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Community Violence Exposure and Adolescent Delinquency: Examining a Spectrum of Promotive Factors

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Abstract

This study examined whether promotive factors (future expectations, family warmth, school attachment, and neighborhood cohesion) moderated relationships between community violence exposure and youth delinquency. Analyses were conducted using $N = 2,980$ sixth to eighth graders ($M_{age} = 12.48$; 41.1% males) from a racially, ethnically, and socioeconomically diverse sample. After controlling for demographic factors, delinquency was positively associated with community violence exposure and inversely associated with each of the promotive factors. When interaction effects between all promotive factors and community violence exposure were examined simultaneously, only future expectations moderated the relationship between community violence exposure and delinquency. Specifically, community violence exposure had a weaker association with delinquency for youth reporting high versus low levels of future expectations. Results indicate that while promotive factors from family, school, and neighborhood domains are related to lower rates of delinquency, only future expectations served as a protective factor that specifically buffered youth from the risk effects of community violence exposure.

Community violence consists of violence (e.g., serious fights, gunshots, stabbing) either experienced or witnessed by individuals, which generally takes place outside the home (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Community violence exposure tends to be more common and repetitive than other forms of violence exposure such as domestic violence or childhood sexual abuse (Margolin & Gordis, 2000) and also generally occurs between individuals who are unrelated and who may or may not know each another. Community violence exposure has been characterized as a serious public health epidemic. According to national surveillance data, more than 60% of adolescents surveyed have been physically assaulted during their lifetime; additionally, 7.2% of the 10- to 13-year-olds and 10.2% of the 14- to 17-year-olds surveyed had witnessed a shooting within the past year (Finkelhor, 2009).

Adolescents are at greater risk for exposure to community violence than children or adults (Baum, 2005; Finkelhor, 2008). Moreover, the detrimental effects of community violence exposure may be especially salient during adolescence given increased levels of stress resulting from the enormous biological and social changes that take place during this developmental period (Mrug, Loosier, & Windle, 2008). Likewise, adolescents, compared with children and adults, may be especially reactive to environmental influences given the uncertainty with new social roles or expectations (Bacchini, Concetta Miranda, & Affuso, 2011). Although community violence exposure has been linked to higher rates of depression and anxiety in youth, a recent meta-analysis found that community violence exposure was more strongly related to externalizing than internalizing problems, and a large body of existing research has specifically focused on the effects of community violence exposure on youth delinquent and aggressive behaviors (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2010).

While the rate of juvenile delinquency in the United States has declined since the end of the last century (Puzzanchera, Adams, & Hockenberry, 2012), it is still among the highest in developed countries (Thornberry, Huizinga, & Loeber, 2004) and violence among urban youth remains a significant public health concern (Centers for Disease Control and Prevention[CDC], 2010). In addition, both rates of delinquent behavior (Puzzanchera et al., 2012) and exposure to community violence (Pearce, Jones, Schwab-Stone, & Ruchkin, 2003; Sheidow, Gorman-Smith, Tolan, & Henry, 2001) are higher among racial/ethnic minorities, suggesting that identifying promotive factors that protect youth from the adverse effects of community violence exposure has important implications for addressing racial/ethnic disparities in youth outcomes.

Community Violence Exposure and Promotive Factors

Given that reducing community violence exposure among adolescents may be difficult to achieve, especially in low-resourced communities, there has been growing interest in research exploring promotive factors that may decrease the negative sequelae associated with community violence exposure. However, there is no general consensus if and how these factors may condition the association between risk factors and youth outcomes. Researchers have proposed three major possibilities for interactions between risk and promotive factors, namely, (a) promotive factors only have main effects on maladjustment and they do not interact with risk factors to predict maladjustment (i.e., promotive factors do not alter the relationship between risk factors and maladjustment), (b) promotive factors amplify the relationship between risk factors and maladjustment (i.e., risk factors have stronger associations with maladjustment at increasing levels of promotive factors), and (c) promotive factors function as protective factors that buffer the association between risk factors and maladjustment (i.e., risk factors have weaker associations with maladjustment at higher levels of protection; Jessor, 1993; Luthar, Cicchetti, & Becker, 2000; Rutter, 1985). To date, findings from studies of promotive factors and community violence exposure have been inconsistent. Some studies have failed to find interaction effects of promotive factors and community violence exposure on youth problem behaviors (Henrich, Brookmeyer, & Shahar, 2005; Hill, Levermore, Twaite, & Jones, 1996), while a more substantial body of work has reported significant interactions of promotive factors with community violence

