Growing Up in Violent Communities: Do Family Conflict and Gender Moderate Impacts on Adolescents' Psychosocial Development?

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Abstract This study examined the moderating effects of family conflict and gender on the relationship between community violence and psychosocial development at age 18. The study sample consisted of 728 children and families who were part of the Infant Health and Development Program study of low-birth-weight, pre-term infants. In this sample, adolescent psychosocial outcomes were predicted by community violence differently for male and female children and based on their experiences of conflict at home. For male children, being in a *high* conflict family as a child exacerbated the negative effects of community violence such that internalizing problems (depression and anxiety) and risk-taking behaviors increased as community violence increased, while being in a *low* conflict family protected the child against the negative impacts of the community. For female adolescents, there were no moderating effects of family conflict on the relationship between community violence and externalizing problems. Moderating effects for internalizing problems demonstrated that being in *low* conflict families did not serve as protection against community violence for girls as was demonstrated for boys. These findings demonstrate the long-term effects of community violence on child development, highlighting the importance of gender and family context in the development of internalizing and externalizing problems.

Keywords Community violence · Family conflict · Child gender

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Introduction

An estimated 10 million children in the U.S. have witnessed or been victims of violence in their homes, schools, or communities (Office of Juvenile Justice and Delinquency Prevention 2000). This statistic is alarming given the evidence that such exposure puts children at risk for less optimal outcomes. Studies examining the impact of exposure to family and community violence have shown similar deleterious impacts on children's development. Violence at home and in the community not only threatens children's safety, but the psychosocial elements of children's development vulnerable to the effects of violence, such as heightened depression, can alter a child's progression through typical developmental trajectories (Margolin and Gordis 2000).

Community violence Multiple operational definitions of community violence are used across studies examining its impact on children's outcomes. Studies have defined community violence as direct witnessing and/or experiencing of violence by children and adolescents (Schwab-Stone et al. 1999), as parental report of violence in the community (Fitzgerald et al. 2006; Linares et al. 2001; Zalot et al. 2009), and as objective correlates of violence in communities such as a lack of community resources and lower socioeconomic status (Brooks-Gunn et al. 1993; Leventhal and Brooks-Gunn 2000). Because young children may not accurately represent their experiences of violence, studies of young children typically use parental or government reports of the community, while the majority of the literature on adolescence relies on self-report of community violence. This study utilized parent-report data about community violence, from early childhood into adolescence; therefore we focus our review subjective measures of violence.

Less optimal psychosocial functioning has been linked to community violence from early (Fitzgerald et al. 2006) to middle childhood (Plybon and Kliewer 2001; Martinez and Richters 1993) and into adolescence (Schwab-Stone et al. 1999). The relationship between community violence and externalizing behavior problems, like aggression and antisocial behavior, has been demonstrated in multiple studies using samples of urban, minority children. Using a sample of 561 low-income children, Fitzgerald and colleagues (2006) found parental reports of community violence related to increased child aggression as early as age three. Exposure to community violence has been consistently found to increase aggressive behavior in children, persisting even when prior levels of aggression are controlled (Gorman-Smith and Tolan 1998; Schwab-Stone et al. 1999). Antisocial behaviors have also been linked to community violence across childhood. For example, Miller and colleagues (1999) found witnessing community violence related to increases in antisocial behaviors in a sample of 97 urban male children ages six to ten.

In addition to externalizing behaviors, community violence has been linked to internalizing problems, such as increased depression and anxiety, in samples of children and adolescents from urban communities. Gorman-Smith and Tolan (1998) studied 245 inner-city African-American and Latino boys in the 5th and 7th grades and found that witnessing community violence was related to increased reports of depression and anxiety. Further, a study of over 2,700 adolescents in an urban school system found positive relationships between community violence exposure and internalizing behaviors (Schwab-Stone et al. 1999).

The Environmental Stress Model (see Wandersman and Nation 1998) suggests that community effects on children's psychosocial functioning occur directly and through increased family stresses. Although theory suggests that families may be the mechanism through which less optimal impacts on children are achieved, few studies have examined the impact of community violence on children's outcomes while accounting for characteristics of family interaction. Research demonstrates that positive characteristics of the family, such as parental support, may ameliorate the negative impacts of community violence on children's development, while negative characteristics of the family, such as family conflict, may exacerbate the negative effects of living in a disadvantaged community. Plybon and Kliewer (2001), using a sample of 99 children aged 8–12, found that children in high-risk communities who lived in highly cohesive families demonstrated fewer behavioral problems. Another study examined co-parent conflict related to parenting as a moderator of community violence on externalizing and internalizing behaviors separately for girls and boys (Forehand and Jones 2003). With a sample of 117 low-income, inner-city African-American children ages 8–14, this study found that less than average family conflict protected girls, but not boys, against the effects of community violence with regards to depression and aggressive behaviors. Given the existing theory and empirical studies, we hypothesize that community violence will be related to less optimal development, but that relationship will be strengthened when children reside in families who are also in conflict.

Family conflict Operational definitions of family conflict differ across studies with the intensity level ranging from arguments and yelling to more physical conflict. Definitions also differ in terms of the family members involved, with some focusing on interpartner conflict, and others focusing on conflict that includes and/or targets the child. Our review focuses on interpartner conflict and violence where the child is not the target of aggression. Much like the impacts of exposure to community violence, family conflict predicts less optimal psychosocial outcomes for children (Kelly 2000; Margolin and Gordis 2000) including global internalizing (Buehler et al. 1997) and externalizing problems (Buehler et al. 1997; Lindahl 1998; Reid and Crisafulli 1990).

