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Family Structure and Secondary Exposure to Violence in the Context of Varying Neighborhood Risks and Resources

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Abstract

Secondary exposure to violence in the community is a prevalent developmental risk with implications for youths' short- and long-term socioemotional functioning. This study used longitudinal, multilevel data from the Project on Human Development in Chicago Neighborhoods to consider how family structure, including parental instability, is associated with youths' secondary exposure to violence across diverse neighborhood contexts. Results showed that both living in a stable single-parent household and experiencing parental instability were associated with greater secondary exposure to violence compared with living in a stable two-parent household. The associations between having a single parent or experiencing parental instability and secondary exposure to violence were especially strong in neighborhoods with high levels of crime and strong neighborhood ties.

Keywords

adolescence; secondary exposure to violence; family instability; family structure; neighborhood effects; single parent; social ties

Secondary exposure to violence in the community is a pervasive developmental risk among youth transitioning to adolescence with both short- and long-term effects (Fowler et al. 2009; Mrug and Windle 2010; Fagan, Wright, and Pinchevsky 2014; Gollub et al. 2019). Distinct from direct victimization (e.g., being assaulted) or indirect or vicarious exposure (e.g., hearing secondhand about an assault), the term *secondary exposure to violence* in this study refers to witnessing violent acts, such as a physical fight, shooting, or stabbing. This study focuses specifically on witnessing violence outside of the home in the community and excludes domestic violence. In 2014, 24.5 percent of children witnessed any violence in the past year, with 75 percent of these children witnessing violence in the community (Finkelhor et al. 2015).

The predictors of secondary exposure to violence span across multiple dimensions of a youth's ecology (Salzinger et al. 2002). At the family level, parents' marital status has

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implications for the family-based system of social control that can protect a youth from harm outside of the home (Matsueda and Heimer 1987). Neighborhood-level predictors, such as poverty and crime rates, also shape youths' risk of secondary exposure to violence (Sheidow et al. 2001). Family structure and neighborhood context likely interact such that family structure might have implications for youths' secondary exposure to violence in one setting but not another depending on the risks and resources present in the neighborhood. While many studies on the predictors of secondary exposure to violence focus on the structural characteristics of neighborhoods, the social characteristics of neighborhoods—such as the extent to which neighbors are willing to intervene on behalf of one another's safety—also provide crucial resources (or present risks) to youth (Sampson, Morenoff, and Earls 1999). Understanding the degree to which family structure is associated with youths' risk of exposure to potentially dangerous situations outside the home, therefore, requires not only situating families within their community ecologies (Crosnoe and Leventhal 2013) but also considering multiple dimensions of the community in the process.

Guided by an ecological model of youths' secondary exposure to violence (Antunes and Ahlin 2017), this study uses longitudinal, multilevel data from children, families, and neighborhoods in the Project on Human Development in Chicago Neighborhoods (PHDCN) to consider how the influence of family structure on youths' secondary exposure to violence is contextualized within multiple dimensions of their neighborhood ecology. Whereas many studies of secondary exposure to violence consider the role of family and neighborhood characteristics in moderating the effect of such exposure on later outcomes (e.g., Browning et al. 2014), a major contribution of this study is an examination of the interaction of family- and community-level factors in predicting this exposure in the first place. Furthermore, another major contribution of this study is the consideration of the importance of the interplay of these social and structural community characteristics in understanding where family structure matters for youths' risk of secondary exposure to violence.

The PHDCN is an ideal data set to study these issues because it is one of the only data sets in the United States to combine a large, longitudinal survey of children with rich contextual data on the social characteristics of neighborhoods that are unavailable anywhere else. Although these data were collected in the late 1990s and early 2000s, these issues have become even more relevant as both secondary exposure to violence (Finkelhor et al. 2015) and family instability (Brown, Stykes, and Manning 2016) have increased during the past two decades. This significant line of research moves the literature on family structure and instability into an extrafamilial context with clear implications for public health and safety and emphasizes the multidimensionality of community settings that can simultaneously promote and interfere with the healthy development of youth in the United States.

Literature Review and Theoretical Background

Secondary Exposure to Violence and Family Structure

This study links two important issues facing today's youth that represent distinct microsystems of the developmental ecology: secondary exposure to violence and family structure context. First, *secondary exposure to violence* refers to events such as witnessing someone getting beaten up or attacked with a weapon outside of the home. This type of

violence exposure is strikingly common among youth, particularly as they transition into adolescence and especially in urban areas (Brennan, Molnar, and Earls 2007), and has deleterious consequences. In the short term, these risks include the development of post-traumatic stress disorder, aggression and conduct disorders, and substance use (Margolin and Gordis 2000; Nofziger and Kurtz 2005; Cerdá et al. 2011; Kirk and Hardy 2014). In addition to the short-term consequences, the significance of secondary exposure to violence during youth persists over time (Wright, Fagan, and Pinchevsky 2013), with secondary exposure to violence during adolescence predicting later suicidal ideation and attempt (Lambert, Copeland-Linder, and Ialongo 2008), illicit drug use (Zimmerman and Kushner 2017), violent offending (Farrell and Zimmerman 2018), and worse mental health and substance use outcomes in adulthood (Musci et al. 2018). In short, secondary exposure to violence is a form of childhood adversity (Cronholm et al. 2015) with consequences for youths' social psychological functioning and long-term health.

Second, adolescents grow up in increasingly diverse household arrangements. In 1950, 9 percent of mothers with children under age 18 were unmarried; by 1990, this figure had nearly tripled to 27 percent (Ellwood and Jencks 2004). Due to increasing rates of cohabitation, nonmarital fertility, divorce, and remarriage throughout the latter half of the twentieth century, children could expect to experience 0.89 family transitions (e.g., a divorce or remarriage) by age 12 in 1995 (Brown et al. 2016). An extensive body of research shows that living in a single-parent household (McLanahan and Sandefur 1994; Ginther and Pollak 2004) and experiencing family structure transitions (Cavanagh and Huston 2006; Fomby and Cherlin 2007; Magnuson and Berger 2009; Cavanagh and Fomby 2019) are associated with adverse consequences for children's behavior, academic achievement, and psychological well-being.

Many mechanisms linking single-parent households and parental instability to these outcomes may also shape youths' secondary exposure to violence, net of the fact that married parent households tend to have the financial resources to live in less violent neighborhoods compared with single parents (Sampson, Raudenbush, and Earls 1997; McLanahan and Percheski 2008; Cavanagh and Fomby 2012). Single parents often have fewer economic resources for raising their children and may be less able to afford high-quality child care and structured activities that promote youth's healthy development compared with married parents (Thomson, Hanson, and McLanahan 1994). Single parents may also struggle to balance full-time employment with parenting without the aid of a partner (Kendig and Bianchi 2008), which can result in less monitoring and supervision (Stattin and Kerr 2000; Demuth and Brown 2004). Greater monitoring and supervision, such as limiting the amount of unsupervised time in the neighborhood with friends (Ahlin and Antunes 2017) can directly protect youth by preventing them from engaging in dangerous situations (Zimmerman and Posick 2016); in addition, greater supervision also indirectly lowers this risk by promoting youths' internal locus of control, a protective factor against secondary exposure to violence (Ahlin and Antunes 2015).