exposure, albeit with different patterns of results. Specifically, some researchers have found a stronger association between community violence exposure and problem behaviors among youth reporting higher levels of promotive factors (Bacchini et al., 2011; Gorman-Smith & Tolan, 1998; Kliewer et al. 2004; Sullivan, Kung, & Farrell, 2004). For instance, community violence exposure has been found to be more strongly associated with antisocial behavior among adolescents reporting higher levels of parental monitoring (Bacchini et al., 2011). In contrast, other findings have provided evidence for buffering effects of promotive factors on the relationship between community violence exposure and youth problem behaviors (Brady, Gorman-Smith, Henry, & Tolan, 2008; Brookmeyer, Henrich, & Schwab-Stone, 2005; Gorman-Smith, Henry, & Tolan, 2004; Hardaway, McLoyd, & Wood, 2012; Kliewer et al., 2006; Mazefsky & Farrell, 2005; McGee, 2003; Pearce et al., 2003), with relationships among community violence exposure and adolescent problem behaviors being weaker at higher levels of promotive factors. For example, it was found that adaptive coping reduced the impact of community violence exposure on violent behavior (Brady et al., 2008). These latter studies show that positive environmental and psychosocial factors can serve as protective factors that buffer the adverse effects of community violence exposure on youth outcomes.

The considerable health and social consequences of community violence exposure and its high prevalence among adolescents calls for systematic research that can identify a broad spectrum of protective factors that may restrain risk outcomes associated with community violence exposure. Given inconsistencies across prior studies, more research is needed using different samples and multiple aspects of promotive factors to determine whether there are systematic patterns of relationships between community violence exposure, promotive factors, and youth delinquency. To date, the majority of research examining interaction effects of promotive factors and community violence exposure on youth delinquent and aggressive behaviors has focused on compartmentalized domains at the individual level (e.g., prosocial cognitions or coping skills; Brady et al., 2008; Brookmeyer et al., 2005; McGee, 2003; Pearce et al., 2003) or family level (e.g., parental support or monitoring; Bacchini et al., 2011; Brookmeyer et al., 2005; Gorman-Smith & Tolan, 1998; Kliewer et al., 2006; Mazefsky & Farrell, 2005; Pearce et al., 2003; Sullivan et al., 2004). However, youth's experiences in other domains such as the school and community are also likely to condition the relationship between community violence exposure and negative outcomes in adolescents. Unfortunately, only a handful of studies have considered these factors with regard to community violence exposure and youth problem behaviors (Hardaway et al., 2012; Henrich et al., 2005; Hill et al., 1996; Kliewer et al., 2004; O'Donnell, Schwab-Stone, & Muyeed, 2002). In addition, few studies have examined promotive factors *across* individual, family, school, and community domains using a single sample. As individual differences in youth outcomes are affected by individual, family, school, and community level factors (Voisin, DiClemente, Salazar, Crosby, & Yarber, 2006), it is important to identify protective factors within these domains that may promote resilience among youth exposed to community violence.

One study that excluded the school domain but did examine the significance of individual, family, and community domains (Kliewer et al., 2004), reported that community violence exposure was more strongly associated with externalizing behaviors among adolescents who

reported higher levels of caregiver emotion regulation (family influence). In contrast, child emotional regulation (individual trait) and neighborhood cohesion (community characteristic) did not moderate the relationship between community violence exposure and externalizing behaviors. Another study investigating the moderating effects of individual, family, and school-level promotive factors found that high levels of participation in extracurricular activities (individual behaviors) and positive parent–child relationships (family influence), but not school climate (school context), weakened the risk effect of community violence exposure on externalizing behaviors (Hardaway et al., 2012). Though informative, findings from both studies were limited by relatively small homogeneous samples of African American (Kliewer et al., 2004) or low-income (Hardaway et al., 2012) adolescents. Furthermore, both studies examined the effects of promotive factors from each domain in separate analyses. Consequently, it is unclear if and how promotive factors from different domains of adolescent life may influence the relationship between community violence exposure and youth problem behaviors when they are assessed simultaneously.

Contribution of the Present Study

The present study uses a large socioeconomically and racially diverse community sample to identify promotive factors that may protect youth from the risk effects of community violence exposure. The study sample complements prior studies of community violence exposure, many of which have focused primarily on urban minority males. Promotive factors across individual (i.e., future expectations), family (i.e., family warmth), school (i.e., school attachment), and community (i.e., neighborhood cohesion) domains are considered simultaneously to increase our understanding of the types of environmental and psychosocial influences that are most likely to serve as protective factors. Future expectations was selected as an individual-level promotive factor given its central role in problem behavior theory (Jessor, Turbin, Costa, Dong, Zhang & Wang, 2003). According to problem behavior theory, low expectations for success and a sense of hopelessness for the future increase youth vulnerability for involvement in problem behaviors. Conversely, youth who have a more optimistic view of their future are less likely to engage in delinquent behaviors, a hypothesis that has been supported in empirical research (Blitstein, Murray, Lytle, Birnbaum, & Perry, 2005; Bolland, 2003; Caldwell, Wiebe, & Cleveland, 2006; Chen & Vazsonyi, 2011; Stoddard, Zimmerman, & Bauermeister, 2011). Social control theory (Gottfredson & Hirschi, 1990) provides an orienting framework for the selection of family warmth, school attachment, and neighborhood cohesion to represent promotive factors from other domains. One aspect of social control theory posits that youth who are more strongly attached to prosocial agents represented by parental figures and school personnel would be more motivated to adhere to conventional norms, and thereby less likely to engage in higher rates of delinquency (Gottfredson & Hirschi, 1990). In addition, high levels of neighborhood cohesion strengthen collective supervision and monitoring, which in turn function as informal social controls to prevent youth from engaging in risky behaviors (Voisin, Jenkins, & Takahashi, 2011). In support of these theoretical prepositions, family warmth (Barnow, Lucht, & Freyberger, 2005; Fletcher, Steinberg, & Williams-Wheeler, 2004; Hipwell et al., 2008), school attachment (Bond et al., 2007; Dornbusch, Erickson, Laird, & Wong, 2001; Jenkins, 1997), and neighborhood cohesion (Browning, Burrington, Leventhal, & Brooks-

