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DISCREPANCIES BETWEEN COMMUNITY VIOLENCE EXPOSURE AND PERCEIVED NEIGHBORHOOD VIOLENCE

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Abstract

Community violence exposure (CVE) has been identified as a significant public health concern given its association with numerous mental health problems. Perceptions of neighborhood violence (PNV) also may adversely affect youth adjustment. In recognition that PNV may differ from individuals own experience of CVE, the current study utilized latent class analysis to examine the degree and consequences of consistency and discrepancy in adolescents community violence exposure and PNV. Participants included an epidemiologically-defined community sample of 456 African American adolescents (52% male; mean age=11.77). Results revealed three groups of youth: high CVE/high PNV, low CVE/low PNV, and low CVE/high PNV. Longitudinal analyses suggest that a discrepancy between CVE and PNV is important for understanding depressive and anxious symptoms among urban African American youth. Implications for intervention are discussed.

Although the rates of violence affecting many young Americans have dropped in recent years (Buka, Stichick, Birdthistle, & Earls, 2001), acts of and exposure to violence remain extraordinarily high, especially for youth between the ages of 15 and 24 years (Centers for Disease Control and Prevention [CDC], 2006). Homicide, one of the most extreme forms of violence, is the second leading cause of death among youth aged 15 to 24 years (CDC, 2006). The rates of nonfatal violence, such as assaults or being beaten up, are even more prevalent in youth than fatal forms of violence (Buka et al.). According to the Youth Risk Behavior Survey (CDC, 2006), more than one third of high school students reported being in a physical fight in the 12 months preceding the survey. In addition, almost one fifth of high school students reported having carried a weapon during the 30 days preceding the survey, and approximately 4% of those injured in a physical fight reported that they required medical treatment by a doctor or a nurse. Adolescents' exposure to community violence as witnesses exceeds these high rates of victimization (CDC, 2006). For example, in an ethnically diverse sample of older adolescents, nearly 98% of the sample reported witnessing a person being victimized by community violence (Rosenthal, 2000).

African American youth are more likely to witness and be victims of community violence, which may be because of their overrepresentation in low-income neighborhoods (Buka et al., 2001). Although higher rates of exposure to violence are not unique to income status, the

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intensity and severity of the violent events that occur in poorer neighborhoods appear to affect youth in these areas at disproportionate rates (Buka et al.). Research has shown that 50%–96% of urban children have witnessed community violence at least once in their lifetime (Luthar & Goldstein, 2004; Ozer & Weinstein, 2004; Rosenthal, 2000).

Consequences of Community Violence Exposure and Perception of Neighborhood Violence

Youth violence exposure is associated with numerous negative physical, emotional, and social consequences and can have implications for larger societal problems (CDC, 2006). Research has demonstrated that adolescents who are exposed to violence are at an increased risk for internalizing and externalizing difficulties (Fitzpatrick, Piko, Wright, & LaGory, 2005), substance abuse (Kilpatrick et al., 2000), dropping out of school and poor school performance (Lynch, 2003), and participation in risk-taking behaviors (Rankin & Quane, 2002). Youth exposed to violence as witnesses or victims display more delinquent and aggressive behaviors (e.g., Diehl, 2004; Luthar & Goldstein, 2004) and, as a result, may help to perpetuate a continuous cycle of violence as perpetrators of violence (Gorman-Smith, Henry, & Tolan, 2004). In terms of internalizing problems, adolescents exposed to community violence report high levels of withdrawn behavior and somatic complaints (Cooley-Quille, Boyd, Frantz, & Walsh, 2001). Research also has shown that adolescent exposure to violence is associated with increases in depressive and anxious symptoms, including symptoms of post-traumatic stress disorder (PTSD) and difficulty concentrating (e.g., Luthar & Goldstein; Ozer & Weinstein, 2004). Relatedly, a diagnosis of PTSD because of witnessing or victimization by community violence, increases adolescents' risk of marijuana use and hard drug abuse and dependence (Kilpatrick et al.).

Adolescents' experience of living in neighborhoods characterized by violence influences how they perceive and respond to the environment, which can also affect their mental health adjustment (Aneshensel & Sucoff, 1996; CDC, 2006). Several studies have documented the adverse effects of perceived fear, perceived threat, low perceived safety, and similar constructs reflecting perception of neighborhood violence (PNV) on mental health adjustment (Aneshensel & Sucoff; Diehl, 2004). For example, Latkin and Curry (2003) found that adults' perception of negative neighborhood characteristics, such as vandalism, vacant housing, burglary, drug sales, and people getting robbed on the street, was associated with increased depressive symptoms at a 9-month follow-up, even after adjusting for baseline levels of depression. Similarly, Aneshensel and Sucoff found that as adolescents perceived their neighborhood as more threatening, depressive, anxious, and externalizing symptoms increased. Griffin, Scheier, Botvin, Diaz, and Miller (1999) found that perceived neighborhood risk was associated with higher interpersonal aggressive behaviors for the urban minority youth in their sample. In fact, it has been proposed that perceptions of the neighborhood environment may be more relevant for mental health adjustment than administrative measures of the neighborhood context (Stiffman, Hadley-Ives, Elze, Johnson, & Dore, 1999), such as police reports of violent crime or census data (Aneshensel & Sucoff; Griffin et al.; Hadley-Ives, Stiffman, Elze, Johnson, & Dore, 2000), because individuals' experience of their environment may not correspond to these administratively defined neighborhoods. Thus, PNV may adversely affect adolescent emotional and behavioral adjustment, independent of CVE.

