

Fall 11-21-2017

## The Longitudinal Effects of Violence Exposure on Delinquency and Academic Outcomes for African-American Youth

Adina Cooper  
DePaul University, ADINACCOOPER@AOL.COM

Follow this and additional works at: [https://via.library.depaul.edu/csh\\_etd](https://via.library.depaul.edu/csh_etd)



Part of the [Community Psychology Commons](#)

---

### Recommended Citation

Cooper, Adina, "The Longitudinal Effects of Violence Exposure on Delinquency and Academic Outcomes for African-American Youth" (2017). *College of Science and Health Theses and Dissertations*. 246.  
[https://via.library.depaul.edu/csh\\_etd/246](https://via.library.depaul.edu/csh_etd/246)

This Dissertation is brought to you for free and open access by the College of Science and Health at Digital Commons@DePaul. It has been accepted for inclusion in College of Science and Health Theses and Dissertations by an authorized administrator of Digital Commons@DePaul. For more information, please contact [digitalservices@depaul.edu](mailto:digitalservices@depaul.edu).

The Longitudinal Effects of Violence Exposure on Delinquency and Academic Outcomes for  
African-American Youth

A Dissertation  
Presented to  
DePaul University

By  
Adina Cherié Cooper  
November 6, 2017

Department of Psychology  
College of Science and Health  
DePaul University  
Chicago, Illinois

**Dissertation Committee**

Bernadette Sánchez, Ph.D., Chair  
Michael Bennett, Ph.D.  
Valerie C. Johnson, Ph.D.  
Susan McMahon, Ph.D.  
W. LaVome Robinson, Ph.D.

### **Acknowledgements**

I would like to express my sincere gratitude to my dissertation chair, Dr. Bernadette Sánchez, and committee members, Dr. Michael Bennett, Dr. Valerie Johnson, Dr. Susan McMahon and Dr. LaVome Robinson, for all of your support and guidance throughout the development of my dissertation project. From the conceptualization to the execution of the project, you have been instrumental in the completion of my dissertation. Your feedback and contributions to the project have been key to my success. More importantly, each of you have contributed to my experience and growth as a graduate student at DePaul University, and I am forever grateful. Thank you for being supportive mentors and true examples of successful, passionate professors, researchers and scholars. Bernadette, I have never underestimated the impact that you have had on my graduate career by taking me in as a student. Thank you for challenging, encouraging and genuinely supporting me over the last several years. You are an awesome mentor and advisor! To my parents, Hartley and Sheila Cooper, my family and dearest friends, thank you for always supporting me unconditionally. I could believe in myself as a student and scholar, in part, because of the love and encouragement that you all pour into me daily, in big and small ways. I'm forever indebted.

### **Biography**

The author was born in Willingboro, New Jersey, and raised in Atlanta, Georgia. She received her Bachelor of Arts degree in psychology from Hampton University in 2007 and her Master of Education degree in professional counseling from The University of Georgia in 2010. In 2015, she earned her Master of Arts degree in community psychology at DePaul University. Over the course of her graduate career, she has provided consultation for school-based programs, evaluating preventative intervention programs serving diverse youth. Currently, she is a research and evaluation fellow at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. Her goal is to continue to engage in applied research and scholarly activities to support community and school-based programs in fostering positive development and academic achievement for diverse and underrepresented youth.

## Table of Contents

<b>ABSTRACT</b> .....	1
<b>INTRODUCTION</b> .....	3
Violence Exposure and Adolescent Development.....	4
Violence Exposure and Delinquency .....	5
Violence Exposure and Academic Behavioral Engagement .....	7
Long-Term Effects of Violence Exposure.....	8
Theoretical Framework.....	9
Protective Factors Model .....	10
Communities and Neighborhoods.....	12
Sense of Belonging as Protective Factors for the Effects of Violence Exposure .....	13
Neighborhood Connectedness .....	14
School Belonging .....	16
Current Study.....	19
Statement of Hypotheses.....	21
<b>METHOD</b> .....	22
Participants.....	23
Procedures.....	23
Measures .....	24
<b>RESULTS</b> .....	27
Preliminary Analyses.....	27
Descriptive Results .....	29
Structural Equation Modeling.....	29
<b>DISCUSSION</b> .....	34
Implications.....	45
Limitations .....	46
Future Directions .....	48
<b>REFERENCES</b> .....	50

