicago at the time of the study were comparable to those in other U. S. cities, care must be taken in generalizing the results.

With these limitations in mind, our analyses raise several intriguing questions that warrant further inquiry. As noted above, our finding of a stronger effect of violent peers on violent offending for females is at odds with some existing research. For example, Heimer and De Coster (1999) found a stronger effect of peers on offending for males than for females. What accounts for these discrepancies? Perhaps measurement plays a role, as Heimer and De Coster (1999) used a single item to assess aggressive friends (i.e., hitting others), whereas we have used a multi-item index. Differences in model specification might also be responsible for the divergent results. Accounting for the anomalies in the literature is an important task for future research.

Assuming that our finding of stronger peer influences for females than for males is supported in future research, a pressing task is to probe further into the underlying mechanisms. Peer intimacy is evidently one factor, but it does not fully account for the gender differences in peer influence. With richer data on the nature of peer associations, a number of theoretically relevant questions could be addressed. How much time do females and males spend with violent peers relative to non-violent peers? How does the gender composition of friendship groups differ for the sexes? Do mixed-gender peer groups influence female offending differently than same-sex peer groups, and how do these influences compare to those for male offending? To what extent do violent peers victimize females in comparison with males, and are there gender differences in the ways of coping

with such victimization? With respect to this latter question, the expansive literature on intimate partner violence could inform further research (e.g., Johnson 1995).

Our analyses thus raise a host of unanswered questions. At the same time, we note that our results are consistent with key insights that have emerged in recent criminological inquiry and sociological research more generally. Our finding that neighborhood disadvantage attenuates the gender gap in violent offending underscores the critical importance of considering persons in context. Neither individual nor contextual properties operate independently. Rather, the effects of individual-level variables, even those with as wide ranging an influence as gender, may be conditioned by the larger social context. Ultimately, a full understanding of social behavior requires the simultaneous consideration of individual and environmental differences, perhaps most importantly because they may interact to produce behavior (Wikstrom and Loeber 2000:1111).

With respect to the major perspectives in criminology on the etiology of criminal behavior, our results fail to support our original application of control theory to explain the narrowing of the gender gap in more disadvantaged neighborhoods through violent peer exposure. As noted, we anticipated a stronger effect of disadvantage on violent peer exposure for females than for males, given the well documented evidence of more intensive informal social control for females, but the contextual effects turned out to be essentially equivalent for the sexes. Yet these findings do not necessarily discredit control theory more generally. Our analyses are consistent with a complex causal chain, wherein neighborhood disadvantage weakens informal social control, which facilitates greater violent peer exposure for both sexes. Such violent peer exposure, in turn, is conducive to greater violent behavior, consistent with social learning theory, although this peer influence is evidently stronger for females than for males. The specified links in this proposed causal chain need to be documented more directly and theorized more fully, but we suggest that the results of our analysis underscore the promise of integrating insights from multiple perspectives that are often cast as theoretical competitors (Elliott, Ageton, and Canter 1979; Matsueda and Heimer 1987; Thornberry 1987).

Finally, our results reaffirm the fundamental premise of feminist perspectives that explaining social phenomena requires an understanding of “gendered lives” (Daly 1998a:98; see also Fineman 1990). Within criminology, researchers have thoroughly documented the robust effect of peer associations on crime and other forms of deviant behavior (Akers and Jensen 2006:51). Yet it appears that the nature of peer influence on such behaviors is not universal; rather, it varies by gender. Such variation is likely to reflect the different ways that gender organizes the “the daily lives of males and females” and structures “available courses of action and identities” (Miller and Mullins 2006:229). We encourage future researchers to explore further the apparently complex theoretical and empirical links between gender, social context, and social behavior.

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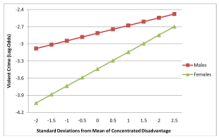

Figure 1.
Violent Crime vs. Concentrated Disadvantage, by Gender
Note: Concentrated disadvantage ranges from 1.7 SDs below the mean to 2.1 SDs above the mean.