Although both exposure to and perceptions of community violence can have negative implications for adolescents' emotional and behavioral adjustment, the relative effects of these two experiences of violence on adolescent adjustment has rarely been examined (see Diehl, 2004 and Cooley-Quille et al., 2001, for exceptions). In addition, the degree to which CVE and PNV are similar is not well understood, and it is not clear how the degree of

consistency in exposure to community violence and PNV may influence adolescent mental health. Some research suggests similarity in youth's exposure to community violence and their perceptions of danger, violence, and safety. For example, Cooley-Quille and colleagues found that youth exposed to high levels of community violence endorsed more fears of injury, fear of the unknown, and fears related to the danger of living in a hostile environment than peers who were exposed to lower levels of violence, suggesting consistency in youth experiences with violence and fear of violence. The combination of CVE and high PNV (or low perceived neighborhood safety) appears to be particularly problematic because it places youth at increased risk for both emotional and behavioral maladjustment.

Although it is reasonable to expect that youth's experiences with community violence will inform their PNV, such consistency between community violence and PNV may not always exist (Thornton, Gibbons, & Gerrard, 2002). Some youth exposed to community violence may not perceive they are at risk; others who have not been exposed to community violence may perceive violence in their environments or report fear of violence. Although the extant literature has not carefully examined the emotional and behavioral consequences of discrepancies between adolescents' exposure to community violence and their perception of violence and safety, research on youth involvement in and perception of health risk behaviors provides some insights about the implications of discrepancies between youth violence exposure and perception of violence (Kershaw, Ethier, Niccolai, Lewis, & Ickovics, 2003).

Research on adolescent health risk behaviors suggests that adolescents who engage in a risk behavior or event, but do not experience a negative outcome associated with that behavior or event, may perceive the consequence of the behavior as a low risk (Cohn, Macfarlane, Yanez, & Imai, 1995; Halpern-Felsher et al., 2001). For example, Cohn and colleagues found that adolescents minimized the harm associated with periodic involvement in health-threatening activities. However, although periodic involvement in risky behaviors may not result in harm, adolescents' underestimation of risk associated with chronic involvement in risky situations or events can result in harm over time (Cohn et al.). Similarly, adolescents who have been exposed to community violence through witnessing, but have not experienced any direct harm or victimization, may perceive low threat, feel invincible, and underestimate the possibility of threat to themselves (e.g., Griffin et al., 1999; Hoyle, Fejfar, & Miller, 2000), possibly increasing their risk for additional exposures to community violence and increasing their risk of internalizing and externalizing behaviors (Halpern-Felsher et al.).

In addition to underestimation of risk, research on adolescent risk perception also suggests that there may be groups of youth who overestimate their risk associated with involvement in certain activities (e.g., risky sexual behaviors or driving while drunk) such that adolescents who have less experience with engaging in risk behaviors may overestimate their risk (Halpern-Felsher et al., 2001). For example, adolescents may perceive violence in the community despite a lack of experience with violent events. Research has estimated that, on average, the chances of an individual being a victim of a violent crime such as homicide, rape, or robbery is less than 10%, although the statistical rates of youth witnessing exposure to community violence remain high (Millstein & Halpern-Felsher, 2002). Because rates of victimization by violent crime are often lower than other forms of CVE (e.g., witnessing), youth perception of violence or perceived risk may be greater than actual exposure to violence. Youth who perceive neighborhood violence or risk without exposure to violence may be more hypervigilant or anxious than other individuals, which may increase their risk of expressing internalizing behaviors. Taken together, the aforementioned research suggests that in addition to youth whose perception of violence is consistent with their experiences with community violence, there may be groups of youth who are exposed to community

violence but do not perceive neighborhood violence, and also youth who are not exposed to community violence but perceive neighborhood violence.

The Present Study

Considerable research has documented the numerous adverse consequences of adolescent exposure to community violence and PNV. However, it is not clear how consistency and discrepancy in these two types of experiences with violence may affect adolescents' emotional and behavioral adjustment. As suggested by previous research, there may be distinct groups of youth based on their experiences with community violence and their PNV (Cohn et al., 1995; Halpern-Felsher et al., 2001), and these groups may have distinct behavioral outcomes. Thus, the present study uses person-centered methods to examine groups of youth characterized by the degree of consistency and discrepancy in CVE (CVE) and PNV.

It was hypothesized that four groups of youth characterized by their CVE and PNV patterns would emerge: youth with high CVE/low PNV; youth with low CVE/high PNV; and youth with similar levels of CVE and PNV (both high or both low). We expected that these different combinations of CVE and PNV would differentially predict anxiety, depression, and aggressive behaviors. It was hypothesized that among youth with consistent reports of CVE and PNV, youth with high CVE and high PNV would have worse behavioral adjustment than youth with low CVE and low PNV. We expected that among youth with discrepant reports of CVE and PNV (i.e., high CVE/low PNV, low CVE/high PNV), youth with high CVE and low PNV would report more externalizing behaviors than youth with low CVE and high PNV. Youth with high PNV and low CVE were expected to report more internalizing behaviors than youth with high CVE and low PNV. It also was hypothesized that youth with high CVE and high PNV would have the worst behavioral adjustment overall and report more internalizing and externalizing behaviors.

