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Prospective Effects of Violence Exposure across Multiple Contexts on Early Adolescents' Internalizing and Externalizing Problems

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Abstract

Background—Violence exposure within each setting of community, school, or home has been linked with internalizing and externalizing problems. Although many children experience violence in multiple contexts, the effects of such cross-contextual exposure have not been studied. This study addresses this gap by examining independent and interactive effects of witnessing violence and victimization in the community, home, and school on subsequent internalizing and externalizing problems in early adolescence.

Methods—A community sample of 603 boys and girls (78% African American, 20% Caucasian) participated in a longitudinal study of youth violence. During two assessments 16 months apart, adolescents reported on witnessing violence and victimization in the community, school, and home, and their internalizing and externalizing problems.

Results—Multiple regressions tested the independent and interactive effects of witnessing violence or victimization across contexts on subsequent adjustment, after controlling for initial levels of internalizing and externalizing problems and demographic covariates. Witnessing violence at school predicted anxiety and depression; witnessing at home was related to anxiety and aggression; and witnessing community violence predicted delinquency. Victimization at home was related to subsequent anxiety, depression, and aggression; victimization at school predicted anxiety; and victimization in the community was not independently related to any outcomes. Finally, witnessing violence at home was associated with more anxiety, delinquency, and aggression only if adolescents reported no exposure to community violence.

Conclusions—Violence exposure at home and school had the strongest independent effects on internalizing and externalizing outcomes. Witnessing community violence attenuated the effects of witnessing home violence on anxiety and externalizing problems, perhaps due to desensitization or different norms or expectations regarding violence. However, no comparable attenuation effects were observed for victimization across contexts.

Keywords

violence exposure; adolescence; internalizing problems; externalizing problems

Each year, a number of children and adolescents are exposed to violence in their schools, homes, and communities. Exposure to violence is especially ubiquitous in poor urban areas, where as many as 90% of children and adolescents witness violence in schools (Flannery,

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Wester, & Singer, 2004) and close to 80% witness community violence (Weist, Acosta, & Youngstrom, 2001). While the rates of witnessing violence at home tend to be lower compared with witnessing violence in the school and community, between 17% and 25% of youth are exposed to violence at home (Hotton, 2003; O'Brien, John, Margolin, & Erel, 1994). Many children and adolescents not only witness violence, but are directly victimized, with prevalence rates of violent victimization during adolescence estimated at 50% to 68% in the United States (Macmillan & Hagan, 2004; Menard, 2002). Some youth only encounter violence in a single setting, whereas others are exposed to multiple types of violence in multiple contexts (Finkelhor, Ormrod, & Turner, 2007). Although a rich body of literature links setting- and type-specific violence exposure to internalizing and externalizing problems, little is known about the relative importance of witnessing violence or victimization across major environmental contexts for adjustment, or whether violence exposure in one setting amplifies or attenuates the effects of violence exposure in other settings (Foster & Brooks-Gunn, 2009). To address these questions, this prospective study examined the independent and interactive effects of witnessing violence and victimization in the community, school, and home on subsequent externalizing and internalizing problems in early adolescence.

Violence Exposure and Externalizing and Internalizing Problems

A number of cross-sectional and prospective studies have linked violence exposure in single contexts with externalizing and internalizing problems. Externalizing problems, such as aggression and delinquency, are related to witnessing violence or victimization in the community (Gorman-Smith & Tolan, 1998; Guerra, Huesmann, & Spindler, 2003; Richards et al., 2004), home (Ehrensaft, Cohen, & Brown, 2003; Evans, Davies, & DiLillo, 2008; Widom et al., 2006), and school (Hanish & Guerra, 2002; Hoglund & Leadbeater, 2007; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998). Although witnessing violence and victimization are not often compared within a single study, two recent meta-analyses indicated stronger effects of victimization than witnessing of community and home violence on externalizing outcomes (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009; Wilson, Stover, & Berkowitz, 2009). By contrast, witnessing was a stronger predictor of subsequent externalizing problems than victimization in a study of school violence (Janosz et al., 2008) and a mega-analysis of data from 15 studies of domestic violence (Sternberg, Baradaran, Abbott, Lamb, & Guterman, 2006).