A meta-analysis of the literature on interpartner conflict (Buehler et al. 1997) reported a moderate average effect size of $d=0.32$ across 68 studies reviewed. Findings from the meta-analysis showed consistent effects on global internalizing and externalizing problem behaviors across child gender, age, and family structure. Findings for child gender demonstrated lower average effects for girls ($d=0.23$) than boys ($d=0.32$), but the differences were not statistically significant. In terms of child age, studies included children from ages 5 to 18, and the meta-analysis found no age group

demonstrated heightened vulnerability to the effects of conflict. There were also no differences in impacts of conflict for children from divorced versus intact homes.

The implications for children also differ depending on the nature and severity of the conflict. Another meta-analysis of 118 studies conducted by Kitzmann and colleagues (2003) examined the effects of interpartner violence on children's outcomes. The authors reported overall negative impacts on children's psychosocial adjustment (including global internalizing and externalizing problems and aggressive behaviors) and tested differences between types of conflict. Their results indicated that externalizing behavior problems were worse for children exposed to violent conflict than to verbal aggression. Like findings from the previous meta-analysis, Kitzmann and colleagues (2003) found no main effect differences between children based on gender or age.

Gender Previous research suggests that the links between community violence and development may differ based on child gender; although less is known about this relationship for girls as they have often been excluded from study (Zalot et al. 2007). Male children may be at higher risk of being exposed to community violence than females (Farrell and Bruce 1997; Moffitt et al. 2001; Singer et al. 1995) making them more vulnerable to the impacts of the community. However, a study of the development of externalizing behavior in early adolescence demonstrated that community violence increased aggressive behaviors for females, but not for males (Farrell and Bruce 1997).

Some studies identify gender differences in developmental outcomes related to exposure to family conflict (Reid and Crisafulli 1990), but the meta-analyses combining the findings from multiple studies reported similar effect sizes for children regardless of gender (Buehler et al. 1997; Kitzmann et al. 2003). In addition to examining the main effects of age and gender, Kitzmann and colleagues (2003) also examined their interaction and reported that effect sizes for preschool girls were significantly greater than for girls of older ages and boys. The authors interpret these findings with caution as they are based on a limited number of studies.

Gender effects have been found in one study examining the moderating effects of family interactions on the relationship between community violence and child outcomes. Forehand and Jones (2003) reported a significant interaction effect of co-parent conflict and community violence on children's depression and aggressive behaviors, but only for girls. In their study, less than average family conflict protected girls against the effects of community violence.

Study goals Gaps in the extant literature limit our understanding of the impacts of community violence on child outcomes. Reviews of the literature on community violence conclude there is a need for new studies that target samples beyond high-risk, economically disadvantaged, ethnic minority, urban youth (Buka et al. 2001). Additionally, examinations of the effects of the community have often used samples of male adolescents leaving a significant gap in our understanding of the impact of community violence on females (Kroneman et al. 2004). Most existing studies do not include design or statistical controls for factors that are associated with community violence (such as poverty, unemployment, and family conflict and aggression) resulting in a lack of understanding of the effects of community violence on children's development in isolation from other factors in the environment (Lynch 2003).

Theoretically, models can be used to describe the combined effects of the community and family on children's psychosocial adjustment. The broad theory that is most specific to the current study, the aforementioned Environmental Stress Model (Wandersman and Nation 1998), posits that stresses in the community have effects on children's adjustment through stress experiences; directly as the child's stress experiences and as stress impacts the family. Similarly, cumulative risk models suggest that as the number of risks to which one is exposed increases so does the likelihood of a negative outcome (Patterson 2002). Such models propose that exposure to risk can often cascade, with one risk leading to another and that a combination of risk factors, rather than any single factor, can better predict adverse developmental outcomes (Liaw and Brooks-Gunn 1994).

In addition to the broad theories of development, there are theories put forth to explain the specific child behavioral outcomes that are related to community violence and family conflict. Among the theoretical models put forth to explain the link between family conflict and less optimal child outcomes, the emotional security theory may be the most relevant for young children as they develop self-regulation competency (Maccoby and Jacklin 1980). The theory suggests that family conflict undermines the child's sense of emotional security and behavioral problems develop as children's negative emotional states (emotional arousal and dysregulation) are likely to increase children's hostile interpretations and expectations of social situations (Davies and Cummings 1994).

There are also theories proposed that would explain the mechanisms through which both exposure to community violence and family conflict results in less optimal child development. Social learning theory (Bandura 1977) posits that children develop cognitive models of interpersonal relationships through observing and modeling relationships in their environments. Social learning theory states that when children are exposed to violence, they learn that violence and aggression are appropriate and are more likely

to include those behaviors into their repertoire. The relationships modeled within the home are even more salient than those more distal to the child, such as in the community, for predicting children's outcomes (Bronfenbrenner 1979; Zimet and Jacob 2001).

The purpose of the present study is to examine the moderating impact of family conflict and child gender on the relationship between community risk and adolescent outcomes, using a diverse sample and controlling for family context and earlier child adjustment. Specifically, we aim to answer the question: are the impacts of community violence on psychosocial development universal for all regardless of levels of family conflict and child's gender? Using the reviewed models and theories combined with the extant literature, we believe that if children live in a violent community and are exposed to family conflict their outcomes will be the least optimal. However, existing theories do not offer hypotheses specifically related to gender (Kroneman et al. 2004) and existing empirical evidence is mixed (Forehand and Jones 2003).

