American Journal of Community Psychology, Vol. 36, Nos. 1/2, September 2005 (© 2005)
DOI: 10.1007/s10464-005-6231-8

Risk Factors for Community Violence Exposure in Adolescence

Sharon F. Lambert,[1,3,4] **Nicholas S. Ialongo,**[1] **Rhonda C. Boyd,**[2] **and Michele R. Cooley**[1]

Community violence is recognized a significant public health problem. However, only a paucity of research has examined risk factors for community violence exposure across domains relevant to adolescents or using longitudinal data. This study examined youth aggressive behavior in relation to community violence exposure among a community epidemiologically defined sample of 582 (45% female) urban adolescents. Internalizing behaviors, deviant peer affiliation, and parental monitoring were examined as moderators of the association between aggressive behavior and exposure to community violence. For males with aggressive behavior problems and deviant peer affiliation or low parental monitoring, co-occurring anxiety symptoms protected against subsequent witnessing community violence. In contrast, males with aggressive behavior problems and co-occurring depressive symptoms were at increased risk for witnessing community violence. Implications of the findings for preventive interventions and future research are discussed.

KEY WORDS: community violence exposure; deviant peer affiliation; aggression; adolescence.

Youth exposure to community violence as witnesses or victims is a significant public health problem with negative consequences for several aspects of youth adjustment. Community violence exposure in youth has been associated with difficulties in emotional, behavioral, and adaptive functioning including depression, anxiety, posttraumatic stress disorder, aggression, poor academic functioning and achievement, and health problems (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; DuRant, Cadenhead, Pendergrast, Slavens, & Linder, 1994; Fitzpatrick & Boldizar, 1993; Freeman, Mokros, & Poznanski, 1993; Gorman-Smith & Tolan, 1998). Significant associations between exposure to community violence and aggressive behavior remain even after controlling for prior symptoms (Gorman-Smith & Tolan, 1998) and family violence (O'Keefe, 1997). Given the pervasiveness of community violence, examination of risk factors for community violence exposure is critical for identifying targets for preventive interventions with youth. Such research will inform prevention programs that reduce community violence exposure and the potential negative sequelae associated with exposure.

Prior research assessing rates and consequences of community violence exposure suggests that exposure varies along several demographic characteristics. Most studies report increased exposure for males, including witnessing violence and personal victimization by community violence (Farrell & Bruce, 1997; Fitzpatrick & Boldizar, 1993; Jenkins & Bell, 1994; O'Keefe, 1997; Schwab-Stone et al., 1999; Singer, Anglin, Song, & Lunghofer, 1995; Weist, Acosta, & Youngstrom, 2001). Increased age also has been associated with greater exposure to community violence (Richters & Martinez, 1993; Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls,

[1]Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland.
[2]Department of Psychiatry, University of Pennsylvania School of Medicine/Children's Hospital of Philadelphia, Philadelphia, Pennsylvania.
[3]Present address: Department of Psychology, George Washington University, Washington, DC.
[4]To whom correspondence should be addressed at Department of Psychology, George Washington University, 2125 G Street NW, Washington, District of Columbia 20052; e-mail: slambert@gwu.edu.

1998; Weist et al., 2001). African American youth are more often witnesses and victims of community violence than are White youth (Bell & Jenkins, 1993; Fitzpatrick & Boldizar, 1993; Gladstein, Rusonis, & Heald, 1992), even after controlling for demographic characteristics such as age and gender (Weist et al., 2001). Youth exposure to community violence also varies according to area of residence, with youth residing in economically poorer areas (Fitzpatrick & Boldizar, 1993; Schubiner, Scott, & Tzelepis, 1993), urban areas (Campbell & Schwarz, 1996), and high crime areas (Selner-O'Hagan, et al., 1998) at greatest risk of exposure.

Although several demographic characteristics have been associated with increased community violence exposure, less is known about youth behavioral characteristics which may heighten or reduce youth exposure to community violence. Youth aggression, anxiety, and depression have been identified as correlates and consequences of community violence (Cooley-Quille et al., 2001; DuRant et al., 1994; Freeman et al., 1993; Gorman-Smith & Tolan, 1998). However, relatively little is known about whether these behaviors also are antecedent to community violence exposure. Research linking youth aggression, anxiety, and depression with delinquent behavior (Kerr, Tremblay, Pagani, & Vitaro, 1997; Leas & Mellor, 2000; Lipsey & Derzon, 1998), a known risk factor for community violence exposure, suggests that these behaviors also may be antecedent to community violence exposure. The present study examined youth behaviors as predictors of subsequent exposure to community violence. In keeping with ecological models emphasizing the importance of considering the multiple contexts in which youth participate (e.g., Bronfenbrenner, 1986), characteristics of the peer and family contexts that may interact with youth behavior to influence exposure to community violence also were examined.

Youth Behavior as a Risk Factor for Community Violence Exposure

Few prospective studies have examined youth behaviors as antecedents to community violence exposure. Weist et al. (2001) examined behavior problems, stressful life events, and family characteristics as risk factors for community violence exposure among inner-city adolescents referred for mental health treatment. Increased life stress, male gender, African American ethnicity, and increased age predicted witnessing community violence. Prior arrest and life stress predicted community violence victimization. Risk for community violence victimization varied by gender, such that grade repetition was a significant risk for males,' but not females,' community violence victimization. For females, life stress was positively associated with increased community violence victimization. These results suggest that risk for exposure to community violence varies by different factors, including type of community violence and gender. Comparable studies with community samples have been limited.

Boyd, Cooley, Lambert, and Ialongo (2003) examined child behavioral risk factors for community violence exposure in a community sample of urban adolescents assessed longitudinally. Parent and teacher reports of children's aggressive behavior in first grade were associated with witnessing more community violence in middle school. For boys, the association between aggressive behavior and subsequent witnessing community violence was moderated by anxiety symptoms. Specifically, among boys with high levels of anxiety, aggressive behavior and witnessing community violence were not related. This study demonstrates the link between early aggressive behavior and later community violence exposure. It also provides preliminary evidence that certain anxiety symptoms may protect youth from exposure to community violence, and highlights the importance of considering behaviors that may co-occur with aggressive behavior problems as antecedents to community violence exposure.

Externalizing and internalizing behavior problems frequently co-occur in youth. This co-occurrence has implications for youth developmental outcomes (McConaughy & Skiba, 1993). The co-occurrence of depression and externalizing behavior problems has been linked with increased substance use (e.g., Capaldi, 1991; Miller-Johnson, Lochman, Coie, Terry, & Hyman, 1998), suicidal ideation and behavior (Capaldi, 1992; Newman, 2000), and involvement in dangerous, impulsive, and illegal activities (McConaughy & Skiba, 1993), each of which may heighten youth's propensity to be exposed to violence (Centers & Weist, 1998; Leas & Mellor, 2000). Although the co-occurrence of depressive symptoms and externalizing behavior problems is often associated with increased risk or severity, the co-occurrence of anxiety symptoms appears to decrease risk associated with externalizing behavior problems. For example, Walker, Lahey, and Russo (1991) found that clinic-referred boys with conduct disorder and a comorbid anxiety

disorder had fewer peer nominations of aggressive behavior, school suspensions, and police contacts than boys with conduct disorder alone. Similarly, anxiety, shyness, and behavioral inhibition have been associated with decreased delinquency (Tremblay, Pihl, Vitaro, & Dobkin, 1994). This research suggests that depressive and anxious symptoms moderate aggressive youths' risk for involvement in dangerous or illegal behaviors, which are known risk factors for community violence exposure (Centers & Weist, 1998; DuRant, Getts, Cadenhead, & Woods, 1995). Consequently, the current authors hypothesized that aggressive behavior would be associated with increased risk for community violence exposure, but that this risk would be moderated by co-occurring internalizing behavior problems. Specifically, we hypothesized that depressive symptoms would exacerbate risk of community violence exposure among youth with aggressive behavior problems, and anxiety symptoms would attenuate risk for community violence exposure among youth with aggressive behavior problems.

Moderating Effects of Peers and Family

Consistent with ecological theory (e.g., Bronfenbrenner, 1986), characteristics of the peer and family contexts have been linked with youth delinquent behavior, which has been associated with increased exposure to violence. Affiliation with deviant peers has been identified as a proximal risk factor for youth delinquency (Keenan, Loeber, Zhang, Stouthamer-Loeber, & van Kammen, 1995). Because deviant peer affiliation may increase the likelihood that children are in dangerous environments, deviant peer affiliation also may be a risk factor for community violence exposure. Consistent with this premise, several studies indicate that victims of community violence are more likely to have peers who are perpetrators and victims of crime and violence (Fagan, Piper & Cheng, 1987; Felson, 1997; Lauritsen & Davis-Quinet, 1995; Lauritsen, Laub, & Sampson, 1992; Lauritsen, Sampson, & Laub, 1991; Sampson & Lauritsen, 1990). Affiliation with delinquent peers also may increase the likelihood that youth witness community violence (Halliday-Boykins & Graham, 2001). Moreover, for youth already at risk for community violence exposure, deviant peer affiliation may exacerbate that risk.

Parental monitoring is one aspect of parenting relevant to youth's exposure to violence. For example, poor parental monitoring increases youth's opportunity to associate with delinquent peers. Not surprisingly, poor parental monitoring and ineffective, inconsistent discipline are related to concurrent and later delinquency and violent behavior (Capaldi & Patterson, 1996; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Elliott, Huizinga, & Ageton, 1985; Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Patterson, Reid, & Dishion, 1992). These outcomes, in turn, have been associated with increased risk for community violence exposure (Centers & Weist, 1998; Lauritsen et al., 1992). Qualitative studies of parenting strategies for families living in dangerous contexts reveal that increased monitoring and restricting youth behavior are means parents use to protect youth from exposure to community violence (Dubrow & Garbarino, 1988; Furstenberg et al., 1993). However, quantitative studies have not yielded empirical support for associations between parental monitoring and community violence exposure (Gorman-Smith & Tolan, 1998; Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukos, 1999). It is possible that the benefit of parental monitoring may be greatest for those youth at high risk for exposure to community violence, but not for all youth.

