

Aggressive and Prosocial Behavior: Community Violence, Cognitive, and Behavioral Predictors Among Urban African American Youth

Susan D. McMahon · Nathan R. Todd · Andrew Martinez · Crystal Coker · Ching-Fan Sheu · Jason Washburn · Seema Shah

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Abstract We use longitudinal multilevel modeling to test how exposure to community violence and cognitive and behavioral factors contribute to the development of aggressive and prosocial behaviors. Specifically, we examine predictors of self-, peer-, and teacher-reported aggressive and prosocial behavior among 266 urban, African American early adolescents. We examine lagged, within-person, between-person, and protective effects across 2 years. In general, results suggest that higher levels of violence exposure and aggressive beliefs are associated with more aggressive and less prosocial peer-reported behavior, whereas greater self-efficacy to resolve conflict peacefully is associated with less aggression across reporters and more teacher-reported prosocial behavior. Greater knowledge and violence prevention skills are associated with fewer aggressive and more prosocial teacher-reported behaviors. Results also suggest that greater self-efficacy and lower impulsivity have protective effects for youth reporting higher levels of exposure to community violence, in terms of teacher-reported aggressive behavior and peer-reported prosocial behavior. Differences among reporters and models are discussed, as well as implications for intervention.

Keywords African American youth · Community violence · Aggressive and prosocial behavior · Multiple reporters · Multilevel modeling

Introduction

Violence and aggression are major problems in the United States, especially for low-income urban, minority youth (e.g., Plybon and Klierer 2001). Youth aggression is linked with violence in adolescence (e.g., Kokko et al. 2006) and adulthood (e.g., Loeber et al. 2005); yet, less is understood about what factors contribute to changes in aggression across time. Further, there is much less research on positive outcomes, such as prosocial behavior, underscoring the need to better understand the strengths and resilience of at-risk youth (Belgrave et al. 2011). In this study we use longitudinal multilevel modeling to identify predictors of change within and between students across time. Understanding the development of aggressive and prosocial behaviors is important to inform culturally relevant interventions with at-risk youth and communities.

Social information processing models (e.g., Crick and Dodge 1994; Huesmann 1998) identify cognitive processes that influence behavior and have dominated the literature with regard to aggressive behavior. Huesmann (1998) proposes that normative beliefs about aggression and self-schemas, such as self-efficacy, guide the evaluation of scripts and ultimately aggressive behavior. Resilience theory can also provide a helpful framework, given its strengths-based approach to understanding developmental outcomes by examining healthy development of youth exposed to risks. Resilience theory proposes that a factor can function as risk or promotive (i.e., positive factors that help youth avoid the negative effects of risk) depending on the level and nature of the factor (Fergus and Zimmerman

S. D. McMahon (✉) · N. R. Todd · A. Martinez · C. Coker
DePaul University, 2219 N. Kenmore, Chicago, IL 60614, USA
e-mail: smcmahon@depaul.edu

C.-F. Sheu
National Cheng Kung University, Tainan, Taiwan

J. Washburn
Northwestern University Feinberg School of Medicine,
Chicago, IL, USA

S. Shah
Foundation Center, New York, NY, USA

2005). For example, while beliefs supporting aggression may serve as a risk factor for aggressive behavior, beliefs that suggest aggression is wrong may contribute to less aggressive and more prosocial behavior. It is important to understand the extent to which these factors relate to positive developmental outcomes such as prosocial behavior and how these factors protect, or attenuate, negative outcomes within the context of community violence exposure.

Huesmann (1998) acknowledges the importance of environment in shaping cognitive processes, noting that youth's interactions with the environment combine with personal factors to make certain schemas and scripts more available for activation. Similarly, while promotive factors can be seen as residing within an individual, resilience theory also recognizes that these factors can be external, highlighting the importance of ecological context (Fergus and Zimmerman 2005). An ecological perspective broadens a traditional individualistic approach and yields a more comprehensive understanding of behavior change (e.g., Bronfenbrenner 1979).

Empirical research supports ecological explanations suggesting that aggressive and prosocial behavior are associated with individual and contextual factors (Edwards and Bromfield 2009; Jennings et al. 2011; Molnar et al. 2008). Furthermore, early adolescence corresponds with the growth of social networks and the development of higher-order cognitive and moral reasoning, which are associated with prosocial behaviors (e.g., Estrada 1995). Evidence suggests that neighborhood characteristics (Edwards and Bromfield 2009), normative beliefs about aggression (Belgrave et al. 2011), and perceived confidence (Wentzel et al. 2007), contribute to prosocial behavior; however, more research is needed with diverse populations to build our understanding of important contributors and development across time. Moreover, there is a need for research that examines multiple risk and protective factors across ecological domains (Stoddard et al. 2012a) and over time in order to illuminate the dynamic nature of these factors and their relation to behavioral outcomes (Stoddard et al. 2012b).

Community Violence

Exposure to community violence is consistently associated with aggressive behaviors, and both situational and personal characteristics contribute to externalizing behaviors (e.g., Hardaway et al. 2012). In adapting to dangerous neighborhoods, youth may use aggression for protection, to bring order to unpredictable environments (e.g., Latzman and Swisher 2005), and/or view aggression as efficacious for producing desirable outcomes (e.g., Burks et al. 1999). Further, African American youth are exposed to higher

rates of violence than other ethnic groups (Selner-O'Hagan et al. 1998). Community factors may be particularly salient for urban, African American early adolescents who spend time in settings with norms that sometimes promote aggression (Brezina et al. 2004).

There are few studies examining the relation between violence exposure and prosocial behavior. Van der Merwe and Dawes (2000) found that despite high levels of exposure to community violence, increased aggressive behavior and deficits in self-regulation, youth continued to display relatively high levels of prosocial outcomes. In contrast, Mejia et al. (2006) found an inverse relation between exposure to community violence and prosocial behavior. Given the dearth of research and mixed findings on connections between exposure to community violence and prosocial behavior, additional research is needed.

When a specific community with high violence is examined, community-level indicators are consistent across individuals; however, youths' experiences may vary considerably in the frequency and severity of exposure to violence. In this situation, self-report of violence exposure is a strong way to assess the ecology of their environment (Kuo et al. 2000), because neighborhood indicators will not shed light on their different levels of exposure to community violence. Further, student behaviors may differ across settings, so multiple perspectives (i.e., self, peer, teacher) of aggressive and prosocial behaviors provide a more comprehensive picture of individual behavior across settings (Benhorin and McMahon 2008).

Cognitive and Behavioral Factors

Although many violence prevention programs teach knowledge and skills for solving problems peacefully and impulse control, there is little empirical research on whether these skills predict more prosocial and less aggressive behavior. Further, cognitive models have been frequently used (e.g., Huesmann 1998) with fewer models integrating behavioral components. The current study extends this literature by examining the contribution of cognitive (knowledge and skills, normative beliefs about aggression, and self-efficacy) and behavioral (impulsivity) factors in predicting aggressive and prosocial behaviors.

