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Community Violence Exposure and Adolescents' School Engagement and Academic Achievement Over Time

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Abstract

Objective—This study examined the relationships between community violence exposure and two related, but meaningfully distinct, academic outcomes: school engagement and academic achievement (GPA). Psychological symptoms were investigated as mediators of these relationships.

Method—One hundred eighteen youth reported on community violence exposure and school engagement twice during adolescence, and both parents and adolescents reported on psychological symptoms. Cumulative GPA was also acquired from participants. A path model and hierarchical multiple regression analyses were used to assess these relationships longitudinally.

Results—Earlier community violence exposure inversely predicted later school engagement, but earlier school engagement did not predict later community violence exposure. School engagement mediated the association between community violence exposure and school GPA. Internalizing and externalizing symptoms, but not posttraumatic stress symptoms, mediated the association between community violence and school engagement.

Conclusions—When adolescents are exposed to community violence, they may become vulnerable to a cascade of events including psychological symptoms and decreased connectedness to school, which ultimately can lead to overall poor academic achievement. The more proximal, changeable experiences of school connectedness and psychological symptoms offer targets for interventions offsetting long-term adverse academic consequences in violence-exposed youth.

Keywords

academic achievement; adolescence; community violence; psychological symptoms; school engagement

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In order to understand the consequences of community violence on adolescents one must take into account the impact on academic functioning, as school is the primary domain in which adolescents perform. Furthermore, failure in school can have long-term detrimental consequences for competency and social adjustment as adolescents transition into adulthood (Loeber, 1990; Masten, Desjardins, McCormick, Kuo, & Long, 2010). There is general recognition that community violence is negatively related to school performance, but little is known about the mechanisms underlying this association or the direction of effects. Although most of the research on the relation between community violence and academic outcomes has examined long-term, essential school outcomes such as grade point average (e.g., Mathews, Dempsey, & Overstreet, 2009), community violence may also take a toll on adolescents' day-today experiences, such as their sense of engagement with the school environment, that ultimately might influence these future outcomes. In addition, there is evidence that emotional symptoms are associated with both community violence (for a review, see Margolin & Gordis, 2000) and poor school performance (Aunola, Stattin, & Nurmi, 2000), thus calling into question whether community violence has unique effects on school performance separate from emotional distress. As adolescents are not passive recipients of, but rather constantly interact with and contribute to their environments, questions arise about the direction of effects concerning community violence and academic performance. An unsafe environment may lead to a compromised focus on school and decreased feelings of academic efficacy, but alternatively, low proficiency at school could lead to greater involvement in risky environments that include violence exposure. In light of the importance of identifying adolescents at risk for deteriorating school performance and community violence, this study aims to fill gaps in the literature about how community violence, emotional symptoms, school engagement, and academic achievement might unfold over time.

Accumulating evidence indicates that community violence exposure can negatively impact multiple domains of functioning, including academic outcomes (Bowen & Bowen, 1999; Delaney-Black et al., 2002; Mathews et al., 2009). Research on the academic impact of community violence exposure has primarily focused on measures of academic achievement, such as reading ability and grade point average (GPA; e.g., Delaney-Black et al., 2002; Janosz et al., 2008, Mathews et al., 2009). Academic achievement measures, such as GPA, represent cumulative metrics of accomplishments in the classroom that are indicative of an individual's academic long-term trajectory. Explanations for the connection between community violence exposure and adverse academic performance usually include elevated levels of psychological distress (e.g., Schwartz & Gorman, 2003) or difficulties with concentration (Pynoos & Nader, 1988) resulting from violence exposure which, in turn, impair an adolescent's ability to learn in the classroom. Decreased feelings of self-efficacy following violence exposure, particularly regarding control of negative emotions (McMahon, Felix, Halpert, & Petropoulos, 2009) may also have adverse consequences in the academic environment.

A second more proximal academic outcome that has also been linked to community violence exposure is school engagement (Garcia-Reid, Reid, & Peterson, 2005; Janosz et al., 2008). School engagement is a multifaceted construct that is typically conceptualized as having emotional (e.g., enjoying being at school), behavioral (e.g., helping out at school), and cognitive (e.g., feeling interested in school) components (Fredricks, Blumenfeld, & Paris, 2004) and reflecting adolescents' day-to-day experiences of connection to school. Education researchers consider school engagement to be an important facet of the school experience, as it is more malleable and amenable to immediate intervention than academic achievement (Finn, 1993; Fredricks et al., 2004). However, school engagement has been relatively unexamined by violence researchers as a point of possible intervention with at-risk youth.

Although links between violence exposure and school engagement have been found, research to date has yet to clearly identify whether community violence exposure places adolescents at risk for becoming disengaged at school or whether, conversely, adolescents who have become disengaged from school are more vulnerable for violence exposure. It is plausible, for example, that rather than violence exposure impacting academics, adolescents who perform poorly in school may spend more time on the streets and associating with delinquent peers (Herrenkohl et al., 2000; Li & Lerner, 2011) which, in turn, may create more circumstances to be exposed to violence. This notion is supported by a study that found links between school connectedness and later exposure to weapons violence (Henrich, Brookmeyer, & Shahar, 2005). In the present study we directly test bidirectional relationships between violence exposure and school engagement to explore how these two factors influence each other over time.