Study Goals and Research Questions

The available research suggests that community violence exposure is multiply determined, consistent with ecological theories of youth development. For example, particular youth behaviors may place youth at heightened risk for exposure to community violence, and characteristics of the peer and family contexts may moderate that risk. To date, however, examinations of community violence primarily have focused on youth behavioral adjustment as a consequence of community violence exposure, without examining antecedents to community violence exposure and without attention to other domains that may be relevant for violence exposure (see Halliday-Boykins & Graham, 2001, for an exception). In the current study, the authors examine a model of community violence exposure in which youth externalizing behavior, specifically aggressive behavior, is antecedent to community violence exposure, with internalizing behaviors and aspects of the peer and family contexts moderating the association between youth aggressive behavior and exposure to community violence. It was expected that aggressive behavior problems would be associated with increased risk

for community violence exposure, but that depressive and anxious symptoms would moderate that risk. Specifically, we hypothesized that depressive symptoms would increase the risk of community violence exposure among youth with aggressive behavior, and anxiety symptoms would serve a protective function by attenuating the risk for community violence exposure among youth with aggressive behavior. Regarding the role of the peer and family contexts, it was expected that deviant peer affiliation and poor parental monitoring would exacerbate the risk for community violence exposure for youth at risk by virtue of their behavioral characteristics.

This research builds on previous studies in several ways. First, this study examined community violence exposure among a community epidemiologically defined sample of adolescents. In contrast, the majority of prior research examining factors associated with community violence exposure has used high-risk samples (e.g., Gorman-Smith & Tolan, 1998; Weist et al., 2001); therefore, results from those studies may not generalize to community samples. Second, few studies have examined factors that place youth at risk for exposure to community violence. The few existing studies addressing this issue (e.g., Boyd et al., 2003; Weist et al., 2001) suggest that child behavior predicts exposure to community violence. However, this prior research has used high-risk samples and/or not examined factors that may moderate the risk for community violence exposure associated with youth behavior. Finally, further explication of how youth behaviors relate to subsequent community violence exposure is important for developing models of the emotional and behavioral impact of community violence on youth, by highlighting the reciprocal associations.

METHOD

Participants

Participants were 582 middle school students initially assessed in the fall of first grade as part of an evaluation of two school-based preventive interventions whose immediate targets were aggressive and disruptive behavior in first grade (Ialongo, Werthamer, et al., 1999). Three first grade classrooms in each of nine elementary schools were randomly assigned to one of two intervention conditions or a control condition. The Family–School Partnership intervention and the Classroom-Centered intervention sought to reduce aggressive and disruptive behavior and improve academic achievement by targeting parent discipline practices and classroom behavior management practices, respectively. The interventions were provided over the first grade year, following a pretest assessment in the early fall.

Of the 678 children who participated in the intervention trial in the Fall of 1993, approximately 86% completed face-to-face interviews that included life events and community violence questions at the sixth grade follow-up assessment. These 582 children comprised the sample of interest with 320 (55%) males and 262 (45%) females. Approximately 86% of the sample was African American ($N = 500$) and 14% was White ($N = 82$). As an indicator of low to impoverished socioeconomic status, 62.2% of the sample received free lunch or reduced lunches according to parent report. At the sixth grade assessment, the youth ranged in age from 10.38 to 13.32 years ($M = 11.78$, $SD = 0.37$). Chi-square tests showed no differences in gender, race, percentage receiving free or reduced lunches, or intervention condition between the 582 participants included in this study and the original sample of 678 children (ps $>$ .05). The t-tests showed no differences between these two groups in terms of age at entry into the study, first grade self-reports of anxiety or depressive symptoms, or teacher ratings of first grade externalizing problems (ps $>$ .05). Descriptions of the measures and methods used to assess first grade variables may be found in Ialongo, Werthamer, et al. (1999).

All of the 582 participants who participated in the Grade 6 assessment completed the community violence measure in Grades 7 and 8. The Ns for the analyses vary slightly because teacher and parent report measures were not available for all of the participants in Grade 6, and not all participants provided complete information on each measure. Available Ns are listed by variable in Table I. Listwise deletion of data was used in the regression analyses.

Assessment Design

Data for this study were obtained in the spring of the sixth grade (i.e., the fifth year follow-up) and the two subsequent years. A face-to-face interview was used to gather data from the teachers and youth at each assessment point. The parent data were collected via telephone interview during the sixth grade assessment. Written informed consent was obtained from parents and verbal assent from

Table I. Means and Standard Deviations of Study Variables for Total Sample and by Gender

	Total sample				Males		Females		
Variable	*M*	*SD*	Range	Maximum range	*M*	*SD*	*M*	*SD*	(*t* test/χ^2)[a]
Child Behavior									
Aggression	1.84	0.81	1–5.10	1–6	2.02	0.90	1.62	0.63	6.26***
Anxiety	0.84	0.49	0–2.88	0–3	0.82	0.47	0.86	0.51	1.16
Depression	0.68	0.42	0–2.47	0–3	0.66	0.40	0.70	0.45	1.05
Peer and family moderators									
Deviant peer affiliation	10.35	3.98	6–29	6–30	10.60	4.11	10.04	3.79	1.68†
Parental monitoring[b]	11.78	4.28	6–26	6–36	12.19	4.34	11.27	4.15	2.61**
Community violence exposure[c]									
Witness grade 6	0.37	0.48	0–1	0–1	0.42	0.49	0.31	0.47	6.35*
Witness grades 7 and 8	0.52	0.50	0–1	0–1	0.57	0.50	0.45	0.50	8.19**
Victim grade 6	0.07	0.25	0–1	0–1	0.09	0.29	0.03	0.17	9.43**
Victim grades 7 and 8	0.09	0.28	0–1	0–1	0.13	0.34	0.03	0.18	16.07***

Note. $N = 582$ for Anxiety, depression, and victim Grade 6; $N = 580$ for deviant peer affiliation, parental monitoring, witness Grade 6; $N = 574$ for witness Grades 7 and 8, and victim Grades 7 and 8; $N = 565$ for aggression. Child behavior and peer and family moderators were assessed in Grade 6. Aggression = Aggressive/disruptive behavior subscale of the Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson et al., 1991). Anxiety = Anxiety subscale of Baltimore How I Feel (BHIF; Ialongo et al., 1999). Depression = Depression subscale of BHIF (Ialongo et al., 1999). Deviant peer affiliation = Deviant Peer Affiliation subscale developed by Capaldi and Patterson (1989). Parent monitoring = Parent Monitoring subscale of the Structured Interview of Parent Management Skills and Practices-Parent Version (SIPMSP; Capaldi & Patterson, 1989). Community Violence Exposure = being beaten up, robbed, stabbed or shot as assessed on the Children's Report of Exposure to Violence (CREV; Cooley et al., 1995). Witness = CREV witnessing community violence. Victim = CREV Community violence victimization.

[a]The χ^2 value presented for community violence variables.

[b]Higher numbers indicate less monitoring.

[c]Dichotomous variables; means represent proportion of sample.

$^*p < .05$. $^{**}p < .01$. $^{***}p < .001$. $^\dagger p > .05$.

the youth. Youth behaviors, deviant peer affiliation, and parental monitoring were assessed in sixth grade. The outcome variables were witnessing and victimization by community violence measured at the seventh and eighth grade assessments.

Measures

Demographic Information and Intervention Status

Information was collected on participants' age, gender, and receipt of free or reduced lunch. Intervention status (i.e., participation in an intervention or control condition during first grade) also was recorded.

Anxiety and Depression

Anxious and depressive symptoms were assessed using the Baltimore How I Feel (BHIF; Ialongo, Kellam, & Poduska, 1999). The BHIF is a 45-item, youth self-report measure of depressive and anxious symptoms. Children report the frequency of depressive and anxious symptoms over the last 2 weeks on a 4-point scale (1 = *never*, 4 = *most times*). The BHIF was designed as a first-stage measure in a two-stage epidemiologic investigation of the prevalence of child and adolescent mental disorders as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., rev.; *DSM-IV*; American Psychiatric Association, 1994). Items were generated directly from *DSM-IV* criteria or drawn from existing child self-report measures, including the Children's Depression Inventory (Kovacs, 1983), the Depression Self-Rating Scale (Asarnow & Carlson, 1985), the Hopelessness Scale for Children (Kazdin, Rodgers, & Colbus, 1986), the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1985), and the Spence Children's Anxiety Scale (Spence, 1997). Summary scores are created by summing across the 19 depression items to yield a Depression subscale score; the sum of the remaining 26 items constitutes an Anxiety subscale score. Chronbach's alphas for the depression items in

Grades 6, 7, and 8 were .80, .79, and .82, respectively. Chronbach's alphas for the anxiety items at the sixth, seventh, and eighth grade assessments were .89, .88, and .89, respectively. In middle school, the BHIF Depression subscale was significantly associated with a diagnosis of major depressive disorder on the Diagnostic Interview Schedule for Children IV (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), whereas middle school BHIF Anxiety subscale scores were significantly associated with a diagnosis of generalized anxiety disorder on the Diagnostic Interview Schedule for Children IV.

Aggressive Behavior

Aggressive behavior was measured using the aggressive/disruptive behavior subscale of the Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson, Kellam, & Wheeler, 1991). The TOCA-R is a brief measure of each child's adequacy of performance on the core tasks in the classroom as defined by the teacher. It is a structured interview administered by a trained member of the assessment staff. The interviewer records the teacher's ratings of the adequacy of each child's performance on a 6-point scale (*never true* to *always true*) in the following domains: accepting authority (aggressive behavior); social participation (shy or withdrawn behavior); self-regulation (impulsivity); motor control (hyperactivity); concentration (inattention); and peer likeability (rejection).

A summary aggression score was created by taking the mean of the 5-item aggressive/disruptive subscale. Coefficient alpha for the aggressive/disruptive behavior subscale was .89 in sixth grade. In terms of predictive validity, in grades 1–5, respectively, the aggressive/disruptive behavior subscale significantly predicted adjudication for a violent crime in adolescence and a diagnosis of Antisocial Personality Disorder at age 19–20 in the first generation JHU PIRC trial and follow-up (Petras, Chilcoat, Leaf, Ialongo, & Kellam, 2004; Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003).