In addition to the presence or absence of a second parent, transitions in family structure (e.g., divorce or remarriage) introduce disruptions in routines, roles, and relationships in households. The entrance or exit of a parent or a parent's partner can cause stress that

undermines effective parenting practices (Amato 2010; Osborne and McLanahan 2007); in turn, harsh disciplining practices increase the risk of secondary exposure to violence (Ahlin and Antunes 2015), likely because youth respond by spending more time in unstructured, unsupervised settings with deviant peers (Antunes and Ahlin 2015). This disruption can compromise parents' ability to supervise and monitor youths' activities, leading to a greater risk of secondary exposure to violence through the mechanisms discussed in the previous paragraph. Furthermore, parental instability can reduce youths' feelings of closeness to parents (Cavanagh 2008), which predicts greater secondary exposure to violence (Sheidow et al. 2001). Reduced feelings of warmth and closeness undermine adolescents' willingness to disclose information to their parents, again limiting parents' ability to monitor their children's activities (Gorman-Smith, Henry, and Tolan 2004; Kerr, Stattin, and Burk 2010).

Importantly, family structure and family processes such as parental monitoring are overlapping, but distinct, ecological factors worthy of study on their own (Crosnoe and Cavanagh 2010). Although related, family structure and parental instability are not simply proxies for parenting quality. Family structure (and transitions between them) reflects access to a complex interplay of financial and social resources that parents can draw on in an economic and policy context predicated on the assumption of the two-parent nuclear family norm (Eichner 2012). Indeed, other studies find that family processes like warmth and supervision are not associated with youths' secondary exposure to violence (Gibson, Morris, and Beaver 2009; Zimmerman and Messner 2013), suggesting that structural family factors like marital status and parental instability remain important ecological factors to consider.

Hypothesis 1: Youth in stably single-parent households and those who experience parental instability will have greater secondary exposure to violence than youth in two-parent households.

Contextualizing Youth and Families in Neighborhood Contexts

The mesosystem-level ecological link between family structure and secondary exposure to violence is embedded within a broader social system. As adolescents grow older and achieve greater independence from their parents, the neighborhood context may become more important in shaping and regulating adolescent behavior. Prior research indicates that youths' exposure to community violence varies across different types of neighborhoods; for example, youth witness more violence in communities characterized by high concentrated disadvantage, population density, and rates of crime (Salzinger et al. 2002; Aisenberg and Herrenkohl 2008; Gibson et al. 2009). In neighborhoods with certain structural characteristics, such as a low level of poverty and/or crime, family structure may not matter for youths' secondary exposure to violence because there is little violence to witness. On the other hand, the importance of the family context in mitigating secondary exposure to violence may be especially pronounced in low-resource areas (Ahlin and Antunes 2017).

For example, married parents' greater ability to limit youths' unsupervised time in the community may be irrelevant for secondary exposure to violence in a community with low rates of violent crime because youth have a low propensity to witness violence in the first place, but it may be crucial for preventing this risk in communities with high rates

of crime. Another reason family structure may be particularly consequential for youths' secondary exposure to violence in high-crime neighborhoods concerns peer groups. In violent neighborhoods, youth deploy complex and adaptable friendship formation strategies in an attempt to protect themselves from violence but may paradoxically end up exposing themselves to more violence (Harding 2009; Chan Tack and Small 2017). The lack of a second parent in the household or disrupted family processes resulting from parental instability may reduce parents' ability to effectively monitor youth, facilitating interactions with peer groups that increase the risk of secondary exposure to violence (Hair et al. 2008; Antunes and Alhin 2015; Cavanagh et al. 2018).

To the extent that neighborhood levels of poverty and rates of violent crime are intertwined, family structure may similarly be more salient for youths' secondary exposure to violence in more impoverished neighborhoods. An extension of the family stress model (Kohen et al. 2008) posits that neighborhood socioeconomic disadvantage affects youths' development via parental mental health and the development of harsh, punitive parenting practices. Additionally, parents in neighborhoods with greater concentrated disadvantage, particularly, single mothers, may have fewer social supports (Sheidow et al. 2001) and opportunities to engage youth in structured, supervised activities (Antunes and Ahlin 2014). Thus, the stressors associated with greater neighborhood poverty may compound the stressors of single parenthood or parental instability such that youth with single parents or parental instability in high-poverty, but not low-poverty, areas experience a greater risk of secondary exposure to violence.

A large proportion of single-parent families in the community may also strengthen the association between family structure and secondary exposure to violence. This community factor has been linked to a number of adolescent problem behaviors (Simons et al. 1996; Cleveland and Gilson 2004), likely due to fewer number of adults available for supervision (Sampson 1987). Reduced parental monitoring at the neighborhood level, in addition to the family level, promotes unstructured socializing among youth (Osgood and Anderson 2004), raising the risk of secondary exposure to violence (Zimmerman and Messner 2013). As with high rates of crime and poverty, a high proportion of single-parent households in a neighborhood presents a risk that increases the salience of family structure for youths' secondary exposure to violence.

Hypothesis 2: The positive association between living in a stably single-parent household or experiencing parental instability and secondary exposure to violence will be stronger for youth in neighborhoods characterized by higher levels of crime, greater concentrated disadvantage, and a greater proportion of single-parent households.

Moving beyond Structural Characteristics of the Neighborhood Context

In addition to the structural characteristics of neighborhoods, the social-interactional processes within communities (Sampson, Morenoff and Gannon-Rowley 2002) also have implications that carry over to family-level processes (Elder et al. 1995; Simons et al. 2005; Maimon, Browning, and Brooks-Gunn 2010). Some neighborhoods are characterized by tightly knit networks of obligation and support among residents that could potentially

compensate for the reduced supervision, monitoring, and disruptions in routine associated with single-parent families and parental instability (Browning, Leventhal, and Brooks-Gunn 2005).

One such resource, neighborhood ties (also referred to as “network interaction” and/or “reciprocated exchange”; Browning, Dirlam, and Boettner 2016) captures the extent to which community members engage in what Sharp (2018) calls “neighboring.” Neighboring includes behaviors such as doing favors for other residents, watching over one another’s property, asking each other for advice, and getting together in the community to socialize. In communities with stronger neighborhood ties, parents are more likely to know other parents, talk to other parents about the local youth, and intervene on behalf of other parents’ children. This collective monitoring and pursuit of beneficial outcomes for youth may buffer the risk of secondary exposure to violence for youth with single parents or those who experience parental instability (Browning et al. 2005).

Hypothesis 3: The positive association between living in a stably single-parent household or experiencing parental instability and secondary exposure to violence will be weaker for youth in neighborhoods with stronger neighborhood ties.