Method

Study design The Infant Health and Development Program (IHDP) began in 1985 and was designed as an 8-site, randomized clinical trial evaluating early childhood intervention to reduce the risk for developmental delay, behavioral issues and health problems associated with infants being born low-birth-weight (LBW; less than or equal to 2,500 g) and pre-term (PT; ≤37 weeks gestational age). Given that the purpose of the study was to evaluate the IHDP intervention, children who had an illness or neurological deficit too severe to participate in the intervention were excluded from the sample (IHDP 1990). Those randomly assigned to the intervention ($N=377$) received home visitation weekly during the first year and biweekly for the next 2 years. Additionally, from ages 12 to 36 months, children in the intervention attended a child development center 5 days per week and parents attended parent groups bimonthly. Retention ranged from 87% to 90% for assessments collected to age 8 and was 65% at age 18 (McCormick et al. 2006). Six of the eight IHDP cites were located in large metropolitan areas (Boston, MA; Dallas, TX; Miami, FL; South Bronx, NY; Philadelphia, PA; and Seattle, WA) and two served families from both rural and urban areas (Little Rock, AR; and New Haven, CT).

The study was approved by the review boards of all participating institutions. For data collected from the birth of the child until age 8 years, caregivers provided written informed consent. At age 18, both caregivers and target children provided data and informed consent. Across the multiple assessments, the majority of caregivers were biolog-

Table 1 Sample demographics

	Total ($N=728$)
Age of applicant at enrollment (Mean, SD)	24.9 (6.0)
Child birth weight: <2,000 g	63.2%
Child gender: male	49.5%
Child birth status: twin	11.4%
Applicant race/ethnicity	
Caucasian	35.4%
African-American	51.4%
Hispanic	10.4%
Other	2.8%
Applicant education at enrollment	
Less than high school graduate	37.4%
High school graduate or equivalent	27.6%
Some college or degree	35.0%
Marital status at child's birth	
Married	49.9%
Single	43.2%
Divorced/separated/widowed	6.9%
Number of children in the family (Mean, SD)	1.9 (1.1)
Family income at child's 1st birthday (Mean, SD)	$23,920 (17,444)

257 children excluded due to indications of atypical cognitive development

ical mothers to the target child although the percentage decreased with the age of the child (range 97% to 87%).

Participants The sample is diverse regarding education (37% less than high school education), race (35% Caucasian), marital status (50% married), and economic status (see Table 1 for participant demographics). Nearly two-thirds (63%) of the infants were born ≤2,000 g; the remaining infants were between 2,001 g and 2,500 g. Existing literature on the outcomes of low-birth-weight, pre-term infants suggests long term challenges. The developmental consequences of being born low-birth-weight range from motor and cognitive deficits (Whitaker et al. 2006) to psychosocial problems (Costello et al. 2007) and have been shown to persist into adolescence. In an attempt to minimize the high risk nature of the IHDP sample ($N=985$) for this study, we excluded children whose intelligence test scores at age 8 suggested atypical cognitive development. Specifically, we excluded children with scores less than two standard deviations below the mean (scores below 70) on the Wechsler Intelligence Scale for Children, III (WISC-III; Weschsler 1991). This resulted in an analysis sample of 728 children and their families (281 of whom were in the intervention group).

Procedures The IHDP research teams collected data from caregivers ($N=985$) 8 times in the first 3 years of the target

children's life, and at 4, 5, 6 ½, 8 and 18 years. Each assessment point included caregiver interviews, direct assessments of children's cognitive development and medical status, and updates of demographic variables. In addition, research staff interviewed the target child at the age 18 assessment.

Measures In order to decrease common-method variance, the current study employed data from different reporters for covariates (caregiver report and direct child assessment) and predictor (caregiver report) and outcome measures (youth self-report). Correlations and descriptive statistics for predictor and outcome variables are shown in Table 2.

Community violence Community violence was assessed by summing caregiver reports of neighborhood problems with 1) drug users/sellers, 2) delinquent gangs, and 3) crime, assaults, burglaries. These reports were collected when children were 4, 5, and 8 years of age. The items, scored on a 3 point scale from 1 ('Not a Problem') to 3 ('Big Problem'), were summed to create a community violence score ranging from 3 to 9 with high scores indicating more community violence. The scale had high internal consistency at each time point (alphas=0.79, 0.81, and 0.81, for 4, 5, and 8, respectively). Because our goal was to examine the impact of the child's exposure to community violence across time, we averaged the three assessment points (correlations between each of the assessments ranged from 0.42 to 0.57) to represent community violence across childhood.

Family conflict Family conflict was assessed twice using caregiver reports on the Conflict subscale of the Family Environment Scale (FES; Moos 1974). The subscale measures the extent to which the open expression of anger and aggression and conflictual interactions are characteristic of the family. The nine conflict items were rated on a 4-point scale, where 4 indicated high levels of agreement with statements such as, "we fight a lot," and "family members sometimes hit each other." Scales were created using a sum of items resulting in a possible range from nine to 36. Caregivers completed the FES when children were 6 ½ and 8 years of age (Cronbach's alpha= 0.76, 0.77). Again, our goal was to examine the impact of the child's exposure to family conflict, therefore we computed an average score with high scores indicating more conflict within the family ($r=0.60$).