Gunn, 2008; Simons, Simons, Burt, Brody, & Cutrona, 2005) have all been inversely associated with youth problem behaviors.

Given that youth do not exist in compartmentalized silos, the current study examining a spectrum of promotive factors across different ecological contexts can provide new information on the relative importance of different promotive factors that may further protect youth from the adverse consequences of community violence exposure. This information, in turn, can be used to develop more refined prevention and intervention programs for at-risk youth.

Method

Sample

Study participants are from the "From Neighborhoods to Neurons and Beyond" (NNB) cohort, which is a sample of 3,350 sixth to eighth graders (M_{age} = 12.47, SD = .99) from 16 urban and suburban schools within 25 miles of a university located in a major city in the Midwestern United States. All youth in the NNB cohort participated in a self-report in-school survey, which obtained data on environmental and psychosocial factors related to youth problem behaviors. The National Opinion Research Center (NORC) conducted the in-school surveys. Individual schools were specifically selected to maximize racial/ethnic and socioeconomic variation in the NNB cohort. Nearly half (43.1%) of the NNB cohort were enrolled in schools with high racial/ethnic variation, 35.0% were enrolled in minority schools (including predominantly African American [16.0%] and predominantly Hispanic [19.0%] schools), and 21.9% were enrolled in predominantly White schools. Schools also differed in the percentage of students eligible for free meal programs (a marker for school poverty), ranging from 7% to 80%. All sixth-to eighth-grade students were targeted for recruitment. The consent return rate across schools was 44% and 80% of youth agreed to participate. Based on youth self-report, more than half of the respondents were non-White, including large numbers of Hispanic (22.3%), African American (20.2%), and mixed race/ethnicity (7.3%) adolescents. Missing data in study constructs from 11.0% of youth resulted in a final study sample of N = 2,980 adolescents ranging in age from 10 to 15 years old (with 98.9% of the sample between 11 and 14 years old). The study was approved by both local university and NORC IRB. Permission was obtained from school administrators/school boards and all participants granted both written parental consent and youth assent for participation. Schools received an average compensation of US$2,500 for allowing the survey to take place in the school. Youth were not individually compensated for their participation.

Measures

Measures of all main study constructs employed standardized items developed from established self-report instruments assessing similar constructs in the racially and socioeconomically diverse National Longitudinal Study of Adolescent Health (Sieving et al., 2001). Demographics included age, gender, race/ethnicity, and school poverty.

Age.—Participants reported their age in years as part of the in-school survey.

Gender.—Gender was coded as 1 = *male*; 0 = *female*.

Race/ethnicity.—Participants reported their race/ethnicity. Five racial/ethnic groups were created: non-Hispanic White, Hispanic, African American, Asian, mixed race/ethnicity (i.e., participants reported more than one racial/ethnic background) and "other". In analyses, dummy-coded variables were created for Hispanic, African American, Asian, "other", and mixed race/ethnicity, using non-Hispanic White as the comparison group.

School poverty.—School poverty assessed by percentage of youth within a school who qualified for free meals programs was used as a proxy for youth SES. Data were retrieved from the Council of Chief State School Officers (CCSSO) public data system.

Community violence exposure.—Participants indicated whether they had ever been exposed to three violent events (seen someone shot/stabbed [9.5%], had someone pull a knife/gun on them [5.5%], been jumped [11.7%]) and whether they heard gunshots during the past month (24.3%). These four items were combined into a single yes/no index of community violence exposure (1 = *yes*, 0 = *no*) following the strategy used in previous research (Voisin, 2005; Voisin et al., 2007). Prior studies have shown that self-report measures of community violence exposure are correlated with objective measures of neighborhood violence, such as official neighborhood-level crime statistics (Hastings & Kelley, 1997; Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998), supporting the external validity of this measure. In addition, community violence exposure was positively correlated with school poverty in the current study ($r = .21$, $p < .001$), offering further evidence for the ecological validity of this measure.

Delinquency.—Youth delinquency was measured with 16 items assessing frequency of a broad range of illegal (e.g., stealing something worth more than US$50), norm-violating (e.g., skipping school without permission), and aggressive (e.g., getting into a serious physical fight) behaviors within the past 12 months. Responses were given on a 3-point scale, ranging from 0 = *never* to 3 = *5 or more times*, and were recoded into 0 = *never* and 1 = *1 or more times*. A composite score of the number of delinquent behaviors endorsed was computed by summing the recoded responses to the 16 items ($\alpha = .79$; $M = 1.96$, $SD = 2.41$). The composite delinquency score was positively skewed (skewness = 1.71) and was transformed using a square root transformation for analyses.

