ARTICLE

THE INTERACTIVE RELATIONSHIP AMONG ADOLESCENT VIOLENCE, STREET VIOLENCE, AND DEPRESSION

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Previous research has shown community violence to be detrimental to adolescent well-being, yet relatively little is known about how adolescents respond to violence in their community. Using data from the National Longitudinal Study of Adolescent Health, this study examines the interactive associations among exposure to street violence, adolescent violence, and depression. As hypothesized, results suggest that an adolescent's own violence lessens the negative association between street violence and depression. Similarly, exposure to street violence moderates the association between own violence and depression. Examination across demographic subgroups indicates that these moderating effects are most pronounced among males and older adolescents. Potential developmental consequences of these relationships are discussed. © *2005 Wiley Periodicals, Inc.*

Although U.S. crime rates have declined steadily in recent years, adolescents constitute one segment of the population that continues to be plagued with the problem of violence (Overstreet, 2000; Buka, Stichnick, Birdthistle, & Earls, 2001; Hagan & Foster,

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2001), so much so that some consider violence a public health epidemic for today's youth (Osofsky, 1995). Adolescents experience violence as victims, witnesses, and perpetrators; in conflicts with associates and strangers; and in troubling ways against themselves, such as suicide. Moreover, a considerable literature has shown exposure to community violence (CV) to be associated with a wide range of negative outcomes for adolescents (Bennet & Fraser, 2000; Jonson-Reid, 1998; DuRant, Cadenhead, Pendergast, Slavens, & Linder, 1994).

Given its prevalence and consequences, parents, policy makers, and researchers are searching for ways to minimize the damage of CV. One line of research, for example, has focused on the ways that parents actively adapt to violence in their community (Garbarino, Dubrow, Kostelny, & Pardo, 1992; Gorman-Smith, Henry, & Tolan, 2004; Jarrett, 1999; Osofsky, Wewers, Hann, & Fick 1993). Yet less is known about the adaptations of adolescents exposed to CV. Ethnographic research suggests that youth in violent environments strive to maintain an aggressive reputation and are willing to use violence as means of preventing victimization (Anderson, 1990, 1999). This analysis assesses the interactive relationship between CV and an adolescent's own violence, and their joint association with adolescent negative and positive affect. It is hypothesized that youth's exhibition of violence may partially offset the deleterious effects of CV on adolescent psychological well-being.

BACKGROUND

Prevalence of Exposure to Community Violence

By most reports, adolescents living in the United States are witnessing a great deal of violence in their community. Richters and Martinez (1993) found that among children living in a violent Washington, D.C., neighborhood, approximately one-fifth of the first and second graders interviewed reported that they had been victimized by violence and three-fifths reported that they had witnessed the victimization of others. Among fifth and sixth graders, exposure to violence was even greater. More than one-third reported victimization and nearly three-quarters reported witnessing of violence. Osofsky, Wewers, Hann, and Fick (1993) found that 91% of elementary school children growing up in a housing development in New Orleans had witnessed some form of CV. Schwab-Stone and colleagues found that more than 41% of 6th-, 8th- and 10-grade students in an urban public school system reported having seen at least one shooting or stabbing in the past year (Schwab-Stone et al., 1995).

Although CV exposure is typically associated with poverty and inner-city neighborhoods, research in other settings suggests the phenomenon is more widespread. For example, Martin, Gordon, and Kupersmidt's (1995) survey of farm children and Singer, Anglin, Song, and Lunghofer's (1995) study of students in a small Ohio city reveal exposure rates comparable to those in the inner city. In their sample of sixth graders from predominantly low-income agricultural communities, Sullivan, King, and Farrell (2004) found that lifetime prevalence of witnessing at least one violent act was 61%, and almost half the sample (45%) witnessed multiple violent acts. Among university students, Scarpa (2001) reports that 82% to 96% of respondents have been exposed to violence during their lifetime and 64% to 90% report three or more exposures.

The salience of exposure to violence in poor neighborhoods has been reinforced by recent evaluations of the Moving to Opportunity demonstration project. Address-

ing issues such as lack of access to employment and transportation, researchers found that one of the major impacts of the program is a reduction in exposure to violence reported by families moving from project-based housing to Section 8 subsidized units in low-poverty neighborhoods. Reduced exposure to violence is, in turn, associated with improved perceptions of safety and mental health, relative to those of a control group remaining in traditional public housing (Kling, Liebman, & Katz, 2004).