Exposure to Deviant Peers

Deviant peer affiliation was assessed using items developed by Capaldi and Patterson (1989). Using a forced choice format, youth indicate how often their peers have engaged in antisocial behavior and/or substance use. In the present sample, coefficient alphas ranged from .76 to .84 during the middle school years.

Parental Monitoring

Parental monitoring was assessed using the Structured Interview of Parent Management Skills and Practices—Youth Version (SIPMSP; Patterson et al., 1992). The SIPMSP Youth Version was designed to assess the major constructs included in Patterson et al.'s (1992) model of the development of antisocial behavior and substance use in children and adolescents. The constructs assessed are (1) parental monitoring/supervision, (2) inconsistent discipline, (3) reinforcement/involvement, and (4) rejection of the child. For the parental monitoring subscale, youths are asked to respond to questions regarding their parents' monitoring practices in forced choice response formats. Higher numbers indicate less monitoring.

Exposure to Community Violence

Community violence exposure over the past year was assessed using items from the Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995). The CREV is a self-report instrument used to assess the frequency of exposure to community violence through four modes. Only two subscales were employed in the present study: violence directly witnessed and violence directly/personally experienced (victimization). The violent events included being beaten up, robbed, stabbed, or shot, or witnessing someone experiencing one or more of those events. The CREV has proven to be highly reliable in African American youth and to be related to psychological well-being (Cooley et al., 1995). For analytic purposes, owing to the highly skewed distributions of the total scores for being a victim and witnessing violence, two categorical variables were computed for each assessment point (i.e., sixth, seventh, and eighth grades). One variable represented whether participants had been the victim of violence (1 = *yes*, 2 = *no*) and the other whether they witnessed someone being victim of violence (1 = *yes*, 2 = *no*). The two outcome variables for this study were dichotomous variables: (a) whether the participant had been a victim of community violence in Grade 7 or Grade 8; and (b) whether the participant had witnessed community violence in Grade 7 or Grade 8. The dichotomous variables indicating whether or not the youth had been a victim or witnessed community violence in Grade 6 were used as control variables.

RESULTS

Descriptive Statistics and Relations Among Study Variables

Means, standard deviations, and ranges of all study variables for the total sample and by gender are presented in Table I. Teachers reported significantly more aggressive behavior for boys ($M = 2.02$) than for girls ($M = 1.62$), $t = 6.26$, $p < .001$. No gender differences were found regarding youth reports of depressive or anxious symptoms. Females reported more monitoring by parents ($M = 11.27$) than did males ($M = 12.19$), $t = 2.61$, $p < .01$. Although not significant, statistical trends suggest that youth reports of deviant peer affiliation were slightly higher among males ($M = 10.60$) than among females ($M = 10.02$), $t = 1.76$, $p < .10$.

In Grade 6, 37% of the sample reported witnessing community violence within the preceding year (7.7% witnessed someone robbed or mugged; 32% witnessed someone beaten up; 6.9% witnessed someone shot or stabbed; 4.1% witnessed someone killed). Approximately half of the sample (51.6%) reported witnessing community violence in Grade 7 or Grade 8 (12.9% witnessed someone robbed or mugged; 46.6% witnessed someone beaten up; 12.0% witnessed someone shot or stabbed; 5.7% witnessed someone killed). Chi-square tests revealed that males reported witnessing more community violence than females in Grade 6 (42 and 31%, respectively), $\chi^2 = 6.35$, $p < .05$, and in the subsequent two years (57 and 45%, respectively), $\chi^2 = 8.19$, $p < .01$. In Grade 6, 6.5% of the sample reported they had been victims of community violence in the past year (1.5% robbed or mugged; 3.3% beaten up; 2.1% shot or stabbed), and 8.7% reported that they had been victims in the subsequent two years (3.4% robbed or mugged; 4.3% beaten up; 1.9% shot or stabbed). Males reported significantly more community violence victimization than females in Grade 6 (9.3 and 3.1%, respectively), $\chi^2 = 9.43$, $p < .01$, and in the subsequent two years (12.9 and 3.5%, respectively), $\chi^2 = 16.07$, $p < .001$.

Bivariate associations among predictors, moderators, and outcomes for males and females are presented in Table II. Youth reports of anxious and depressive symptoms were positively associated for males and females. Aggressive behavior was positively correlated with females' but not males' depressive symptoms. Deviant peer affiliation was positively associated with anxious and depressive symptoms for both genders, but only males' aggressive behavior. Low levels of parental monitoring were significantly associated with females'

Table II. Correlations Among Study Variables for Males and Females

Variable	1	2	3	4	5	6	7	8	9
Child behavior									
1. Aggression	—-	.03	.09	.23***	.08	.09	.09	.12*	.10†
2. Anxiety	.07	—	.69***	.27***	.11†	.11*	−.03	.13*	.02
3. Depression	.15*	.75***	—	.31***	.28***	.12*	.05	.13*	.11†
Peer and family moderators									
4. Deviant peer affiliation	.07	.28***	.28***	—	.25***	.17**	.18**	.20**	.18**
5. Parental monitoring[a]	.08	.18**	.29***	.18**	—	.06	.11*	.07	.13*
Community Violence									
6. Witness grade 6	.14*	.13*	.15*	.22***	.13*	—	.39***	.25***	.23***
7. Witness grades 7 and 8	.13*	.04	.04	.12†	.11†	.30***	—	.11†	.32***
8. Victim grade 6	.19**	.16**	.18**	.02	.12*	.02	−.03	—	.26***
9. Victim grades 7 and 8	.12†	.18**	.15*	.11†	.13*	.10	.17**	.21**	—

Note. Correlations for males are above the diagonal; correlations for females are below the diagonal. Child behavior and peer and family moderators were assessed in Grade 6. Aggression = Aggressive/disruptive behavior subscale of the Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson et al., 1991). Anxiety = Anxiety subscale of Baltimore How I Feel (BHIF; Ialongo et al., 1999). Depression = Depression subscale of BHIF (Ialongo et al., 1999). Deviant peer affiliation = Deviant Peer Affiliation subscale developed by Capaldi and Patterson (1989). Parental monitoring = Parental Monitoring subscale of the Structured Interview of Parent Management Skills and Practices-Parent Version (SIPMSP; Capaldi & Patterson, 1989). Community Violence Exposure = being beaten up, robbed, stabbed, or shot as assessed on the Children's Report of Exposure to Violence (CREV; Cooley et al., 1995). Witness = CREV Witnessing community violence. Victimization = CREV Community violence victimization.

[a]Higher numbers indicate less monitoring.

*$p < .05$. **$p < .01$. ***$p < .001$. †$p > .05$.

aggressive behavior and reports of anxious and depressive symptoms, but were not associated with males' behaviors.

Aggressive behavior in Grade 6 was positively associated with concurrent victimization by community violence, and females' concurrent and later (i.e., Grades 7 and 8) witnessing community violence. Anxious and depressive symptoms in Grade 6 were positively associated with concurrent witnessing and victimization by community violence, and females' subsequent victimization. Deviant peer affiliation in Grade 6 was positively associated with concurrent and later witnessing and victimization by community violence for males, but only females' concurrent witnessing community violence.

Moderators of the Association Between Child Behavior and Community Violence Exposure

Because the outcome variables (i.e., witnessing and victimization by community violence) were dichotomous, logistic regression analyses were used to test study hypotheses. Specifically, a series of logistic regression equations was performed to examine youth behavioral characteristics assessed in Grade 6 as predictors of subsequent community violence exposure (seventh and eighth grades combined), and deviant peer affiliation and parental monitoring assessed in Grade 6 as moderators of the association between youth behavioral characteristics and subsequent community violence exposure. In each regression, lunch status, intervention status, and prior community violence exposure (i.e., in sixth grade) were included as control variables. The moderating effects of deviant peer affiliation and parental monitoring were examined in separate regression models.

Tests for moderation were performed following procedures outlined by Baron and Kenney (1986). Main effect variables were centered prior to entry in each model and mean deviated scores were used to compute interaction terms. All component terms for the interactions were included in each test for moderation. Significant interaction terms were interpreted and plotted using procedures outlined by Jaccard (2001). The dependent variable in the logistic regressions is a logit score. For each logistic regression with a significant interaction term, the logit score was calculated at two different levels (1 standard deviation above the mean and 1 standard deviation below the mean) of the predictor and moderator variables. Mean values of other terms in the model (i.e., covariates) were used for these calculations.[5] These computations permitted examination of the odds of community violence exposure when participants were high (1 standard deviation above the mean) or low (1 standard deviation below the mean) on the predictor and moderator variables. The lines on the interaction plots represent the values obtained from the calculations described above.

The scale for the *y*-axis of the interaction plots is the logit scale. Values greater than 0 indicate odds greater than 1. For the present study, values greater than 0 indicate increased risk for community violence exposure. Unlike linear regression, no tests yet exist akin to those described in Aiken and West (1991) to examine whether the simple slopes of the regression lines are significantly different than 0 or to test for significant differences between regression lines (Stephen G. West, personal communication, January 26, 2002).

Analyses were conducted separately by gender because there were significant gender differences in community violence exposure, and the association between community violence exposure and youth behaviors has been shown to vary by gender in prior research and in this sample. Because of the low rate of reported victimization among females (sixth grade: $N = 8$ [3%]; seventh and eighth grades follow-up: $N = 9$ [3%]), victimization analyses were only conducted for males.

Deviant Peer Affiliation as a Moderator

The first set of logistic regression models examined whether deviant peer affiliation moderated the association between youth behavioral characteristics and exposure to community violence. Control variables (lunch status, intervention status, and prior community violence exposure) were entered on the first step. Main effects for aggressive behavior, and anxious and depressive symptoms, and deviant peer affiliation were entered on the second step.

