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The Predictive Influence of Family and Neighborhood Assets on Fighting and Weapon Carrying from Mid- to Late-Adolescence

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Abstract

Using a developmental, social-ecological approach to understand the etiology of health risk behavior and inform primary prevention efforts, we assess the predictive effects of family and neighborhood social processes on youth physical fighting and weapon carrying. Specifically, we focus on relationships among youth and their parents, family communication, and parental monitoring, as well as sense of community and neighborhood informal social control, support, concerns, and disorder. This study advances knowledge through its investigation of family and neighborhood structural factors and social processes together, employment of longitudinal models that estimate effects over adolescent development, and use of self-report and observational measures. Data from 1,093 youth/parent pairs were analyzed from the Youth Assets Study using a Generalized Estimating Equation (GEE) approach; family and neighborhood assets and risks were analyzed as time-varying and lagged. Similar family assets affected physical fighting and weapon carrying, whereas different neighborhood social processes influenced the two forms of youth violence. Study findings have implications for the primary prevention of youth violence, including the use of family-based approaches that build relationships and parental monitoring skills, and community-level change approaches that promote informal social control and reduce neighborhood concerns about safety.

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Keywords

youth violence; assets; family; parenting; neighborhood; community

Youth Violence as a Public Health Problem

Youth violence, a serious public health problem, is the intentional use of physical force or power (with the likelihood of physical or psychological harm) by a young person aged 10 to 24 years against another person, group, or community (Mercy, Butchart, Farrington, & Cerda, 2002). In 2009, physical fighting during the past 12 months was reported by 31.5% of high school students, and 17.5% reported carrying a weapon (gun, knife or club) in the past 30 days (CDC, 2010). Youth who perpetrate and are victimized by violence are at increased risk for poor health outcomes, including mental health disorders, substance use, and high risk sexual behavior (Arseneault et al., 2006; Menard, 2002; Thornberry, Huizinga, & Loeber, 1995).

Understanding Youth Violence through a Developmental Asset Framework

Fortunately, violence prevention can be achieved through public health etiologic research to identify factors that increase or decrease risk for violence. To inform the factors that can be targeted for primary prevention efforts (that is, efforts to stop violence before it starts) we use a developmental, social-ecological approach to investigate factors across individual, relationship, and community levels (Bronfenbrenner, 1977; Dahlberg & Krug, 2002; Gorman-Smith, Tolan, & Henry, 2000). This approach emphasizes the importance of relationships among social settings and acknowledges that contexts and propensity for violence change over adolescence (Loeber & Hay, 1997).

For many years prevention researchers examined factors that increase the likelihood of violence (risk factors). More recently there has been a greater emphasis on positive youth development (Catalano, Hawkins, Berglund, Pollard, & Arthur, 2002); specifically, on the skills, competencies, relationships, and opportunities that help youth to overcome challenges and successfully transition through developmental stages into adulthood, termed “assets” by Oman and colleagues (2010). When a factor directly decreases the likelihood of violence (a direct protective effect) or when a factor decreases the likelihood of violence in the presence of risk (a buffering protective effect; Lösel & Farrington, 2012), it can be considered to be an asset. Understanding when and under what conditions some factors can moderate the detrimental effects of others leading to resilience is critical to the development of prevention efforts (Fergus & Zimmerman, 2005). Identification of social processes that serve as assets is particularly important as such factors are modifiable and can be promoted within prevention efforts, perhaps more easily than reducing structural risks that exist in a community.

Family Structure, Parenting Practices, and Family Processes

Family structure and the relationships formed between caregivers and their children early in life influence whether youth can negotiate relationships successfully with others, or resort to

violent behavior. Youth living in single-parent households are significantly more likely to engage in fighting and weapon carrying and experience violent injuries (Oman, Vesely, & Aspy, 2005; Orpinas, Murray, & Kelder, 1999). Monitoring and supervision (the degree to which parents supervise their children's behavior, know where their children are throughout the day and evening, and know their children's friends) reduces risk for physical fighting and weapon carrying (Luster & Oh, 2001; Orpinas et al., 1999). The mechanisms of influence underlying these practices include the promotion of youths' self-control, facilitation of anger control skills, and reduction of frequency with which youth affiliate with violent peers (Cantillon, 2006; Griffin et al., 1999; Henry, Tolan, & Gorman-Smith, 2001), as seen through the effects of family behavioral and therapeutic intervention approaches. Through participation in Multisystemic Therapy (MST), parents enhance their parental monitoring, supervision, and discipline skills; these changes are associated with youth's decreased association with delinquent peers, as well as perpetration of serious offending (e.g., Huey, Henggeler, Brondino, & Pickrel et al., 2000). Family communication also reduces propensity for fighting and weapon carrying (Aspy et al., 2004; Resnick, Ireland, and Borowsky, 2004), and when improved through family strengthening interventions, such as in the Iowa Strengthening Families Program, it can result in reductions in youths' aggressive behavior (Spoth, Redmond, & Shin, 2000).