Likewise, internalizing problems, such as depressive and anxiety symptoms, are associated with violence exposure at school (Flannery et al., 2004; Janosz et al., 2008), in the community (Fowler et al., 2009; Gorman-Smith & Tolan, 1998), and home (Evans et al., 2008; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003). Although victimization appears to have stronger effects on internalizing problems than witnessing violence in the community (Fowler et al., 2009) and school (Janosz et al., 2008), witnessing domestic violence was a more robust predictor of internalizing problems than victimization in the large mega-analysis (Sternberg et al., 2006).

Violence Exposure across Multiple Contexts and Adjustment

Emerging research on violence exposure across types of violence and contexts suggests poorer outcomes in youth experiencing multiple and broader exposures. For instance, cumulative violence exposure at home, school, and in the community was a stronger predictor of adolescents' concurrent internalizing and externalizing problems than exposure in any single setting (Mrug, Loosier, & Windle, 2008), and poly-victimization was a powerful predictor of current (Holt, Finkelhor, & Kantor, 2007) and subsequent (Finkelhor et al., 2007) internalizing symptoms in children and adolescents. Nevertheless, issues that

received very little attention include the independent contributions of violence exposure in different settings to adjustment problems, and whether some experiences with violence amplify or attenuate the effects of other violent experiences. The examination of both independent and interactive effects is consistent with ecological theories of human development and can provide useful directions for interventions with violence exposed youth, as well as insights into the mechanisms through which violence exposure affects adjustment.

Although the literature suggests that any violence exposure presents a risk for adjustment, it would be useful to know in which context violence exposure has the most detrimental effects. Given the reality of limited resources for preventive and intervention programs, one could argue that such resources should be preferentially allocated to prevent or address the negative consequences of violence that has the most negative impact on youth. Thus, the assessment of independent effects of violence exposure across contexts will determine which context-specific violence exposure produces negative effects that exceed the effects that are “common” across all violence exposure. Important differences between violence occurring in each context may provide clues as to which will have more impact and why. For instance, violence exposure at home and school may have stronger effects than violence in the community because youth typically spend larger amounts of time in these contexts and they are more difficult to avoid. Home violence is likely to be the most detrimental, given the importance of home as a “safe place” and close physical and emotional proximity to perpetrators of home violence (parents, siblings).

Likewise, because some children are exposed to violence in multiple contexts whereas for others exposure is limited to a single setting, it is important to know whether cross-context violence exposure modifies the “typical” impact of violence. Such research may help us better understand the experiences and needs of youth confronting violence in multiple settings. Exposure to violence in one setting may sensitize (or conversely, desensitize) adolescents to the impact of violence in other settings. So far, only one cross-sectional study evaluated the independent and combined effects of violence exposure across multiple settings on adolescents’ mental health (Mrug et al., 2008). Consistent with our speculations above, violence exposure at home was an independent predictor of both internalizing and externalizing problems, while exposure to violence at school independently predicted internalizing symptoms. In addition, high levels of community violence exposure attenuated the relationships between home and school violence and adjustment, perhaps reflecting desensitization to violence or a process whereby community levels of violence establish “norms” that affect the interpretation and impact of violence in other settings. Although these findings are intriguing, the cross-sectional nature of the study could not exclude alternative interpretations. Because adjustment (particularly externalizing) problems serve as a risk factor for subsequent violence exposure (Farrell & Sullivan, 2004), it is important to examine prospective effects of violence exposure on adjustment while controlling for baseline externalizing and internalizing problems. Additionally, as witnessing violence and victimization were combined to create an overall index of violence exposure in each setting, it is not clear whether these results apply to both witnessing and victimization.

Present Study

The present investigation extends existing research on violence exposure by examining the independent and interactive effects of violence exposure across home, school, and community on subsequent internalizing and externalizing problems in a community sample of early adolescents. Witnessing violence and victimization are examined separately because they have been associated with different predictors and outcomes (Schwartz & Proctor, 2000) and may yield different patterns of independent and interactive effects. Based on

previous research, we expected that violence exposure in home and school will be more strongly related to adjustment problems than community violence, and that violence exposure in the community may attenuate the effects of violence exposure at home and school. We further hypothesized that victimization will demonstrate stronger relationships with adjustment than witnessing violence, and consequently any cross-context attenuation may apply less to victimization than witnessing violence. To provide a rigorous test of the research questions, all prospective analyses control for previous levels of all adjustment outcomes (i.e., internalizing and externalizing problems) and child and family demographics.

