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The Longitudinal Relations between Dimensions of Community Violence Exposure and Developmental Outcomes among Adolescent Ethnic Minority Males

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Abstract

Objective—Community violence exposure is multi-dimensional, yet the majority of studies examining the relation of exposure and developmental outcomes employ measures that collapse a wide range of experiences into a global summed scale. Building on research conducted in child maltreatment indicating that the impact of exposure varies as a function of the nature of maltreatment, the present study examines the contribution of dimensions of exposure to community violence (i.e., type – hearing about violence, witnessing violence, victimization – and relationship to perpetrator) on three areas of adolescent functioning: depression, aggression, and attention problems.

Method—Longitudinal data was gathered from a sample of racial/ethnic minority male adolescents (N = 246) living in impoverished urban neighborhoods. Multiple regression analyses assessed the relation between dimensions and outcomes cross-sectionally and longitudinally.

Results—In line with findings from maltreatment, dimensions of violence exposure mattered differentially for developmental outcomes when examined concurrently. However, when relations are examined longitudinally, controlling for initial levels of functioning, the majority these relations disappear.

Conclusions—Assessing exposure to specific dimensions of exposure might improve understanding of adolescent concurrent, but not later functioning. Findings underscore the value of prospective data when examining the impact of dimensions of community violence exposure on functioning.

Keywords

community violence exposure; witnessed violence; adolescence; depression; aggression

Adolescents living in impoverished urban environments are exposed to high rates of community violence (Ozer, 2005; Richards et al., 2015), a significant public health concern given that the consequences of exposure are serious, including impaired social, emotional, and psychological health (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009; Margolin & Gordis, 2000). Not all youth respond adversely to exposure to violence, however, and this range in response may reflect the diversity of experiences often included

in the construct of community violence exposure. Studies examining the impact of community violence exposure typically operationalize exposure as a global construct, collapsing a range of experiences in a single scale. Yet the experience of community violence varies widely, including hearing about violence, witnessing a violent event and being a victim, as well as events involving a known perpetrator or a stranger (Kennedy & Ceballo, 2014). Research conducted in child maltreatment and trauma has found that the developmental impact of exposure varies as a function of the nature of the maltreatment or trauma (Galea, Nandi, & Vlahov, 2005; Manly, Kim, Rogosch, & Cicchetti, 2001; Wolfe & McGee, 1994). Yet while researchers have long noted that violence exposure is multi-dimensional (Guterman, Cameron, & Staller, 2000; Trickett, Duran, & Horn, 2003), and the three types of exposure (hearing about violence, witnessing violence, and victimization) have been empirically distinguished in measurement studies (Brennan, Molnar, & Earls, 2007; van Dulmen, Belliston, Flannery, & Singer, 2008), these insights have rarely been applied to the study of the effects of community violence exposure. It is especially important to understand whether dimensions of exposure are more closely associated with worse outcomes among racial/ethnic minority boys, who are at disproportionate risk for exposure (Buka, Stichick, Birdthistle, & Earls, 2001). Homicide is the leading cause of death for African-Americans between the ages of 10 and 24, and the vast majority of homicide victims are male (Centers for Disease Control and Prevention, 2013). The present study aims to address these gaps by assessing the relation between specific dimensions of community violence exposure (i.e., type – hearing about violence, witnessing violence, victimization – and relation to perpetrator) and adolescent functioning in a sample of urban racial/ethnic minority male youth.

Dimensions of Community Violence Exposure

Evidence from the violence exposure and child maltreatment literatures indicate that two specific dimensions of community violence exposure are especially important to understanding developmental outcomes: type (i.e., hearing about violence, witnessed violence, and victimization) and relationship to perpetrator (English et al., 2005; Guterman et al., 2000; Manly, Cicchetti, & Barnett, 1994; Manly et al., 2001). The most widely examined dimension of violence exposure is the type of exposure. Three types of community violence are commonly acknowledged: hearing about violence, witnessing violence, and victimization (Guterman et al., 2000; Kennedy & Ceballo, 2014). Victimization by community violence refers to the having been the victim of an intentional act of harm, such as being chased or beaten up. Witnessing community violence is understood as seeing an event that involves either the intentional threatened or actual physical injury of another person. Hearing about community violence refers to vicarious exposure to trauma through knowing or hearing about someone's victimization by community violence, such as hearing about a friend being beaten up in the neighborhood.