Youth who experience consistently good family management practices or improvements in positive family management practices over time are less likely to engage in violence over the course of adolescence (Herrenkohl, Hill, Hawkins, Chung, & Nagin, al., 2006; Henry, Tolan, & Gorman-Smith, 2001). The effects of high quality parenting on violent behavior begin in middle childhood (Brody et al., 2003), and can interrupt the progression of violence, particularly for youth who hold high aggressive beliefs in childhood (Andreas & Watson, 2009; Brendgen, Vitaro, Tremblay, & Lavoie, 2001).

Neighborhood Structural Characteristics and Social Processes

Neighborhood structural characteristics such as concentrated disadvantage, typically defined by low socio-economic status, single-mother households, residential instability, unemployment, and low rates of home ownership, have emerged as some of the most reliable predictors of violence, including homicide (Leventhal & Brooks-Gunn, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002; Fagan & Davies, 2004). In the Community Survey of the Project on Human Development in Chicago Neighborhoods (Morenoff, Sampson, & Raudenbush, al., 2001), a one standard deviation increase in concentrated disadvantage was associated with a 40% increase in the homicide rate per police data, and a 25% increase per vital statistics data.

Researchers have long recognized that the effects of neighborhood structural factors on violence might best be explained by the social processes that accompany these structural conditions, such as social ties, collective efficacy, institutional resources, and routine activities (see Leventhal & Brooks-Gunn, 2000; Sampson et al., 2002 for reviews). Social disorganization theory suggests that neighborhood characteristics such as poverty and residential instability weaken the social controls that residents have over youth, thereby increasing rates of crime (Shaw and McKay, 1942; 1969). Collective efficacy, a

combination of social cohesion and trust among members of a neighborhood along with informal social control, mediates the relationship between residential instability and concentrated disadvantage and violence, including homicide and self-reports of violent crime and victimization (Sampson et al., 1997; Morenoff et al., 2001). The critical mechanism underlying this effect goes beyond strong social ties between neighbors: Social ties assist in fostering social control, but it is the expectations, willingness, and working trust among residents to take action and intervene in problem situations to stem social disorder that predicts the occurrence of violence.

Inferior city services such as poor police and fire protection and trash removal may signal a lack of value in public safety and civility in residents, and contribute to social and physical disorder (e.g., abandoned buildings and drug and gang activity), affecting levels of violence in turn. Residents perceive urban decay, such as vacant housing, trash mismanagement, and inadequate street lighting as having a direct impact on youth violence rates by offering opportunity for illicit drug selling and hiding firearms, thereby increasing opportunities for offending and leading to a devaluing of people in the neighborhood (Yonas, O'Campo, Burke, & Gielen, 2007). Youth have been found to be more likely to carry a weapon in public housing spaces and disordered areas characterized by higher levels of neighborhood violence and where illicit drugs are sold; however, effects of disorder have varied across studies or have disappeared once other community factors have been taken into account (Patchin, Huebner, McCluskey, Varano, & Bynum, 2006; Luster & Oh, 2001; Watkins, 2008). Perceived neighborhood risk (including presence of gangs and danger of getting in trouble in the neighborhood) has also been associated with higher levels of risk taking behavior, and in turn, physical aggression (Griffin et al., 1999).

Advancing Knowledge on Family and Neighborhood Processes and Youth Violence: The Current Study

Gaps in knowledge about neighborhood-level assets result from an insufficient utilization of transactional models to investigate how neighborhood processes interact with individual characteristics and family-level processes. Prior research that has investigated neighborhood factors has often been risk-focused, cross-sectional, examining only temporal relationships, in isolated domains of influence, using only self-report instruments and census data, with small samples. Hence, our understanding of whether and how neighborhood matters over the course of adolescence in the context of individual and family characteristics is in its infancy, especially compared to our understanding of individual, peer, and family effects on violence. Also, previous research has often focused on only one type of violence-related behavior, such as physical fighting or weapon-carrying, but not both, limiting our understanding of how families and neighborhoods may have similar or differential effects on multiple forms of violence. Some youth engage only in physical fighting, others carry weapons, and some are involved in both (Spano & Bolland, 2010). Fighting and weapon carrying have been found to have some risk factors and assets in common, but not others (e.g., Aspy et al., 2004; Duke, Pettingell, McMorris, & Borowsky, 2010). For example, Aspy and colleagues (2004) found that assets such as family communication and friends that stay out of trouble influenced fighting and weapon carrying similarly, while good grades and ability to

communicate thoughts and feelings to others uniquely contributed to a lower likelihood of weapon carrying, but not fighting. Thus, understanding which factors influence multiple forms of violence allows for the targeting of primary prevention strategies toward the factors that can have the greatest population-level impact on violence.

The current study fills in these gaps by assessing family and neighborhood structures as well as social processes, employing a longitudinal study design, and utilizing objective measures of neighborhood factors with self-reports and census data in a large diverse sample. Longitudinal models advance cross-sectional studies and allow for an understanding of what predicts violence and how processes may differ over time and across developmental periods (Fergus & Zimmerman, 2005). Examining both family and neighborhood processes in the same model enables investigation of interaction effects to determine possible moderating, protective influences (Fergus & Zimmerman, 2005; Leventhal & Brooks-Gunn, 2000; Roosa, Jones, Tein, & Cree, 2003). Innovative measurement strategies such as systematic observations allows for a less biased test of the association between neighborhood factors and violence.