School engagement may also be an important link in the connection between community violence exposure and more distal academic achievement measures such as GPA. Two studies have found negative influences of community violence on both school engagement and academic achievement (Janosz et al., 2008; Voisin, Neilands, & Hunnicutt, 2011), but neither study assessed the potentially important associations between school engagement and academic achievement following violence exposure. Indeed, to our knowledge, no studies have evaluated relations between community violence, school engagement, and academic achievement within a single model. Testing such a model could identify whether increasing school engagement is a potential mechanism for improving academic achievement in violence-exposed adolescents.

Psychological Symptoms as Mediators

Research has found that the academic consequences of exposure to violence vary across exposed children, suggesting the need to identify underlying mechanisms in these exposure-outcome relationships. Community violence exposure is typically linked to increases in psychological distress, as violence exposure often leads to feelings of helplessness and fear (Margolin & Gordis, 2000; Osofsky, 1995). Furthermore, psychological symptoms such as depression, externalizing symptoms, (Schwartz & Gorman, 2003), symptoms of posttraumatic stress disorder (Mathews et al., 2009), and general psychological distress (Delaney-Black et al., 2002) have been found to help explain the association between community violence exposure and academic outcomes. In one study (Voisin et al., 2011), psychological symptoms (posttraumatic stress symptoms, internalizing symptoms, and aggression) were tested as mediators of the relationship between community violence exposure and two school variables--student-teacher connectedness, a facet of school engagement, and GPA. All psychological symptoms were found to mediate the relationship between violence exposure and student-teacher connectedness for boys. For girls, only aggressive behaviors mediated the relationship between violence exposure and both student-teacher connectedness and GPA. Toward the goal of identifying explanatory mechanisms between community violence and both proximal and distal outcomes, the present study assesses the role of psychological symptoms – internalizing, externalizing, and posttraumatic stress symptoms.

Present Study

The present study investigates associations between community violence exposure and both academic achievement and school engagement. We sought to answer three important questions: 1) How do community violence and school engagement interact over time? 2) Is community violence linked with long-term adverse academic outcomes, and does school engagement help explain this link? and 3) What psychological factors help account for the

connection between community violence and academic outcomes? Based on the existing literature, we generated an overview of hypothesized associations among these variables, which is presented in Figure 1. First, we hypothesized that there would be bidirectional relationships between community violence exposure and school engagement, which we tested using a cross-lagged analysis across two time points (time 1 and time 2) that controlled for time 1 values of the same variable (Figure 1, paths 1–6). Second, we hypothesized that community violence exposure and school engagement would relate to academic achievement (GPA) and that school engagement would mediate the relationship between community violence and GPA (paths 3, 7, 8). Third, we hypothesized that psychological symptoms would help explain the relationship between community violence and both school engagement and academic achievement (paths 9–11). In addition, to account for other factors thought to influence adolescents' academic outcomes, we included aggression in the home, family income, and cognitive abilities as covariates in our analyses.

Methods

Participants

The present study used two time points of data collected from 118 adolescents (59 girls, 59 boys) enrolled in a longitudinal study of the effects of violence exposure (community and family violence) on adolescents. Participants in the present analyses included only individuals who participated in two consecutive assessments during early and middle adolescence. Initial recruitment was through print advertisements, flyers, and word of mouth in a large, ethnically diverse metropolitan area. Eligible families included a child of the target recruitment age and had two parents living in the home at the time of recruitment. Only two-parent families were recruited so that reports on variables of interest could be acquired from both parents and so that both parents' relationship with the child as well as parent-to-parent variables (for other purposes) could be measured. Non-biological parents were required to have lived in the home with the target child for at least three years prior to the beginning of the study. All family members were also required to be able to complete the protocol in English. The average age of adolescents at the two assessments was 12.69 years (*SD* = .75, range = 10.94–14.61) and 15.31 years (*SD* = .73, range = 13.68–18.60), respectively. In terms of ethnicity, 33.9% of participants identified as Hispanic/Latino. For race, 52.5% identified as Caucasian, 17.8% as African-American/Black, 8.5% as Asian/Pacific Islander, and 21.1% as multi-racial/other. Families reported wide ranging annual household incomes, with 8% reporting < $25,000, 14% $25,000–50,000, 42% $50,000–100,000, and 36% > $100,000. These income data are in line with the large urban recruitment area, where the cost of living ranks 36.4% above the national average (U.S. Census Bureau, 2010) and median household income for families is $62,595, with 29.3% of families reporting incomes above $100,000 (U.S. Census Bureau, 2011). Although families had an average of 3 (*SD* = 1.24) children, only one child per family participated.