Effects of Community Violence on Mental Health and Violence

The consequences of exposure to CV are equally widespread. Garbarino, Dubrow, Kostelny, and Pardo (1992) contend that exposure to CV destroys the notion of homes, schools, and communities as safe places. Youth exposed to CV have been shown to have higher rates of emotional, behavioral, and cognitive problems (Kuther, 1999). Exposure to CV has emerged as an independent risk factor for problems such as depression, posttraumatic stress symptoms, suicidal behaviors, and aggression and violence in youth, as well as negative biological and hormonal developmental problems (Garbarino et al., 1992; Martinez & Richters, 1993; Putnam & Trickett, 1993; Margolin & Gordis, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002; Scarpa, 2001). Macmillan's (2001) life course theory of violence further links exposure to violence in adolescence to diminished educational efficacy and to poorer socioeconomic and psychological well-being in adulthood (see also Hagan & Foster, 2001).

Researchers have documented a consistent relationship between exposure to CV and posttraumatic stress symptoms (Fitzpatrick & Boldizar, 1993; Horowitz, Weine, & Jenkel, 1995; Overstreet, Dempsey, Graham, & Moely, 1999; Overstreet, 2000). Posttraumatic stress disorder (PTSD) can result from exposure to an extreme traumatic experience involving "actual or threatened death or serious injury, or threat to the physical integrity of self or others" (American Psychiatric Association, 1994, p. 427). Fitzpatrick and Boldizar (1993) found that 27% of their sample of low-income 7- to 18-year-old African American youth living in a community with CV met all three PTSD diagnostic criteria. Overstreet and associates (1999) found that almost one-third of children aged 10 to 15 years living in a violent community displayed a symptom pattern consistent with the diagnostic criteria for PTSD, and Horowitz and coworkers (1995) reported 67% of their sample of urban adolescent girls met diagnostic criteria for PTSD.

In general, most studies report a positive relationship between CV and depression. Singer and colleagues (1995), for example, found exposure to CV to be significantly associated with depressive symptoms in a sample of high school students, controlling for demographic variables. Similarly, in a sample of children aged 7 to 12 years, clinically depressed youth reported witnessing more violence than nondepressed children (Lynch & Cicchetti, 1998). In Gorman-Smith and Tolan's (1998) longitudinal study of middle-school students, exposure to CV was associated with both concurrent and subsequent levels of depression. Among adolescents in Los Angeles, Aneshensel and Sucoff (1996) found that low-socioeconomic-status neighborhoods expose youth to greater ambient hazards, including violence, and that this exposure is significantly associated with depression, anxiety, and problem behavior. Using data from the National Longitudinal Study of Adolescent Health (i.e., the sample used here), Hagan and Foster (2001) report a positive association between exposure to street violence and adolescent depression.

Parent and Adolescent Moderators of Community Violence

Of course, all youth in communities characterized by violence are not affected in the same way. A growing body of research, for example, suggests that parents employ a wide range of strategies to minimize their children's exposure to violent environments. Use of restrictive parenting practices, such as setting early curfews, chaperonage, restrictions of friendships, and control over the temporal and geographic use of neighborhoods, is one of the tactics observed (Buka et al., 2001; Osofsky, 1995; Gorman-Smith & Tolan, 1998; Kuther, 1999; Taylor, Zuckerman, Harik, & Groves, 1994). Moreover, research suggests that parents are somewhat effective in minimizing the negative consequences of CV (Gorman-Smith et al., 2004; Gorman-Smith & Tolan, 1998; Jarrett, 1999). In a sample of African American and Latino male youth living in inner-city neighborhoods, for example, Gorman-Smith and coworkers (2004) found that youth exposed to high levels of CV but living in well-functioning families exhibited less violent and aggressive behavior than similarly exposed youth in other families.

Less is known about the ways that adolescents themselves cope with chronic exposure to violence. Marans and Cohen (1993) assert that some adolescents might become perpetrators of violence and aggression to counter feelings of vulnerability and other emotional responses to exposure of CV. Research by Anderson (1990, 1999) in poor primarily African American inner-city neighborhoods similarly suggests that some adolescents develop a "code of the street" that embraces the utility of violent and aggressive behavior as a means of averting victimization. By giving the impression that they are willing to use violence if provoked and maintaining a reputation of being able to hold their own in a fight, youth may discourage others from using violence against them.

That youth respond to CV with violence and aggression is supported by a considerable literature. Miller, Wasserman, Neugebauer, Gorman-Smith, and Kamboukas (1999) found exposure to CV associated with increases in parents' reports of antisocial behavior among children 6 to 10 years old. Gorman-Smith and Tolan (1998) found that exposure to CV was associated with increased aggression in a sample of inner-city minority fifth- and seventh-grade boys, controlling for earlier aggression. DuRant and associates (1994) examined self-reported uses of violence by urban black adolescents from a housing project in Augusta, Georgia. Self-reported use of violence was positively associated with exposure to CV. Schwab-Stone and coworkers (1995) report similar findings among 6th- through 10th-grade, urban public school students. Exposure to CV and feeling of being unsafe were significantly associated with willingness to use physical aggression. Hagan and Foster (2001) report a positive association between exposure to violence and subsequent violence among adolescents.