Future expectations.—Participants were asked to rate 4 statements assessing their perceived likelihood of future events (i.e., living to age 35, being killed by age 21, graduating from high school, graduating from college) in a 5-point scale ranging from 1 = *little or no chance* to 5 = *it will happen*. Responses to the items were averaged to create a score of future expectations, with the item assessing the likelihood of being killed by age 21 reverse coded ($\alpha = .61$). As the scale score of future expectations was highly skewed with 51% of the participants having a score of 5, it was recoded into 0 = *low future expectations* (participants with a scale score that was below 5) and 1 = *high future expectations* (participants with a scale score of 5) for analyses. We also repeated the analyses using the continuous scale score of future expectations and findings were consistent with those reported in the article.

Family warmth.—Participants responded to 5 items assessing family warmth (e.g., how much do you feel that people in your family understand you) with a 5-point scale ranging from 1 = *not at all* to 5 = *very much*. A family warmth score was created using the mean of the responses to the 5 items (α = .80; M = 4.20, SD = .76). The family warmth score was negatively skewed (skewness = −1.22) and was transformed using a square transformation for analyses.

School attachment.—School attachment was assessed with 6 items. Five items asked participants how much they agreed with statements describing their attachment to school (e.g., I feel like I am part of this school). Responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. A sixth item assessed how much participants felt that their teachers cared about them, with responses ranging from 1 = *not at all* to 5 = *very much*. A score of school attachment was computed by averaging the responses to all 6 items (α = .84; M = 3.87, SD = .69).

Neighborhood cohesion.—Neighborhood cohesion was measured with 11 items (e.g., people in my neighborhood look out for each other). Responses ranged from 1 = *strongly disagree* to 4 = *strongly agree* and were averaged to create a score of neighborhood cohesion (α = .88; M = 3.05, SD = .57)

Analytical Plan

Multilevel modeling using SPSS was implemented to account for nonindependence between participants in the same school. Four hierarchical models were specified to examine the main effects of community violence exposure and promotive factors and their interaction effects on delinquency, including an unconditional means model estimating the proportion of variability in delinquency that exists between individuals and between schools (Model 1), a model with all the demographic control variables (Model 2), a model considering main effects of community violence exposure and promotive factors (Model 3), and a model examining all of the interaction effects between community violence exposure and promotive factors simultaneously (Model 4; i.e., community violence exposure × future expectations, community violence exposure × family warmth, community violence exposure × school attachment, community violence exposure × neighborhood cohesion). Standardized scores of all continuous variables were used in analyses so that standardized coefficients could be compared across measures. Comparisons across models were based on differences in −2LL between models (Δ−2LL), which is distributed as a chi-square statistic with degrees of freedom equal to the difference in degrees of freedom between the models compared. Significant interactions were plotted and interpreted using methods outlined by Preacher, Curran, and Bauer (2006) for calculation of the regression coefficient between community violence exposure and delinquency at low and high levels of potential moderators.

Missing Data Analyses

Multivariate logistic regression analyses were conducted to compare the demographic characteristics of youth included in the final sample with youth who were excluded due to missing data in main study constructs. Findings indicated that excluded youth were more likely to be younger adolescents (b = −.23, p < .001) and male (b = .48, p < .001). In

addition, African American adolescents ($b = .37$, $p < .05$) and adolescents with mixed racial/ethnic background ($b = .60$, $p < .01$) were more likely, and Asian adolescents ($b = −1.22$, $p < .05$) less likely, to be excluded from the current analyses than White adolescents. Other racial comparisons were not statistically significant. No significant differences were found between included and excluded youth in levels of school poverty.

Results

Descriptive Statistics and Correlations

The mean age of participants included in the present analysis was 12.48 ($SD = .98$) and 58.9% of the sample was female. Almost half of study participants (42.1%) self-identified as non-Hispanic White, 22.4% as Hispanic, 19.8% as African American, 4.2% as Asian, 6.9% as mixed race/ethnicity, and 3.6% as "other." The average percentage of youth who qualified for free meals across schools was 42.44% ($SD = 20.77\%$). About one third of study participants (34.3%) reported exposure to community violence. Chi-square tests showed significant differences in rates of community violence exposure across the different racial/ethnic groups ($\chi^2 = 229.02$, $df = 5$, $p < .001$). Rates of community violence exposure were highest among youth from African American (54.4%), Hispanic (42.9%), and mixed (37.7%) racial/ethnic backgrounds, compared with rates of community violence exposure in "other" (26.9%), White (21.8%), and Asian (21.8%) youth.