Procedures

Adolescents and both of their parents came into the lab for two separate visits approximately 2.5 years apart, with each visit lasting 3–4 hours. Adolescents reported on community violence exposure, school engagement, and posttraumatic stress symptoms. Adolescents and both parents independently reported on the adolescents' internalizing and externalizing symptoms. All study procedures were approved by the university Institutional Review Board. Adolescent participants provided written assent and parents provided consent for their children's and their own participation.

Measures

Community violence exposure—Community violence exposure was measured with a modified version of the Survey of Children's Exposure to Community Violence (Richters & Salzman, 1990), which asks about witnessing, victimization, and hearing about different types of community violence over the past year. The questionnaire used in this study included 20 items about victimization (e.g., being beaten with an object) and severe witnessing experiences (e.g., seeing someone being shot), but did not include items regarding hearing about community violence or less severe witnessing experiences (e.g., seeing someone being arrested). For each item, adolescents reported on the frequency of each event during the past year using a 4-category scale ranging from 0 (*never*) to 3 (*3+ times*). Scores were generated by summing responses across the 20 items. Cronbach α was . 71 at time 1 and .83 at time 2

School engagement—Adolescents completed a school engagement measure designed for this study. The measure contains seven items, which map onto the three facets of school engagement (Fredricks et al., 2004): emotional (e.g., "How much do you feel happy at school?"), behavioral (e.g., "How much do you help keep your school clean?"), and cognitive (e.g., "How much do you feel interested in what is going on at school?"). Responses were on a 4-category scale from 1 (*not at all*) to 4 (*a lot*). Cronbach α was .70 and .69 at times 1 and 2, respectively. The full measure is presented in the Appendix.

Externalizing and internalizing symptoms—Externalizing (e.g., acting out) and internalizing (e.g., worrying) symptoms were measured using a score generated by averaging responses across parent (both mother and father) reports on the Child Behavior Checklist (CBCL; Achenbach, 1991) and adolescent reports on the Youth Self-Report (YSR; Achenbach, 1991). Responses were on a 3-category scale from 0 (*not true*) to 2 (*very true or often true*). Cronbach α for externalizing scores were .92, .92, and .87 for mother, father, and adolescents, respectively, and for internalizing were .85, .88, and .89.

Posttraumatic stress symptoms—Adolescents completed the Youth Symptom Survey Checklist (YSSC), a 17-item measure designed for this study that assesses symptoms from the diagnostic criteria for PTSD found the in Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM-IV-TR; American Psychiatric Association, 2000). Sixteen of the items map onto the three DSM symptom clusters (re-experiencing – 5 items, e.g., "felt like something really bad that happened to you in the past was happening all over again," avoidance – 6 items, e.g., "tried to avoid certain activities, situations or places," and arousal – 5 items, e.g., "felt jumpy, more easily startled, such as when someone walked up behind you"). The final item assesses worry about being safe. Adolescents reported on symptoms using a 4-category scale from 0 (*not at all*) to 3 (*almost always*). Analyses used the sum of YSSC scores across all items (Cronbach α = .89). Whereas most PTSD measures ask about symptoms related to a specific traumatic event, this questionnaire asks about symptoms associated with PTSD without linking them to an event.

Academic achievement—Academic achievement was measured using participants' GPA during high school. GPA data were available for the majority of participants (n = 96, 48 female, 48 male) and were derived directly from participants' high school transcripts (n = 61) or, if a transcript was not available, from self-reported GPA (n = 35). Consistency between GPAs reported on transcripts and self-reported GPA when both measures were available was high, r(54) = .72, p, = .001. The 22 participants with no GPA information available were excluded from the GPA analyses. These participants did not differ from the larger sample on either community violence exposure or school engagement at either time point.

GPA taken from academic transcripts was the mean GPA across all available semesters for each participant (i.e., cumulative GPA). The mean number of semesters available from transcripts was 6.0 (*SD* = 2.0). Participants completed the second time point of our study during high school. Therefore, this GPA measure includes academic performance both before and after the time period that the other variables (i.e., school engagement and community violence exposure) were reported on at time 2 for the majority of participants (69.7%). To generate comparable measures of GPA across the different schools represented in this sample (e.g., public, private), we used a standardized taxonomy to code the transcript data (Bradby, Hoachlander, & MPR Associates, Inc., 1999). We included only courses that were classified under the following subjects: English, Math, Science, and Social Science. Two trained research assistants coded transcripts using the taxonomy, and inter-rater discrepancies were resolved using consensus. For the few occasions when the subject classification could not be determined from the transcript information, we re-contacted the school to inquire about course content.

Parent-to-Child Aggression—To account for other aggression exposure that adolescents may have experienced concurrently, parent-to-child aggression at time 1 was included in the preliminary analyses. Parent-to-child aggression was measured using youth reports on four items per parent, three physical aggression items (e.g., "slapped your child on the hand, arm, or leg") and one emotional aggression item ("said you would send your child away or kick your child out of the house"), from the Parent-Child Conflict Tactic Scales (Straus et al., 1998). Adolescents reported on the frequency of each event during the past year using a 4-category scale ranging from 0 (*never*) to 3 (*3+ times*). Scores were generated by summing responses across eight (four for mother's and four for father's behavior) items. Cronbach α in the present sample was .67.