Fewer studies have examined whether violence within violent contexts is adaptive—that is, associated with positive outcomes in other domains—as implied by Anderson (1990, 1999). One exception is research into the concept of pathological adaptation (Ng-Mak, Salzinger, Feldman, & Stueve, 2004), a response to chronic exposure to violence characterized by normalization and psychological numbing. It is adaptive in that this numbing lessens the negative effects of exposure to violence on psychological well-being. It is pathological in that these youth are also more prone to violence. Using a sample of predominantly poor minority inner-city sixth graders and a cross-sectional design, Ng-Mak and associates (2004) report evidence partially consistent with such a pattern.

The interactive relationship among CV, an adolescent's own violence, and depression is examined here by using data from a nationally representative longitudinal sample of youth in middle and high schools in the United States. Consistent with past research, we expect that both exposure to CV and an adolescent's own violence will be positively associated with depression (and negatively with positive affect). Our central and more novel hypothesis is that the association between CV and an adolescent's positive and negative affect will be moderated by his or her own exhibition of violence. Our conceptual model is displayed in Figure 1.

Adolescent adaptations to CV are likely to differ by gender. Past research suggests that males may be more likely to react to CV with externalizing problems such as the exhibition of violence and aggression, whereas females tend to respond with internalizing problems, although some females clearly engage in aggression as well (DuRant et al., 1994; Kuther, 1999). Ng-Mak and colleagues (2004) assert that gender, race, and other factors likely moderate the associations among CV, own violence, and depression but because of a small sample size were limited to controlling for these factors. The large sample here allows us to examine more directly whether the relationships among CV, own violence, and measures of positive and negative affect vary by gender, age, and race, by running models separately across demographic subgroups, and formally testing for differences with interaction terms.

METHODS

Sample

The current study uses data from two waves, collected 1 year apart, of the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative

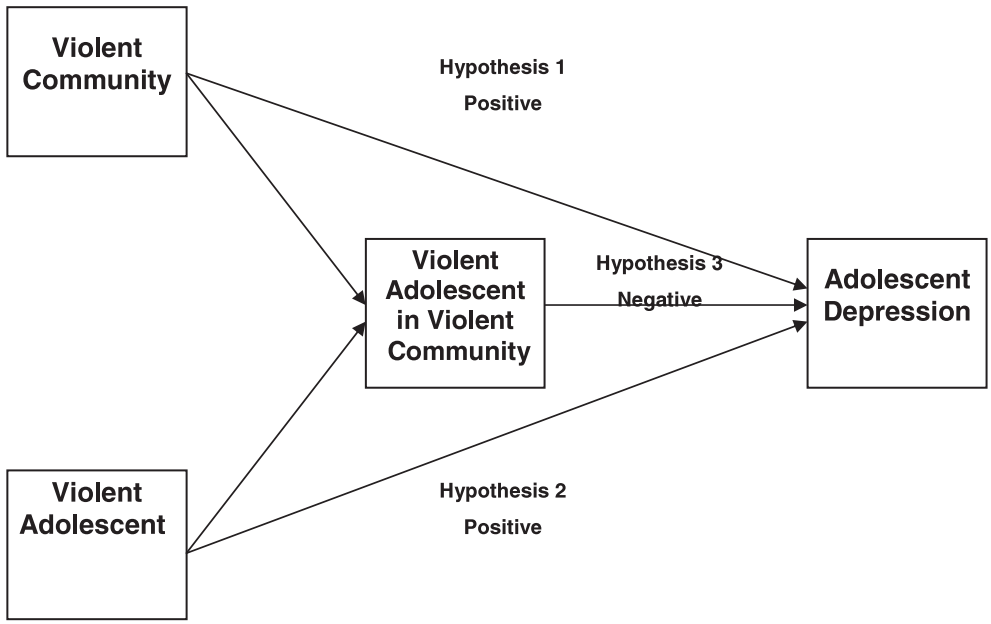

Figure 1. Conceptual model of hypothesized associations.

sample of adolescents in grades 7 to 12 conducted in 1995 and 1996. The study focuses on factors that may influence adolescents' health-related behavior, particularly those present in the various contexts of their life, such as family, peer group, romantic relationships, schools, neighborhoods, and communities.

The primary sampling frame included 80 representative high schools and their "feeder" middle schools, stratified by region of country, degree of urbanicity, school type (i.e., public or private), racial and ethnic composition, and school size. Each participating school provided a roster of all enrolled students, from which a core sample of about 12,000 adolescents was randomly selected for in-home interviews and longitudinal follow-up.