## List of Tables & Figures

Table 1 .....	64
Figure 1 .....	65
Figure 2.....	66
Figure 3.....	67
Figure 4.....	68
<b>APPENDIX A</b> .....	69

### Abstract

There are millions of violent crimes reported each year in communities across the United States, disproportionately affecting ethnic minority and low-income communities. Violence exposure has harmful effects on residents and significant implications for adolescent development. Youth who are exposed to violence are at greater risk for problem behaviors and experiences, including delinquency and low academic performance (Baskin & Sommers, 2014; Patton, Wooley, & Hong, 2012). Many of the consequences of violence exposure impact trajectories of adolescent development and can be observed well into adulthood. However, some youth overcome the challenges associated with violence exposure and successfully transition into adulthood. Resilience theory and the protective factors model provide a lens to examine how positive social environmental influences may lessen the impact of contextual risk factors and promote desirable outcomes for youth exposed to violence (Fergus & Zimmerman, 2005; Lösel & Farrington, 2012).

In this study, I used structural equation modeling (SEM) to examine the role of perceptions of neighborhood connectedness and school belonging as protective factors for the effects of violence exposure on delinquency, criminal involvement, academic behavioral engagement and educational attainment over time, for a sample of African-American youth. It was hypothesized that connectedness to one's neighborhood and sense of belonging to school would moderate the mediational associations among violence exposure, adolescent adjustment measures (i.e., delinquency and academic behavioral engagement) and adult outcomes, demonstrating a protective effect for the influence of violence exposure on developmental outcomes for youth.

The findings indicated that the model was a good fit for the data. More violence exposure significantly predicted more delinquency; violence exposure did not predict academic behavioral engagement, however. More delinquency predicted lower academic behavioral engagement, and school belonging predicted less delinquency. The mediational hypotheses were not supported, and the results showed that neighborhood connectedness and school belonging did not have protective effects for the influence of violence exposure on the adolescent adjustment variables. Instead, neighborhood connectedness significantly predicted more delinquency and did not significantly predict academic behavioral engagement. The results highlight important considerations about neighborhood effects on youth risk behaviors and developmental outcomes. This study contributes to the literature on ecological risk and protective factors for adolescent delinquency and academic engagement. The findings can inform the development of community and school-based interventions to promote positive development for African-American adolescents exposed to violence.

The Roles of Neighborhood Connectedness and School Sense of Belonging as Protective Factors  
for Youth Exposed to Violence

Community violence is a common occurrence in the United States (U.S.) and a significant public health concern. According to the most recent national survey of crime and violence, there were over 4.5 million violent crimes (i.e., simple and aggravated assault, violent crime involving weapons, and violent crime involving injury) reported to U.S. law enforcement in 2014 (U.S. Department of Justice, 2015). Violent crimes have a significant effect on communities, impacting the sense of safety for residents. The highest rates of violence are reported in urban, low-income communities, making youth and families living in low-income communities more likely to be affected by the consequences of violence. The experience of ongoing violence in communities creates a sense of fear, and ultimately trauma, for residents within the community, stemming from the ever-present threat of personal harm or the loss of friends or loved ones.

For individuals and families who live in communities with high rates of crime and violence, the threat of violence exposure is a constant concern. Violence exposure refers to an individual being a victim of violence, witnessing violence, or hearing about violent acts taking place within their community (Cooley, Turner, & Beidel, 1995). Exposure to violence may include experiencing or witnessing the use of guns, knives, and other weapons (Osofsky, 1995). Community violence is defined as violence that occurs outside of the home (Wright, Austin, Booth, & Kliewer, 2016) but in close proximity to the home. Community violence occurs most often in spaces that are open to the public (e.g., streets, businesses, local parks, recreational centers). Adolescents are more likely than adults to experience violence outside of the home (Finkelhor, 2008), making the implications of community violence especially important for



understanding youth development in the contexts of communities with high rates of crime and violence. There is a wealth of evidence that violence exposure impedes positive youth development and developmental outcomes. African-American and Latina/o youth living in urban neighborhoods are disproportionately exposed to and affected by violence, which makes these populations particularly vulnerable to the effects of violence exposure in the U.S. (Zimmerman & Messner, 2013).