Table 1

Propensity for Violence as a Function of Gender and Control Variables

	Coefficient (SE)
Male	0.573 (0.081)**
Linear Age	−0.030 (0.081)
Quadratic Age	0.011 (0.024)
Behavioral/Cognitive Characteristics	
Peer Violence	0.643 (0.039)**
Externalizing Problems Score	0.004 (0.004)
Internalizing Problems Score	−0.005 (0.004)
Victimization	0.818 (0.069)**
Self-Control	−0.135 (0.037)**
Reading/Verbal Ability	0.009 (0.014)
Family/Household Characteristics	
Two Non-Bio	0.257 (0.096)*
One Bio	0.136 (0.164)
One Non-Bio	0.429 (0.239)
Family Size	0.021 (0.023)
Years Living at Current Address	−0.014 (0.004)*
Number of Siblings	−0.061 (0.022)*
Family SES	−0.009 (0.030)
PC Marital Status	0.012 (0.142)
PC Employment Status	−0.174 (0.090)
Immigrant generation	
First	−0.591 (0.155)**
Second	−0.152 (0.104)
Race/Ethnicity	
Hispanic	0.024 (0.154)
African American	0.222 (0.130)
Other	0.127 (0.253)

* $p < .01$;

** $p < .001$.

Table 2

Propensity for Violence Regressed on a Gender/Disadvantage Interaction

	Model 1 Coefficient (SE)	Model 2 Coefficient (SE)
Gender Variables		
Male	0.609 (0.087)**	0.579 (0.081)**
Male * Concentrated Disadvantage[a]	−0.178 (0.099)**	−0.207 (0.101)**
Linear Age	−0.023 (0.080)	−0.030 (0.080)
Quadratic Age	0.011 (0.025)	0.010 (0.024)
Neighborhood Characteristics		
Concentrated Disadvantage	0.354 (0.068)**	0.120 (0.055)*
Concentrated Immigration		−0.136 (0.063)*
Residential Instability		−0.045 (0.044)
Behavioral/Cognitive Characteristics		
Peer Violence		0.645 (0.038)**
Externalizing Problems Score		0.004 (0.004)
Internalizing Problems Score		−0.006 (0.004)
Victimization		0.795 (0.070)**
Self-Control		−0.139 (0.037)**
Reading/Verbal Ability		0.010 (0.014)
Family/Household Characteristics		
Two Non-Bio		0.264 (0.096)**
One Bio		0.106 (0.164)
One Non-Bio		0.353 (0.211)
Family Size		0.023 (0.022)
Years Living at Current Address		−0.015 (0.004)**
Number of Siblings		−0.065 (0.022)**
Family SES		−0.014 (0.029)
PC Marital Status		−0.023 (0.140)
PC Employment Status		−0.165 (0.088)
Immigrant generation		
First		−0.555 (0.153)**
Second		−0.107 (0.101)
Race/Ethnicity		
Hispanic		0.072 (0.156)
African American		0.170 (0.152)
Other		0.087 (0.253)

[a] Significance tests for the interaction are based on Bayesian Information Criterion (BIC).

* $p < .05$;

** $p < .01$.

Table 3

Peer Violence Regressed on Gender, Disadvantage, and their Interaction

	Coefficient (SE)
Male	0.225 (0.057)**
Concentrated Disadvantage	0.200 (0.036)**
Male * Concentrated Disadvantage	0.029 (0.064)

* $p < .01$;

** $p < .001$.

Table 4

Violence Regressed on Gender/Peer Violence Interactions and Controls

	Coefficient (SE)
Male	0.659 (0.078)*
Concentrated Disadvantage	0.102 (0.056)†
Male * Concentrated Disadvantage	−0.142 (0.097)
Peer Violence	0.858 (0.049)*
Male * Peer Violence	−0.408 (0.066)*

Note: Model controls for all person, family, and neighborhood variables as in previous models. Although coefficients for the control variables are not presented, they are generally consistent with the full model in Table 2.

* $p < .001$;

† < .10.

Table 5

Violence Regressed on Peer Violence/Intimacy Interaction and Controls

	Coefficient (SE)
Male	0.669 (0.076)*
Concentrated Disadvantage	0.087 (0.056)
Male * Concentrated Disadvantage	−0.122 (0.096)
Peer Violence	0.851 (0.049)*
Male * Peer Violence	−0.370 (0.065)*
Peer Intimacy	0.007 (0.044)
Peer Violence * Peer Intimacy	0.090 (0.029)*

Note: Model controls for all person, family, and neighborhood variables as in previous models. Although coefficients for the control variables are not presented, they are generally consistent with the full model in Table 2.