Table 1 shows the prevalence of each of the 16 delinquent behaviors in the present study sample as well as the average composite score for delinquency calculated separately for the subgroups of youth who endorsed each of the 16 delinquency items. Consistent with other studies using community-based samples, the most commonly endorsed behaviors represented minor delinquency (e.g., being disruptive in a public place; lying to parents). However, more than 10% of the sample also participated in vandalism, theft, and aggressive behaviors. In addition, although endorsement of the most serious delinquent behaviors was relatively low (e.g., using a weapon in a fight, selling marijuana or other drugs), youth who endorsed these behaviors had the highest levels of overall delinquency. Indeed the data presented in Table 1 show a positive relationship between severity of behaviors and total number of delinquent behaviors, indicating that our delinquency composite score represented both severity and variety of delinquent activities.

Findings from one-way ANOVAs indicated that youth exposed to community violence reported significantly ($p < .001$) higher levels of delinquency than unexposed youth (exposed youth: $M[SD] = 3.37$ [2.93]; unexposed youth: $M[SD] = 1.23$ [1.66]). They also reported lower levels of family warmth (exposed youth: $M[SD] = 3.93$ [.86]; unexposed youth: $M[SD] = 4.34$ [.65]), school attachment (exposed youth: $M[SD] = 3.60$ [.72]; unexposed youth: $M[SD] = 4.01$ [.63]), and neighborhood cohesion (exposed youth: $M[SD] = 2.85$ [.60]; unexposed youth: $M[SD] = 3.15$ [.52]). Differences in future expectations between youth exposed and unexposed to community violence were examined using chi-square. Results indicated that a significantly higher proportion of exposed youth reported low levels of future expectations (59.6%) in comparison to unexposed youth (46.5%; $\chi^2 = 46.76$, $df = 1$, $p < .001$). Table 2 shows correlation statistics among main study constructs. Measures of promotive factors were positively correlated with each other and negatively

correlated with delinquency and community violence exposure. Community violence exposure was positively correlated with delinquency.

Main Effects of Community Violence Exposure and Promotive Factors

Results for the main effects of community violence exposure and promotive factors on delinquency are shown in Table 3. Findings from Model 1 revealed statistically significant variability in delinquency between individuals ($\sigma^2 = .94$, $p < .001$) and between schools ($\tau_{00} = .06$, $p < .001$), supporting the use of multilevel modeling to correct for sample nonindependence. Model 2 testing the effects of demographic control variables fit significantly better than Model 1. Findings indicated that age and school poverty were significantly and positively related to levels of delinquency and that males reported higher levels of delinquency than females. In addition, African American and Hispanic adolescents, as well as youth from the "other" and mixed racial/ethnic groups, were more likely to show higher levels of delinquency than White adolescents.

Model 3, which examined the main effects of community violence exposure and promotive factors net the effects of control variables, had a significantly better model fit than Model 2. Adolescents who were exposed to community violence exhibited higher levels of delinquency than unexposed youth. Furthermore, future expectations, family warmth, school attachment, and neighborhood cohesion all had significantly negative associations with delinquency. The association with delinquency was relatively stronger for family warmth ($b = -.22$) and school attachment ($b = -.19$) than for future expectations ($b = -.14$), while neighborhood cohesion ($b = -.05$) had the weakest association with delinquency when all of the promotive factors were examined simultaneously.

Interaction Effects Between Promotive Factors and Community Violence Exposure

Findings on the interaction effects between promotive factors and community violence exposure on delinquency are also exhibited in Table 3. Model 4 tested all of the interaction effects between community violence exposure and promotive factors simultaneously. Although Model 4 had a significantly better model fit than Model 3, findings from this model indicated that among all of the promotive factors examined, only future expectations interacted with community violence exposure to predict adolescent delinquency, suggesting variations in associations between community violence exposure and delinquency for youth with low and high levels of future expectations. Therefore, a final model (Model 5) considering the main effects of community violence exposure and promotive factors, as well as the interaction effect between future expectations and community violence exposure, was tested. Model 5 also had a significantly better model fit than Model 3. Results from this model indicated that controlling for everything else in the model, family warmth, school attachment, and neighborhood cohesion were significantly and negatively associated with adolescent delinquency although they did not interact with community violence exposure to predict delinquency. To explore the significant interaction effect between future expectations and community violence exposure, we plotted the predicted differences in levels of delinquency between exposed and unexposed youth by levels of future expectations in Figure 1. Although exposed youth consistently exhibited higher levels of delinquency than unexposed youth, differences in delinquency between exposed and unexposed youth were

smaller among youth reporting high levels of future expectations in comparison to those with low levels of future expectations. In other words, the association between community violence exposure and delinquency was weaker at high levels of future expectations (high future expectations: $b_{\text{community violence exposure}}$ = .45, p < .001; low future expectations: $b_{\text{community violence exposure}}$ = .66, p < .001).