To evaluate the validity of the hypothesized groups, we examined whether the groups differed according to gender, academic readiness, or deviant peer affiliation. Some cultural norms in urban communities suggest that girls generally stay closer to home under higher parental supervision, while boys are granted greater autonomy and access within the neighborhood, thus increasing their opportunity for exposure to community violence (Rosario, Salzinger, Feldman, & Ng-Mak, 2003). Thus, it was hypothesized that more boys than girls would be in the high CVE/high PNV and high CVE/low PNV groups. We expected that more girls than boys would be in the low CVE/high PNV group and the low CVE/low PNV group. Additionally, prior research suggests that youth exposed to higher levels of CVE and PNV have higher deviant peer affiliation (Foney & Cunningham, 2002; Tolan, Gorman-Smith, & Henry, 1998) and more deficient academic performance (Schwartz & Gorman, 2003) than youth with lower levels of violence exposure and less PNV. Therefore, we expected youth in the high CVE/high PNV, high CVE/low PNV, and low CVE/high perceived neighborhood groups to have more deviant peer affiliation and less academic readiness than youth with low CVE/low perceived neighborhood.

METHOD

Participants

Participants were 456 African American middle school students initially assessed in the fall of first grade as part of an evaluation of two school-based preventive interventions targeting early learning and behavior (Ialongo et al., 1999). Using a randomized block design, three first-grade classrooms in each of nine elementary schools in an urban city were randomly

assigned to one of two intervention conditions or a control condition. The interventions only were provided during the first-grade year.

Of the youth who participated in the intervention trial in the fall of 1993 ($N = 678$), 585 were African American. Approximately 78% ($N = 456$) of these African American children assessed in first grade had parental consent, verbally assented to complete face-to-face interviews in the sixth grade, reported about their CVE, PNV, and anxious and depressive symptoms, and had teacher reports of their aggressive behavior. These 456 youth comprised the sample of interest and included 239 males (52%) and 217 (48%) females. As an indicator of low socioeconomic status, 67% of the sample received free lunch or reduced lunch according to parental report. At the sixth-grade assessment, the youth ranged in age from 10.63 to 13.12 years (mean [M] = 11.77, standard deviation [SD] = 0.35). Chi-square tests showed no differences in gender, percentage receiving free or reduced lunch, or intervention condition between the 456 participants included in this study and the original sample of 585 children ($ps > .05$). T-tests showed no differences between these two groups in terms of age at entry into the study, first-grade self-reports of anxious or depressive symptoms, or teacher ratings of first-grade aggressive behaviors ($ps > .05$).

Assessment Design

Adolescents reported about their depressive and anxious symptoms, perceptions of neighborhood violence, and CVE, and teachers reported about adolescents' aggressive behavior. Before the assessments, legal guardians were contacted via letter, followed by a phone call if there was no response, to obtain written informed consent for youth to participate in the assessments. Overall consent rates in grades six and seven ranged from 78% to 85%. Verbal assent was obtained from the participants with parental consent. No youth with parental consent refused to participate. This study was approved by the university's institutional review board.

Measures

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

Community violence exposure—Exposure to violence was assessed using the Children's Report of Violence Exposure (CREV; Cooley, Turner, & Beidel, 1995), a self-report instrument developed for children aged 9 to 15 years. The CREV assesses the frequency of four different modes of violence exposure (Cooley et al.). For the present study, the violent events assessed were witnessing someone being beaten up, robbed or mugged, shot or stabbed, or killed. For each item, a dichotomous variable was created to indicate whether or not participants had witnessed the violent event.

Perceived neighborhood violence—Perceptions of neighborhood violence were assessed using the Neighborhood Environment Scale (NES; Elliot, Huizinga, & Ageton, 1985), which assesses respondents' perceptions of neighborhood disorder, including perceptions of violence and safety. The original NES comprises 18 true-false items created to assess exposure to deviant behaviors in the neighborhood including violent crime, drug use and sale, racism, and prejudice. Ten of the original 18 items were used in the larger study. Respondents rated each of the items on a scale from 1 (*not at all true*) to 4 (*very true*). Three of the 10 items assessed neighborhood violence (e.g., "Every few weeks, some kid in my neighborhood gets beat-up or mugged"), and only these were used in this study. For each item, a median split was performed to indicate whether participants reported high or low

PNV. Scores above the median indicated high PNV, and scores below the median indicated low PNV.

Anxious and depressive symptoms—Anxious and depressive symptoms were assessed using The Baltimore How I Feel-Adolescent Version, Youth Report (Ialongo, Kellam, & Poduska, 1999). The BHIF-AY is a 45-item self-report that measures the frequency of respondents' anxious and depressive symptoms during the previous two weeks, using a 4-point scale ranging from 1 (*never*) to 4 (*most times*). Items generated for the scale were taken directly from DSM-IV criteria and from preexisting child self-report measures, including the Children's Depression Inventory (Kovacs, 1983), the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978), and the Spence Children's Anxiety Scale (Spence, 1997). To determine separate scores for the anxious and depressive symptoms subscales, the 26 items assessing anxious symptoms, and the 19 items assessing depressive symptoms were summed to create a total score for each of the subscales. In previous studies (e.g., Ialongo et al., 1999), the middle school BHIF-AY Anxiety subscale was significantly associated with a diagnosis of generalized anxiety disorder on the Diagnostic Interview Schedule for Children IV (DISC-IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000), and the BHIF-AY Depression subscale was significantly associated with a diagnosis of major depressive disorder on the DISC-IV (Shaffer et al.). In grade seven, internal consistency alpha for the Anxiety subscale was .88. Internal consistency alpha for the Depression subscale was .83 in grade seven.