Child psychosocial development We utilized adolescent self-report data for our key outcome measures of psychosocial functioning at age 18. Depressed-anxious and antisocial "acting out" behaviors were assessed using the **Behavior Problems Index** (BPI; Zill and Peterson 1986). The BPI is a 28-item rating scale of with items scaled from 0 to 2, with 0 = not at all, 1 = sometimes, 2 = always like self. The Depression/Anxiety subscale includes statements such as feeling worthless or inferior and unhappy, sad, or depressed (Cronbach's coefficient alpha=0.66). The Antisocial Behaviors subscale includes items such as lying or cheating, teasing/cruel to others, and destroying things that belong to others (Cronbach's

Table 2 Correlations and descriptive statistics for covariates, predictor, and outcome variables

Variables	1	2	3	4	5	6
1. Female	–					
2. Family conflict	−0.09**	–				
3. Community violence	0.03	0.16***	–			
4. Depression/anxiety	0.16***	0.12***	0.15***	–		
5. Antisocial behavior	−0.19***	0.13***	0.09**	0.23***	–	
6. YRBSS risky behavior	−0.23***	0.11**	0.03	0.17***	0.47***	–
M	0.51	14.02	4.44	0.31	0.23	2.33
SD	0.50	2.60	1.46	0.31	0.27	2.55
Range	0–1	9–26	3–9	0–2	0–2	0–11
N	728	728	728	497	497	490
M: male	0	14.26	4.40	0.26	0.28	2.94
SD: male	0	2.70	1.46	0.30	0.28	2.66
N: male	360	360	360	237	237	233
M: female	1	13.78	4.48	0.36	0.18	1.78
SD: female	0	2.47	1.46	0.31	0.25	2.32
N: female	368	368	368	260	260	257

Covariates also include program site, not shown

*p<0.10. **p<0.05. ***p<0.01

coefficient alpha=0.65). Both the Depression/Anxiety and Antisocial Behavior scales were computed as an average of the items, such that overall scores on the scales range from 0 to 2, with higher scores reflecting more endorsement of internalizing and externalizing behaviors. Adolescents also reported risk-taking behaviors using the **Youth Risk Behavior Surveillance System** (YRBSS; Kolbe et al. 1993). The YRBSS has no recommended scoring system; however, we used a summary score created by the IHDP evaluation team adjusting the scale of 6 items considered most relevant (antisocial behavior, suicidal ideation, suicide attempt, smoking, alcohol usage, and marijuana usage) so that each had equal weight (see McCormick et al. 2006). The result was a mean score of 2.4 (SD=2.6) with a range of 0–11. Test-retest reliability estimates for the YRBSS range from 14.5% to 91.1%; 72% of the items with kappa greater than 61% (Brener et al. 1995).

Control variables We controlled for **demographic characteristics** of the family (maternal education and ethnicity reported by caregivers at enrollment, and household income which represents an average of income reported from ages 1 through 8), as well as constructs related to the high risk nature of the sample and the psychosocial outcomes of interest suggested in the literature. Further, because the IHDP was a randomized clinical trial of an intervention shown to have impacts on adolescent outcomes (McCormick et al. 2006), we included **program status**.

We selected covariates to control the variability in the health and development of the sample; including measures of temperament and cognitive functioning in infancy, and the child's behavioral adjustment and health status in childhood. At age 1, we utilized caregiver reports of infant difficult temperament on the 22-item **Infant Characteristics Questionnaire** (ICQ; Bates 1983; alpha=0.69) and infant cognitive functioning using the Mental Development Index (MDI) of the **Bayley Scales of Infant Development** (BSID; Bayley 1993). MDI scores reflect performance on the cognitive and language portion of the assessment and parallel other IQ scores. For child behavioral adjustment, we utilized the caregiver **Child Behavior Checklist** (CBCL; Achenbach and Edelbrock 1983) from 3 years of age. The CBCL consists of 118 behaviors that parents rate as not true (0 points), somewhat or sometimes true (1 point), or very true or often true (2 points) of their child within the past 2 months. The CBCL allows for measurement of emotional and behavior problems of children, and the current study used the total behavior problem score (alpha=0.96). We also included a measure of child health based on caregiver rating of the child's health from poor (1) to excellent (5) on the **Child Health Questionnaire** (CHQ; Landgraf et al. 1996); computed as an average of ratings from ages 3 through 8.

Approach to analysis Previously reported analyses of missing data computed based on the outcomes used in the current study (McCormick et al. 2006) indicate that the age 18 participants (65% of the original sample) did not differ from the original sample in most regards, with the exceptions of maternal educational attainment at the time of enrollment, race/ethnicity, and study site. We included these variables in multivariate regression models estimated for each adolescent outcome variable using full information maximum likelihood estimation (FIML; Enders 2001a, b) in a Structural Equations Modeling software package (LISREL 8.8; Jöreskog and Sörbom 2006). FIML does not actually impute values but uses all of the information that is available for each observation to provide unbiased parameter estimates in the presence of missing data (Acock 2005). Simulation studies that compare FIML to multiple imputation techniques have found similarities in results and conclude that both are improvements on conventional missing data methods (Enders 2001a; Widaman 2006) especially when variables that explain missingness are included (Acock 2005).