In communities afflicted by violence, spaces that are usually available for youth to connect with others, such as parks and community centers, are no longer deemed safe. Violence exposure not only impacts youths' experiences in their neighborhoods, but it also influences their schooling experiences. In neighborhoods with high rates of violence, students are more likely to experience violence in school (Patton, Woolley, & Hong, 2012). Violence in communities impacts multiple contexts (i.e., home, community, school) and thus has significant implications for adolescents, whose developmental processes are undoubtedly impacted and potentially interrupted by experiences of violence.

### **Violence Exposure and Adolescent Development**

Adolescence is a period of significant developmental transitions for youth. While youth are experiencing many physical and psychological changes that are a part of normal development, they are particularly vulnerable to problem behaviors, which can affect them in multiple settings, including their homes, schools and communities (Voisin, Patel, Hong, Takahashi, & Gaylord-Harden, 2016). The community environment has a significant influence on developmental trajectories for adolescents. In addition to building relationships within their communities, individuals often learn some of their earliest social skills (e.g., conflict resolution, relationship building) while interacting with other youth and adults in their neighborhoods;

therefore, the nature of social interactions and social norms in communities impact adolescent development.

Community violence has been identified as a risk factor for negative developmental outcomes for youth (e.g., low academic achievement, juvenile justice system involvement; Patton et al., 2012; Baskin & Sommers, 2014). Adolescents who are exposed to multiple environmental risk factors (e.g., poverty, violence) are at greater risk for negative developmental outcomes than those who experience fewer risk factors (Evans, Li, & Whipple, 2013). Individuals who are exposed to violence during childhood can experience physical and psychological harm with effects that can be experienced well into adulthood (Cuevas, Finkelhor, Shattuck, Turner, & Hamby, 2013). Violence exposure can cause temporary psychological distress for some individuals, while others may experience post-traumatic stress disorder (PTSD) or other long-term mental health conditions after direct or indirect experiences violence (Osofsky, 1995). For adolescents, violence exposure has been associated with poorer mental health outcomes and behavioral maladjustment (Voisin et al., 2016).

**Violence exposure and delinquency.** A concern about adolescent violence exposure is its impact on risk behaviors, including substance use, aggression, and violence. Youth who are exposed to violence in communities are more likely to exhibit antisocial behaviors (Slattery & Meyers, 2014). There also is evidence that adolescents who are exposed to violence are more likely to engage in violence themselves. When youth experience chronic exposure to community violence, they can become desensitized to violence (Davis, Ammons, Dahl, & Kliewer, 2015), which may increase the likelihood that youth themselves will engage in violent acts. This poses significant problems for adolescents who live in neighborhoods with high rates of crime and violence. Experiencing higher levels of violence victimization and resulting mental health

symptoms may increase risk for engaging in delinquent behaviors (Cuevas et al., 2013). In a cross-sectional study examining violent victimization and delinquency among a nationally representative and ethnically diverse sample of adolescents, victims of delinquent acts were more likely to engage in delinquent behaviors than those who had not been victimized (Cuevas et al., 2013). Similarly, in a cross-sectional study of the effects of violence exposure on urban, African-American youth, McGee (2014) found that exposure to community violence was related to greater self-reported delinquency.

In addition to influencing delinquency, violence exposure impacts the severity of delinquent acts among youth. In a cross-sectional examination of racially/ethnically and socioeconomically diverse adolescents, Chen, Voisin, and Jacobson (2013) found that participants who experienced community violence engaged in more severe/violent delinquent acts than peers who had not experienced violence. In a separate cross-sectional study of youth identified as at-risk (i.e., living in economically disadvantaged neighborhoods; experiencing a recent arrest), participants who were exposed to more community violence were more likely to report engaging in personal assault behaviors (i.e., physical assault, assault involving a weapon; Patchin, Huebner, McCluskey, Varano, & Bynum, 2006). Other studies yielded similar results. In Voisin et al.'s study (2016), youth who were exposed to more community violence were two times more likely to report engaging in delinquent behaviors and three and a half times more likely to report juvenile justice system involvement than youth who reported less exposure to violence.