A Joint Consideration of Structural and Social Neighborhood Characteristics

However, the protective or regulatory effect of a given neighborhood characteristic may depend on other neighborhood characteristics (e.g., Browning, Dietz, and Feinberg 2004). Thus, exploring the structural and social-interactional characteristics of a neighborhood in conjunction (Shihadeh and Steffensmeier 1994) can complicate the hypothesized role of neighborhood ties in protecting youth. Such ties can generate social capital, but this capital may not be deployed for prosocial ends (Portes 1998). In particular, extensive, tightly knit neighborhood networks may interfere with informal control of crime. In Pattillo-McCoy’s (1999) ethnography of “Groveland” in Chicago, for example, neighbors were more reluctant to report crime if they personally knew the offender or the offender’s family. Stated differently, the social processes that strengthen neighborhood ties may also generate social capital for offenders to *avoid* social control. At the neighborhood level, the protective effect of collective efficacy on violent crime is attenuated as levels of network interaction and reciprocated exchange (i.e., the strength of neighborhood ties) increase (Browning 2009). In communities with higher-than-average levels of crime, dense social networks may not function to reduce youths’ secondary exposure to violence and may even increase the risk in the context of living with a single parent or experiencing parental instability. For example, in a neighborhood with strong neighborhood ties, an adolescent may spend more time socializing with friends in the neighborhood in response to stress generated by parental instability at home than their counterpart with the same family context in a neighborhood with fewer social ties. If a tightly knit neighborhood also has high levels of crime, this youth may be more exposed to violence in this scenario.

Hypothesis 4: The positive association between living in a stably single-parent household or experiencing parental instability and secondary exposure to violence will be stronger for

youth in neighborhoods with strong neighborhood ties and high levels of crime compared with youth in neighborhoods with strong neighborhood ties but low levels of crime.

Method

Data

This study used data from two separate components of the PHDCN to capture characteristics and processes at both the neighborhood and the individual level. The Community Survey was conducted in 1994 and 1995 and measured the economic, social, and cultural characteristics of neighborhoods through household interviews with neighborhood residents. The PHDCN sampling design combined 847 census tracts in Chicago into 343 geographically contiguous and internally homogenous neighborhood clusters of approximately 8,000 residents each. Within each of these neighborhood clusters, between 20 and 50 households were selected to participate in the Community Survey. A randomly chosen adult per household answered questions about the characteristics of their neighborhoods and their relationships with their neighbors. In total, 8,782 individuals responded; neighborhood-level variables were created by aggregating responses for each neighborhood cluster.

The Longitudinal Cohort Study collected data on the characteristics, behaviors, and changing circumstances of children and their primary caregivers over three survey waves during a period of seven years (1994–97, 1997–99, and 2000–2001) in 80 of the 343 neighborhood clusters. These 80 neighborhood clusters were selected so as to maximize variability in racial-ethnic composition and socioeconomic status. Households with children within six months of birth and ages 3, 6, 9, 12, 15, and 18 were randomly selected to take part in the longitudinal individual-level data collection ($n = 6,288$). Note that although located in the same neighborhood clusters, the respondents in the Longitudinal Cohort Study were selected independently of the respondents in the Community Survey. For more detailed information about sampling procedures used in the PHDCN, see Raudenbush and Buka (1997) and Raudenbush and Sampson (1999).

The analytical sample for this study was limited to young people from Cohorts 6, 9, and 12 whose primary caregivers at Wave 1 were their biological mothers. We chose these cohorts so that young people's self-reports of secondary exposure to violence at Wave 2 occurred during early and middle adolescence, a developmental period in which rates of exposure to community violence escalates (Finkelhor et al. 2015). Youth were approximately ages 6, 9, and 12 at Wave 1 and then 9, 12, and 15, respectively, at Wave 2. Out of the 2,628 youth in these cohorts, 407 were excluded because their primary caregiver at Wave 1 was not their biological mother, and 20 were excluded because they had missing data on their primary caregiver at Wave 1. An additional 365 youth were excluded because they did not fill out the Wave 2 questionnaire regarding secondary exposure to violence, resulting in a final analytic sample of 1,836 youth in 79 out of 80 neighborhood clusters.

Measures

Secondary exposure to violence.—At Wave 2, eight items measured whether or not youth had witnessed the following types of violence in the past year: seeing someone chased, hit, attacked, shot, shot at, killed, or threatened, and hearing a gun shot. In order to address the differences in severity of these items, we drew on item response theory to operationalize youths' secondary exposure to violence (Kindlon et al. 1996). Specifically, we fit a two-parameter logistic model with each of the eight types of violence as dichotomous indicators (1 = seen in last year, 0 = did not see in last year) loading onto a single latent, continuous factor representing youths' secondary exposure to violence. For more details about this method, see Wirth and Edwards (2007).

Family structure.—A variable for family structure at Waves 1 and 2 was derived from biological mothers' self-reports of their union status. At each wave, mothers reported if they lived with a partner; these responses were dichotomized into "single" if the mother did not have a partner (which could be a biological, stepfather, or social father) or "two-parent" if a partner was present. The final variable combined reports at both waves and had three categories: "stably single" if a child lived in a single-parent household both waves, "stably two-parent" if a child lived in a two-parent household both waves, and "parental instability" if a child lived in a one-parent household in one wave and a two-parent household in the other.

Neighborhood characteristics.—Neighborhood social ties was a five-item scale in the Community Survey. Its items included how often the following occurred (never, rarely, sometimes, or often): "You and your neighbors do favors for each other," "You and other neighbors watch over a neighbor's property when they are not at home," "You and other neighbors have get-togethers where other people in the neighborhood are invited," and "You and others neighbors visit in each other's homes or on the street." Higher values indicated stronger neighborhood ties.

PHDCN Scientific Directors created a variable representing neighborhood concentrated disadvantage by aggregating Census data at the census tract level to the neighborhood cluster level data. Using factor analysis, they created a composite of the percentage of individuals living below the poverty line, individuals receiving public assistance, unemployed individuals, female-headed families, African American residents, and the density of children (Sampson et al. 1997). We standardized this variable into *Z* scores, with the final analytical variable having a mean of -0.03 and a standard deviation of 0.69 .

To measure the proportion of single-adult households, it would be ideal to also use census tract-level data from the Census as with neighborhood concentrated disadvantage. However, as Census data on family structure at the neighborhood cluster level was not merged with the Community Survey by the PHDCN Scientific Directors, and we do not have census tract numbers to link the PHDCN to other data, we created this variable from Community Survey responses. We created this measure by calculating the proportion of Community Survey respondents who were currently unmarried within each neighborhood cluster. The small number of respondents who reported a "domestic partnership" were considered "married,"

as the term likely reflects a long-term relationship that contributes to relationship stability at the neighborhood level. The average proportion of single-adult households was 55 percent with a 13 percent standard deviation. Again, this variable was standardized into Z scores for analysis.

Neighborhood level of crime was measured by the log homicide rate (log number of homicides per 1,000 residents) at Wave 1, which PHDCN Scientific Directors obtained from the Chicago Police Department and included with other Community Survey variables. Compared with other forms of violent crime, homicide is the most reliably reported (Sampson et al. 1997). Although the issue of differential reporting of crime across neighborhoods remains, this variable offers the best solution for measuring neighborhood crime in this context. The mean log homicide rate was 0.0003 homicides per 1,000 residents; as with the other neighborhood-level variables, we standardized this variable into Z scores.