Most studies of community violence exposure examining the influence of type on outcomes have examined witnessed violence and victimization. Findings as to the impact of witnessing versus victimization suggest that these types differentially influence outcomes. A meta-analysis of 114 studies examining the impact of community violence exposure on youth outcomes found that community violence victimization had a significantly larger effect on

internalizing outcomes, but for externalizing symptoms, victimization and witnessed violence were equally predictive (Fowler et al., 2009). This comprehensive review indicates that these two types of community violence may matter differentially for internalizing symptoms; however, as noted in the review, the majority of studies examine the impact of witnessed violence and victimization separately, limiting inference of how witnessing versus victimization, conditional on each other, impact outcomes.

The majority of studies ignore the influence of a third type of community violence exposure: hearing about community violence. The few studies that have examined the influence of this type of exposure suggest it adversely impacts youth functioning. A cross-sectional study of university students at low risk for violence exposure found that hearing about community violence was negatively associated with socio-emotional adjustment (i.e., depression and aggression; Scarpa, Hurley, Shumate, & Haden, 2006). A limited number of studies have examined the influence of hearing about violence alongside other types of community violence (witnessed violence, victimization). In a clinical sample of urban female adolescents, investigators found that the correlation between hearing about violence and post-traumatic stress syndrome (PTSD) was stronger than the correlation between victimization or witnessing violence and PTSD (Horowitz, Weine, & Jekel, 1995), although these analyses did not examine the influence of these three types conditional on each other. A longitudinal study consisting of a regionally representative sample of young adults found that hearing about violence predicted criminal offending, controlling for witnessing and victimization, although the effect size for hearing about violence was smaller than the effect sizes for witnessing violence and victimization (Eitle & Turner, 2002). These studies suggest that hearing about violence is negatively associated with youth psychosocial wellbeing, but more work is needed to understand the influence of hearing about violence conditional on more proximal types of community violence among racial/ethnic minority youth at high risk for exposure.

Studies also indicate that the relationship of the victim to the perpetrator of violence influences the effect. In the child maltreatment literature, an early review of the literature suggested that deleterious symptoms increased when the perpetrator had a close relationship with the child (Kendall-Tackett, Williams, & Finkelhor, 1991). Very few studies in the community violence literature have examined the influence of knowing the perpetrator on outcomes – most don't even measure it – yet existing evidence suggests the relationship matters: one study found that when the perpetrator of community violence exposure was a relative, youth were three times more likely to engage in delinquency compared to when the perpetrator was a stranger (Zinzow et al., 2009).

Examining the Influence of Dimensions Together

Taken together, these studies suggest that different dimensions of violence exposure are important in understanding variation in mental health, behavioral, and social outcomes. However, it is difficult to identify which dimensions of community violence exposure are most closely associated with outcomes because generally only one dimension or type of community violence is examined (e.g., Lambert, Boyd, Cammack, & Ialongo, 2012). Research in the child maltreatment field has underscored the need to consider these

dimensions *together* to evaluate their importance conditional on each other. A number of studies in this area indicate that – when considered together – the dimensions of maltreatment on child outcomes differentially relate to social, emotional and behavioral outcomes (Ellenbogen, Trocmé, & Wekerle, 2013; English et al., 2005; Manly et al., 2001).

In one of the only studies that examined the impact of multiple dimensions of community violence exposure together on outcomes, Zinzow and colleagues (2009) examined the influence of knowing a perpetrator and witnessing violence, conditional on each other, on delinquency among urban adolescents. Results suggested that holding constant other dimensions of exposure, both knowing the perpetrator and witnessing community violence increased the likelihood of delinquency, although knowing a perpetrator had a larger effect size. However, this study was cross-sectional and did not include other common types of violence exposure (i.e., hearing about violence and victimization). In sum, dimensions of exposure have not been examined simultaneously, and this lack of specificity may obscure differences that are associated with various dimensions of community violence exposure since other aspects of exposure are not accounted for in analyses. Understanding the influence of these dimensions conditional on each other may be especially important among urban racial/ethnic minority youth, where exposure to multiple types and incidents of violence is common (Elsaesser & Voisin, 2014).