We ran individual multiple regression models for each outcome of interest. Control variables in the models included; IHDP site, IHDP treatment group status (1 = treatment, 0 = control), maternal education and ethnicity, family income, child health rating, 12-month cognitive development and temperament, and 36-month behavioral adjustment. Predictors of outcomes included: child gender (0 = male, 1 = female); childhood exposure to family conflict; childhood exposure to community violence; three two-way interaction terms (one for the interaction between the two centered risk variables, one for gender and family conflict, and one for gender and community violence); and the three-way interaction term (community violence by family conflict by gender). To reduce multi-collinearity, we centered the community violence and family conflict variables at their mean values prior to creating interaction terms (Aiken and West 1991). We probed significant interaction terms in post hoc simple slope analyses (Aiken and West 1991; Dawson and Richter 2006; Preacher et al. 2006) to facilitate the interpretation of the findings. Simple slope analyses investigate the relationship one standard deviation above and below the mean for community violence and family conflict separately by gender (Aiken and West 1991). Significant interaction terms indicate that the slopes of the two lines are different; however, it is possible that slopes are not statistically different from zero (Preacher et al. 2006).

Results

Data presented in Table 3 shows findings related to adolescent self-report of psychosocial development at age 18.

Table 3 Path coefficients predicting adolescent psychosocial outcomes at age 18

Variable	Depression/anxiety	Antisocial behaviors	YRBSS risk-taking
Covariates[a]:			
IHDP treatment	−0.02 (0.03)	−0.02 (0.02)	−0.14 (0.23)
Maternal education[b]	0.01 (0.02)	−0.01 (0.01)	−0.23* (0.13)
Race/ethnicity: African-American[b]	−0.05 (0.04)	0.07** (0.03)	−0.40 (0.31)
Race/ethnicity: Hispanic/Latino[b]	−0.04 (0.06)	−0.06 (0.05)	−0.38 (0.47)
Family income[c]	0.00 (0.00)	−0.00 (0.00)	0.00 (0.00)
Child health[d]	−0.06** (0.03)	−0.04* (0.02)	−0.29 (0.23)
Bayley MDI[e]	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)
Difficult temperament[e]	−0.00* (0.00)	−0.00** (0.00)	−0.02 (0.02)
CBCL behavioral adjustment[f]	0.00** (0.00)	0.00 (0.00)	0.01 (0.01)
Gender (0 = Male, 1 = Female)	0.11***(0.03)	−0.10***(0.02)	−1.05***(0.23)
Family Conflict (FC)[g]	0.02** (0.01)	0.02** (0.01)	0.11* (0.06)
Community violence (NR)[h]	0.02 (0.02)	0.00 (0.01)	0.18 (0.12)
ΔR^2	0.11	0.13	0.10
Gender X FC	−0.01 (0.01)	−0.01 (0.01)	−0.06 (0.09)
Gender X NR	−0.00 (0.02)	−0.00 (0.02)	−0.11 (0.16)
FC X NR	0.01***(0.00)	0.01** (0.01)	0.08* (0.04)
Gender X FC X NR	−0.03***(0.01)	−0.01* (0.01)	−0.15** (0.01)
Constant	0.34 (0.17)	0.44 (0.15)	3.28 (1.48)
Final model R^2	0.14	0.14	0.11

Unstandardized path coefficients with standard errors in parentheses; [a] Covariates also include program site, not shown; [b] Enrollment data; [c] Collected and averaged from ages 1 through 8; [d] Collected and averaged from ages 3 through 8; [e] Collected at age 1; [f] Collected at age 3; [g] Collected and averaged from ages 6.5 and 8; [h] Collected and averaged from ages 4, 5, and 8

*$p<0.10$, **$p<0.05$, ***$p<0.01$

Depression and anxiety Main effect findings for youth-reported depression/anxiety indicate a significant relationship with gender and family conflict. In the case of gender, female adolescents report greater depression/anxiety than males. The positive relationship between family conflict and depression/anxiety indicates that adolescents in homes with higher family conflict earlier in childhood report higher levels of depression/anxiety at age 18. There was no main effect for community violence.

In addition to the main effects, the three-way interaction between gender, family conflict, and community violence was significant. S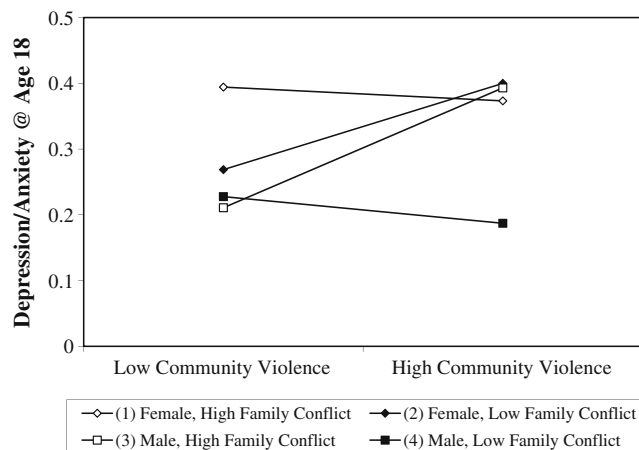imple slope analysis for this interaction (depicted in Fig. 1) revealed two slopes that significantly differed from zero: male children in high conflict families ($t(704)=3.15$, $p\leq0.01$), and female children in low conflict families ($t(704)=2.02$, $p\leq0.05$). The remaining slopes were not significantly different from zero, but there were additional significant slope differences between; boys and girls living in high conflict families ($t(704)=−2.56$, $p\leq0.01$), boys and girls living in low conflict families ($t(704)=2.01$, $p\leq0.05$); and boys in high versus low conflict families ($t(704)=2.98$, $p\leq0.01$). An examination of the slopes reveals that levels of depression/anxiety are high and stable regardless of community violence for girls from high conflict families and low and stable for males from low conflict families. For male children from high conflict families and female children from low conflict families, the relationship between community violence and depression/anxiety is significant and positive indicating that for both groups of children, exposure to community violence in childhood is related to higher adolescent depression/anxiety.