Individual-level covariates.—Variables tapping possible individual-level confounders were all measured at Wave 1. Demographic variables included gender (1 = female, 0 = male), race-ethnicity (dummy variables for white, Latino/a, African American, and other race-ethnicity), and age (represented by three cohort dummy variables representing respondents' age at Wave 1). Additional confounders included a measure of Wave 2 socioeconomic status (a composite of primary caregiver's household income, educational attainment, and occupational prestige created by PHDCN Scientific Directors), the primary caregiver's age, and a binary indicator of prior parental instability. Prior parental instability indicated whether the primary caregiver had any romantic relationships with partners other than the child's biological father between the child's birth and Wave 1. To address the concern that youths' secondary exposure to violence was due solely to the violence introduced or removed by the movement of mothers' romantic partners in and out of the home, we also included a measure of intimate partner violence. This variable was measured at Wave 2 and indicated whether or not the mother had been the victim of any of 13 types of violence perpetrated by her partner (e.g., been slapped, choked, beaten up).

Neighborhood-level covariates.—We included two additional neighborhood-level covariates (Kirk and Papachristos 2011): residential instability and immigrant concentration. Residential instability measured the proportion of residents living in the same house since 1985 and the proportion of residents owning their home. Immigrant population captured the percentage of Latino/a and foreign-born residents. These were derived from the Census at the tract level and aggregated to neighborhood clusters by the PHDCN Scientific Directors.

Plan of Analyses

All models contained two levels, with the "individual" level reflecting variation between individuals and the "neighborhood" level reflecting variation between neighborhood clusters. In addition to adjusting standard errors to account for the dependence of observations within clusters, this strategy estimated effects at the individual and neighborhood levels. We constrained the factor loadings for the latent secondary exposure to violence measure to be the same in the individual and neighborhood levels, making these models equivalent to random-intercept multilevel models in which the regression of

secondary exposure to violence on the predictors has a random intercept varying across neighbourhood clusters. For the first aim, we regressed the latent secondary exposure to violence variable on family structure while including all child-level covariates at the individual level and focal neighborhood characteristics and covariates at the neighborhood level.

For the second and third aims, we repeated this modeling strategy in four multiple-group models based on low, average, and high levels of the following neighborhood characteristics: homicide rate, concentrated disadvantage, proportion of single-parent households, and neighborhood ties. Neighborhoods were categorized as “low” on a particular characteristic if they were below 1 standard deviation from the mean, “average” if they were within 1 standard deviation of the mean, and “high” if they were above 1 standard deviation from the mean. Each group contained at least 20 neighborhood clusters and 500 respondents. The multiple-group models were identical to the previous model except they excluded the neighborhood characteristic that served as the grouping variable from being a covariate. All multiple-group models constrained all paths to be equal across the groups except for the association between family structure and secondary exposure to violence. For the fourth aim, we repeated the prior multiple-group model by homicide rate with the inclusion of two cross-level interaction terms between stably single and neighborhood ties and between parental instability and neighborhood ties. Again, we constrained all paths to be equal across groups except for the family structure variables and the cross-level interaction terms. Post hoc Wald chi-square (Clogg, Petkova, and Haritou 1995) and log-likelihood ratio tests (West, Taylor, and Wu 2012) examined whether the association of family structure and secondary exposure to violence differed significantly across groups. Last, we used the Johnson-Neyman technique to probe these interactions and identify values of the moderator (i.e., neighborhood ties) in which the associations between the family structure variables and secondary exposure to violence were significant (Johnson and Fay 1950).

All analyses were conducted in MPlus 7.0 (Muthén and Muthén 1998–2010), which handles missing data with full-information maximum likelihood (FIML) procedures. The variables with most missing data were family structure at 11 percent missing and mother’s intimate partner violence at 16 percent. Otherwise, missing data were minimal (less than 4 percent) or nonexistent for the rest of covariates. Under missing-completely-at-random and missing-at-random missing-data conditions, FIML provides the most unbiased and efficient estimates compared with other common missing-data techniques (Enders and Bandalos 2001).

Results

As Table 1 shows, secondary exposure to violence was high in this sample, even during early and middle adolescence. The most commonly witnessed forms of violence were seeing someone hit and hearing a gun, which 49.5 percent and 53.6 percent of youth reported experiencing in the past year, respectively. Other forms of violence were less frequently but still commonly experienced: 35.9 percent of youth saw someone chased and 18.2 percent saw someone threatened in the past year. More rarely, 15.2 percent of youth saw someone attacked, 7.7 percent saw someone shot, and 7.6 percent saw someone shot at. Last, 4.5 percent of youth saw someone killed. This wide range in the frequencies of experiencing

each type of violence justified our use of item response theory to model youths' secondary exposure to violence.

Living with two parents at both waves was the most common family structure, with 58.2 percent of the sample in this arrangement. About a quarter (24.6 percent) of the sample lived in a single-parent household at both Wave 1 and Wave 2 (i.e., with a stably single parent), and 17.2 percent of youth experienced some form of parental instability between Waves 1 and 2. In terms of race-ethnicity, 50.6 percent of youth identified as Hispanic, 30.5 percent identified as black/African American, 15 percent identified as white, and 3.5 percent reported some other race or ethnicity. On average, mothers were about 35 years old at Wave 1, 21.4 percent of youth experienced parental instability prior to Wave 1, and 11.7 percent of mothers reported intimate partner violence.

Table 2 shows the sample characteristics stratified by family structure at Waves 1 and 2. Youth who lived in a stably single-parent family or those who experienced parental instability between Waves 1 and 2 were more likely to experience all eight types of violence exposure compared with those in a stably two-parent household. In addition, youth in stably two-parent households lived in neighborhoods with less concentrated disadvantage, less crime, and fewer single-parent households compared with youth in other family structure types. The strength of neighborhood ties did not differ by family structure.

Prior to moving to multilevel models, we first confirmed that all secondary exposure to violence items significantly and positively loaded onto the latent variable secondary exposure to violence. We then estimated an unconditional mixed-effects models with neighborhood clusters specified as a random effect to confirm that there was significant variation in secondary exposure to violence across neighborhood clusters; 12.26 percent of the variance in youths' secondary exposure to violence was between neighborhood clusters.

The first aim of the study was to test if parental instability and/or living in a stably single-parent household were predictive of youths' secondary exposure to violence. As can be seen in Table 3, both living in a stably single household as well as experiencing parental instability were associated with greater secondary exposure to violence compared with living in a stably two-parent household. Living with a single parent and experiencing parental instability were associated with an increase of 18.9 percent and 21.4 percent, respectively, of a standard deviation in a youth's exposure-to-violence score. These results support Hypothesis 1 and are consistent with prior research documenting associations between family structure, parental instability, and secondary exposure to violence (Zimmerman and Messner 2013; Cavanagh et al. 2018).

The second aim of this study was to analyze how the association between family structure and secondary exposure to violence differed by varying levels of structural characteristics of neighborhoods. Before conducting our models based on multiple groups, we first tested for configural and weak factorial measurement invariance across the three groups (low, average, and high) for each of the four neighborhood characteristics. Configural and weak factorial measurement variance held for the groups based on homicide rate, proportion of single-parent households, and neighborhood ties. However, the factor loading for the

“shot at” factor was not equivalent across concentrated disadvantage groups. An additional multiple-group model based on concentrated disadvantage excluding the “shot at” indicator was conducted as a sensitivity test (not shown), and results were substantively the same.