Specificity Model of Stress

The present study draws on a specificity model of stress in identifying the consequences of community violence exposure. Specificity models suggest that particular stressors are associated with particular outcomes (Garber & Hollon, 1991), reflecting a move away from traditional models that suggest that generalized stress is associated with general distress (Selye, 1956). Specificity models reflect central goals of developmental psychopathology, seeking to identify particular paths that connect risk for maladjustment. The model is consistent with the developmental principles of equifinality – where a range of experiences can lead to a common outcome – and multifinality – where a common experience can lead to a range of outcomes (Cicchetti & Rogosch, 1996). While there are various specificity models, the most comprehensive is the Stressor-Outcome specific model, which includes both a range of stressors and a range of outcomes (Garber & Hollon, 1991). This model allows an examination of whether a particular stressor is associated with a range of outcomes, as well as whether a range of stressors is associated with common outcomes, thereby allowing both unique and common effects to be identified across different stressors (McMahon, Felix, Halpert, & Petropoulos, 2009).

The Present Study

Building on research conducted in the area of child maltreatment (e.g., Manly et al., 2001), and responding to recommendations in the field to conceptualize community violence exposure as multi-dimensional (Fowler et al., 2009; Kennedy & Ceballo, 2014; Price & Maholmes, 2009), this study assesses the longitudinal relations between dimensions of community violence exposure (type – hearing about violence, witnessed violence, victimization – and relationship to perpetrator) and three key areas of adolescent

functioning: depression, aggression, and attention problems. In line with the majority of studies examining the influence of dimensions of exposure in both child maltreatment and violence exposure, this study will first examine the relation between dimensions and outcomes concurrently in a cross-sectional analysis. We will compare these analyses to two increasingly conservative longitudinal analyses, examining the contribution of dimensions of exposure, conditional on each other, on later functioning, and then assessing whether dimensions relate to later outcomes after adjusting for initial levels of functioning. By assessing the influence of dimensions of exposure on outcomes, this study will contribute to a more nuanced, multi-dimensional approach to understanding how violence exposure impacts youth development. The specific goals of the study are as follows:

1. To provide descriptive data on the rates of urban adolescent males' exposure to specific dimensions of community violence exposure (i.e., type – hearing about violence, witnessing violence, victimization – and knowing the perpetrator).
2. To replicate and extend prior findings that specific dimensions of community violence exposure (i.e., type – hearing about violence, witnessing violence, victimization – and knowing the perpetrator) relate differentially to adolescent outcomes when examined concurrently. Specifically, based on prior findings, we hypothesize that victimization will have a stronger association with internalizing symptoms than witnessing or hearing about violence, and that hearing about violence will have a weaker association with outcomes than victimization and witnessing. Further, we hypothesize that knowing the perpetrator of violence will be associated with worse outcomes than when the perpetrator is unknown.
3. To extend prior findings that specific dimensions of community violence exposure (i.e., type – hearing about violence, witnessing violence, victimization – and knowing the perpetrator) relate differentially to adolescent outcomes when examined *longitudinally*.

Method

Participants and Procedure

Data was from the Chicago Youth Development Study (CYDS), a longitudinal study designed to evaluate risk for involvement in delinquent behavior among urban adolescent males (Tolan & Gorman-Smith, 1991). CYDS included interviews with boys and their caregivers at six waves over a seven-year span starting in middle school. Adolescents were initially recruited from fifth and seventh grade classrooms across 17 Chicago public schools. After obtaining parental consent, youth were selected for participation in the study such that 50% of them were considered at “high risk” for development of serious aggression on the basis of teacher ratings on the Teacher Report Form of the Child Behavior Checklist (Achenbach, 1991) that indicated the boys were already participating in high levels of aggressive behavior ($T > 70$, 98th percentile). After these high-risk individuals were identified, the remaining participants to be recruited were randomly selected from those with aggression scores lower than the 90th percentile based on teacher ratings. A detailed description of recruitment for this sample have been presented elsewhere (Sheidow, Henry, Tolan, & Strachan, 2013).

Individual interviews were conducted separately with the target boy and primary caregiver(s) in the participants' homes. Total interview time at each wave was between three and three and a half hours. Active caregiver and youth consent was obtained at each wave. Seventy-five percent of eligible participants completed interviews during the first wave of interviews.