Methods

Participants

This study included 603 early adolescents (52% male, 78% African-American, 20% Caucasian, 2% other) and their primary caregivers who participated in two waves of data collection of the Birmingham Youth Violence Study (BYVS), conducted between 2003 and 2005. Students were initially recruited from 5th grade classrooms in 17 Birmingham area schools selected through a two-stage probability sampling process. In the first stage, schools were randomly selected based on probabilities designed to achieve a sample that would be representative of all students attending public schools in the Birmingham metropolitan area in terms of racial/ethnic, gender, and socioeconomic composition. In the second stage, all individual students at selected schools were invited to participate. As a result of this sampling procedure, the demographic make-up of the sample closely resembled the sampled population of all 5th grade students attending public schools in the Birmingham area. The study was approved by the Institutional Review Board at the University of Alabama at Birmingham and all families provided parental consent and child assent prior to each data collection. A total of 826 students took part in an initial in-school assessment. Approximately 5 months later, a randomly selected subsample of 704 children and their primary caregivers completed individual interviews at Wave 1, with 603 families returning for Wave 2 interviews about 16 months later (86% retention rate). The retained sample from Wave 1 to Wave 2 did not differ from those lost through attrition in age and gender, but included a higher proportion of African Americans (small effect size: Phi=.1). The average age of youth participants was 11.8 (*SD*=.8) at Wave 1 and 13.2 years (*SD*=.9) at Wave 2. The sample was socioeconomically heterogeneous, with family income ranging from below $5,000 to over $90,000 (median $25,000-$30,000), and closely mirrored the demographic composition of the Birmingham metropolitan area (74% African American, 24% Caucasian).

Measures

Violence exposure—Victimization and witnessing violence were assessed through adolescents' self-report at Wave 1 using the Birmingham Youth Violence Study Violence Exposure measure (Mrug et al., 2008). Adolescents reported whether they, over the last 12 months, witnessed someone else subjected to 1) a threat of physical violence, 2) actual physical violence, and 3) a threat or actual violence involving a weapon; and whether they were a victim of 4) a threat of physical violence, 5) actual physical violence, and 6) threat or actual violence involving a weapon. Endorsement of any item was followed with three contextual probes asking whether such event occurred at school, in the neighborhood, or at home. The responses to the original 6 questions and the follow-up probes (3 for each) were recoded into 18 indicators for each combination of violence item (threat, actual violence, or weapon related), type of exposure (witnessing or victimization), and context (school, home, or neighborhood). These indicators were summed separately for victimization and witnessing within each context, resulting in a possible range of 0-3 for each variable.

Anxiety—At Wave 2, adolescents completed the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1997). This scale includes 28 anxiety items endorsed as either 'True' or 'False'. Total score indicates the number of endorsed symptoms (possible range 0-28; α=.89).

Depression—At Wave 2, adolescents answered six dichotomous items from the Major Depressive Disorder scale of the Diagnostic Interview Schedule for Children Predictive Scales (DPS; Lucas et al., 2001). Items included loss of pleasure and interest in activities, low energy level, low self-worth, suicidal ideation, fatigue, and concentration difficulties in the past 12 months. Total score is the number of endorsed items (possible range 0-6; α=.68).

Hopelessness and suicidal behavior—Because anxiety and depression were not measured at Wave 1, hopelessness and suicidal behavior served to control for Wave 1 internalizing problems. Hopelessness was assessed with adolescent report on 4 dichotomous items from the Hopelessness Scale for Children (Kazdin, Rodgers, & Colbus, 1986); the items were summed (possible range 0-4; α=.53). Suicidal behavior was measured with adolescent report of suicidal ideation, plan, and attempt over the past 12 months. Total score is the number of endorsed items (possible range 0-3; α= .58).