*$p < .001$.

Appendix A

Descriptive Statistics by Gender

	Male (n = 735)			Female (n = 767)		
Individual Data (N = 1,502)	**Mean**	**SD**	**Range**	**Mean**	**SD**	**Range**
Age at Wave 1	13.5	1.5	10.8–16.9	13.5	1.5	11.4–16.4
Self-reported Violence***	66.4	47.3	0.0–1.0	48.8	50.0	0.0–1.0
Peer Violence***	0.1	1.0	−1.8—3.9	−0.1	1.0	−2.5—3.9
Externalizing Problems Score	10.1	8.2	0.0–66.0	10.6	8.7	0.0–60.
Internalizing Problems Score	9.8	8.9	0.0–50.0	10.4	9.1	0.0–176.0
Victimization***	29.9	45.8	0.0–1.0	40.3	49.1	0.0–1.0
Self-control***	2.7	0.6	1.4–4.9	2.6	0.6	0.7–4.6
Reading/Verbal Ability**	7.3	3.2	1.0–19.0	7.0	2.9	1.0–17.0
Family Structure						0.0–1.0
Two Bio (reference)	45.7	49.8	0.0–1.0	41.7	49.3	0.0–1.0
Two Non-Bio	20.5	40.4	0.0–1.0	22.3	41.6	0.0–1.0
One Bio	29.4	45.6	0.0–1.0	31.6	46.5	0.0–1.0
One Non-Bio	4.4	20.4	0.0–1.0	4.4	20.6	0.0–1.0
Family Size	5.3	2.0	0.6–14.0	5.3	2.0	0.6–14.0
Years at Current Address	6.7	7.0	0.1–59.0	6.7	7.6	0.0–59.0
Number of Siblings	2.2	1.7	0.0–9.0	2.2	1.7	0.0–10.0
Family SES*	−0.1	1.4	−2.9—3.5	−0.2	1.4	−3.0—3.8
PC Marital Status	54.7	49.8	0.0–1.0	53.1	49.9	0.0–1.0
PC Employment Status*	65.4	48.6	0.0–1.0	61.1	48.8	0.0–1.0
Immigrant generation*						
First	15.1	35.8	0.0–1.0	11.3	31.7	0.0–1.0
Second	27.6	44.7	0.0–1.0	30.9	46.2	0.0–1.0
Third or higher (reference)	57.3	49.5	0.0–1.0	57.8	49.4	0.0–1.0
Race/Ethnicity						0.0–1.0
Hispanic	46.1	49.9	0.0–1.0	43.3	49.6	0.0–1.0
African American	35.6	47.9	0.0–1.0	38.1	48.6	0.0–1.0

	Male (n = 735)			Female (n = 767)		
Individual Data (N = 1,502)	**Mean**	**SD**	**Range**	**Mean**	**SD**	**Range**
White (reference)	14.4	35.2	0.0–1.0	14.2	34.9	0.0–1.0
Other	3.9	19.2	0.0–1.0	4.4	20.6	0.0–1.0
Neighborhood Data (N = 70)						
Concentrated Disadvantage	0.0	0.9	−1.7—2.1	0.0	0.9	−1.8—2.1
Concentrated Immigration	0.4	1.1	−1.0—3.0	0.4	1.1	−1.0—3.0
Residential Instability	−0.1	1.0	−2.1—2.0	−0.1	1.0	−2.1—2.0

Note: Binary and nominal variables are reported as percentages. Between-gender comparisons are based on standard errors (not standard deviations as reported in the table) and Pearson's Chi-squared statistic, one-way ANOVA, and Kruskal-Wallis ANOVA when the outcomes are dichotomous, normally distributed, and ordinal, respectively. Self-reported violence is dichotomous (1 = yes; 0 = no) and measures whether a respondent reported involvement in at least one of the violence items across the three waves of data collection.

* $p < .10$;

** $p < .05$;

*** $p < .001$.

Appendix B

Percentage of Respondents Engaging in at Least One Violent Crime Item by Level of Concentrated Disadvantage

		Level of Concentrated Disadvantage		
	n	**− 1.5 σ**	**@ Mean**	**+ 1.5 σ**
Male	735	66.2%	70.9%	79.5%
Female	767	34.4%	50.6%	65.2%