We examine the predictive influence of parenting practices, family processes, and neighborhood processes on fighting and weapon carrying over the course of adolescence, controlling for structural characteristics of families and communities to isolate the effects of social processes. We hypothesize that supportive family and neighborhood social processes decrease the likelihood of violence over time, whereas neighborhood concerns and disorganization increase the likelihood of violence over time. We also explore whether family assets interact with, or moderate, neighborhood risks.

We investigate these hypotheses in an analysis of data from the Youth Asset Study (YAS), funded by the CDC to prospectively investigate relationships among neighborhood factors, youth assets, and sexual and related risk behaviors (e.g., violence). Five waves of data were collected annually from youth and parent participants beginning with the baseline survey conducted in 2003/2004 and concluding in 2007/2008. The project was approved and reviewed annually by the IRB at the University of Oklahoma Health Sciences Center.

Method

Sampling and Data Collection

Census tracts in the Oklahoma City metropolitan area were stratified by income and race/ethnicity using 2000 census data, and twenty census tracts were randomly selected using a multi-stage process to recruit a diverse community-based study population in regard to race/ethnicity and socioeconomic status. Door-to-door canvassing of every household located in the selected census tracts was conducted to obtain the baseline sample of one youth and one parent or guardian from each household (Oman et al., 2009). Random selection was used to select a youth for the study if the residence contained more than one eligible and willing youth. If there was more than one eligible and willing youth, each youth was assigned a number based on age (e.g., youngest youth assigned a 1, next oldest youth assigned a 2, etc.) and a laptop computer was used to randomly generate a number that matched a youth's number. Fathers were always selected to participate if both parents were willing to

participate in the study because fewer fathers typically participate in this type of research. Only 20% of the parent sample was fathers despite this strategy (Oman et al., 2009). Inclusion criteria for the study were that the youth had to be 12 to 17 years of age and living with a parent or guardian. Also, the participants had to speak English or Spanish, have the mental competence to respond to interviewer questions and complete the survey, and have no plans to move from the study area within the next two years.

Baseline data were collected from the youth and their parents using Computer-Assisted Personal/Self-Interviewing (CAPI/CASI) procedures conducted in their homes by two-person interviewing teams. However, youth completed the risk behavior items themselves in private using computers equipped with wav sound files and headphones to minimize any potential reading problems. These data collection methods were repeated for waves 2 to 5 except for those participants who had moved more than a 2-hour drive from the metropolitan area. Telephone interviews were conducted with these individuals and the youth completed the sensitive questions via a questionnaire administered over the internet.

A total of 1,111 youth/parent pairs participated in the study with a response rate of 61% (Oman et al., 2009). Ninety-four percent of the participants were retained over the course of the study and 89% (986 of the 1,111 of the youth) had complete data from all 5 waves of the study. A total of 1,093 youth/parent pairs were included in the analysis, excluding 15 youth who only completed a baseline survey and three youth who did not complete two consecutive waves of the survey.

Measures

Demographics and family/neighborhood structure—Demographic variables assessed included youth age at baseline, youth gender, youth race/ethnicity, family structure, parent-reported poverty status, and parent education. Race/ethnicity was self-reported by the youth and was coded as non-Hispanic white, Hispanic, non-Hispanic black, and non-Hispanic other.

Family structure was assessed at each interview from the youth report. At baseline the response options were one- or two-parent household; at subsequent waves, the youth could respond “independent” if they had lived alone for at least 6 months. If a youth consistently reported one-parent household the time constant family structure variable was coded as ‘one parent’; if youth consistently reported two-parent household, the variable was coded ‘two parent’; for youth who either reported both one and two parent over waves 1 to 4 or reported ‘independent’ before the age of 18, the variable was coded ‘inconsistent.’

Parents reported their total family income and the number of people supported by their income. Each year, youth were classified as being above or below the federal poverty thresholds (FPT) (e.g., $20,614 for a family of four in 2006) (U.S. Census Bureau, 2011). Youths were coded as ever below the federal poverty limit if in waves 1 to 4 they were below the FPT at least once. The interviewed parent reported their highest level of education as well as the education level of the child’s other parent on a seven-point scale ranging from (1) never went to school to (7) college graduate from a four-year college or university or

more. The highest level obtained by either parent (or for one parent if education data for the other parent were missing) was used in the analysis.

Neighborhood structural disadvantage and residential stability were calculated using 2000 Census data, similar to previous data-based approaches that have examined factor loadings and association with violent behavior (e.g., Fang, Rosenfeld, Dahlberg, and Florence, in press). Neighborhood structural disadvantage is a standardized and weighted index combining four census tract level variables: percentage of single-headed households, percentage of poor persons, percentage of households with public assistance, and percentage of unemployed. Residential stability is the standardized and weighted index combining two census tract level variables: percentage of owner-occupied households occupied and percentage of individuals who had lived in the same household since 1995.

Parenting practice and family process assets—Parenting practices and family process assets were assessed via youth interview data. The parental monitoring asset was used as an indicator of parenting practices. Family processes were defined by three separate asset constructs: quality of the youths' relationship with their mother, quality of the youths' relationship with their father, and the amount and quality of youth and parent communication. The parenting practices and family process asset constructs were conceived, developed, and coded based on literature reviews and our previous research involving youth assets and youth risk behavior research (Kegler et al., 2005; Oman et al., 2002; Oman et al., 2010).