Delinquency—At Wave 1, adolescents reported on engagement in 8 delinquent behaviors in last 12 months (e.g., fighting, running away from home, truancy, stealing; Elliott, Huizinga, & Ageton, 1985). Responses were rated on a 3-point scale (*never* = 0, *once* = 1, *more than once* = 2) and summed (possible range 0-16; α=.62). At Wave 2, the delinquency scale was expanded to 27 items to more accurately measure a broader and more severe range of delinquency expected in the older sample. The questions included theft, destruction of property, fighting, selling drugs, public disorder, and robbery. Responses were coded on the same 3-point scale and summed (possible range 0-54; α=.79).

Aggression—At Wave 2, adolescents completed a self-report measure of aggression (Little, Jones, Henrich, & Hawley, 2003). Eighteen items assessing pure, reactive, and instrumental overt aggression were rated on a 4-point scale (*Not at all true* = 1 to *Completely true* = 4) and summed (possible range 18-72; α=.88). Although this scale was not used at Wave 1, the initial in-school assessment included the instrumental overt aggression subscale from the same measure, which we used to control for previous aggressive behavior. The 6 items rated on a 3-point scale (*Almost never* =1 to *Very often* = 3) were summed (possible range 6-18; α=.86).

Demographics—Child's gender, racial/ethnic minority status, age in years, and family income at Wave 2 were included as demographic controls. Family income was reported by caregivers on an ordinal scale with 13 categories ranging from $0-$5,000 to >$90,000. Income data from Wave 1 was imputed for 16 families who did not provide this information at Wave 2 (r=.82 across the 2 waves). Higher values indicate female gender, non-Caucasian ethnicity, and higher income category.

Data Analysis

Univariate statistics and bivariate correlations were examined. The independent and interactive effects of violence exposure across contexts were examined with hierarchical multiple regressions. Because witnessing and victimization were moderately correlated within each context (r's=.35-.45, p<.001), they were tested in separate analyses. Step 1 of each regression included demographics, conduct problems, and the outcome variable(s) measured at Wave 1. At Step 2, witnessing (or victimization) in school, community, and home assessed the independent effects of violence exposure in each context. Step 3

contained all two-way interactions of the three context-specific violence exposure variables, while the three-way interaction was examined in Step 4. These interactions tested whether violence exposure in a given context alters the effect of violence exposure in other settings. All witnessing and victimization variables were centered prior to computing the interactions to reduce multicollinearity. Simple slopes were computed to interpret significant interactions (Aiken & West, 1991).

Results

Preliminary Analyses

Occasional missing data on variables used in this report (0.5% of data points) were imputed with the EM algorithm. Nine outliers for Wave 2 delinquency (values 16 to 35) and 11 outliers for Wave 2 aggression (values 48 to 63) were identified and recoded to 16 and 48, respectively. At Wave 1, 82% of adolescents reported any exposure to violence in the past year; 79% witnessed violence and 38% were victimized. Context-specific rates of witnessing were 70% at school, 32% in the community, and 12% at home. Victimization at school was reported by 27% of participants, in the community by 10%, and at home by 12%. Witnessing violence across multiple contexts was reported by 41% of the youth, with 26% of the sample witnessing violence at school and in the community; 8% at school and home; 5% at home and in the community; and 4% in all three contexts. Ten percent adolescents were victimized in multiple settings; 6% at school and home; 5% at school and in the community; 3% at home and in the community; and 2% in all three settings. The percentages of adolescents endorsing high levels of Wave 2 outcomes were 21% for anxiety (>15), 33% for depression (>3), 17% for delinquency (>6), and 9% for aggression (>36) (for means and *SD*'s, see Table 1).

All violence exposure variables were positively correlated, with the exception of witnessing violence at home and school (see Table 1). Males reported more witnessing community violence and victimization at school and in the community. Racial/ethnic minorities, older adolescents, and those from poorer families witnessed more violence at school and in the community; lower SES adolescents also experienced more victimization in the community. All violence exposure variables were related to multiple indices of concurrent and subsequent internalizing and externalizing problems. In particular, concurrent suicidal behavior and delinquency, and subsequent anxiety, delinquency, and aggression, were associated with witnessing violence and victimization in every context.