Fig. 1 Interaction of family conflict, community violence, and gender on adolescent depression and anxiety

Antisocial behaviors Main effects for antisocial behavior indicate significant relationships with gender and family conflict, such that female adolescents report less antisocial behavior than males, and adolescents who experienced higher family conflict earlier in childhood report more antisocial behaviors at age 18. The simple slope analysis for the trend-level significant three-way interaction for antisocial behaviors is illustrated in Fig. 2. None of the slopes were significantly different from zero; however,
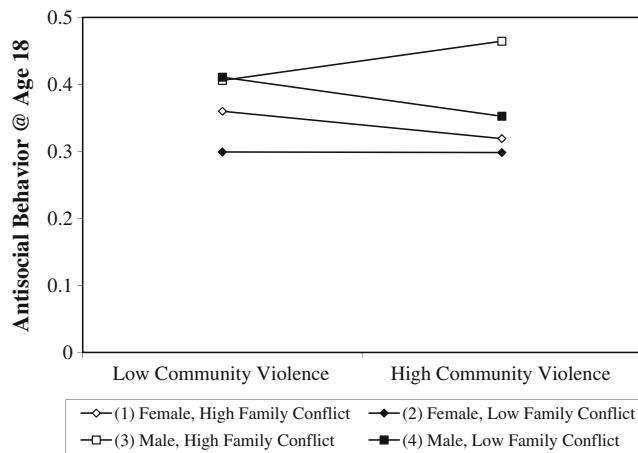
Fig. 2 Trend level interaction of family conflict, community violence, and gender on adolescent antisocial behaviors

there was a trend toward significant slope differences for male children in high versus low conflict families ($t(704)=$ 1.82, $p<0.10$).

Risk-taking behaviors Main effects for adolescent risk-taking indicate significant relationships with gender and family conflict, but not with community violence. The main effect of gender indicates that female adolescents report less risk-taking behavior than males. Further, the main effect of family conflict indicates that children who experienced greater conflict in childhood report more risk-taking at age 18. There was a significant three-way interaction which suggests that the effects of the neighborhood are different for children based on gender and family conflict experiences. The simple slope analysis for the significant three-way interaction for risk-taking behaviors (depicted in Fig. 3) shows that among male children from high conflict families community violence and risk-taking behaviors were significantly related ($t(704)=2.19$, $p\leq0.05$). This relationship was positive, indicating that for boys from families high in conflict, added exposure to community violence increases the likelihood of risk-taking behaviors in adolescence. None of the remaining slopes were significantly different from zero, but there were significant differences between the slopes of: males and females from high conflict families ($t(704)=-2.19$, $p\leq0.05$), and males from high versus low conflict families ($t(704)=1.96$, $p\leq 0.05$). There is a positive relationship between community violence and risk-taking behavior for male youth from high conflict homes, making risk-taking by youth most likely for boys from both high conflict families and violent communities. This slope significantly differed from male youth from low conflict families and female youth from high conflict families, for whom the relationship between community violence and risk-taking behaviors is slightly negative (albeit not significantly different from zero).

Discussion

This study examined the extent to which community violence impacts 18-year-old adolescents' psychosocial outcomes. Our findings suggest that the effects of community violence differ based on gender and family conflict in the home during childhood; there were significant moderating effects for adolescent depression/anxiety and risk-taking behaviors and trend-level moderating effects for antisocial behaviors. For depression and anxiety, community violence was related to outcomes for male children from high conflict families and also female children from low conflict families. For risk-taking behaviors, effects of community violence were only found for male children from high conflict families. The trend-level moderating effect found for adolescent antisocial behaviors is difficult to interpret as simple slope analyses revealed no slopes that differed significantly from zero; overall, however, the results are similar to those found for risk-taking behaviors. The less significant findings may also be an artifact of the instrument used to assess antisocial behavior, which was developed to measure child behavior problems as young as age three (Zill and Peterson 1986). As a result, the items may less accurately tap antisocial behavior as children age than items from the YRBSS, which is designed for use with adolescents.