Each asset construct was assessed using four items. The items representing each construct were summed and divided by four to create a score ranging from one (lower quality) to four (higher quality). A score of three or higher for any construct meant that youth responded, "usually/almost always," or "agree/strongly agree" to indicate the presence of a family asset process: having a positive relationship with a parent, having positive communication with a parent, or being monitored by their mother, father, or both parents. The Cronbach's alphas for the parenting practices and family process asset constructs ranged from .74 to .92. (Oman et al., 2010).

Neighborhood social processes—Five neighborhood social process variables were measured via data from the parent interviews. All of the variables were multi-item constructs that were created by summing the responses to the items that represented each construct and dividing by the number of items.

Sense of community was assessed using the Psychological Sense of Community (PSOC) scale (McMillan & Chavis, 1986). The PSOC scale included seven items such as "People in this neighborhood get along with each other." Possible responses ranged from one (strongly disagree) to four (strongly agree). Cronbach's alpha for the PSOC scale was .84.

Informal social control is one component of social control and defined as informal mechanisms by which residents themselves achieve public order, including actions such as keeping watch over the neighborhood and actively monitoring community youth; It was assessed with five items such as, "How likely is it that your neighbors will become involved

if children are skipping school and hanging out on the street corner?" (Sampson, Raudenbush, & Earls, 1997) Responses for the scale ranged from one (very unlikely) to four (very likely). The Cronbach's alpha was .82.

Neighborhood support was assessed with five items such as, "About how often do you and people in your neighborhood watch over each other's property?" (Buka, Brennan, Rich-Edwards, Raudenbush, & Earls, 2003) Responses ranged from one (almost never) to four (almost always). The Cronbach's alpha was .77.

Finally, neighborhood concerns related to crime and safety and to services were assessed. Neighborhood crime and safety was assessed with five items such as, "There is crime and violence in your neighborhood" (Aronson & O'Campo, 1997). The Cronbach's alpha was . 87 (Kegler et al., 2005). Neighborhood services was assessed with four items such as, "There is poor police protection in your neighborhood." Three items were created for the study and the fourth was adapted from previous research (Aronson & O'Campo, 1997). The Cronbach's alpha was .69 (Kegler et al., 2005). Possible responses for the neighborhood concern questions ranged from one (strongly agree) to four (strongly disagree). These responses were reverse scored for analyses so that higher values reflected greater neighborhood concerns.

Neighborhood disorder—A modified version of the Broken Windows survey was used as an objective measurement of the neighborhoods involved in the study (Cohen et al., 2000; Wilson & Kelling, 1982). Trained raters conducted annual windshield tours of each census tract included in the study using the Broken Windows survey to rate the neighborhoods' environment according to the condition of the dwellings, and the amount of trash, graffiti, and abandoned cars. The Broken Windows survey score ranged from to 0 (neighborhood in better condition) to 12 (neighborhood in poorer condition). The Spearman correlation coefficient for the test-retest reliability of the Broken Windows survey was .83 and the intraclass correlation was 0.80.

Youth violence—Physical fighting and weapon carrying were assessed using items adapted from the Youth Risk Behavior Surveillance System (CDC, 2010). Fighting was assessed via the item "During the past 12 months, how many times were you in a physical fight?" Possible responses included 0 (times); 1; 2 or 3; 4 or 5; 6 or 7; 8 or 9; 10 or 11; and 12 or more times. Weapon carrying was assessed via the question "During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?" Possible responses included 0 (days); 1; 2 or 3; 4 or 5; and 6 or more days. For analytic purposes fighting and weapon carrying were recoded into dichotomous outcomes: yes (one or more fights or one or more days carrying a weapon) or no (no fights or zero days carrying a weapon). This approach is common in epidemiological research in violence prevention and criminology, and can be considered appropriate when results are not likely to be affected by dichotomous splits, the variable is not truly continuous, the variable is skewed with sparse data across the response categories greater than zero, there is an interest in simplifying presentation of interactions to highlight meaningful findings with odds ratios, and when investigators are interested in primary prevention of violence comparing youth who participate to those who do not participate in the behavior (Farrington & Loeber, 2000).

Analytic Approach

Youth were followed over the course of the five-wave study to determine if they engaged in violent behavior one, two, three, or four years after baseline. Demographic variables were controlled for in all analyses. Youth age, gender, race/ethnicity, family structure, ever below the federal poverty level, neighborhood structural disadvantage, and neighborhood residential instability were time constant covariates; education was included as a time-varying factor. These factors were controlled in the analyses because previous research indicates they are associated with youth violence (Blum et al., 2000; Oman et al., 2005; Orpinas et al., 1999) and to isolate the effects of family and neighborhood social processes. Family and neighborhood assets and risks were analyzed as time-varying and lagged (e.g., asset/risk wave 1 with outcome wave 2). Marginal models using a Generalized Estimating Equation (GEE) approach were used to determine the effects of the family and neighborhood assets and risk on the youth violence outcome (fighting or weapon carrying) while controlling for the influence of the demographic variables as well as the effects of family and neighborhood structure. The GEE approach constructs marginal or "population-average" models. The estimated effect from the marginal model describes how the average rates (odds) of the outcome would increase in the study population for young people who possessed the covariates of interest. Our analytical goals and scientific interests were to identify factors for public health planning and draw inferences about the population; therefore we conducted a marginal model. In marginal models, the mean response and covariance are modeled separately which ensures that the interpretation of the regression coefficients does not rely on the assumed model of the covariance among the responses. The result is a less complex model than alternatives (e.g., subject-specific, mixed effects models).