Aggressive behavior—Aggressive behavior was assessed using the Teacher Report of Classroom Behavior Checklist, an adaptation of the Teacher Observation of Classroom Adaptation-Revised, a structured interview with teachers (Werthamer-Larsson, Kellam, & Wheeler, 1991). The TRCBC is a teacher-report measure of child behavior and adaptation in the classroom context. Teachers rate student's aggressive/disruptive behaviors using a 5-item checklist assessing whether the youth lied, took others property without their permission, hurt others physically, broke rules, and damaged other people's property on purpose. Items are rated on a 6-point scale ranging from 1 (*never true*) to 6 (*always true*), and a summary score was created by taking the mean of these five items. In prior research, the aggression subscale predicted adjudication for a violent crime in adolescence and a diagnosis of Antisocial Personality Disorder at 19–20 years of age (Schaeffer, Petras, Ialongo, Poduska, & Kellam, 2003). Coefficient alpha for the aggressive behavior subscale was .88 in seventh grade.

Analytic Strategy

Latent class analysis (LCA) was used to determine whether adolescents could be classified according to their patterns of CVE and PNV. LCA models were estimated with *Mplus*, Version 5 (Muthén & Muthén, 1998–2007) using full information maximum likelihood estimation. This approach allows for missing data at random assumptions (see Little & Rubin, 1990; Rubin, 1987), where students who have data on at least one variable are included in the analysis unless they are missing data on the distal outcomes. Several fit indices were used to decide the best fitting model. Lower values of the Bayesian Information Criterion (BIC; Schwartz, 1978) and the sample size adjusted Bayesian Information Criterion (SSA BIC; Sclove, 1987) indicate a better fit. The Lo-Mendell-Rubin likelihood ratio test of model fit and an adjusted version were used to compare estimated and alternative models (Lo, Mendell, & Rubin, 2001). A low *p*-value indicates that the estimated model is preferable to a model with one fewer classes. Last, a summary measure of the overall classification quality was given by the entropy measure. Entropy values range from 0 to 1, with values closer to 1 indicating better classification of individuals to specific classes.

The estimation for a model with an increasing number of classes was stopped when none of the fit indices showed further improvement (McCutcheon, 1987).

To identify groups characterized by their degree of consistency and discrepancy in CVE and PNV, LCA's were run with the four dichotomous witnessing community violence items and the three dichotomous PNV items. Analyses began with a one-class model, fitting up to a five-class model. Seventh-grade anxious and depressive symptoms and aggressive behavior were analyzed as distal outcomes of the sixth-grade latent classes.

RESULTS

Descriptive Statistics

Means, standard deviations, and correlations for study variables are presented in Table 1. Bivariate associations revealed a positive association between sixth-grade PNV and seventh-grade anxious ($r=.24, p<.001$) and depressive symptoms ($r=.28, p<.001$). Witnessing community violence in grade six was positively associated with depressive symptoms ($r=.13, p<.01$) and aggressive behavior ($r=.13, p<.01$) in seventh grade. There was no association between sixth-grade witnessing community violence and PNV ($r=.08, ns$).

Model Selection and Characteristics of Classes

Latent class analysis was used to determine whether adolescents could be classified according to the patterns of their CVE and PNV. As summarized in Table 2, fit indices for models with increasing numbers of classes were compared for models with 1–5 classes. The BIC, SSA BIC, and the LRT values suggested that the three-class solution was optimal, although the entropy suggested that a four-class solution was best. For the sake of parsimony and consistency among all the fit indices, the three-class solution was selected as the best-fitting model.

Figure 1 shows the probabilities of youth reporting CVE and PNV by class. Class 1, *high CVE and high PNV*, comprised a relatively small proportion of youth (9.3%). This class comprises youth who reported high levels of exposure to community violence and perceived high neighborhood violence. Class 2, *low CVE and high PNV* comprised youth (22.0%) who reported low levels of CVE and high levels of PNV. Class 3, *low CVE and low PNV* was the largest class, comprising youth (68.7%) who were likely to report low levels of both CVE and perceived higher neighborhood violence.

Examining Class Validity

To evaluate the validity of the three violence classification groups, we examined whether gender, sixth-grade deviant peer affiliation, or sixth-grade academic readiness were associated with the likelihood of being in the high CVE/high PNV group or the low CVE/high neighborhood violence group compared with the low CVE/low PNV group (see Table 3). The academic readiness logistic regression coefficient or logit suggests that youth in the low CVE/high PNV class were less academically ready than youth in the low CVE/low PNV class (logit=−0.35, $p<.05$). In terms of deviant peer affiliation, youth in the high CVE/high PNV class were more likely to affiliate with deviant peers than youth in the low CVE/low PNV class (logit=0.40, $p<.001$). Youth in the low CVE/high PNV also were more likely to affiliate with deviant peers than youth in the low CVE/low PNV class (logit=0.27, $p<.001$). Gender did not differentiate the high CVE/low PNV class or the low CVE/high PNV class from adolescents in the low CVE/low PNV class.