Of those contacted, 78.9% agreed to participate. In-home interviews averaged 1½ hours in length. During the more sensitive portions of the interview, such as questions regarding an adolescent's own violence, respondents listened to questions through earphones and entered their answers directly into a laptop computer by using Computer Assisted Self-Interview (CASI) technology. This anonymity may serve to reduce influence of the interviewer and/or parents. For 85.6% of the participants, a parent also completed a 30-minute interview at wave I. One year later, 88.2% of the core sample subsequently completed the wave II interview.

Adolescents participating in both waves I and II whose parents also participated in wave I are included in the analysis. Exclusion of 53 observations for whom census tract dummy codes were missing and of several other cases with missing data on other variables yields a final analysis sample of 8,939 youth. Models are weighted to reflect varying probabilities of sample selection at wave I and retention at wave II. Hierarchical linear models are used to adjust standard errors for sample clustering within census tracts (Bryk & Raudenbush, 1992). We take advantage of the longitudinal nature of the sample by measuring exposure to violence and own violence at wave I and modeling their associations with changes in positive and negative affect between waves I and II. Control variables are assessed at wave I and are assumed to be time-invariant. Results presented are consistent, both substantively and in respect to statistical significance, with those derived by using alternative temporal specifications, including measures of combined exposure to violence and own violence at waves I and II and measures of own violence at wave II.

Dependent Variables

Depression is measured at both waves by an eight-item scale consisting of questions about the presence of positive and negative affect during the last week: Never, Sometimes, or A lot were the possible responses. Standardizing items yields a Cronbach's alpha of .82. Depression is also broken into positive and negative affect subscales. The negative affect subscale (α = .83) includes the following items: Had the blues, Felt depressed, Felt sad, and Felt lonely. The positive affect subscale (α = .74) includes the items: Just as good as other people, Hopeful about the future, Happy, and Enjoyed life.

Adolescent and Street Violence

An adolescent's own violence is measured by using a standardized scale developed for this study that employs a Cronbach's alpha of .77. It consists of six self-report items that inquire about how often in the past 12 months each type of violence had occurred,

employing possible responses of Never, Sometimes, and A lot. Items include the following: Got into a physical fight, Pulled a knife or gun on someone, Shot or stabbed someone, Had a serious physical fight, Seriously injured someone, and Took part in a group fight. Given the potentially categorical nature of violence (i.e., many youth reported no violence), categorical variables of none, some, and high violence were also considered. The results that follow are based on the continuous measure. They are consistent, both substantively and with respect to statistical significance, with those derived by using the categorical measures.

Exposure to Street Violence is measured by four items, yielding a standardized Cronbach's alpha of .69 (Hagan & Foster, 2001). The questions asked how often in the past 12 months each of the following occurred: Saw someone shot or stabbed, Had a knife or gun pulled on you, Someone stabbed you, and You were jumped. A relatively low Cronbach's alpha may reflect the fact that these items are assessing relatively rare events, as well as both direct victimization and the witnessing of violence.

Control Variables

Age is constructed from adolescents' birth date; respondents ranged in age from 11 to 21 years. Sex is self-reported: 47.6% (n = 4,283) male and 52.4% (n = 4,712) female. Race is assessed by self-reported race and Hispanic origin questions, yielding mutually exclusive categories: Hispanic origin (11.7%), non-hispanic white (63.7%), African American (18.9%), Asian (3.1%), and other races (1.9%). Family structure is assessed via questions asking with whom each respondent lives. For parsimony, an indicator variable for youth living with two biological parents (54.0%) is used. Parent's education is assessed by parent reports of highest degree of education completed. Highest degree is converted into number of years of schooling completed, ranging from 6 to 19 years. Family income is based on parent reports of yearly family income, ranging in thousands of dollars from 0 to 999.

RESULTS

Bivariate Relationships

Table 1 presents a bivariate correlation matrix and the means, standard deviations, and minimum and maximum values for all study variables. Adolescent violence is strongly and significantly correlated (r = 0.60) with exposure to street violence. Exposure to violence and own violence are also associated with family socioeconomic status, as both are significantly and negatively correlated with parent's education and family income. Consistently with expectations, both own violence and exposure to street violence are positively associated with depression.

Multivariate Models

The heart of our multivariate analyses is an assessment of the direct and interactive associations among adolescent violence, exposure to street violence, and depression (see Table 2). Controlling for each other, both street violence and own violence remain positively and significantly associated with adolescent depression. More central to our hypothesis, however, is that the interaction between own and street violence is negatively and significantly associated with depression.