Violence exposure has been associated with greater likelihood of youth carrying weapons (Patchin et al., 2006), which increases the potential for youth to engage in more serious delinquent acts with more harmful effects. In a longitudinal study of the trajectories of violent

offending for racially/ethnically diverse, adolescent males, Baskin and Sommers (2014) found that greater exposure to violence was associated with more severe violent offending (e.g., gun violence) for serious juvenile offenders (e.g., felony-level offenders). Among that sample, participants who were exposed to direct violence and experienced violence over more sustained periods of time were more likely to engage in violence and to continue engaging in violence into adulthood (Baskin & Sommers, 2014). These studies highlight the importance of considering the negative role of violence exposure and victimization in youth delinquency, but the findings leave important questions unanswered such as determining what other socioecological factors (e.g., protective factors) might influence the effects of violence on youth delinquency involvement.

**Violence exposure and academic behavioral engagement.** Violence exposure also influences how youth experience and perform in school (e.g., Bowen & Bowen, 1999; Schwartz & Gorman, 2003). Adolescents often attend schools that are situated within their communities; therefore, the incidence of community violence impacts the school environment. In fact, community violence has been associated with increased violence in schools (Patton et al., 2012). When communities are frequently affected by violence, students may not feel safe in school; students' perceptions of school safety are related to academic behaviors and outcomes (Grover, 2015).

There is a wealth of evidence that violence exposure plays a negative role in youths' academic engagement, including their ability to focus and to complete school and homework assignments. Children exposed to violence demonstrate poorer academic engagement, due in part to internalizing symptoms, such as depression (Schwartz & Gorman, 2003). Violence exposure also can contribute to problem behaviors in school and further detract from academic performance (Patton et al., 2012). Adolescents who are exposed to violence are more likely to

exhibit symptoms of aggression and hyperactivity, which are common disruptive behaviors in schools and are associated with poorer grades (Busby, Lambert, & Ialongo, 2013; Schwartz & Gorman, 2003).

Several studies have demonstrated a significant association between violence exposure and academic achievement. It is likely that the associations between violence exposure and academic performance are a result of declined academic engagement, due in part to the stress of experiencing violence. For example, in a cross-sectional study of predominantly Latina/o elementary-age, urban youth, violence exposure was associated with lower grade point average (GPA) and achievement test scores (Schwartz & Gorman, 2003). In a longitudinal study of violence exposure and academic achievement among an ethnically diverse sample of youth in a large metropolitan area, participants who were exposed to more violence were less engaged in school and had lower GPAs over time (Borofsky, Kellerman, Baucom, Oliver, & Margolin, 2013). Similarly, in a study of violence exposure and school engagement among African-American adolescents, violence exposure was indirectly associated with lower GPA through increased aggressive behaviors (Voisin, Neilands, & Hunnicutt, 2011). The findings in recent literature indicate that violence exposure negatively affects academic engagement for youth.

**Long-term effects of violence exposure.** The impact of violence exposure on risk behaviors and academics during adolescence can have effects that are observed well into adulthood. The connection between violence exposure and delinquent behaviors has been well established in previous research (e.g., Chen et al., 2013; Patchin et al., 2006); youth who engage in delinquent behaviors are more likely to enter the juvenile justice system. Involvement in the juvenile justice system impacts important academic behaviors for youth, many of which can lead to school failure or drop out. Thus, juvenile arrest and incarceration have critical implications for

developmental outcomes during adulthood, including criminal justice involvement and educational attainment (Kirk & Sampson, 2013).