Prediction to Distal Outcomes

The mean values of seventh-grade anxious and depressive symptoms and aggressive behavior according to sixth-grade CVE/PNV classes are presented in Table 4. To determine whether the violence exposure classes differentially predicted these seventh-grade outcomes, each outcome was treated as a distal outcome in separate models while controlling for prior behaviors, to test whether means on the seventh-grade outcomes were significantly different across the latent classes. A significant χ^2 indicates that the means are significantly different. After controlling for sixth-grade aggressive behaviors, youth in the low CVE/high PNV class had more teacher-reported aggressive behaviors in seventh grade than youth in the low CVE/low PNV class ($\chi^2_{(1)}=6.13, p<.05$). After controlling for sixth-grade anxious symptoms, youth in the low CVE/high PNV class had more anxious symptoms than youth in the low CVE/low PNV class ($\chi^2_{(1)}=7.92, p<.01$). After controlling for sixth-grade depressive symptoms, youth in the high CVE/high PNV class ($\chi^2_{(1)}=6.85, p<.01$), and the low CVE/high PNV class ($\chi^2_{(1)}=4.04, p<.05$) reported more depressive symptoms than youth in the low CVE/low PNV class.

DISCUSSION

Although in some cases adolescents' experience of CVE and PNV are similar, such that youth exposed to high levels of community violence also perceive higher neighborhood violence (Diehl, 2004), prior research has revealed that adolescents' reports of these types of experiences with violence are not always consistent (Thornton et al., 2002; Weinstein & Klein, 1995). The present study utilized latent class analysis to determine whether adolescents could be classified according to their patterns of CVE and PNV, and whether the degree of consistency between CVE and PNV has implications for adolescents' anxious, depressive, and aggressive behaviors.

Patterns of Community Violence Exposure and Perceived Neighborhood Violence

As suggested by previous research, there appear to be distinct groups of youth based on their experiences with violence (Cohn et al., 1995; Halpern-Felsher et al., 2001). Latent class analyses revealed three distinct groups of youth classified according to their exposure to community violence and their PNV: *high CVE/high PNV*, *low CVE/low PNV*, and *low CVE/high PNV*. The African American youth in this sample reported consistent accounts of CVE and PNV (i.e., *high CVE/high PNV*; *low CVE/low PNV*) more frequently than they reported discrepancies in their CVE and PNV (i.e., *low CVE/high PNV*). This consistency in reports suggests that youth's PNV reflects their exposure to community violence. Contrary to expectation, results did not reveal a group of youth with high CVE and low PNV. This may suggest that in the current sample, youth who are exposed to community violence accurately perceive their risk of neighborhood violence, whereas youth with no or few exposures to community violence may overestimate their risk.

In support of the validity of the violence classification groups, deviant peer affiliation and academic readiness distinguished youth in the low CVE/high PNV and the high CVE/high PNV groups from youth in the low CVE/low PNV group. Specifically, youth in the high CVE/high PNV and the low CVE/high PNV groups were more likely to affiliate with deviant peers than youth in the low CVE/low PNV group. This suggests that youth who affiliate with deviant peers are more likely to experience community violence and perceive neighborhood violence, possibly because of modeling the behaviors of their peers and participating in more risk-taking behaviors, which can increase their exposure to violence (Rankin & Quane, 2002; Tolan, Gorman-Smith, & Henry, 2003). In addition, youth in the low CVE/high PNV group were less academically ready compared to youth in the low CVE/

low PNV group. This suggests that high levels of PNV may interfere with youth academic functioning, consistent with prior research indicating that exposure to violence may increase risk for academic difficulties (Luthar & Goldstein, 2004; Osofsky, 1995). Although the literature suggests gender differences in youth exposure to violence such that boys are more likely to be victims and witnesses of violence (Lynch, 2003), gender did not differentiate the three violence classification groups in the present study.

Experiences With Violence and Anxious, Depressive, and Aggressive Behaviors

Consistent with prior research, CVE and PNV each were associated with anxious, depressive, and aggressive symptoms (e.g., Aneshensel & Sucoff, 1996; Fitzpatrick et al., 2005). In addition, the combination of CVE and PNV yielded information about adolescents' mental health adjustment. After controlling for prior behaviors, youth with low CVE and high PNV reported more anxious and depressive symptoms and had higher teacher-reported aggressive behaviors than youth with low CVE and low PNV. This suggests that perceiving neighborhood violence leads to negative behavioral outcomes. Unfortunately, PNV may be common for youth in urban cities, regardless of their actual exposure. As such, it is important to assess both CVE and PNV, particularly when adolescents transition to middle school, for a comprehensive understanding of how neighborhood and community violence affect youth.

As expected, after controlling for prior behaviors in the sixth grade, youth with high CVE and high PNV reported more depressive symptoms than youth with low CVE and low PNV. However, teachers reported similar levels of aggressive behavior in youth who reported high exposure to violence and high PNV and youth who reported low CVE and low PNV. Previous research has suggested that aggressive behaviors may be common for youth, regardless of their exposure to community violence or PNV, because of acceptable social norms regarding aggressive behaviors in many urban settings (Gorman-Smith & Tolan, 1998). In the current study, it may be that youth with low CVE and PNV modeled the aggressive behaviors of youth with high CVE and PNV, accounting for similarities in teacher-reported aggressive behaviors.