One important cognitive dimension predicting aggressive behavior is normative beliefs about aggression. Aggressive children tend to believe that aggression is a legitimate and acceptable behavior that will lead to increased status and that negative consequences are minimal (e.g., Slaby and Guerra 1988). These beliefs normalize aggression, serving as an information filter to increase the likelihood of aggressive behavior (Huesmann 1998). Self-efficacy also contributes to the activation of schemas that support aggressive or prosocial behavior (Huesmann 1998).

Aggressive youth have higher self-efficacy for performing aggressive behaviors (e.g., Quiggle et al. 1992) and lower self-efficacy for withdrawing from provocative situations than their peers (e.g., Crick and Dodge 1994). Bennett and Fraser (2000) suggest that poor, urban, African American children may be more vulnerable to aggressive behavior because they have less confidence in their abilities to accomplish goals as a result of chronic negative life experiences. Clearly, normative beliefs and self-efficacy are important when predicting aggressive behavior.

Research also has shown that self-efficacy for prosocial behavior predicts actual youth prosocial behaviors. For example, in examining helping behavior, Midlarsky and Hannah (1985) found that perceived competence was significantly related to whether children helped someone in need. Similarly, Belgrave et al. (2011) found that well-adjusted African American youth engaged in more prosocial behavior and had higher levels of self-efficacy than poorly adjusted youth, highlighting the importance of self-efficacy.

Behaviorally, impulsivity also contributes to aggressive behavior (e.g., Martino et al. 2008). Impulsive youth may be less likely than non-impulsive youth to consider unique details of a situation or long-term consequences of their actions, thus relying on their default cognitive processing patterns (Fite et al. 2008). While less research examines the relation between impulsivity and prosocial behavior, there is some evidence for a direct relationship between these two constructs. For example, Buckner et al. (2009) found a positive association between self-regulation and indicators of adaptive functioning, including social competence. Further research is warranted to better understand the role of impulsivity in predicting both aggressive and prosocial behavior among low-income, urban, African American youth.

Current Research

The current study examines how exposure to community violence, and cognitive and behavioral factors predict self-, teacher-, and peer-reported aggressive and prosocial behavior across time. Based on social information processing theory, resilience theory, and ecological community-based research, we hypothesize that greater exposure to community violence, beliefs supporting aggression, and impulsivity will predict more aggression and less prosocial behavior, whereas greater knowledge and skills and self-efficacy to use nonaggressive strategies will be promotive, predicting less aggression and more prosocial behavior. To examine these hypotheses we test lagged, within-person, and between-person models to assess these patterns across time. Finally, we examine which variables may serve as protective factors that attenuate associations between exposure to community violence and aggression.

We examine lagged models to prospectively test how community and individual factors predict aggressive and prosocial behavior at future time points. Although not causal, examining lagged models addresses questions such as, “Does community violence exposure at a certain time point predict self-reported aggression at the next time point?” We explore within- and between-person models to test intraindividual change and interindividual differences (Curran and Bauer 2011). Within-person models address questions such as, “During times when students have increased exposure to community violence (relative to their average exposure during the two years of the study), are they predicted to increase aggression beyond what would be predicted by their own developmental trajectory?” Between-person models examine associations of interindividual differences to address questions such as, “Is there an association between higher average levels of exposure to violence across the study and average levels of self-reported aggression across the study?” Finally, we test protective factors by examining interactions between each variable and community violence exposure.

Method

Community

Students from three elementary schools in one Chicago public housing development community participated in this study. All three schools received a variety of school-based mental health services from the local Community Mental Health Center, and Schools A and B were especially concerned with violence, so assessments and services that addressed violence were provided to better understand the problems (McMahon and Washburn 2003). This impoverished community hosts several public housing buildings, with only 7 % of residents employed and 77 % earning less than \$8,000 per year (Chicago Housing Authority 2002). Violent criminal activity is very high in this community in comparison to the surrounding district (Chicago Police Department 2002).

Participants

There were 266 African American students who completed all or part of each of the four waves of data collection: wave 1 ($n = 226$), wave 2 ($n = 197$), wave 3 ($n = 139$), and wave 4 ($n = 112$). There were 59 students with 1 data point, 80 students with 2 data points, 53 students with 3 data points, and 74 students with all 4 data points. Sixty-one percent of the participants were female. Participants were in 5th through 8th grade, ranged in age from 11 to 14, and had a modal age of 13. There were four participating classes each from two schools (Schools A and B) and five

classes from the third school (School C). Sixty-nine students (26 %) were from School A, 76 from School B (29 %), and 121 from School C (45 %).

Measures

Measures were administered at all schools, except for the Teacher Checklist which was completed by teachers in Schools A and B but not C due to agreements with the schools. Therefore, analyses with self- and peer-report data contain students from all three schools whereas analyses with teacher-report data include teacher-reports from Schools A and B.

Demographic Variables

Demographic variables included dummy coded gender (boys = 0, girls = 1), dummy coded grade in school at the start of the study (5th and 6th graders = 0, 7th and 8th graders = 1), and the interaction between time and gender to account for different trajectories based on gender. Dummy coded variables were also used to account for school membership. Because data for all three schools were present for self- and peer-report data, two dummy coded variables were used to account for the three schools with School C serving as the reference school. Because data for two schools were present for teacher-report data one dummy coded variable was used with School B serving as the reference school.

Exposure to Community Violence

The Children's Exposure to Violence Scale (Richters and Martinez 1990), a 12-item scale, measures the amount of violence that children have personally witnessed. Items such as "I have seen somebody get shot" are rated on a four-point scale ranging from 0 (*Never*) to 3 (*Many Times*). Validity evidence has shown that self-report of violence exposure provides an accurate indication of the amount of violence youth are exposed to (White et al. 1998). Internal consistency was 0.84 with a sample of African-American youth (Richters and Martinez 1990), and in the current study the data were normally distributed with internal consistency estimates ranging from 0.76 to 0.79 across waves.

Knowledge and Skills

The Student Knowledge and Skill Survey was used to assess knowledge and skills related to interpersonal violence, empathy, anger management, acting on impulse, problem solving, and applying skills (Committee for Children 1997). A sample item is "Which of the following is the best example of *active listening*?" This survey includes 15 multiple choice

items scored as either 1 (*Correct*) or 0 (*Incorrect*). Skipped items were considered incorrect. Given this is a knowledge survey, internal consistency was not calculated.

Beliefs About Aggression

The 20-item Normative Beliefs about Aggression Scale (Huesmann and Guerra 1997) assesses beliefs about the extent to which physical and verbal aggression are acceptable behaviors in general and specific situations on a 4-point scale. A sample item is "Suppose a boy says something bad to a girl. Do you think it's wrong for the girl to hit him?" Each item is then rated on a four point scale (1 = *It's Really Wrong*, 2 = *It's Sort of Wrong*, 3 = *It's Sort of OK*, 4 = *It's Perfectly OK*). Higher scores reflect higher levels of aggressive beliefs. The scale evidences good reliability and validity as it correlates with aggressive behavior, has an internal consistency estimate of 0.86, and a one-year stability estimate of 0.31 (Huesmann and Guerra 1997). In the current study internal consistency ranged from 0.84 to 0.89 across waves.