Independent and Interactive Effects of Violence Exposure across Context

Standardized regression coefficients and R^2 values from the multiple regressions are presented in Table 2. After accounting for demographics and baseline internalizing or externalizing problems, witnessing violence at school emerged as an independent predictor of anxiety and depression about 16 months later, witnessing violence in the community predicted delinquency, and witnessing violence at home predicted anxiety and aggression. In separate analyses, victimization at home predicted subsequent anxiety, depression, and aggressive behavior, and victimization at school was associated with more anxiety symptoms. Additionally, three two-way interactions involving witnessing violence in the community and home reached significance. Because we conceptualized homes as nested within communities, simple slopes were computed for witnessing home violence at the minimum (0) vs. high (1 SD above the mean) levels of witnessing community violence. Witnessing violence at home was only related to adjustment problems when adolescents did not witness community violence, but witnessing violence at home was unrelated to adjustment under high levels of witnessing community violence (see Figure 1). As a result of these attenuation effects, highest levels of anxiety, delinquency, and aggression were

reported by youth who witnessed domestic but not community violence, while the lowest levels were exhibited by youth who did not witness violence in either setting. Analysis of regression residuals and diagnostic statistics (Cook's distance, DFBETAS) did not reveal any extreme residuals or influential data points.

Discussion

This study provided the first prospective examination of independent and interactive effects of violence exposure across multiple contexts on youth adjustment. Consistent with other studies (Finkelhor et al., 2007), we found high rates of violence exposure in multiple settings. Specifically, 41% of our community sample of early adolescents witnessed violence and 10% were victimized in more than one setting. Witnessing violence and victimization were related to child and family demographics and child's concurrent adjustment. After controlling for these associations, witnessing violence and victimization made independent contributions in predicting internalizing and externalizing problems 16 months later. As expected, violence exposure at home and school was a more robust predictor of adjustment problems than exposure to community violence. Both witnessing violence and victimization at home and school independently predicted anxiety; witnessing violence at school and victimization at home were related to depression; and witnessing violence and victimization at home were associated with aggression. By contrast, witnessing violence in the community only predicted higher levels of delinquency, and victimization in the community was not independently predictive of any outcomes. As hypothesized, witnessing community violence attenuated the impact of witnessing domestic violence on anxiety, aggression, and delinquency. Although victimization did not appear to have uniformly stronger effects on adjustment than witnessing violence, victimization in multiple contexts did not result in attenuated adjustment problems.

The stronger independent effects of violence exposure in more proximal contexts of home and school replicated previous cross-sectional findings (Mrug et al., 2008). Violence exposure at home was a particularly robust predictor of subsequent internalizing and externalizing problems, a result consistent with the large bodies of literature on adverse consequences of witnessing domestic violence and child maltreatment (Evans et al., 2008; Sternberg et al., 2006; Wilson et al., 2009; Wolfe et al., 2003). These findings underscore the crucial importance of a safe home environment for healthy emotional and behavioral development in childhood and adolescence. Violence exposure at school, both witnessing and victimization, was independently associated with internalizing problems. Despite a large literature on victimization in the school setting (e.g., Hanish & Guerra, 2002; Hoglund & Leadbeater, 2007), scant research has addressed the impact of witnessing school violence on students. This is a disconcerting omission given the very high rates (70-90%) of witnessing violence in this setting (Flannery et al., 2004; Singer et al., 1999) and our and others' (Janosz et al., 2008) findings of its prospective negative effects on mental health. Future studies should address the mechanisms by which observing violence at school affects adolescents' emotions, cognitions, and behavior, as well as protective factors that may buffer these negative effects. For instance, witnessing school violence may produce internalizing difficulties through emotional distress and concentration difficulties, alienation from peers and teachers, and fear for own safety, but these negative effects could be buffered by strong positive attachment to peers or teachers.