[5]The logistic regression equation for a two-way interaction is: logit $= \alpha + \beta 1X + \beta 2Z + \beta 3XZ$. Using this equation, it is possible to determine the coefficient for X at different values of the moderator Z. With a three-way interaction (logit $= \alpha + \beta 1X + \beta 2Q + \beta 3Z + \beta 4XQ + \beta 5XZ + \beta 6QZ + \beta 7XQZ$), it is possible to calculate coefficients at different values of the moderators Q and Z. Similarly, the logit value for different values of X, Q, and Z, can be calculated to give the odds of community violence exposure for different levels of the risk and moderator variables (Jaccard, 2001).

Two-way interactions between deviant peer affiliation and each behavior (anxiety, depression, and aggressive) were entered on the third step. Because prior research has demonstrated that internalizing symptoms may interact with aggressive behavior in the prediction of youth problem behaviors, two-way interactions between anxiety and aggressive behavior and depression and aggressive behavior also were entered on the third step. Three-way interactions (Aggression × Anxiety × Deviant peer affiliation and Aggression × Depression × Deviant peer affiliation) were entered on the final step. Results are summarized in Table III.

For boys, prior witnessing community violence (i.e., in sixth grade) was a significant predictor of subsequent witnessing community violence. Deviant peer affiliation in Grade 6 was associated with increased witnessing community violence in Grades 7 and 8. This main effect was qualified by a significant three-way interaction among aggressive behavior, anxiety, and deviant peer affiliation ($B = -0.55$, $SE = .21$, $OR = 0.58$, $p < .05$; see Fig. 1). For boys with low deviant peer affiliation, aggressive behavior was not associated with increased risk for witnessing community violence (logit values less than 0). Among boys with high deviant peer affiliation, aggressive behavior was not associated with witnessing community violence for boys who had high levels of co-occurring anxiety (logit values less than 0), but aggressive behavior was associated with increased risk for witnessing community violence for those boys whose co-occurring anxiety was low (logit greater than 0). Thus, anxiety displayed a protective effect against community violence exposure for boys with deviant peers.

The regression of witnessing community violence on child behavioral characteristics and deviant peer affiliation also yielded a significant interaction among depressive symptoms, aggressive behavior, and deviant peer affiliation for boys ($B = 0.58$, $SE = .26$, $OR = 1.78$, $p < .05$; see Fig. 2). Aggressive behavior was not associated with increased witnessing for boys with low depressive symptoms (logit values less than 0). For boys with high depressive symptoms, aggressive behavior was positively associated with witnessing community violence, regardless of deviant peer affiliation.

For girls, the regression of witnessing community violence on child behavioral characteristics and deviant peer affiliation did not yield significant interactions. Witnessing community violence in Grade 6 was the only significant predictor of witnessing later community violence in Grades 7 and 8 ($B = 1.29$, $SE = .32$, $OR = 3.63$, $p < .001$). Similarly, the regression of males' community violence victimization on child behavioral characteristics and deviant peer affiliation did not yield significant main effects or interactions for boys. Witnessing community violence in Grade 6 was the only significant predictor of victimization by community violence in Grades 7 and 8 ($B = 1.11$, $SE = .42$, $OR = 3.04$, $p < .01$).

Parental Monitoring as a Moderator

Logistic regression models to examine whether parental monitoring moderated the association between child behavioral characteristics and exposure to community violence were conducted in the manner described above. Control variables were entered on the first step. Main effects for child behaviors and parental monitoring were entered on the second step. Two-way interactions between parental monitoring and each behavior were entered on the third step. Because prior research has demonstrated that internalizing symptoms may interact with aggressive behavior in the prediction of youth problem behaviors, two-way interactions between anxiety and aggressive behavior and depression and aggressive behavior also were entered on the third step. Three-way interactions (Aggression × Anxiety × Parental monitoring and Aggression × Depression × Parental monitoring) were entered on the final step. Results are summarized in Table IV.

As described above, prior witnessing community violence (i.e., in sixth grade) was a significant predictor of subsequent witnessing community violence for boys. A significant interaction between aggressive behavior and anxious symptoms was qualified by a significant three-way interaction among aggressive behavior, anxious symptoms, and parental monitoring ($B = -0.32$, $SE = .14$, $OR = 0.73$, $p < .05$; see Fig. 3). For boys with high parental monitoring, aggressive behavior was not associated with increased risk for witnessing community violence (logit values equal to or less than 0). Aggressive behavior was associated with increased witnessing community violence for boys with low parental monitoring and low anxiety. As above, anxiety displayed a protective effect. Specifically, among boys with low parental monitoring, aggressive behavior was not associated with witnessing for boys who had high levels of co-occurring anxiety (logit values equal to or less

Table III. Logistic Regression of Community Violence Exposure on Youth Behavior and Deviant Peer Affiliation

	Male witness CV				Female witness CV				Male CV victimization			
Variable	$(\chi^2)^a$	*B*	*SE*	*OR*	χ^2	*B*	*SE*	*OR*	χ^2	*B*	*SE*	*OR*
Step 1	42.58***				23.27***				13.88**			
Intervention status		0.17	.19	1.19		−0.05	.18	0.96		−0.38	.26	0.69
Lunch status		−.10	.33	0.90		−0.24	.32	0.79		−0.56	.52	0.57
Prior community violence		1.85	.32	6.35***		1.29	.32	3.63***		1.11	.42	3.04**
Step 2	13.39*				3.29				6.59			
Aggression		0.42	.23	1.53†		0.36	.25	1.43		0.04	.26	1.04
Anxiety		−1.30	.56	0.27*		0.09	.42	1.09		−0.08	.69	0.92
Depression		0.78	.61	2.18		−0.19	.51	0.83		0.56	.79	1.75
Deviant peer (DP)		0.16	.05	1.17**		0.03	.04	1.03		0.09	.06	1.09
Step 3	11.99*				2.73				6.27			
Aggression × Anxiety		−2.09	.74	0.12**		0.87	.84	2.39		.41	.60	1.50
Aggression × Depression		1.81	.77	6.08*		−0.73	.84	0.48		0.64	.67	1.89
Aggression × DP		0.11	.07	1.12†		−0.06	.08	0.95		−0.04	.07	0.96
Anxiety × DP		−0.28	.15	.76†		0.05	.12	1.05		−0.23	.15	0.79
Depression × DP		0.38	.18	1.46*		−0.05	.13	0.95		0.13	.17	1.14
Step 4	9.00*				3.61				1.65			
Aggression × Anxiety × DP		−0.55	.21	0.58*		0.52	.29	1.68†		−0.12	.15	0.89
Aggression × Depression × DP		0.58	.26	1.78*		−0.39	.28	0.68		−0.09	.18	0.92

Note. Child behaviors (aggression, anxiety, depression) and deviant peer affiliation were assessed in Grade 6. CV = community violence (being beaten up, robbed, stabbed, or shot) as assessed on the Children's Report of Exposure to Violence (CREV; Cooley et al., 1995). Witness CV = witnessing community violence in Grade 7 or Grade 8. CV victimization = victimization by community violence in Grade 7 or Grade 8. Prior Community Violence = sixth grade witnessing community violence or sixth grade victimization by community violence to match dependent variable. Aggression = Aggressive/disruptive behavior subscale of the Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson et al., 1991). Anxiety = Anxiety subscale of Baltimore How I Feel (BHIF; Ialongo et al., 1999). Depression = Depression subscale of BHIF (Ialongo et al., 1999). Deviant peer affiliation = Deviant Peer Affiliation subscale developed by Capaldi and Patterson (1989). Overall model χ^2 (14 *df*) for males' witnessing community violence = 76.95, $p < .001$, for female witnessing community violence = 32.91, $p < .01$, for males' victimization = 28.38, $p < .05$.

[a] χ^2 = chi square for step.

*$p < .05$. **$p < .01$. ***$p < .001$. †$p > .05$.

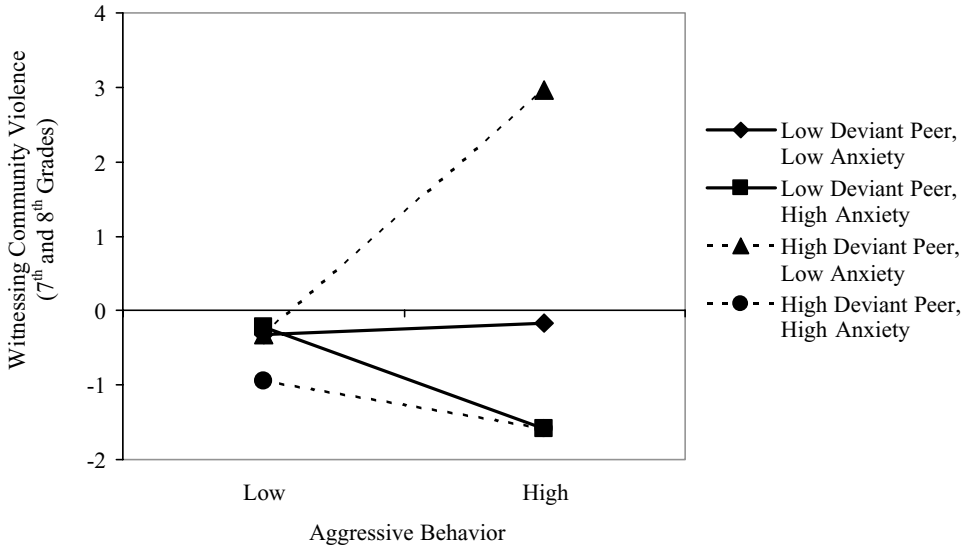

Fig. 1. Interaction among aggressive behavior, anxiety, and deviant peer affiliation predicting witnessing community violence for boys. Scale for the *y*-axis is the logit scale. Values greater than 0 indicate odds of witnessing community violence are greater than 1.

than 0), but aggressive behavior was associated with increased risk for witnessing community violence for those with low levels of co-occurring anxiety (logit greater than 0).