This present study drew on data on waves 3 and 4 of CYDS, since Wave 3 is the first wave with extensive measures of the identified dimensions of community violence exposure and our goal was to examine the relations between dimensions and outcomes at two proximal time points. The sample was limited to youth with complete data on violence exposure at wave 3 ($N = 246$). There was some attrition between waves 1 and 4 of data collection. After wave 1, over 90% of participants were interviewed at each succeeding wave (Henry, 2001). Attrition analyses based on previous published studies that similarly limited the CYDS sample found no significant differences between those completing only wave 1 and those continuing to participate in subsequent waves (Gorman-Smith, Henry, & Tolan, 2004; Sheidow, Gorman-Smith, Tolan, & Henry, 2001). There were an additional 27 individuals with missing data on all community violence exposure items at wave 3. To ensure that this sample reduction did not introduce bias into the analyses, the mean levels of all primary study variables were compared using t-tests between those with missing data and those without missing data. No differences in the mean levels was observed between those with missing data and those without missing data, suggesting that the reduction of the sample did not introduce bias.

The final sample used in these analyses consisted of 246 male youth and their caregivers from economically disadvantaged inner city neighborhoods in Chicago. Youth were between the ages of 13 and 18 years at wave 3, with a mean age of 14.8 years (see Table 1). Youth were on average 15.8 at wave 4. The racial/ethnic composition of the sample was 64.5% African American and 35.5% Latino. Fifty-nine percent lived in households where the caregiver completed a high school degree or less, and 73.5% lived in households with incomes below \$20,000 per year.

Measures

Community Violence Exposure—The Exposure to Violence Interview (Tolan & Gorman-Smith, 1991) was used to assess community violence exposure; youth reported the number of times in the past year they had been exposed to six violent events: 1) anyone in your family was robbed or attacked (or otherwise hurt intentionally by someone); 2) someone else you know, other than a member of your family, was beaten, attacked, or really hurt by others; 3) you saw anyone beaten up; 4) you saw anyone shot or killed; 5) you witnessed any violent crime; and 6) you were the victim of any violent crime involving force or threat of force. Response options for these variables were continuous. Given that scholars have argued that measures of internal consistency are not appropriate for count measures of experience, especially violence exposure (Streiner, 2003), we do not report internal consistency levels for this measure. However, the Exposure to Violence Interview has been shown to be predictive of a wide range of youth outcomes, including violence perpetration (Gorman-Smith et al., 2004), aggression and depression (Gorman-Smith & Tolan, 1998).

Violence dimensions (type – hearing about violence, witnessing violence, victimization – and known perpetrator) were based on past year reports of community violence from the Exposure to Violence Interview. Of the six stem items in the Exposure to Violence Interview, two items assessed the past year frequency of hearing about violence, three assessed witnessed violence, and one assessed victimization. A binary zero/one variable was created for hearing about, witnessing, and victimization separately. Specifically, for each of these types of exposure, the respective items were summed, and then to facilitate interpretation, a binary measure was created where 0 = no exposure to the type of violence and 1 = any exposure to the type of violence in the past year. For relationship to the perpetrator, all six items assessing community violence exposure included a follow up item assessing the perpetrator identity. Youth were given a wide range of response options, including adult stranger, adult friend, and child friend. Given that for each item, the individual perpetrator response options (i.e., adult stranger, adult friend, etc.) had low frequencies, we categorized perpetrators as either known or unknown for each violent event. All six items were then summed, and then a binary item was created, where 0 = no report of a known perpetrator and 1 = any reported exposure where the perpetrator was known. For all variables, zero also includes youth who were not exposed to any violence.

Youth Outcomes—Youth depression, aggression, and attention problems were assessed using the youth reports of the Child Behavior Checklist (Achenbach, 1991). These checklists ask respondents to rate the frequency of 119 problem behaviors during the prior 6 months on a three-point scale (not true; somewhat or sometimes true; very true or often true). The problem behaviors constitute eight clinically relevant syndrome scales, including the depression (16 items), aggression (18 items), and attention problems (9 items) scales that are the focus of the present study. Chronbach's alpha for these scales were as follows: depression, $\alpha = .76$; aggression, $\alpha = .86$; and attention problems $\alpha = .75$. These checklists are commonly used clinical measures for childhood problems and the author reports extensive, sound psychometric properties (Achenbach, 1991; Dutra, Campbell, & Westen, 2004).

Control Variables—Youth's age, race/ethnicity, and mother's education were used as covariates.

Data Analysis

All statistical analyses were performed using SPSS Version 23. To evaluate the relation between dimensions of community violence exposure and outcomes, three sets of ordinary least square regressions were conducted for each of the three youth outcomes. First, relations were examined cross-sectionally at wave 3. Next, the longitudinal relation between dimensions of exposure at wave 3 and each outcome at wave 4 was assessed without adjusting for controls. Finally, the longitudinal relation was assessed, adjusted for the initial levels of outcomes, as well as covariates (age, ethnicity, mother's education).