The first panel of Table 4 displays the results for the multiple-group model estimated separately by level of neighborhood concentrated disadvantage. In the neighborhoods with low to average levels of concentrated disadvantage, there was no statistically significant difference in secondary exposure to violence by family structure. In neighborhoods with high levels of concentrated disadvantage, youth in stably single or unstable family structures had greater secondary exposure to violence than youth in two-parent families. However, these coefficients themselves did not significantly differ across neighborhood levels of concentrated disadvantage according to either Wald or log-likelihood ratio tests.

Moving to the second panel of Table 4, living with a stably single parent or experiencing parental instability was significantly associated with greater secondary exposure to violence only among youth in neighborhoods with an average proportion of single-adult households. However, again, the coefficients were not significantly different across neighborhoods with low, average, or high proportions of single-adult households according to Wald or log-likelihood ratio tests.

When looking at neighborhoods separately by homicide rate in the third panel of Table 4, stably single-parent households were associated with higher secondary exposure to violence only in neighborhoods with an average or high homicide rate. This difference was significant across neighborhood levels of homicide rate according to the log-likelihood ratio test and significantly different from low-homicide neighborhoods according to Wald tests. In addition, parental instability was significantly associated with secondary exposure to violence only among youth in neighborhoods with an average homicide rate, although this difference across neighborhood levels of crime was not statistically significant. These results partially support Hypothesis 2 in that the association between living with a stably single parent and secondary exposure to violence was significantly stronger for youth in average-to-high-crime neighborhoods.

Last, the fourth panel of Table 4 displays the results for the multiple-group model by strength of neighborhood ties to address the third aim of the study concerning how the association between family structure and secondary exposure to violence differed by strength of neighborhood ties. Parental instability was associated with greater secondary exposure to violence only in communities with an above-average strength of neighborhood ties. As with concentrated disadvantage and proportion of single households, no coefficient differed significantly across neighborhood groups according to Wald or log-likelihood ratio tests. These results do not support Hypothesis 3.

The main takeaway from these results was that the association between family structure and secondary exposure to violence differed by neighborhood homicide rate but not any of the other neighborhood characteristics.

The fourth aim of this study was to examine heterogeneity in when neighborhood ties may be a source of resilience based on family structure as well as the level of crime in

a neighborhood. The first model presented in the first column of Table 5 tested whether neighborhood ties attenuated the association between family structure and secondary exposure to violence across all neighborhoods; neither of these interaction terms was significant. The interaction between neighborhood ties and family structure, however, may be differentially protective or risky for youths' secondary exposure to violence depending on neighborhood context, specifically, level of crime.

A multilevel, multiple-group model with a cross-level interaction requires particular attention to cell sizes. In order to detect possible interaction effects between family structure and neighborhood ties within crime groups, adequate variation in neighborhood ties within crime groups as well as among youth in different family structures is required. Figure 1 plots the mean and standard deviation of neighborhood ties (measured as a *Z* score based on the entire sample) for each combination of family structure and neighborhood crime level. The group with the smallest variation in neighborhood ties, youth experiencing parental instability in high-crime neighborhoods, lived in neighborhoods in which the standard deviation of neighborhood ties is still 65.8 percent the size of the standard deviation across the entire sample. This figure shows that regardless of family structure or neighborhood level of crime, youth lived in neighborhoods with varying strengths of social ties.

The second, third, and fourth columns of Table 5 display the results of the crime multiple-group model with the cross-level interaction between family structure and neighborhood ties at low, average, and high levels of crime. To aid in interpretation, we graphed the simple slopes of living in a single-parent household and secondary exposure to violence at different levels of strength of neighborhood ties and crime using the Johnson-Neyman technique, shown in Figure 2. This technique allows us to identify values of the moderator(s) (i.e., neighborhood ties and crime) in which the simple slope of living with a stably single parent on secondary exposure to violence was significant. For each level of crime, we graphed the simple slope at weak (at or less than 1 standard deviation below the mean) and strong (at or greater than 1 standard deviation above the mean) neighborhood ties. As shown in Figure 2, living with a stably single parent was significantly associated with greater secondary exposure to violence in neighborhoods with weak ties and average crime and in neighborhoods with strong ties and high crime according to the Johnson-Neyman technique carried out in Mplus.

Similarly, Figure 3 displays the simple slopes for the association of parental instability and secondary exposure to violence by strength of neighborhood ties and level of crime. Experiencing parental instability was significantly associated with greater secondary exposure to violence only in neighborhoods with strong ties and high crime. These results support Hypothesis 4.

Discussion and Conclusion

Secondary exposure to violence is a common experience that poses numerous risks to adolescents' positive development. Past research demonstrates how family and community ecologies interact to predict youths' secondary exposure to violence (e.g., Antunes and Ahlin 2017); this study took this line of work a step further to consider how family

structure matters for youths' secondary exposure to violence depending on both the social and structural characteristics of their neighborhoods.

To summarize, both residing in a stably single-parent family structure and experiencing parental instability were associated with greater secondary exposure to violence among youth, as predicted by Hypothesis 1. In line with Hypothesis 2, these associations were strongest in neighborhoods with high crime. There were no differences in the associations between family structure and secondary exposure to violence by strength of neighborhood ties; thus Hypothesis 3 was not supported. In high-crime neighborhoods, stronger neighborhood ties strengthened the positive associations of parental instability and living with a single parent with secondary exposure to violence, as predicted by Hypothesis 4. These results point to three themes.

First, both living in a stably single-parent family and experiencing parental instability were risk factors for secondary exposure to violence. We cannot rule out the possibility that the processes that selected children into single-parent families also selected them into situations and lifestyles characterized by greater secondary exposure to violence. Nevertheless, even if the association between family structure context and secondary exposure to violence is not strictly causal, understanding risk factors for violence exposure can aid in prevention efforts.

Recently, family scholars have emphasized moving beyond a static measure of family structure at any given time and paid greater attention to the consequences of multiple family structure transitions over time (e.g., Cavanagh and Fomby 2019). A limitation of this study is the measurement of family structure. Because we had data on family structure only at three-year intervals, the measurement of family structure likely undercounted parental instability. In addition, due to limited cell sizes, we did not distinguish between stepparents and biological, married, and cohabiting parents, nor did we consider the role of nonnuclear adults in children's household instability (Raley et al. 2019). Last, not all single-parent families are the same; the presence of other adults in the household, such as a grandmother, may be protective (DeLeire and Kalil 2002). Future studies can build on this one by focusing on the role of other adults in the household in shaping youths' risk of secondary exposure to violence.