All two-way interactions between the assets/risks and the demographic variables were separately evaluated in a GEE model in the presence of all the factors controlled in the analysis. A diagonal working covariance matrix was used as recommended by Pepe and Anderson (1994) when covariates vary over time. SAS version 9.2 was used to perform all statistical analysis. An alpha of 0.05 was used for main effects, interaction terms, and planned contrasts. First, for each outcome, ten initial models (one for each of the Parenting Practices, Family Processes, Neighborhood Social Processes, and Neighborhood Conditions variables listed in Table 1) were constructed controlling for the potential confounders youth age, gender, race/ethnicity, family structure, ever below the federal poverty level, parental education, neighborhood structural disadvantage, and neighborhood residential instability, regardless of p-value. These analyses demonstrated the relationship between each variable and the outcome controlling for potential confounders. Then, for each outcome, a final model was calculated that included all potential confounders (regardless of p-value) and Parenting Practices, Family Processes, Neighborhood Social Processes, and Neighborhood Conditions variables that remained significant (alpha = 0.05) in the presence of the other variables. In the final model, interactions between family assets and neighborhood process variables were assessed using an alpha of 0.05. All available data were used for the analyses; given the small percentage and pattern of missing data, missing data were not imputed.

Results

Descriptive Results

The demographic data for the 1,093 youth and parents included in the analysis at wave one/baseline were: youth mean age = 14.3 years (*SD* = 1.59); 53% female; 40% non-Hispanic white, 28% Hispanic, 23% non-Hispanic black, and 9% non-Hispanic other; and parent education: 16% both parents less than a high school degree, 56% at least one parent with high school degree, 28% at least one parent with college degree. Thirty five percent of youth had reported household income ever below the federal poverty level. For family structure, 58% lived in two-parent households, 22% in one-parent households, and 21% in inconsistent households. Both the Neighborhood Indexes (Structural Disadvantage and Residential Stability) had a mean of 0 and a standard deviation of one because they were standardized. To illustrate the degree of neighborhood disadvantage and stability in the sample members' neighborhoods as measured by Census data, the mean percent of single-headed households was 13%, poor persons 20%, households with public assistance 7%, unemployed 8%, owner-occupied households 61%, and same house in 1995, 50%.

Descriptive statistics for all waves for the primary analytic variables are presented in Table 1. Although a majority of the youth indicated they had the parental monitoring and relationship with mother assets, fewer youth had the family communication and relationship with father assets. The percentage of youth reporting having the family communication asset increased over the four waves of the study whereas the percentage of youth reporting they had the parental monitoring decreased.

Neighborhood process scores were remarkably stable over the waves of data collection (Table 1). Examination of the means also suggest that the parents' perceptions of both of the neighborhood concerns factors as well as neighborhood support were somewhat low (indicating less concern and support) whereas informal social control and psychological sense of community were perceived by the parents as relatively stronger neighborhood processes.

Youth fighting was moderately prevalent but decreased over waves two to five of the study. In contrast, weapon carrying was a rare behavior that was fairly constant over time.

Initial Models

Parenting practice and family processes assets—All four parenting practices and family process assets were significantly and prospectively associated with the physical fighting outcome (Table 2). Youth who possessed any one of the four assets were significantly less likely to be involved in a physical fight in subsequent years of the study (Adjusted Odds Ratios (AOR) range = 0.55 to 0.77).

Two of the parenting practices and family process assets were prospectively associated with weapon carrying (Table 3). Youth with positive family communication or the parental monitoring asset were significantly less likely to carry a weapon in subsequent years of the study (AORs = 0.67 and 0.47, respectively). Two significant interactions were found. The relationship with mother asset was prospectively associated with a lower likelihood of

weapon carrying for Hispanic and white youth (AORs= 0.51 and 0.40, respectively). The relationship with father asset was prospectively associated with a lower likelihood of weapon carrying for youth who were 14–15 and 16–17 years at baseline interview (AORs = 0.52 and 0.57, respectively).

Neighborhood social processes and neighborhood disorder—Informal social control was prospectively associated with youth fighting (Table 2). Youth living in neighborhoods with higher levels of informal social control were significantly less likely to engage in a fight in subsequent years of the study (AOR= 0.80). One significant interaction was found. Higher levels of neighborhood social support were prospectively related to less fighting only for youth living in one-parent households (AOR= 0.65).