Few studies have examined the relationships between violence exposure and adolescent risk behaviors over time to determine how the associations might persist into adulthood. There is a need to examine the mechanisms by which violence exposure can influence adult outcomes for youth who are most vulnerable to community violence. It is likely that problem behaviors and experiences in adolescence stemming from violence exposure mediate the associations between violence exposure and adult outcomes. That is, youth who engage in delinquent acts and experience more problems in school because of violence exposure are then more likely to engage with the criminal justice system as adults and achieve less education. More can be done to intervene in the processes that lead to problematic outcomes in adolescence and later in adulthood by understanding the mediational role of adolescent risk behaviors. To this end, there is a need to investigate the factors that might protect youth from experiencing the long-term negative effects of violence exposure in adolescence.

### **Theoretical Framework**

With appropriate social and environmental supports in place, youth can experience healthy development in the face of the potential challenges that result from exposure to community violence, demonstrating resilience despite being faced with a serious risk to healthy development. Resilience is best defined as the process of avoiding the negative effects related to exposure to risk factors and avoiding the negative trajectories often associated with risk exposure (Fergus & Zimmerman, 2005). Central to the resilience theory is the presence of two conditions: 1) exposure to significant adversity; 2) positive adaptation despite exposure to significant developmental risks (Luthar, Cicchetti, & Becker, 2000). The theory provides a lens through

which to understand the roles of protective factors in supporting positive developmental outcomes for youth exposed to community violence. While risk factors increase the likelihood of negative developmental outcomes, protective factors help individuals to avoid or overcome the negative effects of exposure to risks (Fergus & Zimmerman, 2005). The presence of protective factors often plays a role in supporting positive youth development in high-stress environments, including those impacted by violence (e.g., Hammack, Richards, Luo, Edlynn & Roy, 2004; Jain & Cohen, 2013).

Resilience theory is a strengths-based framework that focuses on how risk factors influence adolescent development, while highlighting the role of the assets or resources that support adolescents to overcome risks in their environments (Fergus & Zimmerman, 2005; Zolkoski & Bullock, 2012). Assets are positive individual characteristics or traits, and resources are positive social environmental influences (e.g., sense of community or school belonging); assets and resources influence youth development and wellbeing (Aisenberg & Herrenkohl, 2008). These assets and resources are conceptualized as protective factors, which are a central part of studies on resiliency.

**Protective factors model.** A model of resilience that is commonly applied to understanding how individuals overcome risk factors that impact developmental outcomes is the protective factors model (Fergus & Zimmerman, 2005). Traditional resilience models highlight the role of ecological factors in human development (Fergus & Zimmerman, 2005); the protective factor model is especially relevant to examining the role of environmental stressors and the influence of intervening factors on developmental outcomes for youth (e.g., Jain & Cohen, 2013). An example of the protective factor model would be observed if the risk of low academic behavioral engagement was reduced for youth exposed to violence who have a high

sense of belonging in school. That is, school belonging acts as a protective factor for low academic behavioral engagement for violence-exposed youth.

Lösel and Farrington's (2012) study supports the use of the protective factor model to examine violence exposure and adolescent development. The authors discuss the conceptual advantages of examining youth violence exposure and development through the lens of the protective factor model. An advantage of applying the model to studies of violence exposure is that it allows the researcher to develop a more nuanced understanding of how protective factors impact development by considering the potential *types* of effects of protective factors. Protective factors can have direct or buffering effects on developmental outcomes (Lösel & Farrington, 2012). Direct protective effects refer to the main effects of a variable on an outcome(s), without considering the influence of other factors. For example, youth who perceive a high sense of belonging in school are more likely to perform well in school than youth with a low sense of belonging. That is, sense of belonging directly influences academic performance for students. Buffering protective effects reduce the negative effects of risk factors on outcomes (Lösel & Farrington, 2012). For example, sense of school belonging may reduce the negative effects of violence exposure on risk behaviors, which would indicate that sense of belonging has a buffering protective effect for violence exposure on youth risk behaviors. That is, despite being exposed to violence, youth may resist engaging in delinquent acts when they experience sense of belonging in their school. Understanding how protective factors influence the associations between violence exposure and adolescent development is key to understanding the more distal effects of violence exposure on adulthood.