Second, family structure matters differentially for youths' secondary exposure to violence depending on their neighborhood context. This study considered both structural and social characteristics of neighborhoods and found that the differences in the effects of family structure were most robust across neighborhood levels of crime. Specifically, living in a stably single-parent family was associated with greater secondary exposure to violence for youth in average-to-high-crime neighborhoods. In these high-risk areas, what goes on in the family takes on greater importance in keeping youth safe (Crosnoe et al. 2018). Conversely, in lower-crime neighborhoods, there may be so little violence to witness that type of family structure does not make a meaningful difference in youths' risk. Neighborhoods with lower crime rates may have additional resources—such as youth services or neighbors willing to watch out for the safety of youths in the community—that buffer any additional risk of secondary exposure to violence associated with single-parent or unstable families (Gardner and Brooks-Gunn 2009).

Third, the association between family structure and secondary exposure to violence depends not only on the structural characteristics of a neighborhood, but the combination of a neighborhood's structural and social characteristics. Specifically, living with a stably single parent or experiencing parental instability was most strongly associated with greater secondary exposure to violence in neighborhoods with both high crime and strong neighborhood ties. Sheidow and colleagues (2001) reported a similar finding, in which youth in at-risk families saw more violence in neighborhoods with higher levels of social organization compared with youth in structurally similar, but less socially organized, neighborhoods. Together, these findings suggest that interconnected social networks in a community are not necessarily associated with better child well-being. In neighborhoods with stronger ties, youth may be more likely to spend more time out in the community in response to family stress, potentially exposing them to violence when neighborhood crime is also high. Parents in tightly knit communities, even in high-crime areas, may also feel more comfortable allowing their children to spend unstructured and unsupervised time in the neighborhood (Fagan and Wright 2012).

Some caution is warranted in interpreting these observed neighborhood effects because data from the Community Survey and data on youths' residence from the Longitudinal Cohort Study preceded the measurement of secondary exposure to violence by three to five years. Furthermore, neighborhood characteristics were measured only at Wave 1. If families moved between waves, data on the neighborhood characteristics of their subsequent residence(s) were not available. Both neighborhood attainment and neighborhood characteristics, however, tend to remain relatively stable (Sampson and Sharkey, 2008). In particular, for disadvantaged families whose children are most at risk of secondary exposure to violence, residential mobility is rarely upward and is usually in response to forced relocation, like eviction (DeLuca, Wood, and Rosenblatt 2019). Future research and data collection efforts should conceptualize neighborhood attainment in terms of not just structural (e.g., crime and poverty) but also social (e.g., social ties and collective efficacy) characteristics.

Research on family structure and child well-being suggests that encouraging marriage alone is not enough to improve children's outcomes (Brown 2010). Rather, strengthening communities and providing more support for children and families, regardless of family structure, may be more achievable ways to reduce youths' secondary exposure to violence. Strong neighborhood ties can support parents, such as in the form of having a network of people to draw on for childcare, advice, and emotional support (Small 2006; Molnar et al. 2016). These factors may increase the likelihood that children will receive the monitoring (both by parents and by other adults in the neighborhood) needed to reduce their risk of secondary exposure to violence. The question of how to strengthen neighborhood ties, however, is a difficult one. In addition, as this study showed, social ties are not necessarily protective depending on the structural characteristics of the neighborhood. Improvement of material conditions, reduction in crime, and fostering social connections in the neighborhood must all be pursued simultaneously. For example, programs that provide material support to families can set the stage for protective neighborhood characteristics to flourish (Sampson et al. 2002) without providing social capital to criminals (Pattillo-McCoy 1999). Community investment in youth organizations may also help to deter crime, lessening the significance

of family structure for youths' secondary exposure to violence (Gardner and Brooks-Gunn 2009).

Although the estimates reported here are not nationally representative, Chicago remains a valuable context to study these processes. Within its neighborhoods, one can find incredible racial-ethnic and socioeconomic variation that can be difficult to capture even in larger samples. The social processes underlying racial stratification, neighborhood disorganization, and the stability of spatial disadvantage may be particularly on display in Chicago, but they are not necessarily unique to the city (Sampson 2012). This study builds on a robust body of work linking community and family processes to youths' risk of secondary exposure to violence by considering how the social and structural characteristics of communities in tandem shape the importance of what goes on in the family. We found that living with a stably single parent or experiencing parental instability was associated with greater secondary exposure to violence and that these associations were strongest for youth living in neighborhoods with both high crime and strong neighborhood ties. These results demonstrate the importance of considering multiple dimensions of a youth's community simultaneously and suggest that prosocial neighborhood resources may not always play a protective role for youth in these communities.

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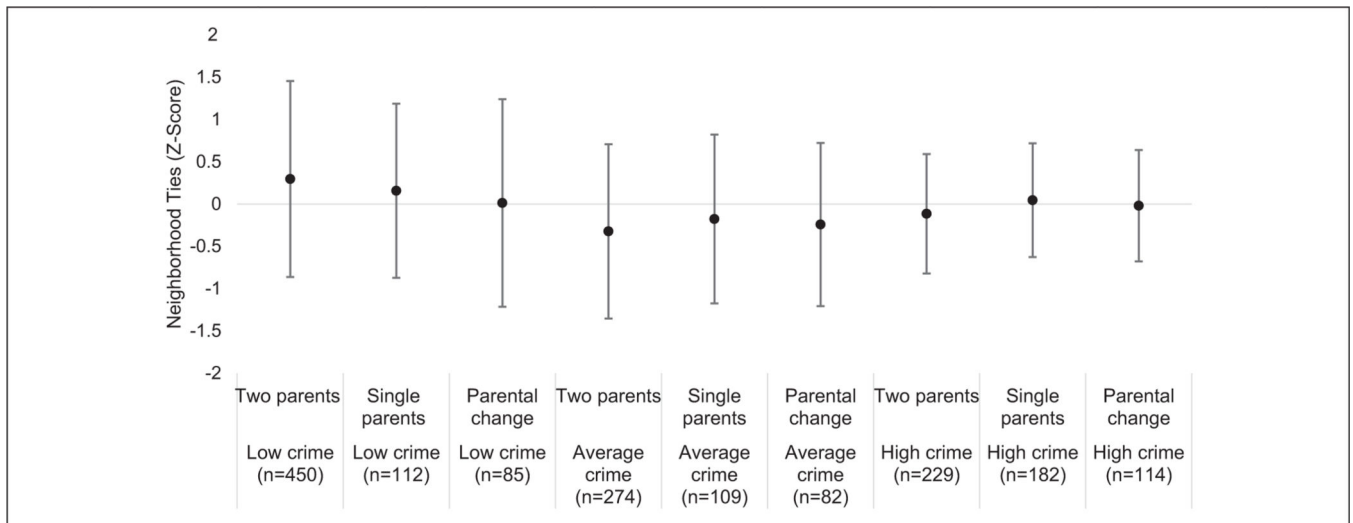


Figure 1. Mean and standard deviation of neighborhood ties, by homicide rate and family structure Waves 1 to 2.
Note: This figure reports raw numbers prior to filling in missing data using full-information maximum likelihood. Of the sample ($N= 199$), 10.8 percent was missing on family structure between Waves 1 and 2.