Results

Youth reported high rates of exposure to community violence (see Table 1). Nearly a third (31.3%) of the boys in the sample heard about someone who had been the victim of violence in the past year. Exposure to past year witnessed violence was common (65.9%), whereas reports of past year direct victimization were relatively rare (11.4%). Over a quarter of youth experienced violence involving a known perpetrator (28.5%). Correlations among the predictors were positive and ranged from low to moderate; witnessing violence and knowing a perpetrator had the highest correlation among violence exposure dimensions, at .38, $p < .01$ (see Table 2).

We also examined the frequencies of youth experiencing each dimension of community violence exposure specifically among those who had been exposed to violence. Of youth who reported any exposure to violence in the last year, 42.3% heard about violence, 15.4% had been victimized, 89.0% had witnessed violence, and 37.9% knew a perpetrator.

We next examined which predictors, holding constant other dimensions and types, were most closely associated with depression, aggression, and attention problems in a series of three increasingly conservative sets of regressions (see Table 3). For depression, victimization ($b = .14$, $p < .05$) and knowing a perpetrator ($b = .15$, $p < .05$), holding constant other predictors, were associated with higher depression at the cross-sectional level. However, when these relations were examined longitudinally, these relations disappeared.

With respect to aggression, only witnessing violence, holding constant other predictors, was associated with higher levels of aggression in the cross-sectional analysis ($b = .18$, $p < .01$). Witnessing violence at wave 3 also significantly related to higher aggression ($b = .18$, $p < .05$) in the longitudinal analyses. However, once base levels of functioning were controlled for, this relation disappeared; only initial levels of aggression significantly predicted later levels of aggression.

For attention problems, in the cross-sectional analysis, knowing a perpetrator was significantly related to higher attention problems ($b = .20$, $p < .01$); no other predictors were significantly related to attention problems holding constant other predictors cross-sectionally. In the longitudinal analysis, controlling for other predictors, knowing a perpetrator remained a significant predictor of higher attention problems, although only at a marginally significant level ($b = .14$, $p < .10$). In the longitudinal analysis, witnessed violence predicted of later attention problems ($b = .13$, $p < .10$), although the significance was marginal. After adjusting for baseline levels of attention problems, no community violence exposure predictor conditional on each other predicted later attention problems.

Discussion

While the conceptualization of child maltreatment as multi-dimensional has improved understanding of how maltreatment impact child development, few studies have simultaneously tested the impact of different dimensions of community violence on youth functioning. This study was among the first to examine the influence of more than one dimension of community violence exposure (i.e., type – hearing about violence, witnessed

violence, victimization – and relation to perpetrator) on a range of developmental outcomes (i.e., depression, aggression, attention problems). Drawing on a specificity model of stress, analyses assessed the association between dimensions and a range of outcomes in three increasingly conservative analyses: cross-sectional, longitudinal, and longitudinal adjusting for autoregressive effects.

Descriptive results underscore the extent of exposure to violence in this sample of boys. Nearly a third of the boys (31%) had heard about a victim of violence in the past year, and two thirds of the boys (66%) had witnessed violence in the past year. Given the pervasiveness of violence in this community, it is not surprising so many youth were personally connected to a perpetrator of reported violence (29%). The widespread exposure to witnessing violence and victimization exposure suggests the substantial overlap in exposure to these types of violence exposure, and underscores that studies examining the influence of a single type (e.g., witnessed community violence) without adjusting for other types may make causal attributions to one type of violence that may be the result of another, possibly unmeasured, type of violence.

Previous work suggested that hearing about community violence influences youth functioning, yet these studies did not adjust for other more proximal types of community violence (Horowitz et al., 1995; Scarpa et al., 2006). Our study is among the first to examine the long-term influence of this type of violence exposure holding constant more proximal types of exposure; findings indicate that hearing about violence is not uniquely associated with youth outcomes after adjusting for witnessed violence and victimization. Studies in the trauma literature examining the impact of disasters simultaneously testing the influence of these three types of exposure have documented that the most distal types (e.g., hearing about violence) have a relatively lower impact on negative outcomes than the most proximal types of violence (e.g., victimization) (Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Galea et al., 2002). Our findings extend results from this literature to indicate that among youth living in neighborhoods where few youth experience solely one type of community violence (Schwartz & Proctor, 2000), hearing about violence is less influential on adolescent functioning than witnessing and victimization.