Applying the protective factor model enables researchers to better understand the roles of protective factor effects; thereby, elucidating how those factors may be targeted in preventative



interventions to promote healthy development for adolescents exposed to significant risk factors. The protective factor model has proven useful to understanding complex interactions between individuals and their environments, especially as it relates to youth who experience community violence. Many previous studies examining protective effects have focused on social factors (e.g., social support) and the role of such factors in positive youth development. Given the previous application of the protective factor model to examining the influence of protective factors on the development of adolescents exposed to violence, the model is appropriate for the current study. The current study applied the protective factor model to understanding the roles of youth's neighborhood connectedness and sense of belonging to school in buffering the negative effects of violence exposure.

### **Communities and Neighborhoods**

To understand the impact of violence on communities, it is important to understand how researchers define *community* in the literature. In research focused on health outcomes, the terms “community” and “neighborhood” often are used interchangeably; both have been conceptualized in studies as being based on geographical location and defined using various criteria (e.g., administrative boundaries, individual perceptions, resident characteristics; Diez Roux, 2001). In recent years, however, researchers have sought to more clearly define and differentiate the two terms to better understand how social phenomenon affect populations of interest. A community is a collection of people and institutions within a geographically-defined area, influenced by ecology, culture and/or politics (Sampson, Morenoff, & Gannon-Rowly, 2002). Neighborhoods may best be conceptualized as “ecological units nested within successfully larger communities” and are characterized by street patterns and resident social networks and interactions (Sampson et al., 2002). In previous studies of individuals' *perceptions*

of their surrounding communities, researchers have used the term neighborhood (Diez Roux, 2001). In the current study, I use the term community when referring to violence exposure to describe the areas outside of the participants' homes but near the home, including the surrounding geographical areas, local residences, schools, businesses and community organizations. I apply the term neighborhood to describe participants' perceptions of their connectedness to their surrounding community.

### **Sense of Belonging as Protective Factors for the Effects of Violence Exposure**

The concept of sense of belonging has been defined broadly and applied to examine experiences and outcomes across populations and settings. Researchers have consistently identified sense of belonging as important to positive youth development and adolescent wellbeing (e.g., Jose, Ryan, & Pryor, 2012; Newman, Lohman, & Newman, 2007, Pittman & Richmond, 2007). Sense of belonging is conceptualized as an individual's feeling of external connectedness or being accepted, included, valued, and supported in a given group or community (Goodenow, 1993; Mahar, Cobigo, & Stuart, 2012). The terms sense of belonging and connectedness are often used interchangeably in the research literature.

Adolescents most often benefit from the sense of belonging or connectedness that they experience in their homes, schools, and communities. Feeling a sense of connection to one's neighborhood and belonging in school may help protect youth from the negative consequences of violence exposure. While having a sense of connectedness or belonging to neighborhoods and schools has been associated with positive behaviors and developmental outcomes, lack of connectedness has been associated with negative outcomes, such as behavioral disorders, psychological distress, academic failure and school dropout (Bolland et al., 2016).

**Neighborhood connectedness.** The relationships that youth develop in their neighborhoods provide a sense of connection and inclusion (Gibson, Sullivan, Jones, & Piquero, 2010). Neighborhood connectedness is considered multidimensional and encompasses the following constructs: *social cohesion* (i.e., levels of trust and reciprocity), *social capital* (i.e., aspects of social organization that facilitate cooperation for mutual benefit), *informal social control* (i.e., resident participation in maintaining community norms and preventing deviant behavior), and *connectedness* (i.e., quality of social relationships, perceived membership in community; Boyce, Davies, Gallupe, & Shelley, 2008; Lenzi, Vieno, Pastore, & Santinello, 2013; Silver & Miller, 2004). Collective efficacy, which is defined as social cohesion among neighborhood residents in addition to residents' willingness to intervene in community problems for the common good of the neighborhood (i.e., Sampson, Raudenbush, & Earls, 1997), is another concept that is commonly studied in relation to neighborhood socialization and connectedness. Previous studies examining neighborhoods and adolescent development have traditionally focused on one or more of the aforementioned concepts.