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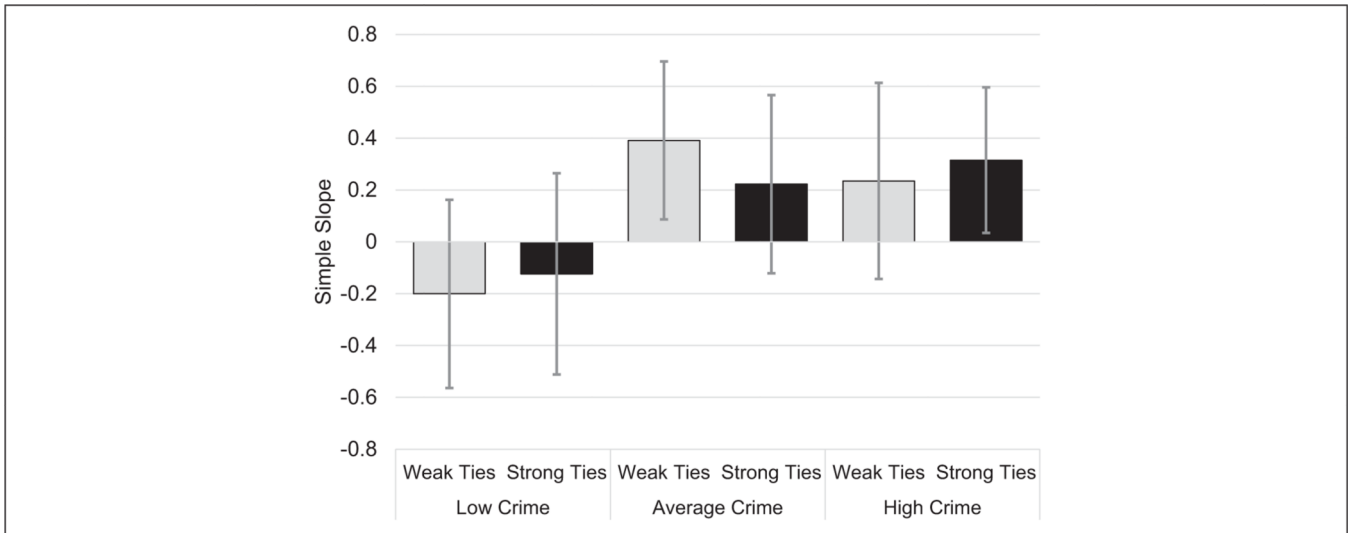


Figure 2. Associations between stably single parent household and secondary exposure to violence, by neighborhood ties and level of crime.

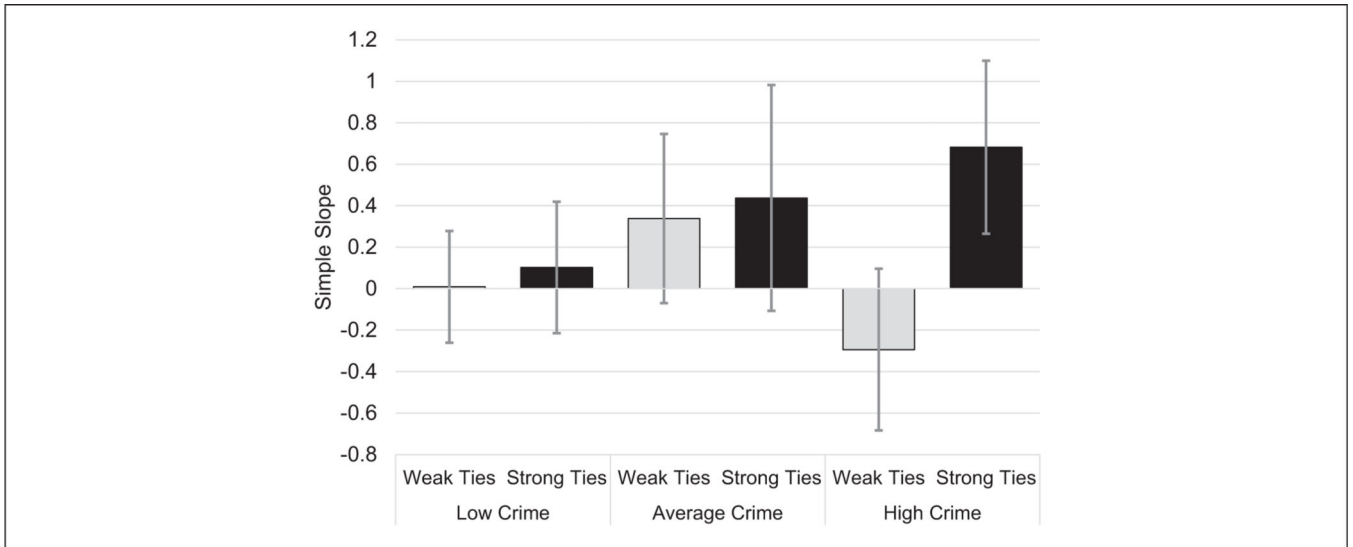


Figure 3. Associations between parental instability and secondary exposure to violence, by neighborhood ties and level of crime.

Table 1.

Sample Description and Missing Data.

Variable	Proportion or Mean (SD)	Missing	N
Secondary exposure to violence at Wave 2			
Saw someone chased	35.87%	0.54%	1,836
Saw someone hit	49.51%	0.65%	1,836
Saw someone attacked	15.18%	0.27%	1,836
Saw someone shot at	7.59%	0.27%	1,836
Heard a gun	53.61%	3.49%	1,836
Saw someone killed	4.48%	0.33%	1,836
Saw someone shot	7.70%	0.27%	1,836
Saw someone threatened	18.20%	0.65%	1,836
Family structure Waves 1–2			
Single parent both waves	24.62%	10.84%	1,836
Two parents both waves	58.22%	10.84%	1,836
Parental instability	17.17%	10.84%	1,836
Focal neighborhood characteristics			
Neighborhood ties	2.51 (0.22)	0.00%	79
Concentrated disadvantage	−0.03 (0.69)	0.00%	79
Proportion of single households	0.55 (0.13)	0.00%	79
Log homicide rate	0.0003 (0.0003)	0.00%	79
Individual covariates			
Female	49.67%	0.00%	1,836
Race-ethnicity			
White	15.43%	0.11%	1,836
Hispanic	50.55%	0.11%	1,836
Black	30.53%	0.11%	1,836
Other race-ethnicity	3.49%	0.11%	1,836
Age			
Cohort 6	38.94%	0.00%	1,836
Cohort 9	31.15%	0.00%	1,836

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Variable	Proportion or Mean (SD)	Missing	N
Cohort 12	29.90%	0.00%	1,836
Age of primary caregiver	34.86 (6.27)	2.02%	1,836
Socioeconomic status at Wave 2	-0.28 (1.40)	0.38%	1,836
Wave 2 intimate partner violence	11.69%	15.69%	1,836
Pre-Wave 1 parental instability	21.37%	2.40%	1,836
Neighborhood covariates			
Immigrant concentration	0.52 (1.03)	0.00%	79
Residential stability	-0.07 (0.93)	0.00%	79

Note: All variables were measured at Wave 1 unless otherwise specified.

Table 2.

Sample Description, by Family Structure in Waves 1 and 2.