Self-Efficacy

This 5-item measure assesses an individual's confidence in his or her ability to calm down, stay out of fights, and to resolve conflicts nonaggressively (Bosworth and Espelage 1995). Students rate their confidence from 1 (*Not at all Confident*) to 5 (*Very Confident*) on items such as "talk out a disagreement." The measure has a reported internal consistency of 0.85 (Bosworth and Espelage 1995) and is negatively correlated with the Bullying Scale ($r = -0.55$; Bosworth et al. 1999). In the current study internal consistency ranged from 0.65 to 0.75 across waves.

Impulsivity

The 4-item Impulsivity Scale (Bosworth and Espelage 1995) measures the frequency of impulsive behaviors, including lack of self-control, difficulty sitting still, and trouble finishing tasks. Items such as "I do things without thinking" are rated from 1 (*Never*) to 5 (*Always*). The self-report impulsivity measure demonstrated adequate internal consistency in previous research (0.60–0.62; Bosworth and Espelage 1995) and is positively correlated with the Bullying Scale ($r = 0.33$; Bosworth et al. 1999). In the current research, internal consistency estimates ranged from 0.56 to 0.62 across waves.

Aggressive Behavior: Self-Report

The Aggressive Behavior Scale is comprised of 11 items that assess the frequency of common aggressive behaviors,

ranging from 0 to 6 times during the past 7 days (Orpinas and Frankowski 2001). This scale demonstrates good reliability and construct validity with urban, middle school populations, and it correlates with fighting-related injuries, teacher-rated aggression, the number of days students carried weapons and drank alcohol, and parental monitoring and grades (Orpinas and Frankowski 2001). The scale demonstrates an internal consistency estimate of 0.87 in previous research (Orpinas and Frankowski 2001), and estimates ranged from 0.87 to 0.89 across waves in the current study.

Aggressive and Prosocial Behavior: Peer-Report

Participants completed Peer Ratings of their classmates' aggressive and prosocial behavior. For the Aggressive subscale, students rated each classmate using the following question, "Does NAME OF CHILD act out when she gets mad? For example, does she hit, yell, do mean things?" For the Prosocial subscale, students rated classmates on "Does NAME OF CHILD get along with others? For example, does she share, help others, do nice things?" Ratings were on a 5-point Likert scale, ranging from 1 (*Never*) to 5 (*All of the Time*). Each subscale of the Peer Rating measure consisted of the average rating (based on all children in the class) for each child. This scale was created by the authors of this study based on recommendations in the literature (Williams and Gilmour 1994).

Aggressive and Prosocial Behavior: Teacher-Report

Teachers completed the Teacher Checklist, a 13-item scale composed of two subscales, on each child in his/her class (Coie et al. 1990). Responses ranged from 1 (*Never True of this Child*) to 7 (*Almost Always True of this Child*). The first subscale, Aggression (eight items), assesses proactive (purposeful) and reactive (automatic and emotional resulting from loss of control) aggression. The second subscale, Prosocial Behavior (five items) assesses behaviors that facilitate positive interpersonal relationships. Previous research has demonstrated adequate reliability and validity, with internal consistency ranging from 0.90 to 0.91 for the Aggression and 0.82 for Prosocial behavior scales (Coie et al. 1990). Internal consistency estimates in the current study ranged from 0.93 to 0.97 for Aggression and 0.78 to 0.82 for the Prosocial Scale across waves.

Procedures

Following school and university IRB approval, researchers participated in school events (e.g., report card pick-up, open houses) and sent parent letters to provide information about the study and to provide opportunities for them to

decline participation at each of the four time points. Next, student assent was obtained at each time point and measures were distributed to participants in the fall and spring of each year for two years for a total of four waves. Survey administration (in the classroom during school hours) took approximately one hour at each wave. Pairs of graduate students, with male–female partners and at least one student of color, administered the surveys. Surveys were read aloud except when they were particularly sensitive (i.e., exposure to violence, peer rating) to account for disparate reading abilities. All students received a snack regardless of participation.

Analysis

Multilevel Modeling

We used multilevel modeling (MLM) to test our research question of how exposure to violence, knowledge and skills, beliefs supporting aggression, self-efficacy, and impulsivity predict self-, teacher-, and peer-reports of aggression and prosocial behavior. MLM enables the analysis of nested data where data are at different levels of analysis. In longitudinal MLM, Level 1 refers to measurement occasion and includes the indicator of time, in this case the four assessment periods, as well as time-variant predictors (e.g., self-reported exposure to community violence at each assessment period). Thus, Level 1 factors are nested within each individual (e.g., there are multiple assessments for each individual). The following is the linear multilevel model predicting self-reported aggression for Level 1:

$$\text{Self-Report Aggression}_{ij} = \beta_{0i} + \beta_{1i}(\text{Time}_{ij}) + e_{ij}$$

In this model, the measurement occasions (subscript j) are used to fit a trajectory line for each student (subscript i). The trajectory across the study is determined by the student's initial level of self-reported aggression (the β_{0i} intercept at Time = 0, which in this study refers to the first measurement occasion) and rate of change in self-reported aggression over time (the β_{1i} slope). These fixed effects contribute to the predicted trajectory for each student, and the e_{ij} coefficient is the error variance of these predictions.

Level 2 includes characteristics at the individual level that are not time-variant (e.g., gender). Level 2 of this model shows the *average* trajectory across all students:

$$\beta_{0i} = \gamma_{00} + U_{0i}$$

$$\beta_{1i} = \gamma_{10} + U_{1i}$$

The first equation shows that each student's initial level of self-reported aggression (i.e., the intercept β_{0i}) can be predicted by the fixed effect γ_{00} (average self-reported

aggression across all students at study start) and a random effect U_{0i} (student variability around this initial average). The second equation shows that the rate of change in each student's level of self-reported aggression (i.e., the slope β_{1i}) can be predicted by the fixed effect γ_{10} (the average rate of change across all students) and a random effect U_{1i} (the variation in the rate of change across students). Level 1 and 2 models are tested simultaneously and we present them separately only for conceptual purposes. We add other time-variant predictors at Level 1 (e.g., exposure to community violence) and time-invariant predictors at Level 2 (i.e., gender, grade when started study, and school) to test specific study hypotheses. Although students are nested in one of three schools, there are not enough schools to create a third level (Raudenbush and Bryk 2002); thus, school membership is dummy coded and treated as a fixed-effect to account for school membership.