Although violence exposure in the community was related to few adjustment outcomes, these findings do not imply that such exposure is inconsequential for youths' emotional and behavioral health. Clearly, existing literature provides strong support for the negative effects of exposure to community violence on internalizing and externalizing problems (e.g., Fowler et al., 2009), and our findings corroborate independent effects of witnessing

community violence on delinquency. What our findings suggest is that exposure to community violence has few incremental effects on internalizing and externalizing problems over and above effects that are "common" to violence exposure in any setting. Correlation analyses revealed that almost all of the violence exposure variables were positively related, thus there is considerable overlap in victimization and witnessing violence within and across settings. Our findings of greater independent predictive power of violence exposure in home and school settings suggest that when resources are limited, they should be preferentially allocated to prevent or treat the consequences of violence in these proximal settings. However, it is also possible that the inclusion of covert, nonviolent delinquent behaviors in our delinquency measure is partly responsible for the scarcity of independent associations with most violence exposure variables, as non-violent delinquency is less strongly related to violence exposure than overt violence (Wilson et al., 2009).

Especially intriguing are our findings of interactions between witnessing home and community violence. Although many researchers have recognized that domestic violence is nested within the context of communities (e.g., Cicchetti & Lynch, 1993), few studies have addressed the combined roles of violence across these settings. Our findings concur with the results of Miller, Wasserman, Neugebauer, Gorman-Smith, and Kamboukos (1999) who found stronger association between parent-child fighting and later antisocial behavior in high-risk urban boys who reported low vs. high levels of witnessing community violence. Similarly, we found that the impact of witnessing domestic violence on adolescents' anxiety, depression, and delinquency was stronger when the youth witnessed no community violence. It is possible that witnessing community violence may desensitize youth to the effects of violence occurring at home. Such desensitization to community violence has been also suggested by lower resting heart rates (Cooley-Quille, Boyd, Frantz, & Walsh, 2001) and attenuated effects on post-traumatic stress disorder symptoms (McCart et al., 2007). Alternatively, violence in the community may set norms or expectations for violence in other settings, so that adolescents exposed to community violence may perceive domestic violence as "normative" and be less affected by it. By contrast, home violence may be viewed as more atypical and salient when a child has not observed violence in the community, and thus have stronger impact. Future studies should examine these hypotheses directly, for instance by relating violence exposure in different contexts to aspects of physiological functioning reflecting desensitization and by assessing norms and expectations for violent behavior in different settings. It should also be acknowledged, however, that the interactions could be interpreted in another way - that the effects of witnessing violence in the community vary across levels of witnessing home violence. Using this interpretation, witnessing community violence was only associated with adjustment problems if the youth reported no witnessing of domestic violence. Thus, it is possible that levels of violence in the home also provide a standard that determines the impact of community violence on adolescents.

It is notable that similar attenuation effects of cross-context violence exposure were not observed for victimization, suggesting that adolescents do not become desensitized, or less vulnerable, by victimization in multiple settings. Such lack of desensitization may be responsible for recent meta-analytic findings of greater impact of victimization than witnessing violence on adjustment (Fowler et al., 2009; Wilson et al., 2009). Although victimization is less frequent than witnessing violence, a sizeable number of adolescents (10% in this sample) were victimized in multiple settings. Preventing youth victimization, especially in the home and school settings, thus needs to remain an important priority for research and practice.

Several limitations of this study need to be noted. Although the initial sample was representative of 5th grade students attending public schools in the Birmingham area, the

obtained participation rates and attrition may have limited generalizability of the results, especially to Caucasian adolescents who were more likely to drop out from the study. It would be important to replicate these results with other samples. Because anxiety and depression were not measured at Wave 1, we could not control for previous levels of these specific types of internalizing problems. It would be useful for future studies to replicate our results controlling for previous levels of the same internalizing outcomes. Although delinquency was assessed with an abbreviated scale at Wave 1, this measurement difference is developmentally appropriate and maximizes validity and reliability of measurement (Elliott et al., 1985). The reliance on adolescent self-report in assessing both violence exposure and adjustment outcomes is also a limitation, as it may inflate associations among these variables through shared method variance. Unfortunately, adolescents are considered the best reporters for many of these constructs due to limited knowledge on the part of other potential informants (e.g., parents). Additionally, due to relatively high correlations between witnessing violence and victimization within each context, we could not examine independent contributions of these two types of violence together with violence exposure across context. Since several other studies compared witnessing violence with victimization in a single context, we chose to focus on the more novel question of cross-contextual violence exposure. Further, we did not explicitly test reciprocal relationships between violence exposure and adjustment over time, but the potential causal effects of externalizing and internalizing problems on violence exposure were partly controlled by including Wave 1 adjustment variables as covariates in all analyses. Finally, this study focused only on physical violence, excluding other types of violence (e.g., sexual violence) important for adjustment.