Discussion

Community violence exposure has consistent and marked effects on youth externalizing behaviors (Fowler et al., 2010). Identifying protective factors that may reduce the risk effects of community violence exposure has important implications for preventing youth delinquency, especially among urban minority and poor youth, who are at increased risk for community violence exposure (Pearce et al., 2003; Sheidow et al., 2001). The present study is one of the first community studies using a large racially, ethnically, and socioeconomically diverse sample of adolescents to examine the moderating effects of a spectrum of promotive factors across multiple ecological domains on the relationship between community violence exposure and adolescent delinquency. By incorporating multidomain promotive factors simultaneously into the analysis of relationships between community violence exposure and adolescent delinquency, we were able to rigorously examine their independent associations with adolescent delinquency and to test how they independently moderated the relationship between community violence exposure and delinquency. We found that all promotive factors examined in the present study (i.e., future expectations, family warmth, school attachment, and neighborhood cohesion) were significantly and independently associated with lower levels of adolescent delinquency. Consistent with prior empirical work, our findings document that positive individual traits, family processes, and school and community characteristics are associated with lower levels of youth delinquency (Deković, 1999; Garmezy, 1985; Luthar et al., 2000). Additionally, the present study provided evidence for stronger associations between family warmth and school attachment with adolescent delinquency than future expectations and community cohesion. These findings are also consistent with previous work, which has highlighted the critical roles played by family and school in promoting child competence (Crosnoe, Erickson, & Dornbusch, 2002; Englund, Levy, Hyson, & Sroufe, 2000; Luthar, 2006; O'Donnell et al., 2002).

Importantly, our findings provided support for a moderating effect of future expectations on the relationship between community violence exposure and adolescent delinquency, when interactions between all promotive factors and community violence exposure were examined simultaneously. Specifically, differences in delinquency between exposed and unexposed youth were smaller among adolescents reporting high levels of future expectations in comparison to those with low levels of future expectations, implying that future expectations buffered the relationship between community violence exposure and adolescent delinquency. In contrast, the relationship between community violence exposure and adolescent delinquency did not vary across different levels of family warmth, school attachment, or neighborhood cohesion. This finding suggests that promotive processes within the individual, such as future expectations, are more likely to function as protective factors that support adolescents' resilience in the presence of risk environments compared to more distal promotive factors that occur in youth's families, schools, and communities. The assumption

that proximal versus distal promotive factors have a greater effect on resiliency has been posited by prior researchers (Bronfenbrenner & Ceci, 1994; Rutter, 1985; Voisin et al., 2006).

Our findings advance the extant literature on interactions between risk and promotive factors in several ways. Previous theoretical and empirical work (Bacchini et al., 2011; Brady et al., 2008; Brookmeyer et al., 2005; Gorman-Smith et al., 2004; Gorman-Smith & Tolan, 1998; Jessor, 1993; Kliewer et al., 2004, 2006; Luthar et al., 2000; Mazefsky & Farrell, 2005; McGee, 2003; Rutter, 1985; Sullivan et al., 2004) has not reached agreement as to whether and how promotive factors may interact with risk factors, such as community violence exposure, to predict adolescent adjustment. Our results indicate that high levels of future expectations mitigate the negative influences of environmental risk on youth delinquency and therefore add support to the "buffering hypothesis" about relationships between risk and promotive factors. However, our findings further suggest variations in interaction patterns of promotive factors across various ecological strata, consistent with more recent conceptual thought (Luthar et al., 2000). Specifically, our findings indicate that the relationship between community violence exposure and adolescent delinquency did *not* vary as a function of promotive factors measured at the family, school, and community level, although these promotive factors were directly associated with lower levels of delinquency. The different pattern of results observed for promotive factors from different domains suggests that inconsistencies in previous research on protective factors may be partly due to differences in the types of promotive factors examined.

Limitations

The current study has several strengths, including the use of a large, racially, ethnically, and socioeconomically diverse sample of youth and the consideration of promotive factors from multiple domains. However, a number of study limitations should be noted. First, our study used a cross-sectional design, and therefore causal relationships between study constructs cannot be made. Several of the relationships assessed in this study could be bidirectional. For instance, delinquency might result in higher levels of community violence exposure and vice versa. Cross-sectional studies are often criticized for their inability to tease out temporal ordering. However, such designs do provide important preliminarily evidence for relationships examined, a contribution which this study offers, which can then form the basis for more costly longitudinal studies. Second, measures of community violence exposure were based on responses that combined both witnessed violence and victimization, and it is possible that community violence exposure assessed in the present study overlaps with other similar constructs (e.g., exposure to family violence). However, we note that these items were specifically selected to capture exposure to violence that most likely occurs outside the family context. Third, based on our measure of future expectations, the majority of our sixth- to eighth-grade participants reported positive expectations toward the future. However, we note that patterns of results were the same using both dichotomous and continuously measured definitions of future expectations. Moreover, the limited variation in the measure of future expectations likely attenuated its interaction with community violence exposure. Fourth, although one of the strengths of the present study is our racially/ethnically diverse sample of adolescents, this diversity also restricted our ability to test racial/ethnic differences