Two of the neighborhood variables were associated with youth weapon carrying (Table 3). Youth living in neighborhoods with higher levels of informal social control were significantly less likely to carry a weapon in subsequent years (AOR= 0.83) and youth living in neighborhoods with stronger concerns about services were significantly more likely to carry a weapon (AOR = 1.14). Two significant interactions were found. Higher levels of neighborhood social support were prospectively associated with less weapon carrying only for youth living in one-parent households (AOR=0.59). Only white youth living in neighborhoods with strong concerns about crime and safety were significantly more likely to carry a weapon (AOR=1.45).

Final Models

The relationship with father and parental monitoring family assets and the informal social control variable were each prospectively associated with a lower likelihood of physical fighting after adjusting for the demographic variables, family structure, neighborhood structure, and the other significant variables. Higher levels of neighborhood support continued to predict a lower likelihood of physical fighting for youth in one parent households only (Table 2).

The relationship with father and parental monitoring assets were each prospectively associated with a lower likelihood of weapon carrying after adjusting for the demographic variables, family structure, neighborhood structure, and the other significant variables. The relationship with mother asset was significant in the final model only for Blacks (higher likelihood of weapon carrying) and Hispanics and whites (lower likelihood of weapon carrying). Also in the final model, a significant relationship between strong concerns about crime and safety and a higher likelihood of weapon carrying was found for white youth only (Table 3).

Discussion

The results support the proposition that family and neighborhood social processes predict youth violence across adolescence, even after controlling for structural factors such as single-parent household and concentrated disadvantage. Family and neighborhood assets and risks are not just concurrent with violence; they are predictive of violence over time.

Strong parental relationships and effective monitoring reduces the likelihood that youth will fight or carry a weapon. Youth who had strong relationships with their father or were effectively monitored were 32% and 42% less likely, respectively, to be involved in a fight in subsequent years of the study. This highlights the protective influence of the involvement of fathers, and parents' understanding of where their children are, who their children are with, and what activities they are engaging in. Given the nature of the self-report youth measures, however, monitoring and supervision may be a proxy for the honesty between youth and their parents. Although family communication was predictive in the initial models, this variable was less influential once parental relationships were included in the analysis. The warm relationship between a parent and child might account for the positive communication effects.

Unexpectedly different neighborhood processes were predictive of fighting and weapon carrying. For each unit increase in willingness of neighborhood residents to stem social disorder, there was a 17% decrease in the likelihood of youth engaging in physical fighting over time. For youth in one-parent households, for each unit increase in neighborhood support, there was a 27% decrease in the likelihood of fighting. It appears that keeping watch over the neighborhood and actively monitoring community youth can stem the more visible forms of violence. In contrast, concerns about neighborhood crime and safety were predictive of weapon-carrying. For each unit increase in concerns about neighborhood crime and safety, non-Hispanic white youth were about 1.6 times more likely to carry a weapon. It is plausible that white youth are more likely to carry weapons in unsafe environments because of fears of victimization and a perceived need for self-defense. It is yet unclear, however, why this tendency might differ for youth of different racial backgrounds.

Family social processes did not consistently interact with or moderate the effect of neighborhood social processes on violence. Family processes may affect youth similarly regardless of neighborhood processes and conditions, and neighborhood social processes may also affect youth independently. An exception was that neighborhood social support was more important for youth in one-parent households. Supportive neighbors might provide supplemental monitoring and supervision over youth, providing additional protection when single parents are unable.

Interestingly, relationship with mother may affect youth of different ethnicities in alternative ways. Positive relationships between mothers and black youth increased the likelihood of weapon-carrying, while positive relationships between mothers and Hispanic and white youth decreased the likelihood of weapon carrying. While this type of finding has emerged in previous literature (Walker, Maxson, & Newcomb, 2007), our data have limited ability to uncover the explanation. Silverman and Dinitz (1974) hypothesized, and found some support for the hypothesis, that African American boys may become "compulsively masculine" to reject feminine identification with their mother, and place a greater value in tough behaviors, including risky behavior such as weapon-carrying. Alternatively, one could predict that youth with close relationships with their mothers may have a desire to be more protective, and thus carry weapons to increase perceptions of safety. Future research is needed to uncover the psychological processes underlying the finding; qualitative research may be particularly helpful in this regard.

It is important to acknowledge the limitations of the current study, including methodological challenges in assessing neighborhood effects (Sampson et al., 2002). Census tracts were used to define concentrated disadvantage and residential instability. However, self-reports of neighborhood characteristics were not constrained or defined by census tracts; the extent to which residents' perceptions of their neighborhood boundaries coincide with the boundaries defined by census tracts is unknown. The data on neighborhood structural characteristics originated from the 2000 Census, while self-report data were collected 2003–2008. Neighborhood structural characteristics could have substantially changed during this time period (yet, the self-report data on neighborhood social processes showed stability over time, limiting concerns about neighborhood change in structural characteristics). Although our study included an observational measure of Census tracts concurrent with self-report, the observations of neighborhood disorder were not found to be predictive of youth violence. We may have underestimated the effects of neighborhood social processes given the small number of cases per neighborhood/census tract (an average of 2.4 youth per census block). Because of intra-neighborhood variability in social processes and variability in reporter perceptions, it would be beneficial to have multiple reporters within a neighborhood to improve reliability and validity. This study sampled only from one city, potentially limiting the range of structural characteristics and social processes available for study; having an adequate range is important for adequate estimation (Leventhal & Brooks-Gunn, 2000). Also, the use of longitudinal data allowed for prediction of violence subsequent to the presence of risk and protective factors; yet, causation cannot necessarily be inferred. This analysis did not include an investigation of other factors at the relationship and community levels, such as peer influence and school bonding that have been found to be associated with fighting and weapon carrying behavior; such factors can work interactively with family and community social processes to protect youth from violence perpetration (e.g., Brookmeyer, Fanti, & Henrich, 2006; Chung & Steinberg, 2006).