The regression of witnessing community violence on child behavioral characteristics and parental monitoring also yielded a significant interaction among aggressive behavior, depressive symptoms, and parental monitoring for boys ($B = 0.38$, $SE = .16$, $OR = 1.47$, $p < .05$; see Fig. 4). Aggressive behavior was not associated with increased witnessing for boys with low depressive symptoms (logit

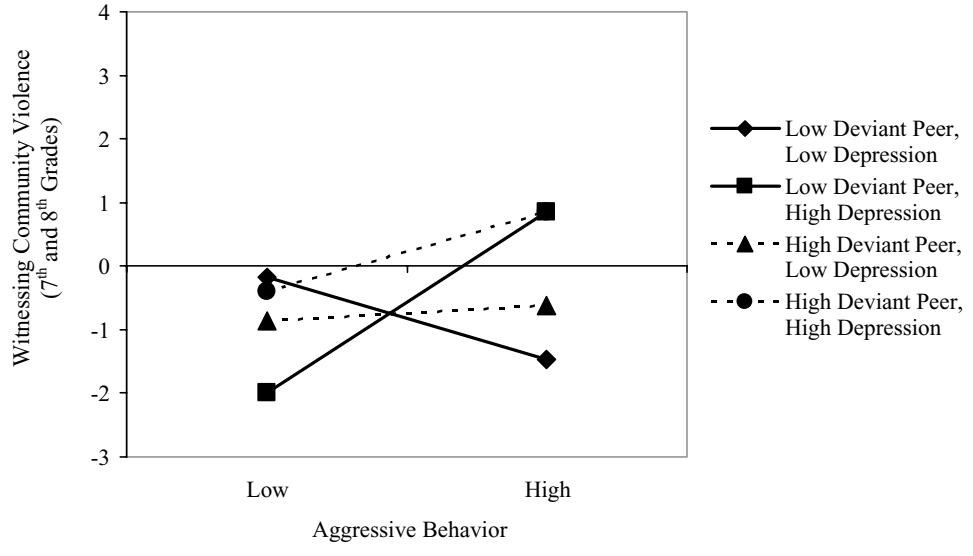

Fig. 2. Interaction among aggressive behavior, depression, and deviant peer affiliation predicting witnessing community violence for boys. Scale for the *y*-axis is the logit scale. Values greater than 0 indicate odds of witnessing community violence are greater than 1.

Table IV. Logistic Regression of Community Violence Exposure on Youth Behavior and Parent Monitoring

	Male witnessing				Female witnessing				Male victimization			
Variable	χ^2	*B*	*SE*	*OR*	χ^2	*B*	*SE*	*OR*	χ^2	*B*	*SE*	*OR*
Step 1	42.58***				23.27***				13.88**			
Intervention status		0.16	.18	1.17		−0.06	.18	0.95		−0.36	.26	0.70
Lunch status		−0.11	.32	0.89		−0.29	.32	0.75		−0.47	.52	0.62
Prior CV		1.86	.31	6.42***		1.31	.32	3.72***		1.37	.44	3.95**
Step 2	5.56				3.13				4.80			
Aggression		0.17	.19	1.18		0.38	.26	1.47		−0.11		
Anxiety		−0.77	.49	0.46		0.07	.43	1.07		−0.44		
Depression		0.44	.56	1.55		−0.15	.51	0.86		0.90		
Parent monitoring (PM)		0.06	.04	1.06		0.02	.04	1.02		0.02		
Step 3	5.81				3.12				9.99†			
Aggression × Anxiety		−1.55	.62	0.21*		1.26	.81	3.52		−0.30		
Aggression × Depression		1.01	.71	2.74		−1.18	.94	0.31		1.25	.72	3.50†
Aggression × PM		0.06	.04	1.06		−0.06	.07	0.94		−0.16	.06	0.86*
Anxiety × PM		−0.09	.12	0.92		0.13	.11	1.14		−0.15	.14	0.86
Depression × PM		0.13	.13	1.14		−0.24	.13	0.78†		0.21	.16	1.23
Step 4	7.79*				4.80†				0.86			
Aggression × Anxiety × PM		−0.32	.14	0.73*		−0.14	.19	0.87		−0.11	.15	0.90
Aggression × Depression × PM		0.38	.16	1.47*		0.27	.16	1.31†		0.13	.16	1.14

Note. Child behaviors (aggression, anxiety, depression) and parent monitoring were assessed in Grade 6. CV = community violence (being beaten up, robbed, stabbed or shot) as assessed on the Children's Report of Exposure to Violence (CREV; Cooley et al., 1995). Witness CV = witnessing community violence in Grade 7 or Grade 8. CV Victimization = victimization by community violence in Grade 7 or Grade 8. Prior Community Violence = sixth grade witnessing community violence or sixth grade victimization by community violence to match-dependent variable. Aggression = Aggressive/disruptive behavior subscale of the Teacher Observation of Classroom Adaptation—Revised (TOCA-R; Werthamer-Larsson et al., 1991). Anxiety = Anxiety subscale of Baltimore How I Feel (BHIF; Ialongo et al., 1999). Depression = Depression subscale of BHIF (Ialongo et al., 1999). Parent monitoring = Parent Monitoring subscale of the Structured Interview of Parent Management Skills and Practices—Parent Version (SIPMSP; Capaldi & Patterson, 1989). Overall model χ^2 (14 *df* for males' witnessing community violence = 61.73, $p < .001$, for female witnessing community violence = 34.32, $p < .01$, for males' victimization = 29.53, $p < .01$.

[a] χ^2 = chi-square for step.

*$p < .05$. **$p < .01$. ***$p < .001$. †$p > .05$.

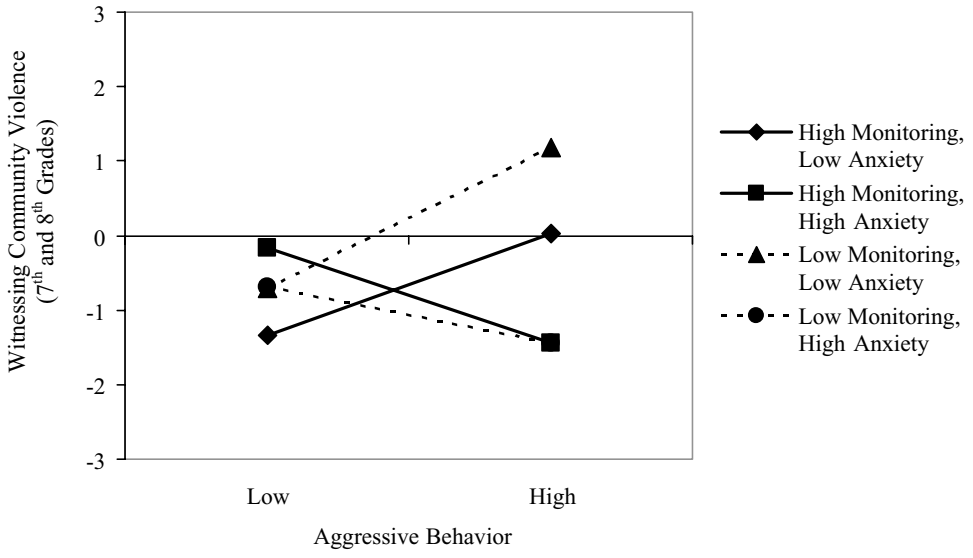

Fig. 3. Interaction among aggressive behavior, anxiety, and parental monitoring predicting witnessing community violence for boys. Scale for the *y*-axis is the logit scale. Values greater than 0 indicate odds of witnessing community violence are greater than 1.

values less than 0). For boys with high depressive symptoms, aggressive behavior was positively associated with witnessing community violence, regardless of parental monitoring (logit values greater than 0).

For girls, the regression of witnessing community violence in Grades 7 and 8 did not yield significant interactions between child behavioral characteristics and parental monitoring. Witnessing community violence in Grade 6 ($B = 1.31$, $SE = .32$,

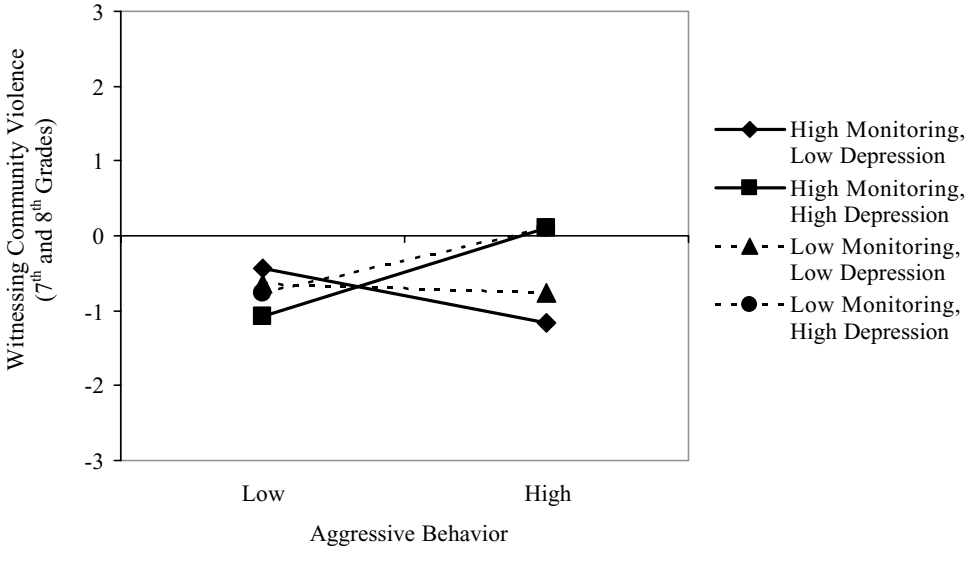

Fig. 4. Interaction among aggressive behavior, depression, and parental monitoring predicting witnessing community violence for boys. Scale for the *y*-axis is the logit scale. Values greater than 0 indicate odds of witnessing community violence are greater than 1.