Lagged Effects

Building on this framework, we used MLM procedures, outlined by Singer and Willett (2003), to examine a lagged model to test if independent variables observed at a given point in time predicted aggressive and prosocial behaviors at the next time point. We assessed the effects of community and individual factors on aggressive and prosocial behavior at the next time point, above and beyond what would be expected given demographics (i.e., gender, school grade at study start, school) and developmental trajectory (i.e., time and the interaction between time and gender). We examined five lagged models, one for each dependent variable (i.e., self-, peer-, and teacher-reported aggression; peer- and teacher-reported prosocial behavior).

Within- and Between-Person Effects

To examine intraindividual change (i.e., within-person) and interindividual differences (i.e., between-person) we tested multilevel models that separated within- and between-person effects for each independent variable at Level 1 (i.e., exposure to violence, knowledge and skills, beliefs supporting aggression, self-efficacy, and impulsivity) while controlling for the same demographics and time variables described above. For within-person variables, we subtracted the student's score at each time point from the student's average across all measurement occasions to show deviation from his/her own mean at each occasion. At Level 1, the within-person approach assesses the extent to which higher or lower (than their own average) rates of community and individual factors predict higher or lower levels of aggressive and prosocial behaviors than expected based on development.

To predict variability *across* individuals for between-effects, we included students' exposure to violence, knowledge and skills, beliefs supporting aggression, self-efficacy, and impulsivity at Level 2 averaged across all measurement occasions (e.g., to indicate which students tended to have higher or lower levels on each variable across the entire study). This approach to separating within- and between-person effects is recommended by many MLM experts (e.g., Hoffman and Stawski 2009; Raudenbush and Bryk 2002; Singer and Willett 2003) and has been used in previous longitudinal research with adolescents (e.g., Henry et al. 2009). We included the same controls as the lagged models and tested within- and between-person models for the same five dependent variables.

Protective Factors

Within a resilience framework, promotive factors are considered protective if they moderate or reduce the negative effect of exposure to risk (Fergus and Zimmerman 2005; Stoddard et al. 2012a, b). For example, consider the hypothesized positive association between exposure to violence and self-reported aggression. Self-efficacy is a protective factor if the association between exposure to violence and aggression is present for students with low self-efficacy but weaker or absent for students with high self-efficacy. Protective factors have typically been tested by examining interactions (Fergus and Zimmerman 2005). Thus, to test protective factors we formed an interaction term between each independent variable and exposure to community violence at each time point. Using multilevel modeling, we then tested if the interaction was significant. If a significant interaction was present, we then split the sample into high and low groups on the protective factor and examined associations between exposure to community violence and aggressive and prosocial behaviors separately for high and low groups.

Missing Data

As is common in longitudinal data analysis, all participants did not complete all four waves. To assess for patterns in the missing data, we conducted a one-way analysis of variance (i.e., ANOVA) for each study variable (taking the participant's average scores on each variable across all waves completed) to assess for significant differences between those who completed one, two, three, or all waves of data. We found a significant difference for peer-reported prosocial behavior, $F(3, 254) = 3.05, p < .05$, and for self-reported knowledge and skills, $F(3, 260) = 5.20, p < .05$. For these two significant ANOVAs we then used a Scheffé test to control for Type I error while examining pair-wise mean

differences between each completion group (Toothaker 1992). For prosocial behavior, follow-up Scheffé tests revealed no significant differences between those who completed different numbers of waves. For knowledge and skills, Scheffé tests revealed that those students who completed all waves had more knowledge and skills than those who only completed one wave ($p = .003$). It is possible that students who report more knowledge and skills are more likely to consistently attend school, and hence were more likely to take the surveys at all four timepoints; whereas, youth who completed only one survey may be more likely to be truant or transient and unavailable for survey completion. ANOVAs for other variables were not significant. There were no gender differences in wave completion, $\chi_{(3)} = 4.28$, $p = .23$. Of course, it is possible that there are unobserved differences between students who completed more versus fewer data collections. One advantage of MLM over other analytic strategies is that it allows and compensates for missing data and variability in the number of waves of data for individuals (Singer and Willett 2003). As such, participants with missing data are not dropped completely from the analyses. The data from all participants contributes to the estimation of the fixed effects, while the data from participants with less missing data are weighted more heavily in the estimation of random effects. Following the recommendations of methodologists (Schafer and Graham 2002; Singer and Willett 2003), we used maximum likelihood estimation implemented with PROC MIXED in SAS to handle missing data. Finally, for teacher-reported prosocial behaviors we encountered negative variance estimates for random effects, a common challenge with missing data (Singer and Willett 2003). To resolve this issue we followed recommendations to fix random effects for all time variables to zero, which has no impact on the estimates of the fixed effects (Singer and Willett 2003).

Results

Descriptive statistics are presented in Table 1. Intercorrelations among variables at wave one, including intercorrelations among self-, peer-, and teacher-reports, are given in Table 2. Prior to testing the longitudinal models, we calculated the intraclass correlation coefficient (ICC) by testing fully unconditional means models where no independent variables were included. The ICC indicates the proportion of total variation in aggressive (self-, peer-, or teacher-report) or prosocial behavior (peer- or teacher-report) that is present between participants. The ICC for aggressive behavior self-report (0.54) indicated that there was substantial variability (54 %) in self-reported aggression between participants, while also indicating substantial variability in self-reported aggression within individuals across assessment periods. The ICCs for peer-reported aggression (0.67), prosocial behavior (0.53), teacher-reported aggression (0.56), and prosocial behavior (0.33) also showed substantial variability between participants and across time. Lagged models (Table 3), within- and between-person models (Table 4), and protective factors were then tested.

Prospectively Predicting Aggressive and Prosocial Behavior

As reported in Table 3, significant and positive lagged effects emerged for exposure to violence in predicting self- and peer-reported aggression. This indicates that lower exposure to community violence at one point in time predicted lower self- and peer-reported aggression at the next time point. Similarly, stronger beliefs supporting aggression predicted peer-reported aggression at the next time point. Contrary to expectation, greater self-efficacy predicted higher levels of teacher-reported aggression at the

Table 1 Descriptive statistics

Scale	Wave 1			Wave 2			Wave 3			Wave 4			ICC
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	
Self-report aggression	2.03	1.45	225	1.95	1.51	190	2.01	1.47	138	1.97	1.49	112	0.54
Peer-report aggression	2.74	0.77	247	2.74	0.73	239	2.68	0.66	157	2.76	0.72	105	0.67
Teacher-report aggression	2.83	1.24	98	2.25	1.12	125	2.24	1.57	75	3.06	1.44	56	0.56
Peer-report prosocial	3.30	0.47	247	3.30	0.52	239	3.36	0.51	157	3.36	0.53	105	0.53
Teacher-report prosocial	3.85	0.78	98	4.17	1.10	125	5.16	1.23	75	4.19	1.02	56	0.33
Exposure to violence	2.37	0.52	220	2.36	0.53	181	2.44	0.56	136	2.48	0.55	73	–
Knowledge and skills	4.61	1.89	222	5.05	2.04	191	5.35	2.18	137	5.27	1.92	104	–
Aggressive beliefs	2.09	0.55	223	2.04	0.46	191	2.09	0.54	138	2.10	0.47	109	–
Self-efficacy	3.79	0.86	222	4.01	0.80	185	3.89	0.85	135	3.97	0.78	112	–
Impulsivity	2.76	0.95	219	2.57	0.85	186	2.64	0.93	135	2.51	0.95	109	–