Implications

Results of this study have implications for prevention and intervention and suggest potential targets for assessment and intervention with African American youth. Findings suggest that it is important to assess both CVE and PNV, as the consistency and discrepancy between these experiences of violence may differentially predict adolescents' behavioral outcomes. For example, as in the present study, youth with low exposure to community violence who perceive violence in their neighborhoods may be at increased risk for anxious and depressive symptoms and aggressive behaviors. Among these youth, PNV may be based on factors other than their own direct experience with community violence, such as exposure through hearsay or the media. Therefore, it is important to develop interventions for youth who perceive threat in their neighborhoods, in addition to interventions for youth who have experienced CVE. Another important consideration for intervention is that consistency between CVE and PNV, regardless of type, in some cases may be of benefit for youth (as compared to a discrepancy). Our results suggest that the relative benefit of consistency between CVE and PNV may be more apparent for aggressive behavior than for internalizing problems that seem to be strongly related to perceptions, regardless of CVE. Future research should test this speculation.

It should be noted that PNV may not be exclusive to neighborhoods with the highest risk (Shinn & Toohey, 2003); therefore, interventions addressing neighborhood violence should target different types of neighborhoods, not just high violence communities. In addition,

interventions should assess multiple forms of CVE (e.g., media and hearsay), because these types of youth exposure to community violence also may inform youth PNV and may differentially predict youth behavioral outcomes. Last, findings suggest deviant peer affiliation as a potential target point for interventions designed to prevent CVE, PNV, and their negative consequences. Specifically, youth contacts with deviant peers may increase their involvement in violence, including witnessing community violence and opportunities for perpetration and victimization, thereby also increasing their risk of perceiving neighborhood violence and possibly internalizing and externalizing behaviors as well (Rankin & Quane, 2002; Rosario et al., 2003).

Strengths, Limitations, and Future Directions

A primary strength of the present study is the simultaneous examination of CVE and PNV to understand the degree to which these experiences with violence are similar and whether discrepancies between CVE and PNV have implications for adolescents' adjustment. Prior research that has examined the associations between youth experiences with violence and adjustment primarily has focused on high-risk populations such as juvenile offenders or youth at risk for aggressive behaviors (Gorman-Smith, Henry, & Tolan; Halliday-Boykins & Graham, 2001), thus limiting the populations to whom the results can be generalized. The community epidemiologically defined sample of urban African American youth used in the present study increases the generalizability of the results and increases the opportunity to develop effective preventative interventions based on these findings. In addition, this study's longitudinal design permits stronger conclusions regarding African American youth's experiences with violence and later behavioral outcomes.

The present study was not without limitations. Only four events were used to assess CVE. Using a wider range of community violence events may have yielded different results. This research relied on youth reports of their exposure to community violence. In fact, research suggests that objective measures of neighborhood violence (e.g., police reports of crime) may be too far removed from youth's own experiences to provide assessments of community violence that are relevant for their adjustment (Halliday-Boykins & Graham, 2001); relatedly, the forms of CVE reported by youth may not be the same violent crimes reported to police or measured with crime statistics. Nonetheless, future research should examine the relative effects of objective measures of neighborhood violence, CVE, and PNV in the prediction of behavioral outcomes to determine whether these are differentially associated with adolescent outcomes.

Although this research focused on emotional and behavioral consequences of youth experiences with violence, prior research has identified youth behavioral characteristics that predict CVE (Boyd et al., 2003; Lambert, Ialongo, Boyd, & Cooley, 2005); a similar process may work for PNV and should be explored in future research. It also will be important for future research to consider factors that may moderate the association between youth experiences with violence and adolescent outcomes, as these factors may influence the severity of internalizing and externalizing behaviors. For example, in African American communities, family and social support have been shown to moderate the effects of CVE and protect youth against further violence perpetration (Gorman-Smith, Henry, & Tolan, 2004). Finally, this research highlights the importance of PNV; future research should examine factors that link CVE and PNV.