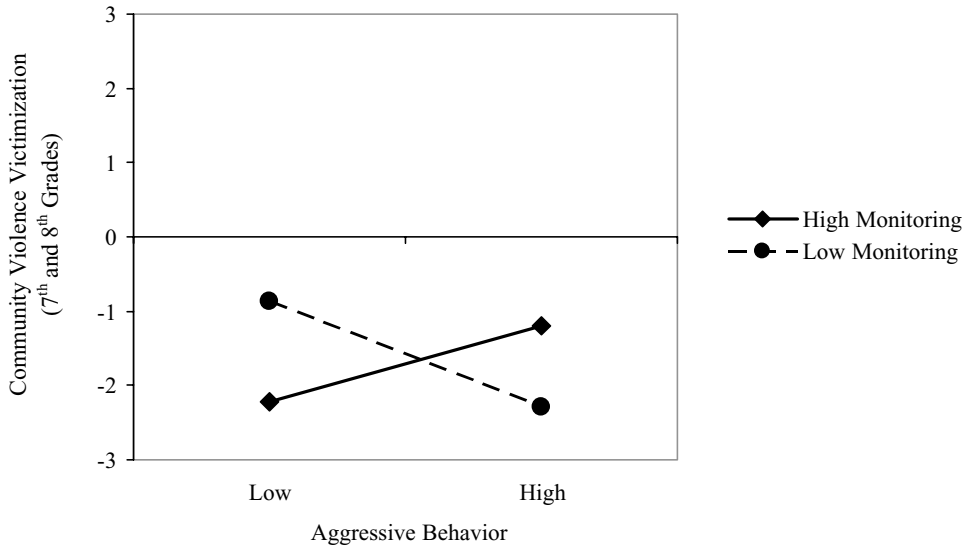

Fig. 5. Interaction between aggressive behavior and parent monitoring predicting community violence victimization for boys. Scale for the *y*-axis is the logit scale. Values greater than 0 indicate odds of witnessing community violence are greater than 1.

$OR = 3.72$, $p < .001$) was the only significant predictors of girls' witnessing community violence in Grades 7 and 8.

With regard to boys' community violence victimization in Grades 7 and 8, there was a significant interaction between aggressive behavior and parental monitoring for boys ($B = -0.16$, $SE = .06$, $OR = 0.86$, $p < .05$). This interaction is presented in Fig. 5. For boys with high parental monitoring, there was a positive association between aggressive behavior and community violence victimization; for boys with low parental monitoring, there was a negative association between aggressive behavior and community violence victimization. However, across levels of parental monitoring, aggressive behavior was not associated with increased risk for community violence victimization (i.e., logit values were less than 0).

DISCUSSION

Until recently, research on community violence has provided limited information regarding risk factors for subsequent community violence exposure and factors amenable to change. Our prior research identified aggressive behavior in elementary school as a predictor of community violence exposure in early adolescence, with anxious symptoms serving a protective effect against aggressive youths' exposure to violence. This work extends that research by examining the moderating effects of two types of internalizing behavior, anxious and depressive symptoms, as moderators of the association between aggressive behavior and later community violence exposure. Additionally, this manuscript examines parent and peer variables as potential moderators of the association between youth behavior and community violence exposure. Aggressive behavior and deviant peer affiliation were associated with increased subsequent exposure to community violence. For males, aggressive behavior and witnessing community violence were differentially related depending on the presence or absence of internalizing symptoms, affiliation with deviant peers, and level of parental monitoring. Specifically, for aggressive males with high deviant peer affiliation or low parental monitoring, anxiety symptoms protected against witnessing community violence. However, depressive symptoms exacerbated aggressive males' risk for witnessing community violence. Each of these findings is discussed below.

Youth Behavior and Community Violence Exposure

Prior research has demonstrated that aggressive behavior in elementary school is associated with exposure to community violence in adolescence (Boyd

et al., 2003). Consistent with that research, the current study found that early adolescent aggressive behavior was positively associated with subsequent exposure to community violence. Aggressive youth may place themselves in hostile settings or dangerous situations that increase the likelihood that they will experience community violence. Relatedly, self-reported use of violence (DuRant et al., 1994), youth weapon carrying (Bell & Jenkins, 1993; Uehara, Chalmers, Jenkins, & Shakoor, 1996) and prior arrest (Weist et al., 2001) are associated with exposure to community violence. These aggressive behaviors and events each typically occur in hostile or dangerous settings, enhancing the likelihood of youth exposure to community violence.

Aggressive behavior emerged as a risk factor for male and female adolescents' later community violence exposure. However, the risk of witnessing community violence for males with aggressive behavior problems differed according to whether they had co-occurring internalizing symptoms. A protective effect of anxiety symptoms was observed, such that males with aggressive behavior problems and co-occurring anxiety symptoms were *not* at increased risk for witnessing community violence. Increased risk of witnessing community violence was only observed for aggressive boys with low levels of anxiety symptoms. Similarly, behavioral inhibition has been shown to protect disruptive boys against delinquency (Kerr et al., 1997). Although the protective effect of anxiety seems to contradict research that has identified anxiety as an adverse consequence of community violence exposure (e.g., Cooley-Quille et al., 2001; Fitzpatrick & Boldizar, 1993), the present findings are not necessarily contradictory, but instead highlight reciprocal associations between youth behavior and community violence exposure.

Regarding the seemingly counterintuitive protective effect of anxiety, we suggest that anxiety symptoms, at the extreme or disorder level, may impair functioning in several domains although mild symptoms may prove beneficial in some contexts. For example, attention to one's surroundings and awareness of the environment may protect youth from danger. Being concerned about the consequences of one's actions or the evaluations of others are additional examples of potentially protective symptoms of anxiety. The anxiety symptoms observed to be protective against witnessing community violence in this study may be those that relate to youth's awareness of safety and danger versus anxiety symptoms that may warrant clinical attention.[6]

Depressive symptoms served a different moderating role in relation to aggressive behavior. Specifically, aggressive behavior problems with co-occurring depressive symptoms placed boys at increased risk for witnessing community violence. Comparable results have been obtained in relation to behavior problems. For example, among adolescents, depression has been positively associated with increased delinquency (Leas & Mellor, 2000) and risk-taking behaviors, including physical fights (Pesa, Cowdery, Westerfield, & Wang, 1997) and drug use (Felix-Ortiz, Munoz, & Newcomb, 1994). It has been proposed that youth may act out in violent ways to "cover up" or cope with feelings of depression or distress. Alternatively, boys—particularly urban males—may have little experience or role models to assist in directly labeling or expressing their sad, helpless, or hopeless emotions. For example, our clinical experience with some inner-city youth indicates confusion in accurately labeling sad or frustrating emotions. When feeling sad or embarrassed, a child might report that they feel "mad." This type of misattributing anger to other emotions may increase aggressive behavior and positioning oneself in settings in which violence occurs.

[6]Because we have no gold standard for determining what constitutes mild versus more severe anxiety, we use mental health service utilization to establish what level of anxiety on the BHIF is associated with mild versus more pathological anxiety. To examine this issue, analyses were conducted using generalized additive models (GAM), nonlinear modeling procedures which describe the relationship between prognostic factors and an outcome (Hastie & Tibshirani, 1994). For this study, the prognostic factor was BHIF anxiety and the outcome was mental health service use. GAM analyses yielded a linear relationship between anxiety scores on the BHIF and past year mental health service use and/or perceived need for services based on parent and school mental health professional reports. The probability of current service use or perceived need for services increased from .1 for a score of 0 on the BHIF anxiety subscale to a probability of .35 for a score of 0.5. Scores of 1.6 or higher on the BHIF anxiety subscale were associated with a greater than 50% probability of receiving services or being perceived as in need of services. The level of anxious symptoms found to be protective in our analyses was 1 standard deviation (0.49) above the mean of anxiety (0.83). The results of the GAM analyses suggest that this value, 1.32, is associated with less than 50% probability of current service utilization or perceived need for service use. Thus, we suggest that the level of anxiety observed to be protective against community violence exposure is mild, as opposed a more pathological anxiety.

Moderating Effects of Deviant Peer Affiliation and Parental Monitoring

Negative effects of high deviant peer affiliation and low parental monitoring were observed for males whose aggressive behavior was accompanied by depressive symptoms and males whose aggressive behavior was *not* accompanied by anxiety symptoms. Aggressive males with co-occurring anxiety were protected from the potentially negative effects of high deviant peer affiliation and low parental monitoring. Regarding deviant peer affiliation, aggressive behavior was associated with witnessing community violence for males with high, but not low, deviant peer affiliation. This finding suggests that boys who do not associate with deviant peers may have fewer opportunities to engage in activities that place them at risk for violence exposure. Because aggressive behavior and deviant peer affiliation were measured concurrently, we were unable to identify the direction of association between aggressive behavior and deviant peer affiliation in the prediction of community violence exposure. Patterson's model suggests that for aggressive youth, low parental monitoring in early adolescence may precipitate a drift into a deviant peer group (Patterson et al., 1992). Deviant peer affiliation, in turn, is associated with delinquent behavior and exposure to violence. Alternately, deviant peer affiliation might precipitate involvement in delinquent behaviors, including aggression. Longitudinal research is necessary to clarify these associations and will be informative for prevention efforts to reduce deviant peer affiliation and ultimately community violence exposure.

Poor parental monitoring has been consistently related to participation in delinquent behavior (Capaldi & Patterson, 1996; Gorman-Smith et al., 1996) and was expected to be similarly associated with community violence exposure. It was hypothesized that adolescents adequately monitored by their parents would have less opportunity to be exposed to community violence. In this study, parental monitoring displayed a protective effect against exposure to community violence for aggressive males with high anxiety symptoms. Although consistent with qualitative research examining parenting behavior and neighborhood violence (e.g., Jarrett, 1999), this finding differs from prior quantitative studies of parental monitoring and exposure to community violence (Gorman-Smith & Tolan, 1998; Miller et al., 1999). An important difference in the present study is that parental monitoring was examined in combination with youth behaviors; our results suggest that the utility of parental monitoring for protecting youth against community violence exposure depends on youth behavioral characteristics. For example, the protective effect of parental monitoring was observed for aggressive males with high anxiety symptoms, but not aggressive males with high depressive symptoms.