Table 1. Descriptive Statistics

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1. Violence	1.000													
2. Street violence	0.639	1.000												
3. Age	0.005	0.068	1.000											
4. Female	−0.212	−0.173	−0.051	1.000										
5. African American	0.106	0.097	0.014	0.026	1.000									
6. Hispanic	0.074	0.096	0.034	−0.012	−0.176	1.000								
7. Asian	−0.027	−0.025	−0.003	−0.014	−0.095	−0.071	1.000							
8. Other	0.029	0.019	−0.004	−0.006	−0.066	−0.050	−0.027	1.000						
9. Two biological parents	−0.122	−0.113	−0.072	−0.010	−0.215	−0.010	0.074	−0.014	1.000					
10. Parent education	−0.097	−0.076	−0.089	−0.020	−0.043	−0.255	0.033	−0.002	0.149	1.000				
11. Family income	−0.053	−0.066	−0.021	−0.012	−0.125	−0.072	−0.006	−0.029	0.164	0.291	1.000			
12. Depression	0.126	0.133	0.088	0.128	0.043	0.087	0.041	0.031	−0.121	−0.181	−0.089	1.000		
13. Negative affect	0.109	0.115	0.093	0.173	0.043	0.048	0.019	0.025	−0.118	−0.107	−0.054	0.869	1.000	
14. Positive affect	−0.107	−0.113	−0.056	−0.040	−0.029	−0.103	−0.053	−0.028	0.087	0.192	0.101	−0.840	−0.462	1.000
Mean	0.042	−0.047	15.182	0.524	0.189	0.117	0.037	0.019	0.542	13.973	37.800	−0.003	−0.002	0.004
Standard deviation	4.158	2.837	1.605	0.499	0.392	0.321	0.189	0.135	0.498	3.010	53.846	0.667	0.815	0.746
Minimum	−2.388	−1.234	11.000	0.000	0.000	0.000	0.000	0.000	0.000	6.000	1.000	−0.866	−0.715	−2.319
Maximum	32.484	21.038	21.000	1.000	1.000	1.000	1.000	1.000	1.000	19.000	999.000	2.955	3.592	1.059

Note. $N = 8{,}994$ for all variables.

Table 2. Hierarchical Linear Regression Models of Adolescent Depression

	Depression			*Positive Affect*	*Negative Affect*
Variables	*1*	*2*	*3*	*4*	*5*
Intercept	0.004***	0.004***	0.058	−0.273***	−0.210*
	(0.009)	(0.008)	(0.067)	(0.079)	(0.085)
Violence	0.014***	0.004^{+}	0.006**	−0.006**	0.008**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Street violence	0.027***	0.015***	0.015***	−0.015***	0.018***
	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Violence* street v	−0.001***	−0.001***	−0.001**	0.001**	−0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Depression (wave I)		0.536***	0.505***		
		(0.009)	(0.010)		
Positive affect (wave I)				0.446***	
				(0.010)	
Negative affect (wave I)					0.445***
					(0.010)
Age			0.006	0.001	0.018***
			(0.004)	(0.004)	(0.005)
Female			0.098***	−0.044**	0.180***
			(0.012)	(0.014)	(0.016)
African American			0.012	−0.017	0.011
			(0.019)	(0.022)	(0.023)
Hispanic			0.077***	−0.099***	0.061*
			(0.020)	(0.024)	(0.025)
Asian			0.100**	−0.146***	0.067
			(0.035)	(0.042)	(0.045)
Other			0.053	−0.056	0.056
			(0.045)	(0.053)	(0.057)
Two biological parents			−0.040**	0.027	−0.064***
			(0.012)	(0.014)	(0.016)
Parents' education			−0.013***	0.019***	−0.009**
			(0.002)	(0.003)	(0.003)
Family income			−0.000*	0.000*	−0.000
			(0.000)	(0.000)	(0.000)
R squared	1.5	27.9	28.8	24.1	22.8

Notes. Unstandardized regression coefficients, with standard errors in parentheses; $N = 8{,}938$ in all models.
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; $^{+}p < 0.10$ (two-tailed tests).

One might object, however, that these relationships simply reflect unmeasured heterogeneity associated with levels of depression, or that the direction of the relationship is reversed. One way of partly addressing this issue is to include a lagged measure of the dependent variable, as is done in model 2. Controlling for previous depression, the other coefficients in the model then represent associations with change in depression between waves. Again, both the direct and interactive effects of exposure to street violence and own violence are statistically significant. In other words, street and own violence, and their interaction, are significantly associated with both levels of depression at wave II and change in depression between waves I and II.

Model 3 adds control variables for age, gender, race and ethnicity, household type, and family socioeconomic status. Though not central to our analysis, several associations merit description. Females, youth of Hispanic origin or Asian race, and those living outside a two-biological-parent family report significantly higher levels of depression at wave II, controlling for previous depression and other factors. Family socioeconomic status, as measured by parent education and family income, is negatively and significantly associated with change in depression. Regardless of these factors, however, the direct and interactive relationships among exposure to street violence, own violence, and depression remain statistically significant and are consistent with our central hypothesis.