ICC intraclass correlations

Table 2 Intercorrelations for predictor variables at wave 1

	Agg-S	Agg-P	Agg-T	Pro-P	Pro-T	Viol	Know	Belief	SE	Impuls
Aggression self-report (Agg-S)	–	0.28**	0.22*	–0.14*	–0.11	0.44**	–0.09	0.33**	–0.43**	0.25**
Aggression peer-report (Agg-P)		–	0.52**	–0.42**	–0.09	0.17*	0.04	0.17*	–0.18*	0.20**
Aggression teacher-report (Agg-T)			–	–0.16	–0.22*	0.20	–0.05	0.09	–0.06	0.23*
Prosocial behavior peer-report (Pro-P)				–	0.29**	–0.20**	0.02	–0.11	–0.02	–0.01
Prosocial behavior teacher-report (Pro-T)					–	–0.29**	0.05	0.12	0.08	0.08
Exposure to violence (Viol)						–	0.12	0.16*	–0.24*	0.07
Knowledge and skills (Know)							–	–0.10	0.02	–0.10
Aggressive beliefs (Belief)								–	–0.31**	0.03
Self-efficacy (SE)									–	–0.19**
Impulsivity (Impuls)										–

* $p < .05$, ** $p < .01$

next time point. Knowledge and skills and beliefs about aggression also predicted prosocial behaviors such that greater knowledge and skills predicted higher levels of teacher-reported prosocial behavior, and stronger beliefs supporting aggression predicted lower peer-reported prosocial behavior at the next time point.

Intraindividual Change (Within-Person) and Interindividual Differences (Between-Person)

Aggressive Behavior

As reported in Table 4, significant within- and between-person effects emerged for aggressive behavior. We found a significant within-person effect for exposure to community violence in predicting self-reported aggression. During assessment periods when students reported more exposure to violence than their personal average, they reported higher levels of aggression. Moreover, there was a between-person effect for exposure to community violence as a predictor of self-, peer-, and teacher-reported aggression. Students who reported more exposure to community violence than others had higher average levels of self-, peer-, and teacher-reported aggression. There was also a significant between-person effect for knowledge and skills as a predictor of teacher-reported aggression. Students who reported more knowledge and skills than others had lower average levels of teacher-reported aggression. We found a significant within-person effect for beliefs supporting aggression in predicting self-reported aggression. During assessment periods when students reported more supportive beliefs than their average, they reported higher levels of aggression. Moreover, there were between-person effects for aggressive beliefs as a predictor of self- and peer-reported aggression. Students who reported more aggressive beliefs than others had higher average levels of self- and peer-reported aggression.

We found a significant within-person effect for self-efficacy to solve problems without aggression in predicting self-, peer-, and teacher-reported aggression. During assessment periods when students reported greater self-efficacy than their personal average, students, peers, and teachers reported lower levels of aggression. Moreover, there was a between-person effect for self-efficacy such that students who reported greater self-efficacy than others had lower average levels of self-reported aggression. In addition, we found a significant within-person effect for impulsivity in predicting self-reported aggression. During assessment periods when students reported greater impulsivity than their personal average, they reported higher levels of aggression. Moreover, there were between-person effects for impulsivity as a predictor of self- and teacher-reported aggression. Students who reported greater impulsivity than others had higher average levels of self- and teacher-reported aggression.

Prosocial Behavior

We found significant between-person effects for exposure to community violence as a predictor of peer-reported prosocial behavior (Table 4). Students who reported more exposure to community violence had lower average levels of peer-reported prosocial behavior. In addition, there were between-person effects for knowledge and skills in relation to both peer-reported and teacher-reported prosocial behavior, in that more knowledge and skills regarding interpersonal violence, anger management, and problem solving was associated with higher levels of prosocial behavior. Finally, beliefs about aggression and self-efficacy were significant predictors of teacher-reported prosocial behavior (Table 4). Students who reported more aggressive beliefs and greater self-efficacy for nonviolent strategies to solve problems than others had higher average levels of teacher-reported prosocial behavior.

Table 3 Prospective lagged models predicting aggression and prosocial behaviors

	Aggressive behaviors			Prosocial behaviors		
	Self-report	Peer-report	Teacher-report	Peer-report	Teacher-report ^c	Teacher-report ^c
	<i>b</i> (SE) /95 % CI]	<i>b</i> (SE) /95 % CI]	<i>b</i> (SE) /95 % CI]	<i>b</i> (SE) /95 % CI]	<i>b</i> (SE) /95 % CI]	<i>b</i> (SE) /95 % CI]
Intercept	-0.40 (0.72) [-1.83, 1.03]	2.12* (0.30) [1.53, 2.70]	0.84 (0.65) [-0.45, 2.13]	3.16* (0.24) [2.68, 3.64]	3.21* (0.69) [1.85, 4.57]	
Time	-0.04 (0.12) [-0.28, 0.21]	-0.06 (0.06) [-0.17, 0.06]	0.06 (0.16) [-0.27, 0.38]	0.09* (0.04) [0.01, 0.18]	0.16 (0.11) [-0.06, 0.39]	
Gender ^a	-0.21 (0.28) [-0.76, 0.34]	-0.08 (0.13) [-0.34, 0.17]	-0.28 (0.32) [-0.91, 0.35]	0.43* (0.09) [0.24, 0.61]	-0.15 (0.25) [-0.64, 0.34]	
Time* Gender ^a	0.11 (0.14) [-0.17, 0.39]	0.07 (0.07) [-0.07, 0.20]	-0.20 (0.19) [-0.57, 0.18]	-0.05 (0.05) [-0.14, 0.04]	0.22 (0.13) [-0.05, 0.48]	
School A	0.38 (0.23) [-0.08, 0.83]	0.10 (0.11) [-0.11, 0.32]	0.81* (0.20) [0.41, 1.20]	-0.19* (0.08) [-0.34, -0.04]	-0.72* (0.16) [-1.03, -0.40]	
School B	0.47* (0.23) [0.02, 0.93]	0.05 (0.11) [-0.16, 0.26]	— ^b	-0.17* (0.08) [-0.32, -0.02]	— ^b	
Grade ^a	0.01 (0.19) [-0.37, 0.39]	-0.22* (0.09) [-0.40, -0.04]	-0.00 (0.21) [-0.41, 0.41]	0.03 (0.06) [-0.10, 0.16]	0.30 (0.17) [-0.03, 0.63]	
Exposure to violence ^d	0.72* (0.15) [0.42, 1.01]	0.16* (0.06) [0.04, 0.29]	0.23 (0.13) [-0.03, 0.49]	-0.03 (0.05) [-0.12, 0.07]	-0.03 (0.13) [-0.29, 0.23]	
Knowledge and Skills ^d	0.06 (0.03) [-0.00, 0.13]	0.01 (0.01) [-0.02, 0.03]	0.02 (0.03) [-0.04, 0.09]	0.02 (0.01) [-0.01, 0.04]	0.11* (0.03) [0.04, 0.17]	
Aggression beliefs ^d	0.09 (0.14) [-0.19, 0.38]	0.14* (0.06) [0.02, 0.26]	0.08 (0.11) [-0.14, 0.31]	-0.12* (0.05) [-0.22, -0.03]	-0.03 (0.12) [-0.27, 0.22]	
Self-efficacy ^d	-0.08 (0.09) [-0.26, 0.10]	-0.03 (0.03) [-0.10, 0.04]	0.15* (0.07) [0.01, 0.29]	0.02 (0.03) [-0.04, 0.07]	0.12 (0.08) [-0.04, 0.29]	
Impulsivity ^d	0.08 (0.08) [-0.07, 0.24]	0.05 (0.03) [-0.01, 0.12]	0.02 (0.07) [-0.13, 0.16]	0.03 (0.03) [-0.02, 0.08]	0.08 (0.08) [-0.08, 0.23]	