Other included variables—Household income (as reported by parents), race, gender, and IQ were included as covariates in the initial analyses. We used an average of the standard scores for Block Design and Vocabulary of the Wechsler Intelligence Scale for Children-III (Wechsler, 1991) as an approximation of participants' IQ. These scores were selected because they correlate well with total verbal and performance IQ (Sattler, 1992). Effect coding was used for race (Non-Hispanic/Latino Caucasian = .5, Other participants = −.5) and gender (male = .5, female = −.5).

Results

Descriptive Data

At time 1, 50.8% and at time 2, 57.6% of adolescents endorsed exposure during the past 12 months to at least one of the community violence items. The most frequently endorsed items were "seen someone beating up another person" and "heard gun shots (not including holidays)", which were reported by 28.0% and 27.1% of the participants, respectively. Table 1 presents means and standard deviations of community violence, psychological symptoms, school engagement, GPA, IQ, household income, and parent-to-child aggression. T-test comparisons of boys and girls showed two significant differences: girls reported more time 1 school engagement, $t(116) = 2.57$, $p = .01$ and also had higher cumulative GPAs than boys, $t(94) = 2.59$, $p = .01$.

Table 2 presents correlations across all variables. Time 1 community violence exposure was significantly inversely related to time 2, but not time 1 school engagement. Similarly, time 1 school engagement was inversely related to community violence exposure at time 2, but not time 1. Community violence exposure at both time 1 and time 2 was inversely related to GPA. There were high within-variable correlations for both community violence exposure

and school engagement from time 1 to time 2, suggesting stability over time in these two variables.

Directional Influences of Community Violence and School Engagement

Figure 2 shows the results for hypothesis one. A Structural Equation Model was used to test cross-lagged associations between community violence and school engagement (i.e., paths between time 1 community violence and time 2 school engagement and, vice versa, between time 1 school engagement and time 2 community violence). The model tested controls for stability over time and covariates (Hamaker, 2011). Initially, a model with all of the covariates was run. WISC scores and race were not found to be associated with either predictor variable at time 1, and thus were removed from the model. The model was rerun with income, gender, and parent-to-child aggression as covariates.

First, the full model was estimated. Second, we estimated a model with the path from school engagement at time 1 (SE1) to community violence at time 2 (CV2) constrained to zero. Third, we estimated a model with the path from community violence at time 1 (CV1) to school engagement at time 2 (SE2) constrained to zero. Finally, we estimated a model with both crossed paths constrained to zero. The full cross-lagged model including all control variables exhibited good fit χ^2 (6, N = 118) = 3.33, RMSEA = 0). The model where the SE1 to CV2 path was constrained to zero showed almost no change in fit from the full model, $\Delta\chi^2$(1, N = 118) = 3.64, p = .06, RMSEA = 0, using a chi-square difference test. In contrast, the model where the CV1 to SE2 path was constrained to zero showed a significant change in fit, $\Delta\chi^2$(1, N = 118) = 6.53, p = .01, RMSEA = .06. The model with both cross-paths constrained to zero (SE1 to CV2 and CV1 to SE2) also showed a significant change in fit from the full cross-lagged model, $\Delta\chi^2$(2, N = 118) = 10.19, p = .006, RMSEA = .08, primarily driven by constraining the CV1 to SE2 cross-path. The CV1 to SE2 cross-path was significant when accounting for concurrent relationships and variable continuity over time and the SE1 to CV2 path was not significant, consistent with a unidirectional influence from earlier community violence to later school engagement.

Community Violence, School Engagement, and GPA

GPA was found to be normally distributed, so ordinary least squares regression was used to test hypothesis two. Both community violence (at time 1), β = −.39, t(91) = −3.77, p < .001, and school engagement (at time 2), β = .34, t(91) = 3.68, p < .001, significantly predicted GPA. Using hierarchical multiple regression, school engagement at time 2 was tested as a mediator of the relationship between community violence at time 1 and GPA at time 2. Table 3 presents the full mediation analysis. Gender, income, and race were found to be significant predictors of GPA, with higher GPAs found in girls compared to boys, in adolescents from higher, compared to lower, income families, and in Caucasian, compared to non-Caucasian, adolescents. Parent-to-child aggression and IQ were not significant predictors of GPA and were dropped from the analysis. The relationship between time 1 community violence and time 2 GPA was reduced, but still significant, when time 2 school engagement was added to the model. Confidence intervals of the indirect effect estimated using PRODCLIN (MacKinnon, Fritz, Williams, & Lockwood, 2007) indicated a significant partial mediation effect.