Implications for Prevention

This study examined youth behaviors associated with increased risk for exposure to community violence in an attempt to identify risks associated with community violence exposure that are amenable to change and practical targets for prevention. The current research suggests that aggressive behavior, depressive symptoms, and deviant peer affiliation warrant attention as potential risks for exposure community violence. Additionally, results suggest that preventive interventions with urban adolescent youth should attempt to increase youth vigilance of surroundings or awareness of danger as a means of reducing their risk for exposure to community violence by helping them avoid violent situations and involvement in violent activity. Given the outcome of this study, it might appear counterproductive to decrease urban children's anxiety symptoms. However, careful cultural and contextual considerations must be made in the interpretation and application of these results. "Optimal" anxiety levels may vary depending on culture and context. On the other hand, debilitating anxiety that thwarts youth's optimal functioning warrants intervention. Interpreting the results for depressive symptoms is less complex. Depressive symptoms among urban adolescents exacerbates their exposure to community violence. As such, interventions should be targeted to prevent depressive symptoms. In addition, there are broader implications for prevention. At the community level, economic processes, social organization, and violent crime have direct relevance for youth exposure to community violence, their propensity to display certain behaviors, and the types of parent and peer influences they experience. These issues must ultimately be addressed to prevent youth exposure to community violence. Moreover, it is critical for preventive interventions with youth to consider the contexts in which the youth participate, as these environments have implications for their adjustment and the relevance of different types of preventive interventions.

Limitations and Future Directions

Despite the high prevalence of youth exposure to community violence and the negative consequences associated with community violence exposure, few have examined risks for exposure to community violence. Thus, a primary strength of this study is the identification of risks for exposure to community violence that are amenable to change. The longitudinal design of this study permits stronger inferences about causality than in cross-sectional research. As a result, the inferences from this research have important implications for preventive interventions. In this study, the risks for community violence exposure were examined among a community epidemiologically defined sample of urban adolescents. Thus, unlike clinical or high-risk samples, the results from this research can be generalized to urban adolescents of similar age and context. A further strength is that data were collected from multiple sources (i.e., adolescent, parent, and teacher). As such, the results are not subject to many of the concerns associated with single-source assessments.

However, it is important to consider the results in the context of three caveats. First, in this sample, the strongest predictor of community violence witnessing and victimization was prior exposure to community violence. This finding suggests that youth who have been exposed to community violence are an important group to target in interventions as they are at risk for repeated exposures and the associated negative outcomes. Additionally, this finding highlights the importance of interventions to prevent initial exposures to community violence. Second, findings for females were limited. This gender difference may reflect males' significantly higher rates of witnessing and victimization by community violence; prediction for females may have been limited due to restricted range on the outcome variables. Alternately, different individual, family, and peer characteristics may be relevant for males' and females' exposure to community violence. Finally, significant results were obtained for witnessing community violence, but not for victimization by community violence. The lower rates of victimization may have limited our ability to predict this type of exposure. In addition, the processes leading to witnessing and victimization may differ.

These limitations notwithstanding, results from this study suggest temporal associations from youth behavior to later exposure to community violence, particularly witnessing community violence. It is important to note that the youth behaviors examined as risk factors for community violence in this study also have been identified as consequences of community violence exposure (Margolin & Gordis, 2000). Taken together, this research suggests that there are reciprocal associations between youth characteristics and exposure to violence. In future research it will be important to formally examine the reciprocal associations between youth behavior and community violence exposure using longitudinal designs to clarify the nature of these associations. Additionally, it will be important to examine competing models of community violence exposure using longitudinal methods. An alternative conceptualization of the association between externalizing behavior and community violence exposure is that violent behavior, deviant peer affiliation, and exposure to violence are indicators of a broader construct (Halliday-Boykins & Graham, 2001). Similar to Jessor's problem behavior theory (Jessor & Jessor, 1977) and Gottfredson and Hirschi's (1990) general theory of crime, such a model proposes that associations between violent behavior and exposure to community violence reflect an underlying vulnerability to violence or violent events rather than any causal relation among these variables. Halliday-Boykins and Graham (2001) found greater support for a violence involvement model than models with temporal sequencing between violent behavior and community violence exposure. However, because of the cross-sectional nature of that study and the use of a high risk sample, replication of that work is necessary. Future studies also should consider varying contexts or settings, such as comparing communities with differing levels of neighborhood crime or violence. This would permit the investigation of whether the relationships between community violence exposure and youth emotional and behavioral adjustment vary by context.

Subsequent research with this population will include examination of broader contextual factors (e.g., neighborhood characteristics) that are known to have implications for youth behavior, parenting strategies, and peer affiliation, and are important for understanding youth exposure to community violence. Economic and social characteristics of neighborhoods, as well as the level of crime or violence in the neighborhood, may affect aggressive behavior, peer affiliation, and parent management strategies (Ingoldsby & Shaw, 2002); these neighborhood characteristics may also moderate vulnerability

to maladjustment in risky contexts (Lynam et al., 2000). Similarly, perceptions of neighborhood safety and neighborhood affiliation may influence adolescent behavior and the propensity to engage in risky, violent behavior, or be in dangerous settings (Perez-Smith, Albus, & Weist, 2001). Likewise, association with a deviant peer group is increased in settings where there is high prevalence of deviant individuals in the area (Henry, Tolan, & Gorman-Smith, 2001), and delinquent behavior is concentrated in neighborhoods with few economic resources (Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikström, 2002). Parent management strategies also may be influenced by neighborhood characteristics (Sheidow, Gorman-Smith, Tolan, & Henry, 2001). In future research, it will be important to examine how neighborhood characteristics moderate the association between child behavior, parent management strategies, and peer affiliation in relation to youth exposure to community violence. This type of research is important for designing preventive interventions that are relevant for youth residing in different neighborhood contexts. Also relevant for preventive interventions, future studies should explore whether early parenting behavior serves as a precursor to aggressive behavior and peer affiliation, both of which were associated with community violence exposure in adolescence in the current study.

ACKNOWLEDGMENTS

The work described in this article was supported by grants from the National Institute of Mental Health (R01 MH57005 and T32 MH18834) and the National Institute on Drug Abuse (R01 DA11796). We thank the children and parents who participated and the Baltimore City Public School System.

REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Thousand Oaks, CA: Sage.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Asarnow, J. R., & Carlson, G. A. (1985). Depression self-rating scale: Utility with child psychiatric inpatients. *Journal of Consulting and Clinical Psychology*, *53,* 491–499.

Baron, R. M., & Kenney, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51,* 1173–1182.

Bell, C. C., & Jenkins, E. J. (1993). Community violence and children on Chicago's southside. *Psychiatry*, *56,* 46–54.

Boyd, R. C., Cooley, M. R., Lambert, S. F., & Ialongo, N. S. (2003). First-grade child risk behaviors for community violence exposure in middle school. *Journal of Community Psychology*, *31,* 297–314.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22,* 723–742.

Campbell, C., & Schwarz, D. F. (1996). Prevalence and impact of exposure to violence among suburban and urban middle school students. *Pediatrics*, *98,* 396–402.

Capaldi, D. M. (1991). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys. I: Familial factors and general adjustment at Grade 6. *Development and Psychopathology*, *3,* 277–300.

Capaldi, D. M. (1992). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys. II: A 2-year follow-up at Grade 8. *Development and Psychopathology*, *4,* 125–144.

Capaldi, D. M., & Patterson, G. R. (1989). *Psychometric properties of fourteen latent constructs from the Oregon Youth Study*. New York: Springer-Verlag.

Capaldi, D. M., & Patterson, G. R. (1996). Can violent offenders be distinguished from frequent offenders? Prediction from childhood to adolescence. *Journal of Research in Crime and Delinquency*, *33,* 206–231.

Centers, N. L., & Weist, M. D. (1998). Inner-city youth and drug dealing: A review of the problem. *Journal of Youth and Adolescence*, *27,* 395–411.

Cooley, M. R., Turner, S. M., & Beidel, D. C. (1995). Emotional impact of children's exposure to community violence: A preliminary study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34,* 1363–1368.

Cooley-Quille, M., Boyd, R. C., Frantz, E., & Walsh, J. (2001). Emotional and behavioral impact of exposure to community violence in inner-city adolescents. *Journal of Clinical Child Psychology*, *30,* 199–206.

Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. *Developmental Psychology*, *27,* 172–180.

Dubrow, N., & Garbarino, J. (1988). Living in the war zone: Mothers and young children in a public housing project. *Child Welfare*, *68,* 3–20.

DuRant, R. H., Cadenhead, C., Pendergrast, R. A., Slavens, G., & Linder, C. W. (1994). Factors associated with the use of violence among urban Black adolescents. *American Journal of Public Health*, *84,* 612–617.

DuRant, R. H., Getts, A. G., Cadenhead, C., & Woods, E. R. (1995). Exposure to violence and victimization by urban Black adolescents. *Journal of Adolescent Health*, *17,* 376–380.

Elliott, D. S., Huizinga, D., & Ageton, S. S. (1985). *Explaining delinquency and drug use.* Beverly Hills, CA: Sage.

Fagan, J., Piper, E. S., & Cheng, Y. (1987). Contributions of victimization to delinquency in inner cities. *Journal of Criminal Law and Criminology*, *78,* 586–613.

Farrell, A. D., & Bruce, S. E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. *Journal of Clinical Child Psychology*, *1,* 2–14.

Felix-Ortiz, M., Munoz, R., & Newcomb, M. D. (1994). The role of emotional distress in drug use among Latino adolescents. *Journal of Child and Adolescent Substance Abuse*, *3,* 1–21.

Felson, R. B. (1997). Routine activities and involvement in violence as actor, witness, or target. *Violence and Victims*, *12,* 209–221.

Fitzpatrick, K. M., & Boldizar, J. P. (1993). The prevalence and consequences of exposure to violence among

African-American youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32,* 424–430.

Freeman, L. N., Mokros, H., & Poznanski, E. O. (1993). Violent events reported by normal school-aged children: Characteristics and depression correlates. *Journal of the American Academy of Child and Adolescent Psychiatry*, *32,* 419–423.