* $p < .05$. ^a Variable is dummy coded. ^b Indicates school C did not provide data. Thus, school B is the reference school in these models. ^c The random effect for time is fixed. ^d Lagged effects model. Random effects and fit indices available from authors upon request

Protective Factors: Self-Efficacy and Impulsivity

There was a significant interaction between exposure to community violence and self-efficacy in predicting teacher-reported aggressive behavior ($b = -0.43, SE = 0.14, p < .05, 95 \% CI [-0.70, -0.16]$). Follow-up analyses showed that for those low in self-efficacy (averaged across all time points), exposure to community violence at a certain point in time significantly predicted teacher’s report of aggression at that same time point ($b = 0.44, SE = 0.20, p < .05, 95 \% CI [0.05, 0.83]$) while controlling for other predictors. For those high in self-efficacy, exposure to community violence at a certain point in time did not significantly predict teacher’s report of aggression at that same time point ($b = 0.11, SE = 0.18, p > .05, 95 \% CI [-0.25, 0.47]$). Thus, higher self-efficacy attenuated the association between exposure to community violence and teacher-reported aggressive behavior.

There was a significant interaction between exposure to community violence and impulsivity in predicting peer-reported prosocial behavior ($b = -0.10, SE = 0.04, p < .05, 95 \% CI [-0.18, -0.01]$). Follow-up analyses showed that for those high in impulsivity (averaged across all time points), exposure to community violence at a certain point in time predicted peer-report of prosocial behavior at that same time point ($b = -0.12, SE = 0.06, p < .05, 95 \% CI [-0.24, -0.00]$) while controlling for other predictors. For those low in impulsivity, exposure to community violence at a certain point in time did not significantly predict peer-reported prosocial behavior at that same time point ($b = 0.03, SE = 0.06, p > .05, 95 \% CI [-0.09, 0.15]$). Thus, lower impulsivity attenuated the association between exposure to community violence and peer-reported prosocial behavior. All other interactions between exposure to community violence and other predictors were not significant ($ps > .05$).

Discussion

We used multilevel modeling to test how exposure to community violence, cognitive, and behavioral factors predict aggressive and prosocial behaviors across time and what variables serve as protective factors against exposure to community violence. Results suggest that exposure to community violence, violence prevention knowledge and skills, normative beliefs about aggression, self-efficacy, and impulsivity play important roles in predicting aggressive and prosocial behaviors. Further, there is both consistency and variability in the effects, depending on model type and informant. Also, high self-efficacy and low impulsivity protected youth from the negative effects of community violence exposure. These results show how

Table 4 Within/between models predicting aggression and prosocial behaviors

	Aggressive behaviors			Prosocial behaviors		
	Self-report	Peer-report	Teacher-report	Peer-report	Teacher-report	Teacher-report ^f
	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]	<i>b</i> (<i>SE</i>) [95 % <i>CI</i>]
Intercept	0.08 (0.85) [-1.61, 1.76]	2.05* (0.52) [1.03, 3.07]	-0.85 (1.28) [-3.38, 1.68]	3.07* (0.33) [2.42, 3.73]	1.53 (1.07) [-0.59, 3.65]	
Time	0.05 (0.08) [-0.10, 0.21]	-0.08 (0.05) [-0.17, 0.02]	0.09 (0.13) [-0.17, 0.35]	0.06* (0.03) [0.00, 0.13]	0.22* (0.10) [0.03, 0.41]	
Gender ^a	0.06 (0.16) [-0.26, 0.37]	-0.11 (0.10) [-0.31, 0.08]	-0.17 (0.25) [-0.67, 0.33]	0.32* (0.06) [0.19, 0.44]	-0.31 (0.21) [-0.74, 0.11]	
Time*Gender ^a	-0.03 (0.09) [-0.22, 0.16]	0.09 (0.06) [-0.03, 0.20]	-0.21 (0.16) [-0.52, 0.10]	0.01 (0.04) [-0.06, 0.09]	0.22 (0.12) [-0.01, 0.45]	
School A	0.08 (0.17) [-0.26, 0.41]	0.06 (0.10) [-0.14, 0.26]	0.82* (0.18) [0.47, 1.18]	-0.12 (0.07) [-0.25, 0.01]	-0.72* (0.15) [-1.02, -0.43]	
School B	0.13 (0.17) [-0.20, 0.46]	-0.06 (0.10) [-0.26, 0.14]	— ^b	-0.06 (0.07) [-0.19, 0.07]	— ^b	
Grade start ^a	0.42* (0.14) [0.14, 0.69]	-0.24* (0.08) [-0.41, -0.08]	-0.01 (0.19) [-0.39, 0.37]	0.03 (0.05) [-0.08, 0.13]	0.18 (0.16) [-0.14, 0.50]	
Exposure to violence ^d	0.53* (0.16) [0.21, 0.84]	-0.02 (0.08) [-0.18, 0.14]	0.03 (0.18) [-0.33, 0.40]	0.05 (0.06) [-0.08, 0.17]	-0.19 (0.19) [-0.56, 0.19]	
Exposure to violence ^e	0.89* (0.15) [0.59, 1.20]	0.22* (0.09) [0.04, 0.41]	0.79* (0.21) [0.38, 1.20]	-0.14* (0.06) [-0.26, -0.02]	-0.17 (0.17) [-0.51, 0.17]	
Knowledge and Skills ^d	-0.01 (0.03) [-0.07, 0.05]	0.01 (0.02) [-0.02, 0.04]	-0.02 (0.04) [-0.09, 0.05]	-0.01 (0.01) [-0.03, 0.02]	0.06 (0.04) [-0.02, 0.14]	
Knowledge and Skills ^e	-0.03 (0.04) [-0.11, 0.05]	-0.02 (0.02) [-0.07, 0.03]	-0.12* (0.06) [-0.23, -0.00]	0.06* (0.02) [0.03, 0.09]	0.16* (0.05) [0.06, 0.25]	
Aggressive beliefs ^d	0.41* (0.14) [0.13, 0.69]	-0.02 (0.07) [-0.15, 0.12]	0.08 (0.15) [-0.22, 0.38]	-0.02 (0.06) [-0.13, 0.09]	0.04 (0.17) [-0.30, 0.37]	
Aggressive beliefs ^e	0.50* (0.17) [0.16, 0.84]	0.30* (0.11) [0.08, 0.52]	0.43 (0.23) [-0.02, 0.88]	-0.06 (0.07) [-0.20, 0.08]	0.43* (0.19) [0.05, 0.81]	
Self-efficacy ^d	-0.17* (0.08) [-0.34, -0.01]	-0.09* (0.04) [-0.17, -0.02]	-0.28* (0.09) [-0.45, -0.11]	-0.02 (0.03) [-0.09, 0.04]	0.11 (0.10) [-0.08, 0.30]	
Self-efficacy ^e	-0.53* (0.11) [-0.75, -0.31]	-0.11 (0.07) [-0.25, 0.02]	-0.01 (0.17) [-0.34, 0.33]	0.05 (0.04) [-0.04, 0.14]	0.39* (0.14) [0.11, 0.67]	
Impulsivity ^d	0.17* (0.08) [0.01, 0.32]	0.07 (0.04) [-0.01, 0.15]	0.07 (0.09) [-0.12, 0.25]	0.01 (0.03) [-0.05, 0.07]	0.07 (0.10) [-0.13, 0.27]	
Impulsivity ^e	0.26* (0.09) [0.08, 0.44]	0.08 (0.05) [-0.03, 0.19]	0.29* (0.13) [0.03, 0.55]	0.00 (0.04) [-0.07, 0.07]	0.06 (0.11) [-0.16, 0.28]	