Psychological Symptoms and School Engagement

Using hierarchical multiple regression, we investigated hypothesis three--whether internalizing and externalizing symptoms would mediate the association between time 1 community violence and time 2 school engagement. None of the covariate variables was found to significantly predict school engagement, so all were then dropped from the following two analyses. Table 4 presents the models testing mediation of the relationship

between community violence and school engagement by externalizing and internalizing symptoms. Time 1 community violence was significantly related to time 2 school engagement, $\beta = -.27$, $t(116) = -3.06$, $p = .003$. Time 1 community violence was also significantly related to externalizing, $\beta = .39$, $t(116) = 4.55$, $p < .001$, and internalizing symptoms, $\beta = .25$, $t(116) = 2.81$, $p = .006$. Externalizing, $\beta = -.40$, $t(116) = -4.65$, $p < .001$, and internalizing, $\beta = -.24$, $t(116) = -2.69$, $p = .008$, symptoms were also significantly related to time 2 school engagement. Finally, externalizing symptoms were found to significantly mediate the relationship between time 1 community violence exposure and time 2 school engagement, such that community violence and school engagement were no longer significantly related once externalizing symptoms were included in the model. Internalizing symptoms also reduced this relationship and were found to be a significant partial mediator. Posttraumatic stress symptoms, although associated with community violence, $\beta = .27$, $t(116) = 3.02$, $p = .003$, were not significantly correlated with school engagement, thus mediation effects were not assessed because criteria for mediation were not met (Baron & Kenny, 1986).

Psychological Symptoms and GPA

Finally, hierarchical multiple regression was used to test internalizing, externalizing, and posttraumatic stress symptoms as mediators of the relationship between time 1 community violence and time 2 GPA. None of the psychological symptom variables was found to mediate the relationship between community violence and GPA as neither externalizing, $\beta = -.15$, $t(95) = -1.51$, $p = .14$, internalizing, $\beta = .01$, $t(95) = .10$, $p = .93$, nor posttraumatic stress symptoms, $\beta = .12$, $t(95) = 1.20$, $p = .23$, was significantly associated with GPA.

Discussion

This study highlights several noteworthy characteristics of the relationship between community violence exposure and academic outcomes. As one of the first studies to explicitly test directional relationships over time, the results for hypothesis one indicated that community violence negatively impacts later school engagement when adjusting for concurrent relationships and stability of variables over time. The converse relationship, earlier school engagement impacting later community violence exposure, was not supported. In support of hypothesis two, community violence was found to negatively impact both academic achievement and school engagement and school engagement helped explain the relationship between community violence exposure and academic achievement. Finally, in partial support of hypothesis three, internalizing and externalizing symptoms mediated the relationship between community violence and school engagement, but not academic achievement; posttraumatic stress symptoms was not supported as an explanatory variable.

Based on our results, school engagement emerges as an important outcome in its own right as well as an explanatory mechanism between community violence exposure and cumulative academic achievement. Though there is no one definition, school engagement typically includes participation in everyday school activities, a sense of belonging at school, and engagement in learning (Appleton, Christenson, & Furlong, 2008). School disengagement, which is studied more frequently than engagement, is said to evolve over time and is associated with school dropout (Finn, 1989). Our results similarly show that disruptions to school connectedness associated with community violence exposure may take time to manifest. Indeed, community violence and school engagement were not related concurrently in our path analysis but were related longitudinally. Why community violence exposure may reduce school connectedness is best understood within the more general context of how community violence can be disruptive to adolescents, which includes sleep disturbances, alcohol and drug use, avoidant behavioral responses, fearfulness, self-blame, and decreased self-efficacy (Cooley-Quille & Lorion, 1999; Kliewer & Sullivan, 2008; Margolin & Gordis,

2000). Each of these reactions, in turn, might influence adolescents' ability or desire to perform in school.

Although we did not find bidirectional effects between earlier school engagement and later violence exposure, other research shows links between academic problems and later delinquent behavior (Henrich et al., 2005; Loeber, 1990). Youth who experience school as a negative environment and who seek a sense of belonging from deviant peers or gang affiliations could be on a pathway to violence involvement. Our data show consistency across time for community violence exposure as well as for school engagement, making it difficult to pinpoint which set of events precedes the other – particularly with only two time points. It is possible that the community violence exposure or poor school engagement started at a younger age than our time 1 assessment, and thus the full developmental trajectory may not be represented here. It also is possible that a third variable, such as chaotic family environments, precipitates both the community violence exposure and low school engagement.

Our findings on the role of school engagement in cumulative GPA suggest that school engagement may provide a protective buffer that helps some adolescents avoid adverse academic consequences following violence exposure. Striving for competence and maintaining self-regulated behavior are considered to be cognitive components of school engagement (Appleton et al., 2008). Yet self-control can be impaired by negative life events such as violence exposure (Duckworth, Kim, & Tsukayama, 2013). Those adolescents who have internal motivation (e.g., persistence and self-determination) or external motivation (e.g., support and encouragement through school or family) to sustain self-regulated behavior may be more likely to reach their long-term academic goals (Appleton et al., 2008), even if faced with community violence.