in the moderating effects of promotive factors on the community violence exposure and delinquency link (i.e., three-way interactions among race/ethnicity, promotive factors, and community violence exposure), especially given the small sample sizes of the participants from the Asian, "other", and mixed racial/ethnic groups. However, we note that additional analyses (available from authors) revealed a similar pattern of results for two of our three largest racial/ethnic groups (i.e., Whites and African Americans), suggesting that the interactions between community violence exposure and future expectations do generalize to both minority and nonminority youth. Fifth, the current sample only included students who were enrolled in public schools. Rates of homelessness, incarceration, institutionalization, school dropout, and expulsion are low among this age group (Child Trends Data Bank, 2012; Molino, 2007; Whitted, Takiff, & Ali, 2011), suggesting that our results are not likely to be biased by sampling method. However, we note that the present results may not generalize to youth outside the school system, who may be exposed to higher levels of community violence and are likely to be disproportionately involved in more serious forms of delinquency. Finally, although the present study examined the interaction patterns between promotive factors with community violence exposure at multiple ecological levels, it only considered one promotive factor at each level of influence. It is possible that different processes within domains may show different patterns of interactions with risk factors. For example, a study of aggressive behavior in a sample of urban minority males reported a significant interaction between community violence exposure and a composite measure of family organization, support, and intolerance of antisocial values, but did not find a significant interaction between community violence exposure and family cohesion (Gorman-Smith & Tolan, 1998). Thus our finding that individual factors but not family, school, or neighborhood factors acted as a protective factor against the risk effects of community violence exposure may not generalize to studies investigating other individual and environmental processes.

Clinical and Policy Implications

Despite the limitations described above, our study results have several clinical and policy implications. First, our results indicate that successful intervention and prevention programs should be multifaceted, as we found independent main effects for promotive factors across several domains. Thus, programs emphasizing promotive factors in any one domain may have limited effects on reducing delinquency. On the other hand, our finding that future expectations was the only measure that attenuated the risk effects of community violence exposure on delinquency indicates that individual characteristics may play a critical role in protecting youth from adverse effects of community violence exposure. Thus a second implication of our study highlights the need to develop programs that can promote positive future expectations, especially among youth exposed to community violence. Other studies have shown that effective coping strategies reduce the risk effects of community violence exposure on behavioral problems (Brady et al., 2008; McGee, 2003) and that optimistic thinking about the future triggers active coping behaviors and thereby predicts positive adjustment (Nes & Segerstrom, 2006). Many existing coping intervention and prevention programs are designed to be implemented in group settings, such as schools and community centers. Especially exciting are recent results from a follow-up analysis of youth enrolled in the Child Coping Power intervention study, a group-based intervention given to adolescents

in fifth and sixth grade (Lochman, Wells, Qu, & Chen, 2012). While youth in the intervention group showed greater reductions in aggressive behavior 3 to 5 years later than control youth, the strongest effect of the intervention was found for youth who lived in more socially disadvantaged neighborhoods. These results parallel the results of the current study, which indicate that at-risk youth may derive the greatest benefits from interventions aimed at changing individual psychosocial and cognitive characteristics. Finally, the effects of policies aimed at ameliorating external risk factors that are correlated with community violence exposure and delinquency may be mediated by indirect effects on positive youth cognitive and socioemotional abilities. For example, antipoverty programs focused on increasing parental employment have been shown to enhance youth's educational and occupational expectations (Huston et al., 2005; McLoyd, Kaplan, Purtell, & Huston, 2011). Likewise, children's involvement in before- and after-school programs and other adult-supervised structured activities can promote youth's self-confidence and optimism (McLoyd et al., 2011). Therefore, there are several avenues that could be pursued to increase more positive future expectations for at-risk youth.

In summary, findings from the present study and prior work highlight the importance of building individual competence in prevention/intervention programs targeted toward reducing the deleterious influences of community violence to promote positive youth development. This information is critical for clinicians and other service providers who work with diverse samples of youth who are at risk for exposure to community violence.

Acknowledgments

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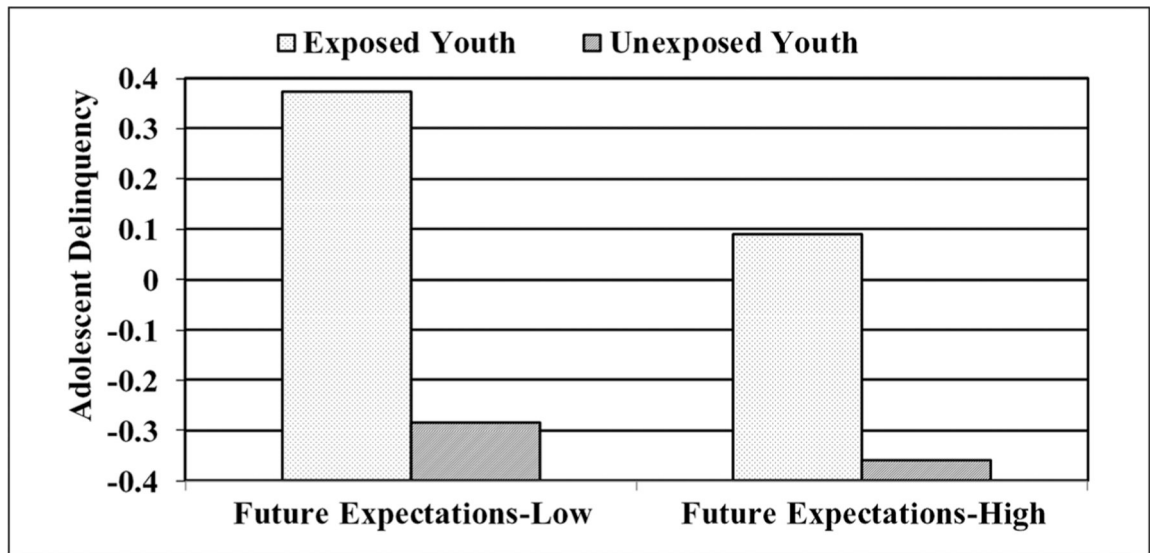
Figure 1.
Moderating effect of future expectations on the association between community violence exposure and adolescent delinquency