Conclusions

Many young adolescents witness violence or are victimized in multiple settings. Although violence exposure in every context has negative effects on adjustment, the greatest impact is conferred by witnessing violence and victimization at home and school. To be most effective, interventions aiming to prevent violence exposure or improve resilience in already exposed youth may need to encompass violence across all major settings (home, school, and community). However, if that is not possible, addressing violence at home and school may yield greatest benefits. Witnessing community violence attenuated the negative impact of witnessing violence at home on anxiety and externalizing behaviors. Future research should examine mechanisms responsible for these effects, such as desensitization and norms and expectations regarding violence. It is possible that although adaptive in the short-term, such mechanisms may ultimately translate into poorer outcomes. More research is also needed to better understand the consequences of witnessing violence at school; this rarely studied type of violence exposure is highly prevalent and contributes to internalizing problems.

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Key points

- Witnessing violence or victimization at home, school, or in the community is associated with internalizing and externalizing problems
- Many children and adolescents are exposed to violence in multiple settings, but the independent and interactive effects of cross-context violence exposure are unknown
- This study suggests that witnessing violence and victimization at home and school have greater negative impact on adolescents' emotional and behavior problems than violence exposure in the community
- Witnessing violence in the community attenuated the negative impact of witnessing violence at home on anxiety, aggression, and delinquency
- No attenuation effects were observed for victimization across multiple contexts

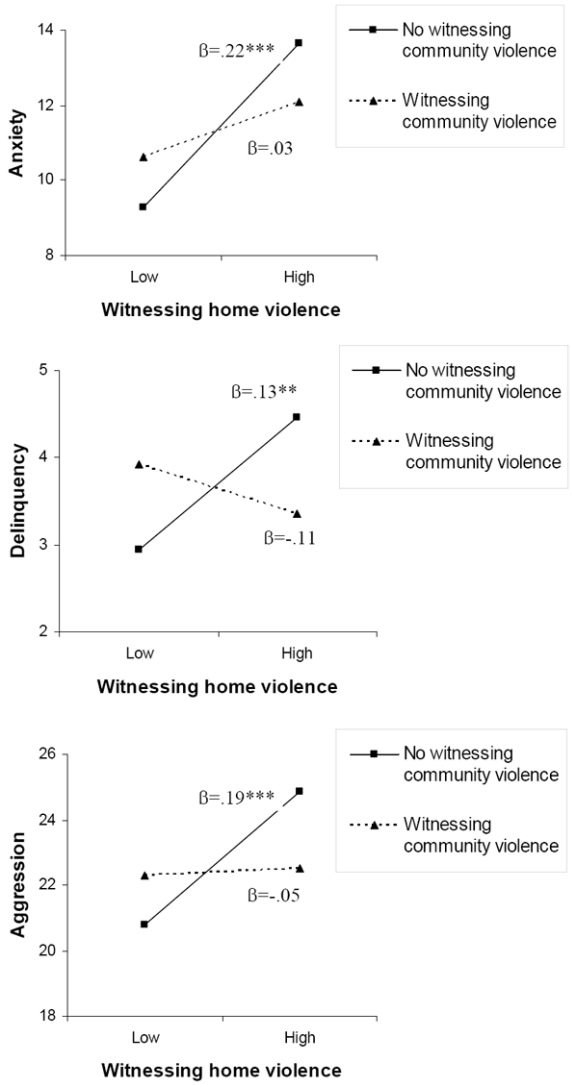

Figure 1.
Interactions of witnessing violence at home and in the community on subsequent anxiety, delinquency, and aggression.

Table 1

Means, Standard Deviations, and Correlations for All Variables.