Similar to previous research (Delaney-Black et al., 2002; Schwartz & Gorman, 2003; Voisin et al., 2011), our results show that internalizing and externalizing symptoms partially explain the association between community violence exposure and school engagement. Adolescence is a developmental period marked by heightened vulnerability for emotional problems. Although external stresses, such as violence exposure, can trigger emotional problems, emotional problems also may exacerbate school problems and violence exposure. This confluence of problems leads to as yet unanswered questions of where to interrupt these processes: Does reducing exposure to community violence lessen the emotional problems and increase school engagement, or does addressing the emotional problems lessen the school problems and even reduce the likelihood of violence exposure?

Contrary to expectation, posttraumatic stress symptoms were not found to explain associations between community violence and academic outcomes in this study. According to previous research (Mathews et al., 2009; Pynoos & Nader, 1988), community violence can adversely impact academic success by triggering trauma symptoms, which subsequently disrupt memory and concentration in school. As anticipated, time 1 trauma symptoms in our sample were associated with time 1 community violence and also with internalizing and externalizing symptoms. Trauma symptoms, however, were not associated with either concurrent or future school engagement or GPA. With adolescents having their own age-specific ways of manifesting trauma symptoms (Kerig, Fedorowicz, Brown & Warren, 2000), further investigation is warranted on which facets of adolescents' trauma symptoms are most disruptive to school functioning.

Limitations

Limitations of this study need to be recognized when interpreting these findings. First, with our sample size, we were unable to test our full conceptual model in a single analysis, which

limits the interpretations that can be drawn from our results. In addition, sample size prevented exploration of racial/ethnic differences beyond testing differences between Caucasian and Non-Caucasian participants. Second, although we had two points of data collection, two of the three variables in the mediation analyses were acquired at the same data collection point. The concurrent nature of these variables limits the directional inferences that can be made about their relationships. In particular, time 1 community violence exposure and psychological symptoms were collected concurrently, thus we are unable to rule out alternate interpretations of our findings. For example, youth who are more psychologically distressed may spend more time in situations that put them at risk for violence exposure. Third, with several measures based on self-report data from the adolescent participants, socially undesirable behaviors such as low school engagement and violence exposure experiences, may be underreported.

Finally, a number of our participants came from families with middle or upper-class incomes, and all involved two-parent families at the time of recruitment--features that differ from many other studies of community violence exposure. However, it should be noted that these participants were all residing in an urban environment at the time of recruitment and living in an urban (versus rural or suburban) area has been linked with higher levels of violence exposure and related risks for individuals from all socioeconomic backgrounds (O'Keefe & Sela-Amit, 1997). One the one hand, higher income levels and two parent families offer protective factors that are not always present in studies on community violence and thus limits generalizability. On the other hand, it is noteworthy that community violence still takes a toll on adolescents' academics even in this sample. Future research with larger and more varied samples should directly compare one- versus two-parent families and families of different socioeconomic statuses to better understand interacting risk variables in the link between violence exposure and school performance.

Research Implications

Though this study did not assess school engagement as a moderator, testing interactions between school engagement and violence exposure would provide further information about school engagement as a protective factor in violence-exposed youth. Another important direction is to also study violence perpetration, not just victimization, as these commonly co-occur (Scarpa, 2003). Different academic consequences might emerge for adolescents who are passive recipients of violence than for those who are actively engaging in reciprocal violent behavior. A third distinction is whether community violence exposure occurs in the adolescent's neighborhood or at school. This distinction is of theoretical importance because schools can be viewed as dangerous environments or, alternatively, can be a safe alternative to the community, which could affect school outcomes (Bowen & Bowen 1999).

Clinical and Policy Implications

As demonstrated here, violence-exposed adolescents may exhibit a cascade of adverse psychosocial and academic outcomes. For adolescents with known violence exposure, psychological distress and decreased school engagement may be early warning signs for later difficulties. Alternatively, increased psychological distress and decreased school engagement should alert parents and educators to the possibility that an adolescent has been violence-exposed and may need support to cope with the experience or to avoid situations that put them at risk for violence exposure. Particularly in conditions of relatively low community violence exposure such as those studied here, family support tends to be a protective factor against violence exposure (Sullivan, Kung, & Farrell, 2004). Likewise, high teacher support is related to adaptive functioning for adolescents exposed to community violence (Ozer & Weinstein, 2004), suggesting the potential for multi-system coordination involving both the family and school.

More generally, school engagement is an exciting recent focus in education research because it provides direct targets for intervention (Fredricks et al., 2004) and highlights the role of teachers as an important source of resilience (Luthar & Goldstein, 2004). Teachers' efforts to support and motivate students may promote school engagement, which, in turn, also may positively affect academic achievement. Schools that offer after-school and extracurricular programs and simultaneously keep students off the streets potentially enhance adolescents' school engagement while offering a safe haven from community violence.