Note: Delinquency is shown as standardized (*z* score) values.

Table 1.

Descriptive Statistics for Each Delinquent Behavior Assessed

	% of youth who endorsed each item	Average composite score of delinquency[a]
Being loud or disruptive in a public place	43.8%	3.54
Lying to parents about whereabouts or whom they were with	31.8%	4.18
Damaging something belonging to other people	29.1%	4.35
Taking part in a group physical fight	19.5%	5.14
Getting into a serious physical fight	18.2%	4.95
Stealing something worth less than US$50	12.4%	6.01
Stealing something from a store	11.6%	6.19
Doing "tagging" or painting graffiti	8.0%	6.04
Running away from home	4.8%	5.96
Using or threatening to use a weapon to get something	4.0%	7.06
Skipping school without permission	3.3%	7.39
Using a weapon in a flight	2.7%	8.14
Driving a car without its owner's permission	2.3%	7.69
Stealing something worth more than US$50	2.2%	9.00
Stealing something from a house or building	1.8%	8.66
Selling marijuana or other drugs	0.8%	10.12

[a]Composite scores were calculated separately for the subgroups of youth who endorsed each delinquent behavior.

Table 2.

Correlation Statistics Among Main Study Variables ($N = 2,980$)

	1	2	3	4	5	6
1. Delinquency						
2. Community violence exposure	.43***					
3. Future expectations	−.23***	−.20***				
4. Family warmth	−.44***	−.26***	.24***			
5. School attachment	−.44***	−.28***	.22***	.49***		
6. Neighborhood cohesion	−.37***	−.25***	.23***	.46***	.51***	

Note: Tetrachoric correlation coefficient was reported for the correlation between community violence exposure and future expectations.

***
$p < .001$.

Table 3.

Multilevel Regression Predicting Adolescent Delinquency by Community Violence Exposure and Promotive Factors ($N = 2,980$)

Fixed effect	Model 1 b	Model 1 SE	Model 2 b	Model 2 SE	Model 3 b	Model 3 SE	Model 4 b	Model 4 SE	Model 5 b	Model 5 SE
Intercept	.06	.07	−.24***	.05	−.25***	.03	−.29***	.04	−.28***	.04
Age			.12***	.02	.05***	.01	.05***	.01	.05***	.01
Male			.17***	.04	.09**	.03	.09**	.03	.09**	.03
African American			.34***	.06	.10*	.05	.11*	.05	.10*	.05
Hispanic			.38***	.06	.21***	.05	.21***	.05	.21***	.05
Asian			−.06	.09	−.12	.08	−.11	.08	−.12	.07
Other			.36***	.10	.30***	.08	.30***	.08	.30***	.08
Mixed			.44***	.07	.23***	.06	.23***	.06	.23***	.06
School poverty			.10*	.04	.02	.02	.02	.02	.02	.02
Community violence exposure (CVE)					.56***	.03	.64***	.05	.66***	.04
Future expectations (FE)					−.14***	.03	−.08*	.04	−.07*	.04
Family warmth (FW)					−.22***	.02	−.20***	.02	−.22***	.02
School attachment (SA)					−.19***	.02	−.20***	.02	−.19***	.02
Neighborhood cohesion (NC)					−.05**	.02	−.03	.02	−.05**	.02
CVE × FE							−.19**	.06	−.21***	.06
CVE × FW							−.04	.04		
CVE × SA							.03	.04		
CVE × NC							−.04	.04		
Random effect										
Residual	.942***	.024	.899***	.023	.630***	.016	.627***	.016	.628***	.016
Intercept	.062*	.024	.014	.008	.001	.002	.002	.002	.002	.002

Goodness of fit	Model 1	Model 2	Model 3	Model 4	Model 5
χ^2	8315.93	8159.58	7087.71	7073.84	7076.53
Comparison model		1	2	3	3
Δ−2LL, (Δdf)		156.35(8)***	1071.87(5)***	13.87(4)**	11.18(1)***
Explained variance					
Individual level		4.6%	33.1%	33.4%	33.3%

*
$p < .05$.

**
$p < .01$.

***
$p < .001$.