	M	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
Wave 1																			
1. Gender	1.5	0.5	--																
2. Minority	1.8	0.4	.11*	--															
3. Hopelessness	2.3	1.2	-.17*	.11*	--														
4. Suicidal behavior	0.1	0.2	.02	-.01	.02	--													
5. Delinquency	1.7	2.1	-.09*	.14*	.11*	.37*	--												
6. Aggression	7.3	2.4	-.07	.10*	.10*	.03	.26*	--											
7. Witness school	1.1	0.9	-.02	.18*	.10*	.13*	.27*	.11*	--										
8. Witness community	0.5	0.9	-.11*	.19*	.06	.12*	.34*	.17*	.21*	--									
9. Witness home	0.2	0.5	.03	.02	.05	.18*	.24*	.24*	.04	.10*	--								
10. Victim school	0.4	0.7	-.11*	.01	.06	.22*	.30*	.03	.35*	.14*	.11*	--							
11. Victim community	0.1	0.4	-.11*	.06	.05	.10*	.21*	.12*	.09*	.42*	.13*	.18*	--						
12. Victim home	0.1	0.4	-.05	.02	.03	.18*	.23*	.16*	.10*	.13*	.45*	.23*	.24*	--					
Wave 2																			
13. Age	13.2	0.9	-.05	.30*	.09*	.03	.19*	.18*	.18*	.12*	.05	.02	.08	.03	--				
14. Family income	6.4	3.9	-.08*	-.32*	-.05	-.06	-.23*	-.06	-.11*	-.23*	-.06	-.02	-.18*	.01	-.31*	--			
15. Anxiety	10.2	6.5	.16*	.13*	.15*	.22*	.19*	.09*	.16*	.14*	.21*	.18*	.09*	.17*	.02	-.16*	--		
16. Depression	2.6	1.7	.09*	.13*	.12*	.19*	.16*	.06	.18*	.14*	.13*	.13*	.08	.14*	.04	-.14*	.67*	--	
17. Delinquency	3.4	3.8	-.12*	.18*	.15*	.26*	.45*	.22*	.17*	.26*	.16*	.12*	.14*	.18*	.23*	-.18*	.34*	.33*	--
18. Aggression	25.9	6.9	-.10*	.19*	.15*	.20*	.38*	.31*	.15*	.23*	.22*	.09*	.16*	.23*	.19*	-.13*	.31*	.28*	.63*

Note: Gender is coded 1 for male, 2 for female. Minority is coded 1 for Caucasian, 2 for African American or other.

* $p<.05$ or lower.

Table 2

Multiple Linear Regressions Predicting Wave 2 Outcomes from Witnessing Violence and Victimization at Wave 1, Controlling for Demographics and Wave 1 Adjustment.

	Predictor	Anxiety		Depression		Delinquency		Aggression	
		β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
Step 1			.14***		.09***		.27***		.23***
	Female	.18***		.10*		-.08*		-.06	
	Age	-.07		-.04		.10**		.06	
	Racial/Ethnic minority	.06		.09*		.09*		.11**	
	Family income	-.11**		-.08		-.04		-.01	
	Suicidal behavior	.17***		.16***		.13***		.10**	
	Hopelessness	.16***		.11**		.07		.07	
	Delinquency	.19*		.07		.33***		.24***	
	Aggression	.06		.03		.09*		.21***	
Step 2a			.03***		.02**		.01		.01*
	Witness school	.09*		.12**		.01		.01	
	Witness community	.06		.06		.08*		.07	
	Witness home	.14***		.08		.03		.10*	
Step 3a			.02**		.01		.02**		.02**
	Witness school × home	-.04		-.07		.04		.01	
	Witness school × community	-.06		-.03		-.07		-.03	
	Witness community × home	-.10*		-.05		-.13***		-.13***	
Step 2b			.03***		.01*		.01		.02***
	Victim school	.12**		.07		-.04		-.05	
	Victim community	.01		.01		.01		.06	
	Victim home	.10*		.09*		.07		.11**	
Step 3b			.01		.00		.00		.00
	Victim school × home	-.09		-.02		-.02		.03	

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	Predictor	Anxiety		Depression		Delinquency		Aggression	
		β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2
	Victim school × community	-.01		-.06		.01		-.05	
	Victim community × home	.02		.04		-.02		.04	
Step 4a	Witness school × home × community	.00	.00	.01	.00	.01	.00	-.06	.00
Step 4b	Victim school × home × community	.05	.00	-.05	.00	.02	.00	.02	.00

Note: β's are standardized regression coefficients.

* $p<.05$,

** $p<.01$,

*** $p<.001$

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