Conclusion

Community violence exposure can have a devastating and long-lasting impact on youth trying to navigate the various challenges of adolescent development. Study results suggest that adolescents exposed to community violence might be at risk for both proximal and long-term academic challenges, which may be partially explained by increased symptoms of psychological distress. Taken together, these results highlight the importance of prompt intervention with violence-exposed youth, looking to psychological distress and school disengagement as warning signs of future problems. However, these findings also underscore the need for teachers and parents to remain vigilant for the appearance of these problems over time, as they may not manifest immediately following violence exposure.

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Appendix: Measures

School Engagement

DIRECTIONS: Please circle the response that is most true for you

	At your school…				
1.	How important to you are good grades?	Not at all important	A little important	Somewhat important	Very important
2.	How much do you come to school without finishing your homework?	Not at all	A little	Some	A lot
3.	How much do you help keep your school clean?	Not at all	A little	Some	A lot
4.	How friendly are the teachers to you?	Not at all friendly	A little friendly	Somewhat friendly	Very friendly
5.	How much do you feel bored at school?	Not at all	A little	Some	A lot

	At your school…				
6.	How much do you feel happy at school?	Not at all	A little	Some	A lot
7.	How much do you feel interested in what is going on at school?	Not at all	A little	Some	A lot

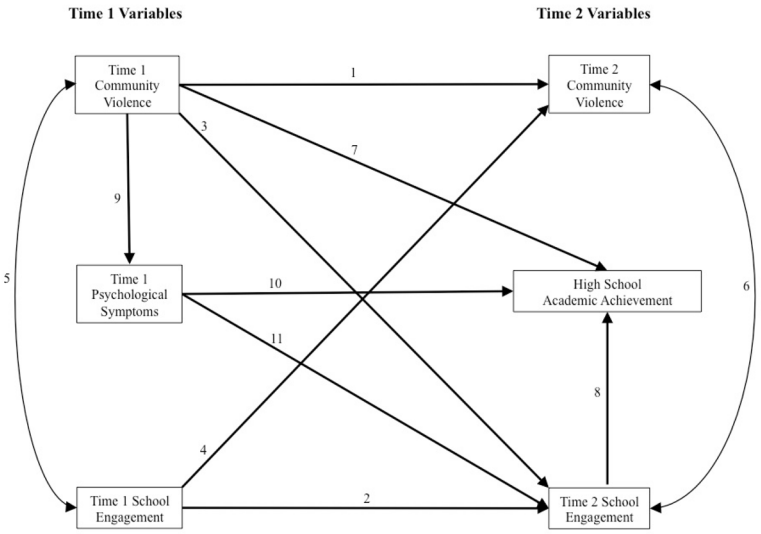

Figure 1.
Study Overview Depicting Temporal and Mediating Relations Among Community Violence, Psychological Symptoms, School Engagement, and Academic Achievement.

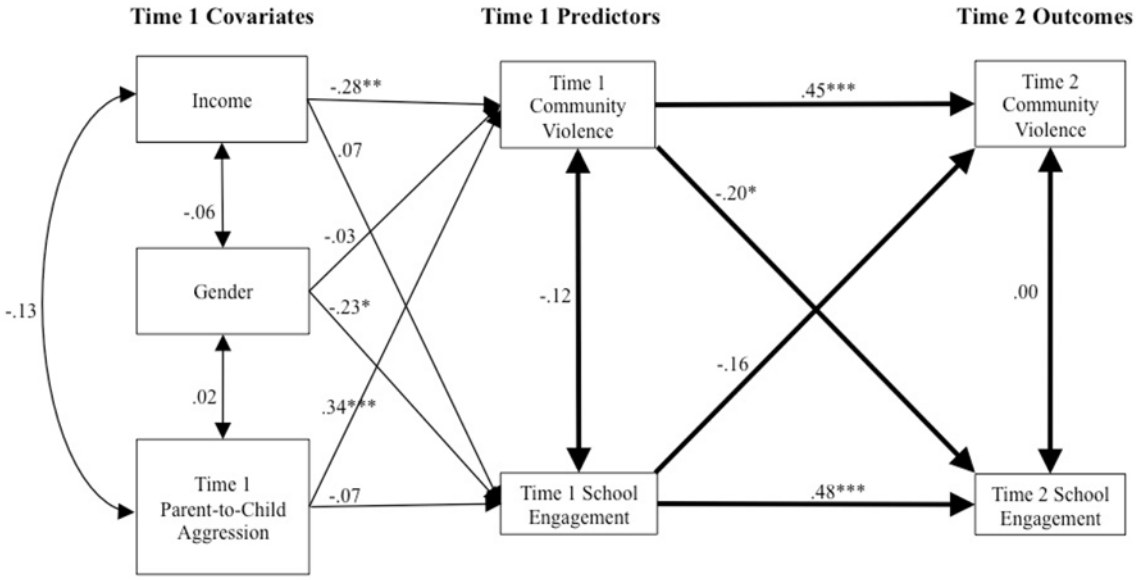

Figure 2.
Cross-lagged model assessing bidirectional relationships between school engagement and community violence exposure across two time points.