This investigation identified etiological processes that can inform the primary prevention of violent behavior, stopping violence before it starts at the population level. We focused on identifying factors that prospectively influence whether youth do or do not engage in fighting or weapon carrying, across all levels of severity, because all levels of violence are of concern. Even low levels of violence can lead youth on a trajectory of chronic and serious offending (Loeber & Hay, 1997). Few researchers have directly attempted to differentiate the risk factors that predict different patterns and trajectories of violence (e.g., factors that predict low level intermittent offending vs. chronic and serious offending; Dahlberg & Simon, 2006). Future research might address how family and community assets and risk factors interactively affect trajectories of violence; that is, whether certain factors individually or in constellation predict consistent low level aggression compared to chronic, serious, and escalating violence. Other opportunities include studying how family and neighborhood processes interact with initiation of violent behavior at different ages (e.g., early starters compared to late starters), and how the interaction of family and neighborhood processes may differ for boys and girls as they mature.

Despite these limitations and needs for future research, the current study highlights that both neighborhood and family social processes have a prospective influence on violence. Primary and secondary prevention strategies that support family processes are available, such as the

Strengthening Families Program for Parents and Youth 10–14 and Multi-Dimensional Treatment Foster Care (Spoth, Redmond, & Shin, 2000; Chamberlain et al., 2008; Eddy, Whaley, & Chamberlain, 2004). Further, by changing neighborhood social processes early in adolescence, it is plausible that trajectories of violence could be influenced. Unfortunately, there is a relative dearth of evidence-based strategies that support social processes at the neighborhood level. For the greatest impacts on violence to be achieved, we must further our efforts to develop and test community-level change strategies in addition to family-based interventions. Such change strategies might be successful in not only preventing youth violence at a population level, but also other youth risk behavior. By changing the ways in which neighborhood residents interact, providing supervision of youth, and intervening when troublesome behavior is identified, we may realize multiple health benefits for youth and the entire community.

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Table 1

Descriptive Statistics

	Wave							
	1		**2**		**3**		**4**	
Variables	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Parenting Practices and Family Processes								
Family communication[1]	1075	51%	1052	54%	1032	58%	1023	65%
Relationship with mother[1]	1067	83%	1044	81%	1027	81%	1016	82%
Relationship with father [1]	987	66%	950	66%	945	63%	934	64%
Parental monitoring[1]	1075	86%	1027	86%	977	82%	902	78%
	N	*M (SD)*	*N*	*M (SD)*	*N*	*M (SD)*	*N*	*M (SD)*
Neighborhood Social Processes								
Informal social control[2,3]	1060	3.24 (0.68)	1036	3.30 (0.64)	1019	3.27 (0.64)	994	3.25 (0.62)
Sense of community[2,3]	1068	3.16 (0.59)	1042	3.17 (0.55)	1021	3.17 (0.56)	1001	3.17 (0.54)
Neighborhood support[2,3]	1074	2.13 (0.67)	1043	2.12 (0.66)	1024	2.12 (0.62)	1014	2.07 (0.63)
Concerns – crime/safety[2,3]	1075	2.06 (0.80)	1043	1.96 (0.76)	1024	1.99 (0.75)	1014	2.01 (0.73)
Concerns – services[2,3]	1058	2.37 (0.85)	1042	2.31 (0.80)	1048	2.33 (0.77)	1011	2.35 (0.75)
Neighborhood Conditions								
Broken windows score[3,4]	1075	3.52 (2.42)	970	4.02 (2.13)	843	3.27 (2.19)	931	3.53 (2.25)
	Wave							
	2		3		4		5	
Youth Violence Outcomes								
Fighting[1]	1073	40%	1050	38%	1030	33%	1023	29%
Weapon carrying[1]	1075	14%	1051	16%	1029	14%	1020	14%

[1]Mean reflects the percent of youth with that asset, or who reported physical fighting or weapon carrying. Distributions across Waves 2 to 5 are as follows: Fighting: 0 times = 65%; 1 time = 15%; 2 or 3 times = 13%; 4 or 5 times = 4%; 6 or 7 times = 1%; 8 or 9 times < 1%; 10 or 11 times = < 1%; 12 or more times = 1%. Weapon carrying: 0 days = 85%; 1 day = 4%; 2 or 3 days = 4%; 4 or 5 days = 1%; and 6 or more days = 5%.

[2]Range of scale is from 1 to 4.

[3] Higher numbers reflect greater social control, sense of community, support, and neighborhood concerns/problems.

[4] Range of scale is 0 to 12.