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REFERENCES

- Aneshensel CS, Sucoff CA. The neighborhood context of adolescent mental health. *Journal of Health and Social Behavior*. 1996; 37:293–310. [PubMed: 8997886]
- Buka SL, Stichick TL, Birdthistle I, Earls FJ. Youth exposure to violence: Prevalence, risks, and consequences. *American Journal of Orthopsychiatry*. 2001; 71(3):298–310. [PubMed: 11495332]
- Centers for Disease Control and Prevention. Preventing youth violence. 2006. Retrieved July 6, 2009, from http://www.cdc.gov/ncipc/pubres/research_agenda/09_youthviolence.htm
- Cohn LD, Macfarlane S, Yanez C, Imai WK. Risk-perception: Differences between adolescents and adults. *Health Psychology*. 1995; 14(3):217–222. [PubMed: 7641662]
- Cooley MR, Turner SM, Beidel DC. Assessing community violence: The children's report of exposure to violence. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1995; 34(2): 201–208. [PubMed: 7896653]
- Cooley-Quille M, Boyd RC, Frantz E, Walsh J. Emotional and behavioral impact of exposure to community violence in inner-city adolescents. *Journal of Clinical Child Psychology*. 2001; 30:199–206. [PubMed: 11393920]
- Diehl, RL. Unpublished doctoral dissertation. Virginia Commonwealth University; 2004. Violence exposure and externalizing symptoms in inner-city youth as mediated by fear of crime and perceived risk of victimization.
- Elliot, DS.; Huizinga, D.; Ageton, SS. Explaining delinquency and drug use. Sage; Beverly Hills, CA: 1985.
- Fitzpatrick KM, Piko BF, Wright DR, LaGory M. Depressive symptomatology, exposure to violence, and the role of social capital among African American adolescents. *American Journal of Orthopsychiatry*. 2005; 75(2):262–274. [PubMed: 15839763]
- Gorman-Smith D, Henry DB, Tolan PH. Exposure to community violence and violence perpetration: The protective effects of family functioning. *Journal of Clinical Child and Adolescent Psychology*. 2004; 33(3):439–449. [PubMed: 15271602]
- Griffin K, Scheier L, Botvin G, Diaz T, Miller N. Interpersonal aggression in urban minority youth: Mediators of perceived neighborhood, peer, and parental influences. *Journal of Community Psychology*. 1999; 27(3):281–298.
- Hadley-Ives E, Stiffman AR, Elze D, Johnson SD, Dore P. Measuring neighborhood and social environments: Perceptual and aggregate approaches. *Journal of Human Behavior in the Social Environment*. 2000; 3:1–28.
- Halliday-Boykins CA, Graham S. At both ends of the gun: Testing the relationship between community violence exposure and youth violent behavior. *Journal of Abnormal Child Psychology*. 2001; 29(5):383–402. [PubMed: 11695541]
- Halpern-Felsher BL, Millstein SG, Ellen JM, Adler NE, Tschann JM, Biehl M. The role of behavioral experience in judging risks. *Health Psychology*. 2001; 20(2):120–126. [PubMed: 11315729]
- Hoyle RH, Fejfar MC, Miller JD. Personality and sexual risk taking: A quantitative review. *Journal of Personality*. 2000; 68(6):1203–1231. [PubMed: 11130738]
- Ialongo, NS.; Kellam, G.; Poduska, J. Manual for the Baltimore How I Feel (Tech.Rep. No. 2). Johns Hopkins University; Baltimore, MD: 1999.
- Ialongo NS, Werthamer L, Kellam SG, Brown CH, Wang S, Lin Y. 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*. 1999; 27:599–641. [PubMed: 10676542]
- Kershaw TS, Ethier KA, Niccolai LM, Lewis JB, Ickovics. Misperceived risk among female adolescents: Social and psychological factors associated with sexual risk accuracy. *Health Psychology*. 2003; 22(5):523–532. [PubMed: 14570536]

- Kilpatrick DG, Acierno R, Saunders B, Resnick HS, Best CL, Schnurr PP. Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology*. 2000; 68(1):19–30. [PubMed: 10710837]
- Kovacs, M. Unpublished Manuscript. University of Pittsburgh; 1983. The children's depression inventory: A self-rated depression scale for school-age youngsters.
- Lambert SF, Ialongo NS, Boyd R, Cooley MR. Risk factors for community violence exposure in adolescence. *American Journal of Community Psychology*. 2005; 36(1/2):29–48. [PubMed: 16134043]
- Latkin CA, Curry AD. Stressful neighborhoods and depression: A prospective study of the impact of neighborhood disorder. *Journal of Health and Social Behavior*. 2003; 44:33–44.
- Little, RL.; Rubin, DB. *Statistical analysis with missing data*. Wiley; New York: 1990.
- Lo Y, Mendell YR, Rubin DB. Testing the number of components in a normal mixture. *Biometrika*. 2001; 88:767–778.
- Luthar SS, Goldstein A. Children's exposure to community violence: Implications for understanding risk and resilience. *Journal of Clinical Child and Adolescent Psychology*. 2004; 33(3):499–505. [PubMed: 15271607]
- Lynch M. Consequences of children's exposure to violence. *Clinical Child and Family Psychology Review*. 2003; 6(4):265–274. [PubMed: 14719638]
- McCutcheon, AL. *Latent class analysis*. Sage Publications; Beverly Hills, CA: 1987.
- Millstein SG, Halpern-Felsher. Perceptions of risk and vulnerability. *Journal of Adolescent Health*. 2002; 31:10–27. [PubMed: 12093608]
- Muthén, LK.; Muthén, BO. *Mplus user's guide*. 5th ed.. Muthén & Muthén; Los Angeles, CA: 1998–2007.
- Ozer EJ, Weinstein RS. Urban adolescents' exposure to community violence: The role of support, school safety, and social constraints in a school-based sample of boys and girls. *Journal of Clinical Child and Adolescent Psychology*. 2004; 33(3):463–476. [PubMed: 15271604]
- Rankin BH, Quane JM. Social contexts and urban adolescent outcomes: The interrelated effects of neighborhoods, families, and peers on African-American youth. *Social Problems*. 2002; 49(1):79–100.
- Reynolds C, Richmond B. What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*. 1978; 6:271–280. [PubMed: 670592]
- Rosario M, Salzinger S, Feldman RS, Ng-Mak DS. Community violence exposure and delinquent behaviors among youth: The moderating role of coping. *Journal of Community Psychology*. 2003; 31(5):489–512.
- Rosenthal BS. Exposure to community violence in adolescents: Trauma symptoms. *Adolescence*. 2000; 35(138):271–284. [PubMed: 11019771]
- Rubin, DB. *Multiple imputation for survey nonresponse*. Wiley; New York: 1987.
- Schaeffer CM, Petras H, Ialongo NS, Poduska J, Kellam S. Modeling growth in boys' aggressive behavior across elementary school: Links to later criminal involvement, conduct disorder, and antisocial personality disorder. *Developmental Psychology*. 2003; 39:1020–1035. [PubMed: 14584982]
- Schwartz G. Estimating the dimension of a model. *The Annals of Statistics*. 1978; 6:461–464.
- Schwartz D, Gorman AH. Community violence exposure and children's academic functioning. *Journal of Educational Psychology*. 2003; 95(1):163–173.
- Sclove LS. Application of model-selection criteria to some problems in multivariate analysis. *Biometrika*. 1987; 52:333–343.
- Shaffer D, Fisher P, Lucas C, Dulcan M, Schwab-Stone M. 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*. 2000; 39:28–38. [PubMed: 10638065]
- Shinn M, Toohey SM. Community contexts of human welfare. *Annual Review of Psychology*. 2003; 54:427–459.