Models 4 and 5 examine whether the direct and interactive associations of violence with psychological well-being are robust across positive affect and negative affect items. For the most part, the pattern of relationships is consistent for both outcomes, though the statistical significance of the interaction between street and own violence is greater for positive affect ($\beta = .0009$, $p = .001$) than it is for negative affect ($\beta = -.0006$, $p < .01$).

Interpreting the Interaction

Interpreting interaction effects by looking at their sign and statistical significance is difficult, however, in that the total relationship depends on the effect of the interaction term, as well as the direct effects of the variables involved in the interaction (Jaccard & Turrisi, 2003). The statistically significant negative association of interaction with depression thus may indicate that the association between exposure to street violence and depression is weaker for youth exhibiting violence of their own. Alternatively, it may indicate that the relationship between one's own violence and depression may be moderated by exposure to street violence.

Graphing the interaction helps to assess the relative merits of these interpretations. Figure 2 depicts the interaction effect for change in positive affect. The *y* axis depicts change in positive affect. The *x* axis corresponds to levels of youth's own

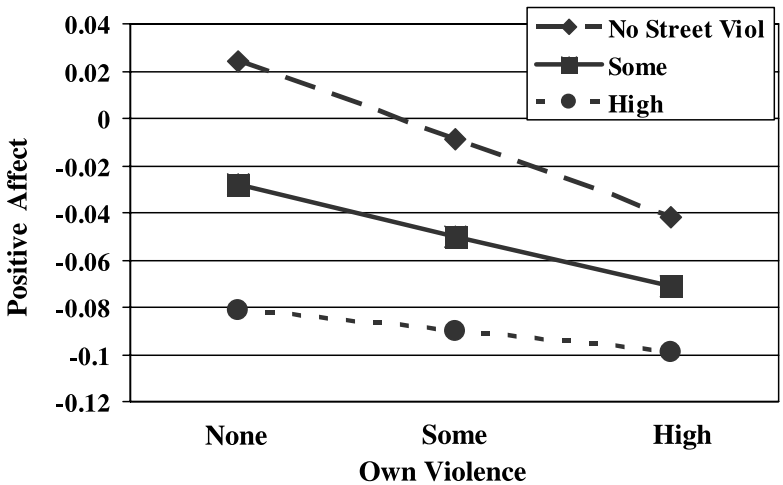

Figure 2. Change in positive affect by levels of own and street violence for all youth.

reported violence, broken into three groups: the modal group of youth reporting no violence, those reporting some violence (i.e., one standard deviation above the modal group), and those reporting high levels of own violence (i.e., two standard deviations above the modal group). The relationship between own violence and change in positive affect is then depicted for three groups of youth, according to their reports of no exposure to street violence, exposure to some street violence (i.e., one standard deviation higher), or exposure to high levels of street violence (i.e., two standard deviations higher).

The graph lends some support to both interpretations. First, it suggests that exposure to street violence is associated with diminished positive affect for all youth, regardless of their own violence, as the intercepts of the some exposure and high exposure lines are clearly lower than that of youth reporting no exposure to street violence. It also suggests, however, that the association between exposure to violence and diminished positive affect is stronger for youth reporting no violence of their own, as the gap between the no street violence exposure and high street violence exposure lines is greatest for these youth.

The graph also suggests that the relationship between own violence and depression is stronger for youth in contexts of no street violence, as indicated by the steep slope for this group compared to the almost flat slope for youth reporting high street violence. This finding seems to make intuitive sense. In a relatively peaceful context, a violent adolescent is likely to stand out and might be expected to have poorer psychological well-being than a youth whose behavior is more consonant with the environment. Conversely, in the context of high street violence, one's own violence is less likely to distinguish youth from one another with respect to psychological well-being.

Subgroup Analyses

Given the frequent gender differences reported for both violence and depression, it is important to examine whether the associations reported are consistent for both males and females. It is also likely that the relationship may vary across other demographic subgroups, such as age and race. Thus, the full models for positive affect from Table 2 were run for the following subgroups: males and females, early and late adolescents (i.e., younger than 16 years and 16 years and older, respectively), and white and nonwhite youth. Results are presented in Table 3.

For the most part, the relationships observed are consistent across all groups: Own violence and street violence are negatively associated with changes in positive affect, and the interaction between the two is positively associated with changes in positive affect. A few comparisons, however, deserve more attention.

Males and females do appear to differ somewhat in the significance and size of associations among own violence, street violence, and positive affect. Among females, for example, own violence is significantly associated with diminished positive affect, whereas among males this association is insignificant. These associations may reflect the tendency of males and females to manifest stress differently: Females are more likely to internalize and males are more likely to respond instrumentally (Nolen-Hoeksema, 2000). With respect to the effects of exposure to street violence on positive affect, the coefficient for males is more statistically significant ($\beta = -.017$, $p < .001$) than that for females ($\beta = -.011$, $p < .10$). Though varying in statistical significance, the interaction term is roughly the same for both males and females.