Furstenberg, F. F., Belzer, A., Davis, C., Levine, J. A., Morrow, K., & Washington, M. (1993). How families mange risk and opportunity in dangerous neighborhoods. In W. J. Wilson (Ed.), *Sociology and the public agenda* (pp. 231–238). Newbury Park, CA: Sage.

Gladstein, J., Rusonis, E. J., & Heald, F. P. (1992). A comparison of inner-city and upper-middle class youths' exposure to violence. *Journal of Adolescent Health*, *13,* 275–280.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology*, *10,* 101–116.

Gorman-Smith, D., Tolan, P. H., Zelli, A., & Huesmann, L. R. (1996). The relation of family functioning to violence among inner-city minority youth. *Journal of Family Psychology*, *10,* 115–129.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime.* Stanford, CA: Stanford University Press.

Halliday-Boykins, C. A., & Graham, S. (2001). At both ends of the gun: Testing the relationship between community violence exposure and youth violent behavior. *Journal of Abnormal Child Psychology*, *29,* 383–402.

Hastie, T. J., & Tibshirani, R. J. (1994). *Generalized additive models.* London: Chapman and Hall.

Henry, D. B., Tolan, P. H., & Gorman-Smith, D. (2001). Longitudinal family and peer group effects on violence and nonviolent delinquency. *Journal of Clinical Child Psychology*, *30,* 172–186.

Ialongo, N. S., Kellam, S. G., & Poduska, J. (1999). *Manual for the Baltimore how I feel* (Tech. Rep. No. 2). Baltimore, MD: Johns Hopkins University.

Ialongo, N. S., Werthamer, L., Kellam, S. G., Brown, C. H., Wang, S., & Lin, Y. (1999). Proximal impact of two first-grade preventive interventions on the early risk behaviors for later substance abuse, depression, and antisocial behavior. *American Journal of Community Psychology*, *27,* 599–641.

Ingoldsby, E. M., & Shaw, D. S. (2002). Neighborhood contextual factors and early-starting antisocial pathways. *Clinical Child and Family Psychology Review*, *5,* 21–55.

Jaccard, J. (2001). *Interaction effects in logistic regression.* Thousand Oaks, CA: Sage.

Jarrett, R. L. (1999). Successful parenting in high-risk neighborhoods. *The Future of Children*, *9,* 45–50.

Jenkins, E. J., & Bell, C. C. (1994). Violence exposure, psychological distress, and high risk behaviors among inner-city high school students. In S. Friedman (Ed.), *Anxiety disorders in African-Americans* (pp. 7–88). New York: Springer.

Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth.* New York: Academic Press.

Kazdin, A. E., Rodgers, A., & Colbus, D. (1986). The Hopelessness Scale for Children: Psychometric characteristics and concurrent validity. *Journal of Consulting and Clinical Psychology*, *54,* 242–245.

Keenan, K., Loeber, R., Zhang, Q., Stouthamer-Loeber, M., & van Kammen, W. B. (1995). The influence of deviant peers on the development of boys' disruptive behavior: A temporal analysis. *Development and Psychopathology*, *7,* 715–726.

Kerr, M., Tremblay, R. E., Pagani, L., & Vitaro, F. (1997). Boys' behavioral inhibition and the risk of later delinquency. *Archives of General Psychiatry*, *54,* 809–816.

Kovacs, M. (1983). *The children's depression inventory: A self-rated depression scale for school-age youngsters.* Unpublished manuscript, University of Pittsburgh.

Lauritsen, J. L., & Davis-Quinet, K. F. (1995). Repeat victimization among adolescents and young adults. *Journal of Quantitative Criminology*, *11,* 143–166.

Lauritsen, J. L., Laub, J. H., & Sampson, R. J. (1992). Convention and delinquent activities: Implications for the prevention of violent victimization among adolescents. *Violence and Victims*, *7,* 91–108.

Lauritsen, J. L., Sampson, R. J., & Laub, J. H. (1991). The link between offending and victimization among adolescents. *Criminology*, *29,* 265–292.

Leas, L., & Mellor, D. (2000). Prediction of delinquency: The role of depression, risk-taking, and parental attachment. *Behaviour Change*, *17,* 155–166.

Lipsey, M. W., & Derzon, J. H. (1998). Predictors of violence or serious delinquency in adolescence and early adulthood. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders* (pp. 86–105). Thousand Oaks, CA: Sage.

Lynam, D. R., Caspi, A., Moffit, T. E., Wikström, P. H., Loeber, R., & Novak, S. (2000). The interaction between impulsivity and neighborhood context on offending are stronger in poorer neighborhoods. *Journal of Abnormal Psychology*, *109,* 563–574.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology*, *51,* 445–479.

McConaughy, S. H., & Skiba, R. J. (1993). Comorbidity of externalizing and internalizing problems. *School Psychology Review*, *22,* 421–436.

Miller, L. S., Wasserman, G. A., Neugebauer, R., Gorman-Smith, D., & Kamboukos, D. (1999). Witnessed community violence and antisocial behavior in high-risk, urban boys. *Journal of Clinical Child Psychology*, *28,* 2–11.

Miller-Johnson, S., Lochman, J. E., Coie, J. D., Terry, R., & Hyman, C. (1998). Comorbidity of conduct and depressive problems at sixth grade: Substance use outcomes across adolescence. *Journal of Abnormal Child Psychology*, *26,* 221–232.

Newman, C. F. (2000). Crisis intervention for depressed adolescents with conduct problems: Two case illustrations. *Crisis Intervention and Time-Limited Treatment*, *5,* 213–239.

O'Keefe, M. (1997). Adolescents' exposure to community and school violence: Prevalence and behavioral correlates. *Journal of Adolescent Health*, *20,* 368–376.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys: A social interactional approach* (Vol. 4). Eugene, OR: Castalia.

Pesa, J. A., Cowdery, J. E., Westerfield, R. C., & Wang, M. (1997). Self-reported depression and risk-taking behaviors among Hispanic adolescents. *Psychological Reports*, *81,* 235–243.

Perez-Smith, A. M., Albus, K. E., & Weist, M. D. (2001). Exposure to violence and neighborhood affiliation among inner-city youth. *Journal of Clinical Child Psychology, 30,* 464–472.

Petras, H., Chilcoat, H. D., Leaf, P. J., Ialongo, N. S., & Kellam, S. G. (2004). Utility of TOCA-R scores during the elementary school years in identifying later violence among adolescent males. *Journal of the American Academy of Child and Adolescent Psychiatry*, *43,* 88–96.

Reynolds, C. R., & Richmond, B. O. (1985). *Revised Children's Manifest Anxiety Scale (RCMAS) Manual.* Los Angeles: Western Psychological Services.

Richters, J. E., & Martinez, P. (1993). The NIMH community violence project: I. Children as victims of and witnesses to violence. *Psychiatry*, *56,* 7–21.

Sampson, R. J., & Lauritsen, J. L. (1990). Deviant lifestyles, proximity to crime, and the offender-victim link in personal violence. *Journal of Research in Crime and Delinquency*, *27,* 110–139.

Schaeffer, C. M, Petras, H., Ialongo, N. S., Poduska, J., & Kellam, S. (2003). Modeling growth in boys' aggressive behavior across elementary school: Links to later criminal involvement, conduct disorder, and antisocial personality disorder. *Developmental Psychology*, *39,* 1020–1035.

Schubiner, H., Scott, R., & Tzelepis, A. (1993). Exposure to violence among inner-city youth. *Journal of Adolescent Health*, *14,* 214–219.

Schwab-Stone, M., Chen, C., Greenberger, E., Silver, D., Lichtman, J., & Voyce, C. (1999). No safe haven II: The effects of violence exposure on urban youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, *38,* 359–367.

Selner-O'Hagan, M. B., Kindlon, D. J., Buka, S. L., Raudenbush, S. W., & Earls, F. J. (1998). Assessing exposure to violence in urban youth. *Journal of Child Psychology and Psychiatry*, *39,* 215–224.

Shaffer, D., Fisher, P., Lucas, C., Dulcan, M., & Schwab-Stone, M. (2000). NIMH diagnostic interview schedule for children version IV (NIMH DISC-IV): Description, differences from previous versions, and reliability of some common diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry*, *39,* 28–38.

Sheidow, A. J., Gorman-Smith, D., Tolan, P. H., & Henry, D. B. (2001). Family and community characteristics: Risk factors for violence exposure in inner-city youth. *Journal of Community Psychology*, *29,* 345–360.

Singer, M. I., Anglin, T. M., Song, L. Y., & Lunghofer, L. (1995). Adolescents' exposure to violence and associated symptoms of psychological trauma. *Journal of the American Medical Association*, *273,* 477–482.

Spence, S. H. (1997). Structure of anxiety symptoms among children: A confirmatory factor-analytic study. *Journal of Abnormal Psychology*, *106,* 280–297.

Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D. P., & Wikström, P. H. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology*, *70,* 111–123.

Tremblay, R. E., Pihl, R. O., Vitaro, F., & Dobkin, P. L. (1994). Predicting early onset of male antisocial behavior from preschool behavior. *Archives of General Psychiatry*, *51,* 732–738.

Uehara, E. S., Chalmers, D., Jenkins, E. J., & Shakoor, B. H. (1996). African American youth encounters with violence: Results from the Community Mental Health Council Violence Screening Project. *Journal of Black Studies*, *26,* 768–781.

Walker, J. L., Lahey, B. B., & Russo, M. F. (1991). Anxiety, inhibition, and conduct disorder in children: I. Relations to social impairment. *Journal of the American Academy of Child and Adolescent Psychiatry*, *30,* 187–191.

Weist, M. D., Acosta, O. M., & Youngstrom, E. A. (2001). Predictors of violence exposure among inner-city youth. *Journal of Clinical Child Psychology*, *30,* 187–198.

Werthamer-Larsson, L., Kellam, S. G., & Wheeler, L. (1991). Effect of first-grade classroom environment on child shy behavior, aggressive behavior, and concentration problems. *American Journal of Community Psychology*, *19,* 585–602.