* $p < .05$. ^a Variable is dummy coded. ^b Indicates school C did not provide data. Thus, school B is the reference school in these models. ^c The random effect for time is fixed. ^d Within-person effect. ^e Between-person effect. Random effects and fit indices available from authors upon request

behavior is shaped by experiences within the social context and the importance of obtaining multiple informants for a nuanced understanding of aggressive and prosocial behavior.

Community Violence Exposure

Findings from the lagged model supported our hypothesis regarding the link between community violence exposure and future aggressive behavior (self- and peer-report), extending existing research with multiple informants across time (Guerra et al. 2003). Exposure to community violence did not predict teacher-reported aggression, possibly because teachers' observations are limited to the classroom setting where students are less likely to behave aggressively. In contrast, individual respondents and peers are able to observe behavior across multiple settings (e.g., home, school, neighborhood) where behavioral expectations may vary compared to the classroom (Benhorin and McMahan 2008).

The within-person analysis revealed that greater exposure to community violence at one point in time, as compared to one's average exposure to community violence across time, was associated with aggressive behavior (self-report). Thus, despite disproportionate exposure to violence among low-income African American youth (Selner-O'Hagan et al. 1998), individual fluctuations in exposure to community violence occur and are meaningfully related to aggressive behavior. Self-reports may be more attuned than peer- and teacher-reports to the internal fluctuations regarding experiences with violence and aggressive behavior. Indeed, teacher ratings may be less sensitive to behavioral change compared to objective observers (McMahon et al. 2000). These findings, that connect violence exposure fluctuations with aggressive behavior changes, suggest that attributions for aggression should be shifted from the student to the context, and highlight the need for systemic solutions to violence.

The between-person analysis revealed that students who reported more community violence exposure had lower levels of peer-reported, but not teacher-reported prosocial behavior. This finding provides evidence that exposure to community violence and prosocial behavior are linked, and builds upon the few studies that have relied on a single reporter (Mejia et al. 2006; van der Merwe and Dawes 2000). Similar to the aggressive behavior findings, community violence exposure may be less likely to contribute to reductions in prosocial behavior in the classroom because of classroom behavioral norms and expectations; however, these norms and expectations may differ in settings outside of school and peers observe behaviors across settings. Future research should further clarify the role of settings and observer differences.

Knowledge and Skills

Results from the between-person analysis showed that higher knowledge and skills related to interpersonal violence, empathy, acting on impulse, anger management, and problem solving was related to lower aggression based on teacher-report, but not self- or peer-report. Perhaps this finding reflects the association between academic performance and student behavior. Thus, students who have higher scores on knowledge and skills may be the same students who perform better academically and behave more appropriately within the school setting (Wentzel 1993). This association may be more likely noticed by teachers as it is particularly relevant to the school context. Further, the promotive nature of knowledge and skills may be somewhat limited to the academic domain. Luthar et al. (2006) suggest that resilience is a multidimensional construct and that resilience in one domain does not necessarily equal resilience in another domain. Hence, as knowledge and skills may be related to improved outcomes in the academic domain, as suggested by teacher report, knowledge and skills may not promote these same outcomes outside of the academic domain. Our findings underscore the value of multiple reporters and suggest the need to understand how and why behavioral ratings vary by reporter.

As hypothesized, lagged models showed that greater knowledge and skills regarding violence prevention predicted higher levels of teacher-reported prosocial behavior. Further, between-person analysis revealed higher levels of both peer- and teacher-reported prosocial behavior among students with more knowledge and skills. Perhaps knowledge and skills regarding violence and appropriate strategies to solve problems are basic building blocks to general positive behaviors that are displayed both inside and outside of the classroom. Increased knowledge and problem solving skills may promote the development of prosocial behaviors, given prosocial behaviors are learned (Eron and Huesmann 1984). Knowledge and skills may promote prosocial outcomes through information processing pathways, such as encoding and attending to social cues (e.g., Crick and Dodge 1994). Future examination of these processes across settings will enhance the understanding of aggressive and prosocial behavior.

Normative Beliefs About Aggression

Lagged models indicated that normative beliefs about aggression predicted future aggression, consistent with previous studies (Guerra et al. 2003), based on peer- but not self- or teacher-reported aggression. It is possible that normative beliefs were more predictive of peer-reported aggression because the peer scale tapped beliefs that were more specifically directed toward peers. Indeed, there is specificity in

how beliefs translate into behaviors. For example, Werner and Nixon (2005) found normative beliefs about physical aggression were specifically related to physically aggressive behaviors whereas beliefs about relational aggression were associated with engagement in relational aggression. Informants may report on different aspects of behavior, and these differences should be examined in more detail.

Further, the within-person analysis showed that higher normative beliefs, as compared to one's overall average, were associated with aggressive behavior (self-report). Research indicates that normative beliefs become more stable across time (Huesmann and Guerra 1997), and more influential as children move into adolescence (Guerra et al. 2003). Our findings highlight the importance of these beliefs, suggesting that shifts in beliefs about aggression at a given time point translate into behavioral changes in aggression among early adolescents, a crucial time period in which beliefs are emerging and may be prone to fluctuations. Future research should explore these intraindividual processes over longer periods of time and among youth cohorts at various developmental stages.