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Table 1

Means, Standard Deviations, and Possible and Actual Ranges of Study Variables

	All Participants (N = 118)				Boys (*n* = 59)		Girls (*n* = 59)	
	M	***SD***	***Observed Range***	***Scale Range***	***M***	***SD***	***M***	***SD***
Covariates								
Household Income (Thousands)[^]	94.52	58.76	1.70–345.00	N/A	90.76	63.40	98.29	54.00
WISC-III Average Standard Score[+]	11.01	2.89	2.50–18.50	0.00–19.00	11.15	3.13	10.87	2.66
Time 1 Parent-to-Child Aggression[+]	1.72	2.92	0.00–14.00	0.00–24.00	1.77	2.99	1.67	2.87
Time 1 Variables								
Time 1 CV Exposure[+]	1.62	2.92	0.00–22.00	0.00–60.00	1.59	3.39	1.65	2.37
Time 1 School Engagement[+]	3.10	0.49	1.29–4.00	1.00–4.00	2.99[≠]	0.54	3.21[≠]	0.42
Time 1 Internalizing Symptoms[~]	14.42	8.55	1.33–22.67	0–64.00	8.33	3.95	8.30	5.34
Time 1 Externalizing Symptoms[~]	15.11	8.20	0.67–31.00	0–66.00	9.79	5.50	8.01	5.92
Time 1 Posttraumatic Stress Symptoms[+]	9.89	7.68	0.00–38.00	0–51.00	9.38	7.40	10.40	7.97
Time 2 Variables								
Time 2 CV Exposure[+]	2.29	(4.22)	0.00–34.00	0.00–60.00	2.58	(4.88)	2.01	(3.45)
Time 2 School Engagement[+]	3.04	(0.45)	1.71–4.00	1.00–4.00	2.98	(0.47)	3.09	(0.44)
Cumulative Academic GPA[+]	2.78[a]	(1.00)	0.12–4.01	0.00–5.00	2.71[b≠]	(0.82)	3.13[b≠]	(0.72)

[a] n = 96.

[b] n = 48.

[+] Youth report measure.

[~] Youth and parent report measure.

[^] Parent report measure.

[≠] Significant mean differences between boys and girls.

Table 2

Correlation Matrix of All Variables

	N = 118										
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11[a]**
1. Household Income	-	.37***	−.13	−.32***	.09	−.23*	−.27**	−.06	−.28**	.14	.31**
2. WISC-III Std Score		-	−.18	−.26**	.14	−.18	−.28**	−.16	−.31**	.16	.22*
3. T1 Parent-to-Child Aggression			-	.37***	−.08	.40***	.35***	.35***	.14	−.13	−.09
4. T1 CV Exposure				-	−.15	.25**	.39***	.27**	.47***	−.27**	−.40***
5. T1 School Engagement					-	−.09	−.24**	−.10	−.22*	.51***	.25*
6. T1 Internalizing Symptoms						-	.61***	.42***	.13	−.24**	−.11*
7. T1 Externalizing Symptoms							-	.26**	.31**	−.40***	−.28**
8. T1 Posttraumatic Stress Symptoms								-	−.02	−.14	−.03
9. T2 CV Exposure									-	−.20*	−.26*
10. T2 School Engagement										−	.41***
11. Cumulative GPA[a]											-

[a] n = 96

* p < .05.

** p < .01.

*** p < .001.

Table 3

Time 2 GPA Related to Time 1 Community Violence with School Engagement as a Mediator

	Time 2 GPA		
	ΔR^2	β	Indirect Effect 95% CI
Model 1	.25		-
Income		.19*	
Gender		−.27**	
Race (Caucasian/Non-Caucasian)		.32**	
Model 2	.09		-
T1 CV Exposure		−.32**	
Model 3	.07		−.04, −.001
T1 CV Exposure		−.26**	
T2 School Engagement		.27**	

Note. Model 1 – Covariates; Model 2 – Covariates and Time 1 Community Violence Exposure; Model 3 – Covariates, Time 1 Community Violence Exposure, and Time 2 School Engagement.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 4

Time 2 School Engagement Related to Time 1 Community Violence with Externalizing Symptoms (model 2a) and Internalizing Symptoms (model 2b) as Mediators

	Time 2 School Engagement		
	ΔR^2	β	Indirect Effect 95% CI
Model 1	.08		-
T1 CV Exposure		−.27**	
Model 2a	.09		−.04, −.01
T1 CV Exposure		−.14	
T1 Externalizing Symptoms		−.34***	
Model 2b	.03		−.02, −.0003
T1 CV Exposure		−.23*	
T1 Internalizing Symptoms		−.19*	

Note. Model 1 – Time 1 Community Violence Exposure; Model 2a – Time 1 Community Violence Exposure and Time 1 Externalizing Symptoms; Model 2b – Time 1 Community Violence Exposure and Time 1 Internalizing Symptoms.

* $p < .05$.

** $p < .01$.

*** $p < .001$.