Table 3. Hierarchical Linear Regression Models of Adolescent's Positive Affect by Demographic Subgroups

	Males	*Females*	*Younger*	*Older*	*White*	*Nonwhite*
Intercept	−0.296**	−0.294**	−0.323***	−0.190***	−0.290**	−0.331**
	(0.111)	(0.100)	(0.054)	(0.050)	(0.099)	(0.127)
Positive affect at wave 1	0.419***	0.467***	0.434***	0.467***	0.457***	0.432***
	(0.014)	(0.013)	(0.012)	(0.014)	(0.012)	(0.016)
Own violence	−0.003	−0.013**	−0.012***	0.001	−0.007*	−0.005
	(0.003)	(0.006)	(0.003)	(0.004)	(0.003)	(0.004)
Street violence	−0.017***	−0.011^{+}	−0.011*	−0.020***	−0.010*	−0.019***
	(0.004)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
Violence* street violence	0.001*	0.001	0.001*	0.001*	0.001^{+}	0.001*
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
N	4256	4681	5047	3890	5695	3242

Notes. All models include control variables from Table 2 where appropriate. *Younger* refers to youth less than age 16 at wave I; *older* is youth 16 or older at wave I.
***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; $^{+}p < 0.10$ (two-tailed tests).

To grasp better the overall differences between males and females, their interactions are graphically depicted in Figures 3 and 4, respectively. The graph for males appears as an exaggeration of the picture for all youth. Street violence is associated with diminished positive affect but slightly less so for aggressive youth. More striking is the way street violence moderates the association of own violence with positive affect. In a relatively peaceful context, own violence is associated with some diminishing of positive affect. In more moderate or high street violence contexts, there is

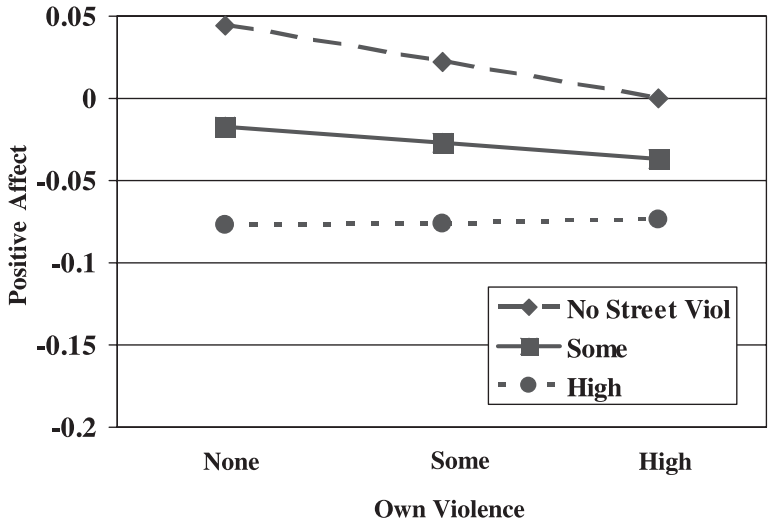

Figure 3. Change in positive affect by levels of own and street violence for males.

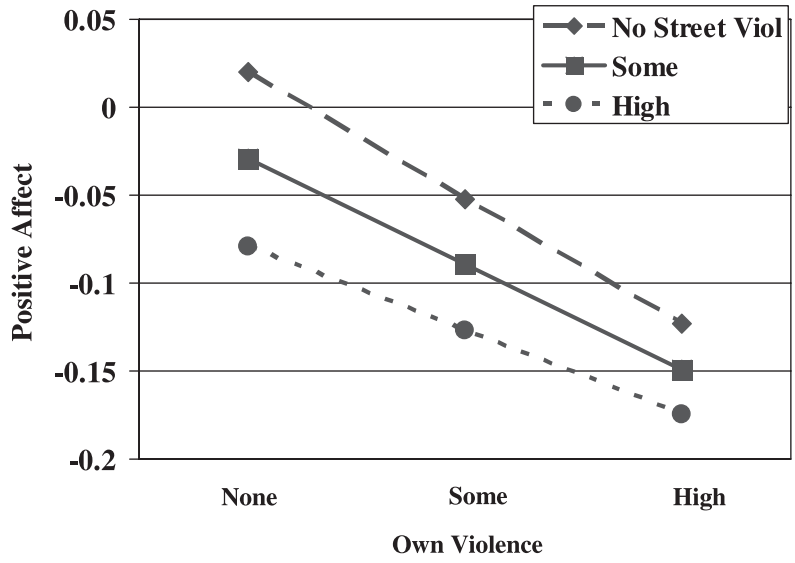

Figure 4. Change in positive affect by levels of own and street violence for females.

virtually no relationship between own violence and positive affect. The interaction for females, in contrast, appears to be primarily driven by the negative association between own violence and changes in positive affect. In all contexts, own violence is associated with diminished positive affect for females.