The existing theory supports the tenet that living in optimal family conditions could help a child overcome negative effects of the community. Many of the theoretical models available to explain the impacts of the community on children posit negative effects on the family and parenting as a mechanism through which impacts are achieved. Further, the emotional security theory, which suggests that young children are more likely to develop self-regulation competency in families where conflict is low (Maccoby and Jacklin
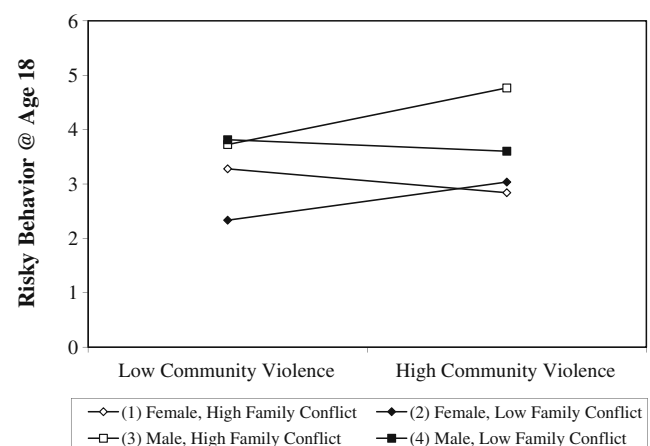

Fig. 3 Interaction of family conflict, community violence, and gender on adolescent risky behaviors

1980), would support the premise that children who grow up in low conflict families have greater internal resources to cope with additional stresses (Davies and Cummings 1994). Further, there is empirical evidence to suggest that family cohesion (Plybon and Kliewer 2001) and low levels of conflict (Forehand and Jones 2003) can protect children from the negative effects of community violence, although there may be differences by child gender in the effect. Our findings suggest that more optimal family processes can protect children from the effects of the neighborhood, but that protection differs based on the gender of the child.

Girls and Internalizing Problems

There were significant slope differences in internalizing behaviors for girls who grew up in low versus high conflict families (see Fig. 1). Girls in high conflict families reported the highest symptomatology, which was stable and not related to neighborhood violence, where those in low conflict families were negatively impacted by the community. We would expect that the positive attributes of the family would serve to protect children from internalizing problems regardless of the level of violence in the community, but this hypothesis was not supported. This finding runs contrary to the Forehand and Jones (2003) study which reported that girls were protected against the effects of the neighborhood when they were in families characterized by low conflict. Our findings suggest being in a low conflict family is not sufficient to protect girls from the influences of violence in the community during childhood.

There are existing models to explain gender differences in the development of depression. A diathesis-stress type model has been posited to account for greater levels of depression in adolescent girls than boys. The model suggests that girls have characteristics that put them at risk for developing depression and the challenges of adolescence interact with those characteristics to result in greater symptomatology (Nolen-Hoeksema and Girgus 1994). Studies have documented differences in importance of social relationships, responses to stressors and coping styles which may make females more vulnerable to depression than males (Cyranowski et al. 2000; Nolen-Hoeksema 2001). Further, differences between boys and girls with reference to gender socialization and intensification during puberty are evident (Maccoby 1990). While boys are socialized to value independence, exploration, and competition, girls are socialized to have more of an interpersonal orientation, which may make threats their mental health more salient.

Studies have also found that girls may be more impacted by community influences that impact parenting practices (Kroneman et al. 2004). We did not test whether the parenting environment was the mechanism through which

influence of the neighborhood on depression and anxiety was achieved, but we know that parenting is impacted by both family conflict (Kelly 2000) and community violence (Linares et al. 2001). Parenting has been found a mediator of the impacts of the neighborhood on adolescent internalizing outcomes, although gender was not included in the analyses (Pachter et al. 2006). Our findings highlight that any single risk (be it family conflict or neighborhood violence) results in greater depression/anxiety for girls and future studies should examine the role of the parenting.

Girls and Externalizing Problems

For all girls in the study, regardless of levels of family conflict in childhood, antisocial behaviors and risk-taking were not related to level of violence in the community (the slopes for girls in both groups were not significantly different from zero). Starting at entry to school, externalizing problems are much more likely for boys than girls, but by adolescence girls are twice as likely as boys to report internalizing problems (Keenan and Shaw 1997). This was also documented in the findings from this study in which girls were more likely to report depression and anxiety, but less likely to report antisocial and risk-taking behaviors. Studies of the development of externalizing problems in girls hypothesize that early problem behavior is channeled into internalizing problems as a result of socialization (Keenan and Shaw 1997). It may also be that the variance in externalizing behaviors for girls in this study was minimized by the nature of the sampling (i.e., the sample was not drawn from high crime communities).

Boys from Low Conflict Families

For all outcomes examined, both internalizing and externalizing, male children in low conflict families were not affected by violence in their communities. For boys, unlike girls, living in a low conflict home was a protective factor against the effects of the neighborhood. Theoretically, the emotional security model suggests that young children are more likely to develop self-regulation competency in families where conflict is low (Maccoby and Jacklin 1980). This theory supports the premise that children who grow up in low conflict families have greater emotional resources to cope with additional stresses and these competencies would reduce the likelihood of maladjustment (Davies and Cummings 1994). There is also empirical evidence to suggest that family cohesion can protect children from the negative effects of community violence (Plybon and Kliewer 2001). Further, one study of high-risk communities (defined by violent crime and socioeconomic characteristics) found parental control combined with family cohesion protected adolescent males from delinquency (Gorman-Smith

et al. 2000). Therefore, it may be family cohesion in concert with elements of parenting not included in the current study providing the protective influence for boys.

Boys from High Conflict Families

Across all significant moderations, boys who are in households where conflict is high in childhood are vulnerable to additional impacts of community violence on their internalizing and externalizing behaviors. Existing work suggests that boys may be less shielded from family conflict than girls (Cummings, Davies, & Simpson 1994) in that their reports of conflict closely match that of their mothers. Further, there is some indication that boys' experiences of violence in high-risk neighborhoods might be qualitatively different than girls' such that boys are more often the victims of aggression outside the home (Farrell and Bruce 1997; Moffitt et al. 2001; Singer et al. 1995). For boys, it appears that conflict at home and violence in the community represent a cumulative impact on developmental outcomes and neither family conflict nor community violence independently predict less optimal psychosocial outcomes for boys.