Witnessed violence appears to have a unique association with aggression, both concurrently and later in development. These findings corroborate previous studies indicating that witnessed violence is linked with externalizing symptoms. For example, in a study of 603 majority African American adolescents, analyses separately assessing the influence of witnessing and victimization found that witnessed violence – but not victimization – was associated with later externalizing symptoms (Mrug & Windle, 2009). As reviews of the literature have noted, few studies have directly compared witnessed violence with other types of violence on externalizing symptoms (Fowler et al., 2009). Our study builds on previous work by suggesting that – holding constant victimization – witnessed violence may be uniquely associated with aggression. However, it is important to note that the association between witnessed violence and aggression disappeared once controlling for autoregressive effects. This may reflect an artifact that more aggressive boys may be more involved in violence themselves, which would potentially expose them to more violence than less aggressive boys.

Knowing a perpetrator at age 15 was associated with concurrent depression and attention problems holding constant other violence exposure predictors, but these associations largely disappeared in the longitudinal analyses. Given these results, it may be that the causal direction is the opposite, and that these associations reflect a process by which a youth becomes involved in gang violence. Evidence suggests that characteristics of adolescent depression such as sadness and irritability are risk factors for gang involvement; youth who exhibit these symptoms may turn to anti-social and gang involved peers (Manasse & Ganem, 2009; Merrin, Hong, & Espelage, 2015). Further, youth who struggle to succeed in school are at higher risk for gang involvement; it may be the case that youth who report greater problems paying attention are at risk for gang involvement – and therefore more likely to know the perpetrator of violence at a later time (Dishion, Nelson, & Yasui, 2005). We were unable to examine the role of gang membership in the present study; identifying the role of gang membership in these relations is an area that should be further explored in future research.

Overall, our findings underscore the value of and need for prospective data when examining the impact of dimensions of community violence exposure on functioning. We found that different dimensions and types had small but significant associations with different measures of youth functioning at the cross-sectional level. However, when we controlled for initial levels of functioning in the longitudinal analyses, dimensions were no longer associated with outcomes. The little work that has examined the influence of dimensions of community violence exposure on functioning has been cross-sectional (Zinzow et al., 2009). Had we relied on cross-sectional data, we also would have concluded that various dimensions and types of community violence exposure matter differentially for different developmental outcomes. Our findings suggest that while this may be the case for concurrent functioning in adolescence, dimensions and types do not appear to be differentially associated with most long-term youth outcomes.

The specificity model of stress postulates that particular forms of stress are uniquely related to particular outcomes. Scholars reviewing the literature in this area have noted that most studies of specificity models draw on cross-sectional data, preventing an assessment of how specificity relations may change over time (McMahon, Grant, Compas, Thurm, & Ey, 2003). Our study adds to this literature by providing evidence that for different dimensions of community violence exposure among adolescents, there is moderate evidence of specificity concurrently, but that there does not appear to be specificity of effects of dimensions and types of community violence over time.

Limitations

The contributions of the present study should be viewed in light of its limitations. There are other dimensions of exposure we were not able to consider. For example, studies have found that the relation of the respondent to the victim of witnessed violence influences the response (Lambert et al., 2012), yet we did not have data on the relation of the respondent to the victim of violence. In this study, only one item, “been the victim of violent crime,” captured direct victimization, collapsing experiences widely ranging in severity, including being shot at and being attacked with a weapon. With respect to witnessed violence, the item

“witnessed violent crime” could include a number of experiences, including seeing someone attacked with a weapon and seeing someone threatened with violence. Similarly, the item “seen someone shot or killed” combines two potentially different experiences, varying in their level of severity. However, a strength of our measure is that both witnessing and victimization included an item as broad as “any violent crime,” rendering the incidents of violence included within each type comparable.

Constructing measures of community violence exposure that capture distinct dimensions is an obstacle for the field, and that was true in the present study. The two hearing about items (“anyone in your family was robbed or attacked” and “someone else you know, other than a member of your family, was beaten, attacked, or really hurt by others”) have several flaws. While these items reflect vicarious trauma, the items do not directly ask respondents to report hearing traumatic news, as is common in other measures of hearing about community violence. These items moreover have a conceptual overlap with knowing the perpetrator of violence. While the “hearing about” variable had a low correlation with both “known perpetrator” and “witnessed violence” variables, it is possible that a respondent could have endorsed hearing about and witnessing the same event.