Table 2

Predictive Effects of Parenting Practices, Family Processes, Neighborhood Social Processes, and Neighborhood Conditions on Physical Fighting

Initial Models[1]

Parameter	Adjusted[1] *OR (95% CI)*	*p*
Broken windows score	1.02 (0.97, 1.06)	0.5266
Family communication	0.77 (0.65, 0.90)	0.0012
Relationship with mother	0.71 (0.58, 0.87)	0.0012
Relationship with father	0.67 (0.56, 0.80)	<.0001
Parental monitoring	0.55 (0.44, 0.68)	<.0001
Informal social control	0.80 (0.71, 0.92)	0.0010
Sense of community	0.87 (0.74, 1.01)	0.0683
Neighborhood support		
Two parent household	1.04 (0.87, 1..25)	0.6665
One parent household	0.65 (0.49, 0.85)	0.0017
Inconsistent	1.08 (0.81, 1.45)	0.6028
Neighborhood concerns – crime/safety	1.08 (0.98, 1.20)	0.1257
Neighborhood concerns – services	1.09 (0.99, 1.20)	0.0876

Final Model[2]

Parameter	Adjusted[2] *OR (95% CI)*	*P*
Relationship with father	0.68 (0.57, 0.83)	<.0001
Parental monitoring	0.58 (0.46, 0.72)	<.0001
Informal social control	0.83 (0.72, 0.96)	0.0142
Neighborhood support		
Two parent household	1.10 (0.91, 1.34)	0.3304
One parent household	0.73 (0.54, 1.00)	0.0484
Inconsistent	1.17 (0.85, 1.60)	0.3385

[1] Ten separate initial models were analyzed (one for each variable of interest). Each was adjusted for the potential confounders youth age, gender, race/ethnicity, family structure, ever below the federal poverty level, parental education, neighborhood structural disadvantage, and neighborhood residential instability. ORs for the potential confounding variables are not shown.

[2] One final model was analyzed that adjusted for the potential confounders above and also adjusted for other variables of interest in the final model. Only variables of interest with a p-value ≤ .05 were retained in the final model. ORs for the potential confounding variables are not shown.

Table 3

Predictive Effects of Parenting Practices, Family Processes, Neighborhood Social Processes, and Neighborhood Conditions on Weapon Carrying

Initial Models[1]	Adjusted[1]	
Parameter	***OR* (*95% CI*)**	***P***
Broken windows score	1.00 (0.94, 1.07)	0.9219
Family communication	0.67 (0.54, 0.83)	0.0003
Relationship with mother		
Non Hispanic Black	1.65 (0.86, 3.19)	0.1349
Non Hispanic White	0.40 (0.27, 0.59)	<.0001
Hispanic	0.51 (0.34, 0.78)	0.0015
Non Hispanic Other	0.70 (0.32, 1.55)	0.3771
Relationship with father		
12–13 years at baseline	0.89 (0.60, 1.32)	0.5744
14–15 years at baseline	0.52 (0.35, 0.77)	0.0011
16–17 years at baseline	0.57 (0.35, 0.94)	0.0263
Parental monitoring	0.47 (0.37, 0.61)	<.0001
Informal social control	0.83 (0.70, 0.98)	0.0250
Sense of community	0.91 (0.75, 1.10)	0.3152
Neighborhood support		
Two parent household	0.97 (0.77, 1.23)	0.8268
One parent household	0.59 (0.40, 0.86)	0.0057
Inconsistent	1.22 (0.86, 1.74)	0.2684
Neighborhood concerns – crime/safety		
Non Hispanic Black	1.10 (0.88, 1.38)	0.3874
Non Hispanic White	1.45 (1.16, 1.80)	0.0009
Hispanic	1.00 (0.78, 1.30)	0.9780
Non Hispanic Other	1.13 (0.77, 1.64)	0.5374
Neighborhood concerns – services	1.14 (1.01, 1.30)	0.0383

Final Model[2]	Adjusted[2]	
Parameter	***OR* (*95% CI*)**	***P***
Relationship with father	0.73 (0.56, 0.94)	0.0157
Relationship with mother		
Non Hispanic Black	2.55 (1.14, 5.70)	0.0228
Non Hispanic White	0.55 (0.37, 0.84)	0.0048
Hispanic	0.49 (0.31, 0.77)	0.0018
Non Hispanic Other	0.88 (0.36, 2.14)	0.7813
Parental monitoring	0.55 (0.42, 0.71)	<.0001
Neighborhood concerns – crime/safety		
Non Hispanic Black	1.11 (0.86, 1.43)	0.4081
Non Hispanic White	1.58 (1.25, 1.99)	0.0001

Final Model[2]	Adjusted[2]	
Parameter	***OR* (*95% CI*)**	***P***
Hispanic	1.05 (0.79, 1.39)	0.7601
Non Hispanic Other	1.19 (0.77, 1.85)	0.4294

[1]Ten separate initial models were analyzed (one for each variable of interest). Each was adjusted for the potential confounders youth age, gender, race/ethnicity, family structure, ever below the federal poverty level, parental education, neighborhood structural disadvantage, and neighborhood residential instability. ORs for the potential confounding variables are not shown.

[2]One final model was analyzed that adjusted for the potential confounders above and also adjusted for other variables of interest in the final model. Only variables of interest with a p-value of ≤.05 were retained in the final model. ORs for the potential confounding variables are not shown.