The contrast between early and later (i.e., age 16 and older) adolescents is much like that between males and females. The association between own violence and diminished positive affect is stronger for younger youth, whereas the association with street violence is more pronounced among the older. The interaction terms are comparable for both older and younger adolescents. Differences between white and nonwhite youth were not observed. The exception was that street violence seemed to be more detrimental to positive affect of nonwhite youth than of white youth.

To test the significance of the differences observed more formally, models were run for all youth; interaction terms were added for gender, age, and race with own violence, exposure to street violence, and their interaction. One set of interaction terms (i.e., one demographic comparison) was considered at a time. The only interaction terms that proved statistically significant were for females with own violence and for age with own violence. Thus, the associations between own violence and diminished positive affect are significantly stronger for females and younger adolescents.

DISCUSSION

Our findings are consistent with previous research that showed that exposure to street violence and adolescents' own exhibition of violence and aggression are positively associated with both levels and change of adolescents' depression. The study goes further, however, by examining the interactive relationship of exposure to street violence, the exhibition of violence, and depression. Analyses indicate a statistically significant

interaction between own and street violence when regressed on depression. Moreover, when the overall depression measure was disaggregated into positive and negative affect items, it was found that the interaction was slightly more pronounced for positive affect.

Interpretation of a graphical simulation of the interaction suggested two components of moderation: First, the negative association between street violence and positive affect is stronger for youth reporting no violence of their own. Second, the inverse relationship between own violence and positive affect is stronger for youth in contexts of no street violence, as indicated by the steeper slope for this group. When analyses were run separately across demographic subgroups, the moderating effect of community violence was found to be most pronounced among males and older adolescents.

What then are the developmental implications of these findings? Ethnographic accounts of adolescents in poor neighborhoods suggest that the exhibition of aggression in the context of community violence may be an adaptive strategy that preserves a sense of control over a volatile and unpredictable environment (Anderson, 1999). Although this externalizing behavior may be maladaptive in other contexts (e.g., at school or workplace), it may be protective within a violent context. As an active form of adaptation, it may also serve youth well if presented with opportunities for more constructive applications of their energy. On the other hand, the results, especially for males and older youth, are consistent with a pathological adaptation model (Ng-Mak et al., 2004), whereby repeated exposure to violence makes youth emotionally numb, thus minimizing the association between street violence and depression. Moreover, the emerging life course theory of exposure to violence predicts poor future outcomes for violent youth in violent contexts, such as "early exits from adolescence" and diminished socioeconomic attainments (Hagan & Foster, 2001; MacMillan, 2001). More fully understanding what the developmental consequences are and whether or not the pattern is really adaptive requires future research into the long-term, life course consequences of violence within violent contexts.

Although the findings reported here are fairly robust, limitations of the study and competing explanations merit caution against overinterpretation. One possible interpretation of the findings is that exposure to violence simply reflects one's own violence, as suggested by the relatively strong correlation between these two variables. Thus, the lack of association between own violence and depression in the context of street violence could simply reflect adolescents who select themselves into or create violent situations.

A related problem is the potential for confounded sources of information. The current study takes its measurement of both street violence and adolescents' own exhibition of violence from adolescent self-reports. Future research using multimethod and multisource methodologies would help to alleviate this problem. More extensive measures of exposure to violence, such as that used by Richters and Martinez (1993), and simultaneous consideration of other forms of violence (e.g., domestic) would also contribute to a more thorough understanding.

Given these limitations, several strengths of the present study deserve notice. One advantage is the use of a nationally representative sample of adolescents. Previous studies of the relationships among community violence, own violence, and depression have tended to be based on single-site samples and on more limited age ranges. Our analyses have also taken advantage of the longitudinal information in the Add Health study, including use of lagged-dependent-variable models that examine how own vio-

lence and street violence are associated with change in depression. Disaggregation of depression into positive and negative affect subscales and examination of associations across demographic subgroups further help to identify the conditions under which the moderation is strongest (i.e., among males and older adolescents).

Finally, future research is needed to help illuminate the psychological and social mechanisms behind the observed pattern of moderation. For example, the effect may work through changes in adolescents' sense of efficacy over their environment, which would lend more support for the positive adaptation interpretation. If it involves a process of normalization or desensitization to violence, in contrast, an interpretation of pathological adaptation might be indicated (Ng-Mak et al., 2004).

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