Findings from our study differed from the only other study that investigated both child gender and family conflict as moderators of the influence of neighborhood violence. Forehand and Jones (2003) reported that girls in families with less than average family conflict were protected from the effects of the community, but for all other groups, the neighborhood was related to less optimal outcomes. This study differed from the Forehand and Jones (2003) study in many ways. Our sample was multi-ethnic and more variable with regards to neighborhood violence, while the sample for the existing study was entirely African-American and selected on the basis of known community violence. Further, the analyses for the current study were longitudinal with family conflict and community violence being measured in early and middle childhood predicting adolescent outcomes. The Forehand and Jones study was conducted with an early adolescent sample whose ages averaged 11.7 years (range 8–14), during the onset of puberty and possibly before the onset of gender differences in depression (Wade et al. 2002) and delinquency (Moffitt et al. 2001). Our sample is drawn from a low-birth-weight study. We attempted to make the sample more generalizable to typical birth weight children, but differences in the development of our sample and full term children may impact the findings.

Strengths and limitations The findings from this study fill a gap in the extant literature by examining the universality of the effect of the community with regards to family conflict

and gender; namely does family conflict strengthen or weaken the effects of the community on development and is this true for male and female children equally. The study is also longitudinal and examines the effects of the community characteristics and family conflict experienced in childhood on outcomes at age 18 which has not been previously completed.

The sample is a strength of this study and allows us to understand how community violence and family conflict may impact development of children across different contexts. A large portion of the literature around neighborhood effects has been written using this sample (Brooks-Gunn et al. 1993; Klebanov et al. 1994, 1998), but for these analyses its use may weaken the impacts of family conflict and community violence on child outcomes in comparison to samples drawn specifically from high conflict families and high crime communities. Although efforts were taken to reduce the high-risk nature of the low-birth-weight sample used in the study, the sample may not generalize to typical birth weight children. For example, recent work has found low-birth-weight females at higher risk than normal birth weight females and all birth weight males for developing depression (Costello et al. 2007).

Although the internal reliabilities of the instrument used to measure family conflict was high, the use of a single questionnaire for this construct and that of community violence could be considered a weakness of the current study. The underlying dimensions of family conflict are unknown with the measure used. Family conflict, as measured with the FES, includes open verbal and physical expressions of anger and hostility, but it does not allow us to understand the frequency, content, or resolution of conflict in the family. Furthermore, there are high rates of co-occurrence between family conflict and child physical abuse (Jouriles and LeCompte 1991) and our measure of family conflict does not permit us to determine whether the child was the focus of any aggression in the family. Our measures of both family conflict and community violence indicate specifically that a risk for such exposure for the child exists. We did not measure the extent to which the child may have been directly exposed to or the target of these risks, the frequency of the exposure, nor the severity. We recognize that the child's direct witnessing or experiencing of violence in the community or home (including physical abuse) should be studied in addition to the risk of exposure that occurs within the broader context of the child's development and that they each may impact developmental outcomes. Furthermore, internal consistency reliabilities for adolescent reported subscales on the Behavior Problem Index were relatively low; falling at the cusp of adequacy for the study purposes (Salvia and Ysseldyke 1995).

We recognize that the effects of the current community may be the mechanism through which childhood impacts are achieved, but community violence indicators were not collected at age 18, and could not be included. However, the existing literature supports relative consistency in poverty across the lifespan (Stevens 1999) and thus community experiences. Additionally, the measure of community violence used in the current study is a subjective measure based on caregiver report. An objective index of the neighborhood (such as census data) was not available. This is important to note as a recent study by Zalot and colleagues (2009), interested in the moderation of gender and hyperactivity, impulsivity, and inattention on the relationship between community violence and adolescent outcomes, reported gender moderating effects only with subjective measures of the neighborhood. In the current study, moderation is demonstrated across genders, but we are unable to confirm the findings with objective data.

There are multiple lines of inquiry beyond the scope of the current study that could be the focus of future work. For example, maternal depression and parenting have long been found associated with family conflict (Belsky 1984; Cummings and Davies 2002) and community violence (Clark et al. 2008). This study did not attempt to disentangle the mechanisms through which impacts of exposure to violence may be generated and the field would benefit by its in-depth investigation. Further, we recognize that there are racial/ethnic disparities in the experiences of community violence (Sampson et al. 2005). This study fills a void in the literature by including children across many races/ethnicities, but additional studies should be conducted to better understand if race might also moderate the relationships examined.

Summary and conclusion This study demonstrated community violence has negative effects on later psychosocial functioning; not universally, but moderated by family conflict and child gender. For females, our findings suggest that exposure to either family conflict or community violence relates to higher levels of depression and anxiety in adolescence. For male children, exposure to both community and family violence is related to less optimal outcomes; higher depression and anxiety and risk-taking behavior, while being in low conflict families protects boys from the effects of the neighborhood. These findings highlight the importance of gender and family context in understanding the contribution of the community in the development of internalizing and externalizing problems. Identifying protective factors for girls that reduce the negative impacts of family conflict or violence in their neighborhood on their internalizing problems should be a focus of continued study and intervention.

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