The limitations in the violence exposure measures used in this study reflect limitations more broadly in the field of community violence, where perpetrator, location, and severity of violence are rarely assessed. To better identify the range in response to violence, we join recent calls in reviews of the literature for more comprehensive measures of community violence (Kennedy & Ceballo, 2014). Future studies assessing the impact of community violence exposure on youth functioning should include a richer range of experiences of exposure, including the location of exposure as well as events ranging in severity.

Another limitation of this study is the use of an intentional sample. The sample was targeted such that 50% of the selected boys were considered at high risk for the development of serious aggression based on teacher ratings. Therefore, the sample for this study represents a group of boys at high risk for problem behaviors and may have limited generalizability to other racial/ethnic minority urban youth samples. The composition of our sample in particular might relate to our finding on the relation between witnessed violence and aggression; attempts to replicate these results may differ in a sample that does not target youth at high risk for aggression. However, despite these limitations, this study focuses on a group of youth particularly important to understand the developmental impact of violence exposure given their high levels of exposure.

Finally,

Research Implications

Several implications for future research stem from this study. Our results are in line with the idea of pathologic adaptation, where community violence exposure causes higher aggressive behavior but not higher psychological distress (Schwab-Stone et al., 1995). According to this idea, youth become desensitized to violence exposure over time, leading to emotional numbing, which might account for a weak longitudinal association between community violence exposure and depression. Conversely, exposed youth may come to accept the use of

violence as a problem-solving strategy, leading to an association with community violence exposure and externalizing behaviors. Indeed, evidence suggests that community violence exposure might be more strongly related to higher externalizing but not internalizing problems (Gaylord-Harden, Dickson, & Pierre, 2016; Kennedy & Ceballo, 2016; Ng-Mak, Salzinger, Feldman, & Stueve, 2004). Our results suggest that witnessed violence, in particular, might be associated with aggression. While not tested in this study, these findings are in line with theories that witnessed violence specifically provides a behavioral model for aggression and increases normative beliefs that such behavior is acceptable (Bandura, 1978). Examining whether witnessed violence is uniquely associated with normative beliefs supporting aggression is a promising direction for future research.

Our finding of a lack of evidence of longitudinal specificity effects might reflect a number of factors. By the time urban low-income youth reach adolescence, many have already been exposed to violence for years. It may be that the dimensions and types of exposure to violence have less impact on outcomes than when violence is experienced at an earlier stage in development. Examining the influence of dimensions of exposure to community violence during earlier developmental periods is an important avenue for future research. Further, a lack of specificity of effects may relate to our all male sample. Several studies have found that, although boys are exposed to higher levels of violence, exposure to violence is more closely related to mental health problems in girls compared to boys (Farrell & Bruce, 1997; Zona & Milan, 2011). For example, a longitudinal study of racial/ethnic minority adolescents found that girls exposed to violence were more likely to experience dissociative symptoms than boys (Zona & Milan, 2011). We expect that dimensions of community violence might be better at differentiating symptoms for girls versus boys; this is an area for future research.

We statistically controlled for the baseline levels of youth functioning in the third set of analyses as a potential confounder for the association between violence exposure and outcomes. However, by adolescence, depression, aggression and attention problems are relatively stable, and controlling for autoregressive effects may reduce the estimated effect of violence exposure on outcomes and produce overly conservative findings (Kennedy & Ceballo, 2016; Robins & Hernán, 2009). Advanced methods such as marginal structural models and structural nested models are well positioned to address with potential bias and are a promising direction for future research (Robins & Hernán, 2009). Further, future studies would benefit from using sample sizes sufficiently large to examine the impact of dimensions of violence exposure specifically among violence exposed youth, to isolate the impact of dimensions of violence exposure from exposure overall. Future work would benefit from methods that disentangle effects of baseline function versus prior community violence exposure that may be contributing to that baseline function.

Finally, while our study expanded on previous findings by examining two dimensions of community violence exposure – the dimension of “type” including three categories – there is a level of complexity we were unable to capture in the measure and data on community violence exposure we had available. The literature makes clear that location, relationship to victim, and severity of violence also relate to adolescent response. Further, interactions between these experiences of community violence exposure are likely important. For

example, the impact of knowing a perpetrator who mugs a close friend is likely different than knowing the perpetrator who stabs a stranger. In our study, we lacked the power to examine interactions between type and perpetrator identity. However, examining both multiple dimensions of community violence exposure as well as the interactions among dimensions is an important direction for future research.