For prosocial behaviors, lagged models showed that normative beliefs about aggression predicted lower peer-, but not teacher-reported prosocial behavior, consistent with aggressive behavior findings and the importance of context and norms. These findings support previous research suggesting an inverse relationship between normative beliefs and prosocial behavior (Belgrave et al. 2011; Boxer et al. 2004) and extend the literature by demonstrating prospective effects across time. In contrast to the lagged findings, we were surprised by the between-person finding that students with greater normative beliefs had higher levels of teacher-reported prosocial behavior. While some research suggests that aggressive and prosocial behavior are opposites along one continuum of behavior (Eron and Huesmann 1984; Keresteš 2006), the current finding supports the idea that prosocial and aggressive behavior operate independently (Kokko et al. 2006). Further, our findings are consistent with van der Merwe and Dawes's study (2000), demonstrating that despite high levels of community violence exposure and increased aggression, youth displayed prosocial behaviors. Additional research is needed to clarify the links between normative beliefs and aggressive and prosocial behaviors.

Self-Efficacy

Contrary to our expectation, the lagged analysis showed a positive relationship between self-efficacy and future aggressive behavior (teacher-report). It is possible that students exposed to community violence may perceive themselves to have the skills to resolve conflicts peacefully, yet behave both aggressively and nonaggressively. Our

other self-efficacy hypotheses were supported; the within-person analysis revealed that higher self-efficacy (than usual) to solve problems peacefully was associated with lower aggression (self-, peer-, and teacher-report). The between-person analysis revealed a similar relation between self-efficacy and self-reported aggression, consistent with previous research (e.g., McMahon et al. 2009). Between-person analysis also revealed that higher levels of self-efficacy were associated with higher levels of teacher-reported prosocial behavior. Our self-efficacy findings are consistent with and extend previous research by using multiple reporters (Caprara et al. 2010; Midlarsky and Hannah 1985). Interestingly, our results supported a protective factor model of resilience for self-efficacy. That is, for students with high self-efficacy to solve problems peacefully, exposure to community violence did not predict teacher-reported aggression; whereas, a positive association was present for those with low self-efficacy. Thus, strengthening self-efficacy may lessen the negative effects of community violence exposure. Moreover, the perceived ability to stay out of fights may contribute to self-regulatory skills that reduce aggressive behaviors and promote prosocial behaviors across time.

Impulsivity

As hypothesized, impulsivity predicted aggressive behavior based on within-person (self-report) and between-person analyses (self- and teacher-report). Impulsive youth may be less likely to engage in the necessary precautions to avoid potential conflicts and may not consider consequences to their behavior (Fite et al. 2008). Even though impulsivity was not directly associated with prosocial behavior, it was shown to moderate the relation between violence exposure and peer-reported prosocial behavior. Specifically, for those high in impulsivity there was an inverse relation between community violence exposure and prosocial behavior; whereas, for those low in impulsivity there was no relation between community violence exposure and prosocial behavior. Thus, low impulsivity (or greater self-control) served as a protective factor by attenuating the negative association between exposure to community violence and prosocial behavior. Although research has linked impulsivity with negative behaviors, little work has investigated the relation between impulsivity and prosocial behavior (Buckner et al. 2009). Our results suggest that youth may benefit from impulse control skills, particularly if they have been exposed to high levels of violence.

Strengths and Limitations

This study is strengthened by the use of (a) multiple informants, (b) community violence exposure, cognitive,

and behavioral factors within a longitudinal design, and (c) multilevel modeling to test lagged effects, within- and between-person effects, and protective factors. Several limitations should be noted. First, we were only able to gather teacher-reported data from two of the three schools. Including teacher-reported data from the third school may have changed our findings as a result of school differences and/or sample size. A larger sample of teacher-reported data may have enhanced our ability to detect relations between predictors and outcomes. Second, due to the population in this study, the sample size decreased considerably across time, which could have led to changes in the nature of the sample over time. Although there were few differences between students who completed surveys versus students who were missing at various timepoints, there may have been unobserved differences that were not accounted for. Attrition is one of the common challenges of working with very high-risk youth, as despite multiple attempts to collect data, impoverished youth in communities with high rates of violence are transient and difficult to track across time. Third, different measures were used for self-, teacher-, and peer-report, based on demonstrated reliability and validity, but this variability reduces precise comparisons across reporter. Fourth, violence is cyclical, and higher rates of aggressive behavior contribute to more exposure to violence, and the models in this study do not account for bi-directional pathways between constructs. Finally, while this study assesses risks across multiple domains over time, this study does not test the cumulative effects of the hypothesized variables in relation to aggressive and prosocial behavior. Such an approach has been used in recent studies, with findings supporting the link between cumulative exposure to violence and aggression over time and across multiple domains (Margolin et al. 2010; Stoddard et al. 2012b). However, the examination of specific measures also provides more detailed information that can be useful to interventions; whereas, this information may be lost using a cumulative approach. Despite this limitation, the current study provides a dynamic understanding of predictors of aggressive and prosocial behavior as it highlights how interindividual and intraindividual changes in one's trajectory are associated with future aggressive and prosocial behavior. Future research should build on these ideas and examine aggression and prosocial behavior by combining both dynamic and cumulative approaches across time.

Implications for Intervention

Findings from the lagged, and within- and between-person analyses across reporters suggest that interventions should be attentive to individual as well as school and community contexts. Community violence exposure predicted both

aggressive and prosocial behavior across time, and changes in violence exposure (for individuals relative to their means) were associated with changes in aggressive behavior. These findings support the need to reduce violence through community-based collaborations and advocacy for policies and resources to decrease violence.

Integrated interventions targeting each of these individual-level factors (knowledge and skills, self-efficacy, normative beliefs, impulsivity) also need attention. Teaching knowledge and skills, perhaps through realistic role-plays, can be an important intervention component to promote prosocial behaviors and reduce aggression. In addition, classroom and school norms affect beliefs and behaviors (Henry et al. 2000), so training teachers to provide consistent reinforcement and consequences may help create positive classroom norms and challenge normative beliefs about aggression. Teaching, encouraging, and reinforcing students to practice self-control strategies may enhance self-efficacy to resolve conflicts and reduce impulsivity. Helping students to think through conflictual situations may reduce aggressive responses as well as promote prosocial behavior. Many effective school-based violence prevention programs have been created (e.g., Molina et al. 2005), but there is a need to adapt and disseminate these interventions to our most at-risk populations. Best practices for intervention should be aligned with perspectives of youth, parents, school administrators, and community members to create relevant and effective interventions. Only working together at multiple ecological levels and building upon strengths will move us closer to reducing violence and aggression and promoting positive, prosocial behaviors among urban, at-risk youth.

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