- Stiffman AR, Hadley-Ives E, Elze D, Johnson S, Doré P. Impact of environment on adolescent mental health and behavior: Structural equation modeling. *American Journal of Orthopsychiatry*. 1999; 69(1):73–86. [PubMed: 9990438]
- Thornton B, Gibbons FX, Gerrard M. Risk perception and prototype perception: Independent processes predicting risk behavior. *Personality and Social Psychology Bulletin*. 2002; 28(7):986–999.
- Weinstein ND, Klein WM. Resistance of personal risk perceptions to debiasing interventions. *Health psychology*. 1995; 14(2):132–140. [PubMed: 7789348]
- Werthamer-Larsson L, Kellam SG, Wheeler L. Effect of first-grade classroom environment on child shy behavior, aggressive behavior, and concentration problems. *American Journal of Community Psychology*. 1991; 19:560–585.

Figure 1.
Three-class latent class solution for witnessed community violence exposure and perception of neighborhood violence.

Table 1

Means, Standard Deviations, and Correlations of Study Variables

Variable	Mean (SD)	Observed range	1.	2.	3.	4.	5.
1. Community violence exposure	.36 (.48)	.00–1.00	–	.08	.08	.13**	.13**
2. Perceived neighborhood violence	1.81 (.45)	.00–3.90		–	.24***	.28***	.05
3. Anxious symptoms	.61 (.47)	.00–2.30			–	.71***	.06
4. Depressive symptoms	.63 (.46)	.00–2.71				–	.01
5. Aggressive behavior	1.70 (.66)	1.00–4.33					–

Note. SD=standard deviation; community violence exposure=witness of being beaten up, robbed or mugged, shot or stabbed, or killed as assessed on the Children's Report of Exposure to Violence (Cooley et al., 1995); perceived neighborhood violence=three items from the Neighborhood Environment Scale that reflect neighborhood violence (NES; Elliott et al., 1985); anxious symptoms=Anxiety Subscale of the Baltimore How I Feel (BHIF; Ialongo et al., 1999); depressive symptoms=Depression Subscale of the BHIF (Ialongo et al., 1999); aggressive behavior=Aggressive Behavior Subscale from the Teacher Observation of Classroom Adaptation-Revised (Werthamer-Larsson et al., 1991).

**
 $p < .01$;

 $p < .001$.

Table 2

Summary of Results of Latent Class Analyses

	BIC	SSA BIC	ENTROPY	VLMT LRT P	LMR adj. LRT P
1 Class	2703.545	2681.330	–	–	–
2 Classes	2595.781	2548.176	0.640	0.0000	0.0000
3 Classes	2586.627	2513.633	0.783	0.0045	0.0050
4 Classes	2619.880	2521.497	0.826	0.3296	0.3371
5 Classes	2655.608	2531.835	0.877	0.2975	0.3029

Note. BIC=Baysian information criterion; SSA BIC=sample size adjusted Baysian information criterion; VLMT LRT=Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR adj. LRT=Lo-Mendell-Rubin likelihood ratio test. Bold typeface indicates best-fitting model according to that index.

Table 3

Log Odds Coefficients and Odds Ratio for the Three-Class Model With Gender, Academic Readiness, and Deviant Peer Affiliation as Covariates, Using the Low CVE/Low PNV Class as the Comparison Group

Class	Effect	Logit	SE	z
High CVE/high PNV				
	<i>Gender</i>	0.06	0.52	0.12
	<i>Academic readiness</i>	-0.33	0.24	-1.39
	<i>Deviant peer affiliation</i>	0.40	0.08	5.07***
Low CVE/high PNV				
	<i>Gender</i>	-0.56	0.32	-1.73 ⁺
	<i>Academic readiness</i>	-0.35	0.16	-2.13**
	<i>Deviant peer affiliation</i>	0.27	0.06	4.89***

Note. SE=standard error; CVE=community violence exposure; PNV=perception of neighborhood violence. Gender: 1=Male; 2=Female.

⁺
p>.05;

**
p<.01;

p<.001.

Table 4

Mean Values of Seventh-Grade Anxious and Depressive Symptoms, and Aggressive Behaviors for the Experiences With Violence Groups

	Anxious symptoms	Depressive symptoms	Aggressive behavior
High CVE/high PNV (Class 1)	0.72	0.84	1.55
Low CVE/high PNV (Class 2)	0.75	0.71	1.86
Low CVE/low PNV (Class 3)	0.54	0.58	1.62

Note. CVE=community violence exposure; high PNV=perceived neighborhood violence above median on Neighborhood Environment Scale (NES; Elliott et al., 1985); low PNV=perceived neighborhood violence below median on NES (Elliott et al., 1985); anxious symptoms=Anxiety subscale of Baltimore How I Feel (BHIF; Ialongo et al., 1999); depressive symptoms=Depression subscale of BHIF (Ialongo et al., 1999); aggressive behavior=Aggressive Behavior Subscale from Teacher Observation of Classroom Adaptation-Revised (Werthamer-Larsson et al., 1991). Results adjust for prior symptom.