Clinical and Policy Implications

Our findings have implications for clinical practice. Our finding that knowing a perpetrator of violence was associated with concurrent – but not longitudinal – depression and attention problems support the hypothesis that school problems and depression are linked to risk for delinquent peer affiliation. While more work is needed to clarify these relations, we suggest that males who screen high for depression and attention problems should be monitored for affiliation with deviant peer groups that may place youth at higher risk for violence exposure.

Two implications for practice stem from our finding of the unique association between witnessed community violence and aggression. It is notable that in a sample of adolescent males who had high levels of lifetime exposure to violence, past year exposure at age 15 to witnessed violence was associated with higher later aggression. Therefore, most importantly, these findings underscore that indirect violence exposure merits attention in clinical settings. For example, intervention efforts should be comprehensive in not only targeting youth who have been the direct victim of violence, but also those who have witnessed violence. An additional implication is the interventions for youth exposed to violence must not only address internalizing outcomes, but also externalizing symptoms. For example, the widely used Cognitive Behavioral Intervention for Trauma in Schools (CBITS) has been associated with significant reductions in internalizing symptoms for youth exposed to community violence (Jaycox, Kataoka, Stein, Langley, & Wong, 2012; Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003). However, most existing school-based interventions have not targeted externalizing symptoms (Cooley & Lambert, 2006). Our study underscores that taking a trauma informed approach to assessing the background of youth who demonstrate aggressive behaviors is an important path to effective intervention.

Conclusion

To our knowledge, this study was the first to compare a cross-sectional model of multiple dimensions and types of community violence exposure against a longitudinal model that takes into consideration initial levels of functioning. We found that while dimensions differentially mattered for concurrent levels of functioning, these experienced ceased to have a differential influence – holding constant other dimensions – for later functioning. Broadly, our results suggest that for community violence exposure, a specificity outcome model is useful for understanding concurrent, but not longitudinal outcomes. The findings presented here add to the growing, although still limited, literature relating to dimensions of violence exposure.

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Table 1

Descriptive Characteristics of Sample, Wave 3 (N=246)

Age	14.8 (1.2)
Race/Ethnicity	
African American	64.5%
Latino	35.5%
Mother level of education	
Didn't finish high school	38.1%
Finished high school, no additional education	20.8%
Some trade school or college	26.4%
<i>Exposure to Violence</i>	
Community violence: any heard	31.3%
Community violence: any witnessed	65.9%
Community violence: any victimization	11.4%
Knew perpetrator	28.5%

Table 2

Spearman Correlations between Predictors and Study Outcomes

	1	2	3	4
1. Heard about violence	1			
2. Witnessed violence	.17 **	1		
3. Direct victimization	.23 **	.10	1	
4. Known perpetrator	.31 **	.38 **	.23 **	1
African American ethnicity	.06	-.03	-.01	.02
Age	-.07	-.07	-.01	-.13
Years mother's education	.09	-.10	-.04	.10
Depression T1	.11	.15 *	.16 **	.22 **
Depression T2	.07	.18 *	.07	.15 *
Aggression T1	.14 *	.26 **	.21 **	.23 **
Aggression T2	.05	.20 **	.10	.14 *
Attention Problems T1	.10	.16 *	.10	.23 **
Attention Problems T2	.12	.18 **	.09	.19 **

*
p<.05**
p<.01

Table 3

Community Violence Exposure and Developmental Outcomes

	Cross sectional	Longitudinal without controls	Longitudinal, with T1 and controls [*]
Depression			
Heard about violence	-.02	-.01	-.01
Witnessed violence	.08	.11	.14
Direct victimization	.14 [*]	.00	-.03
Known perpetrator	.15 [*]	.10	-.02
T1 depression	–	–	.45 ^{***}
R ²	.06	.03	.24
Aggression			
Heard about violence	.02	.01	.03
Witnessed violence	.18 ^{**}	.15 [*]	.04
Direct victimization	.13	.07	.03
Known perpetrator	.11	.03	-.03
T1 aggression	–	–	.57 ^{***}
R ²	.09	.03	.35
Attention problems			
Heard about violence	-.01	.04	.04
Witnessed violence	.09	.13 ⁺	.03
Direct victimization	.03	.03	.05
Known perpetrator	.20 ^{**}	.14 ⁺	.03
T1 attention problems	–	–	.61 ^{***}
R ²	.06	.06	.45

⁺ p<.10^{*} p<.05^{**} p<.01^{***} p<.001^{*} results adjusted for ethnicity, age and mother's education