Variable	Frequency or Mean (SD)		
	Two Parents Both Waves	Single Parent Both Waves	Parental Instability across Waves
Secondary exposure to violence at Wave 2			
Saw someone chased ^a	30.20%	44.64%	41.58%
Saw someone hit ^a	45.78%	55.36%	53.26%
Saw someone attacked ^a	12.08%	21.14%	20.00%
Saw someone shot at ^a	4.74%	12.44%	9.61%
Heard a gun ^a	46.21%	64.62%	65.66%
Saw someone killed ^a	2.63%	6.72%	5.34%
Saw someone shot ^a	5.88%	11.72%	8.57%
Saw someone threatened ^a	14.56%	24.69%	22.86%
Focal neighborhood characteristics			
Neighborhood ties	2.51 (0.23)	2.51 (0.19)	2.49 (0.21)
Neighborhood concentrated disadvantage ^a	-0.17 (0.65)	0.22 (0.71)	0.05 (0.67)
Neighborhood proportion of single parent households ^a	0.52 (0.11)	0.60 (0.14)	0.58 (0.13)
Neighborhood log homicide rate ^a	0.00025 (0.0003)	0.00041 (0.0003)	0.00036 (0.0003)
Individual covariates			
Female	49.53%	53.35%	49.47%
Race-ethnicity			
White ^a	21.93%	6.97%	8.19%
Hispanic ^a	59.71%	29.35%	48.40%
Black ^a	15.42%	60.45%	39.15%
Other race-ethnicity	2.94%	3.23%	4.27%
Age			
Cohort 6	38.72%	38.21%	39.50%

Variable	Frequency or Mean (SD)		
	Two Parents Both Waves	Single Parent Both Waves	Parental Instability across Waves
Cohort 9	31.79%	28.04%	32.38%
Cohort 12	29.49%	33.75%	28.11%
Age of primary caregiver ^a	35.33 (6.01)	34.70 (6.56)	33.54 (6.66)
Socioeconomic status at Wave 2 ^a	-0.04 (1.53)	-0.61 (1.16)	-0.57 (1.20)
Intimate partner violence at Wave 2 ^a	9.93%	11.83%	21.59%
Pre-Wave 1 parental instability ^a	15.97%	27.53%	31.27%
Neighborhood covariates			
Neighborhood immigrant concentration ^a	0.67 (0.95)	0.22 (1.07)	0.37 (1.06)
Neighborhood residential stability ^a	-0.09 (0.89)	0.02 (1.02)	-0.15 (0.94)
<i>N</i> ^b	953	403	281

Note: All variables were measured at Wave 1 unless otherwise specified.

^aSignificantly different by Waves 1 and 2 family structure at $p < .05$.

^b199 observations missing on Waves 1 and 2 family structure.

Table 3.

Multilevel Model Predicting Secondary Exposure to Violence.

Variable	Unstandardized Coefficient (SE)
Family structure (reference: two parents both waves)	
Single parent both waves	.189* (.078)
Parental instability between Waves 1 and 2	.214* (.093)
Individual-level covariates	
Latino/a (reference: White)	.169 (.162)
Black (reference: White)	.671*** (.175)
Other (reference: White)	.185 (.180)
Female	-.363*** (.062)
Cohort 9 (reference: Cohort 6)	-.495*** (.088)
Cohort 12 (reference: Cohort 6)	.194* (.084)
Age of primary caregiver	-.013 (.058)
Socioeconomic status at Wave 2	-.020 (.030)
Intimate partner violence	.254** (.085)
Pre-Wave 1 parental instability	.114 (.081)
Neighborhood-level covariates	
Neighborhood ties	-.129 (.106)
Concentrated disadvantage	.166* (.066)
Immigrant concentration	.048 (.096)
Residential stability	.091 (.066)
Log homicide rate	.080 (.052)
Proportion single households	.065 (.109)
<i>N</i>	1,836

Note: All variables were measured at Wave 1 unless otherwise specified.

† $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 4.

Multigroup Multilevel Models Predicting Secondary Exposure to Violence, by Selected Neighborhood Characteristics.

Variable	Unstandardized Coefficients (SE)											
	Concentrated Disadvantage at Wave 1			Proportion of Single Households at Wave 1			Homicide Rate at Wave 1			Level of Neighborhood Ties at Wave 1		
	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High	Low	Avg.	High
Family structure (reference: two parents both waves)												
Single parent both waves ^b	-.038 (.149)	.231 [†] (.129)	.274* (.107)	.086 (.171)	.252* (.108)	.188 [†] (.103)	-.137 (.137)	.359**§ (.122)	.292**§ (.095)	.272 [†] (.153)	.179 (.114)	.098 (.101)
Parental instability between Waves 1 and 2	.158 (.186)	.082 (.132)	.370* (.150)	.009 (.159)	.337* (.146)	.250 (.165)	.041 (.136)	.415* (.171)	.217 (.147)	.101 (.159)	.188 (.132)	.359* (.171)
Respondents <i>N</i>	629	577	630	631	669	536	717	522	597	571	770	495
NCs <i>N</i>	30	25	24	21	28	30	33	20	26	24	31	24

Note: All models controlled for child gender, child race, child age, pre-Wave 1 parental instability, age of primary caregiver, socioeconomic status at Wave 2, intimate partner violence, neighborhood immigrant concentration, neighborhood residential stability, neighborhood concentrated disadvantage, and neighborhood proportion of single-adult households, with the exception that the grouping variable is not included as a control in the corresponding model. Avg. = average; NCs = neighborhood clusters.

^aWald tests significantly different from low at $p < .05$.

^bLog-likelihood ratio test significantly different across neighborhood crime levels at $p < .05$.

[†] $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5. Multigroup Multilevel Models Predicting Secondary Exposure to Violence, by Neighborhood Ties and Homicide Rate.

Variable	Unstandardized Coefficient (SE)			
	Overall	Low	Average	High
Family structure at Waves 1 and 2 (reference: two parents both waves)				
Single parent both waves ^b	.194*	-.141	.343*** ^a	.313*** ^a
	(.075)	(.136)	(.117)	(.097)
Single parent both waves × neighborhood ties at Wave 1 ^b	-.003	.030	-.089	-.144
	(.085)	(.158)	(.075)	(.130)
Parental instability between Waves 1 and 2 ^b	.232*	.038	.412*	.226
	(.094)	(.137)	(.174)	(.144)
Parental Instability × Neighborhood Ties at Wave 1 ^b	.135	.022	.000	.333 [†]
	(.102)	(.079)	(.181)	(.188)
Neighborhood ties at Wave 1	-.089	-.052	-.052	-.052
	(.065)	(.068)	(.068)	(.068)
Respondents <i>N</i>	1,836	717	522	597
NCs <i>N</i>	79	33	20	26

Note: Models controlled for neighborhood immigrant concentration, neighborhood residential stability, neighborhood concentrated disadvantage, neighborhood proportion of single-adult households, child gender, child race, child age, pre-Wave 1 parental instability, age of primary caregiver, socioeconomic status at Wave 2, and intimate partner violence. NCs = neighborhood clusters.

^aWald tests significantly different from low at $p < .05$.

^bLog-likelihood ratio test significantly different across neighborhood crime levels at $p < .05$.

[†] $p < .1$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.