In the current study, the aspects of neighborhood connectedness that are of focus are youths' perceptions of social cohesion within their neighborhood as well as their perceived belonging to their neighborhoods (Lenzi et al., 2013). There are no known published studies that specifically have examined neighborhood connectedness (i.e., social cohesion and perceived membership/belonging to the neighborhood) as a protective factor for adolescent violence exposure. Due to the dearth of research on neighborhood connectedness as a protective factor for youth, the current review of the literature includes studies that have examined the influence of various components of neighborhood connectedness (e.g., social cohesion, informal social control) on youth development.

There is evidence that neighborhood social cohesion influences adolescents' developmental outcomes. In a study of the effects of neighborhood social cohesion on adolescent adjustment for ethnically diverse youth, more social cohesion was associated with better physical and mental health during adolescence (Rios, Aiken, & Zautra, 2012). Neighborhood social cohesion has also been linked to better academic outcomes for youth. In a study of neighborhood cohesion and school outcomes among urban, African-American girls, student perceptions of high neighborhood social cohesion were associated with higher grades and academic self-efficacy (Plybon, Edwards, Butler, Belgrave, & Allison, 2003). There is evidence that neighborhood social cohesion may be particularly important to healthy development for violence-exposed youth. Researchers propose that neighborhood social cohesion may provide youth with important social resources that aid youth in coping with exposure to violence (Kliewer et al., 2004).

Social cohesion and informal social control have been associated with lower rates of violent crime in neighborhoods (Sampson et al., 1997), which highlights the potential for neighborhood processes to influence the overall neighborhood social climate. Further, neighborhood collective efficacy has been linked to better development outcomes for some youth exposed to violence. In a sample of racially/ethnically diverse children and adolescents between the ages of 8-16 years, Fagon, Wright, and Pinchevsky (2014) examined the role of neighborhood collective efficacy in the association between violence exposure and risk behaviors (i.e., substance use and violence perpetration) for youth in Chicago. Neighborhood collective efficacy demonstrated buffering protective effects for substance use but not for violence perpetration for the youth. In another study, neighborhood collective efficacy was associated with fewer antisocial behaviors among youth ages 5-10 living in impoverished

communities (Odgers, Moffitt, Tach, Sampson, Taylor et al., 2009); however, the study did not examine collective efficacy as a protective factor for violence exposure.

The research on the protective effects of neighborhood connectedness for youth exposed to violence is limited, and related studies on neighborhood social cohesion, collective efficacy and the development for violence-exposed youth have yielded mixed results. The literature suggests that social cohesion and collective efficacy have protective effects for youth exposed to community violence (e.g., reducing the likelihood of delinquent behaviors). Therefore, it is likely that neighborhood connectedness could have protective effects against the potential negative outcomes related to adolescent violence exposure for youth in the current study. In addition to examining social cohesion, it is important to learn more about whether youths' perceived memberships in their neighborhoods positively influence development in the face of socioecological risk factors. The findings in previous studies highlight the need for more research on the protective influence of neighborhoods on development for adolescents exposed to violence.

**School belonging.** School is one of the most important settings for youth development, because youth spend a significant amount of time in school. Students' sense of belonging to school is defined as the feeling of being close to, a part of, and happy at school (Libbey, 2007) and has implications for adolescent development. Students' sense of belonging to school is an important indicator of how connected they are to the school environment (McMahon, Keys, Berardi, & Crouch, 2011). When students feel connected to school, they are more likely to engage in healthy behaviors, value education and demonstrate academic success (Neel & Fuligni, 2013; Libbey, 2007). Students' sense of belonging to school is also an important indicator for how well the school meets students' social and academic needs (Neel & Fuligni, 2013).

School belonging is also important to students' academic engagement. Engagement is a key part of the motivational processes that foster learning and development (Wellborn, 1991). Students' engagement in school is conceptualized as consisting of two types of engagement, *behavioral engagement* (i.e., overt behaviors related to academic effort and achievement, such as participating in class and completing assignments) and *emotional engagement* (i.e., affective or cognitive orientation to academic tasks and the school environment, such as feeling bored or happy in school; Jimerson, Campos, & Greif, 2003). Even though each component is important to understanding students' overall engagement in school, most measures of school engagement focus on the behavioral aspects of engagement (Jimerson et al., 2003). Academic behavioral engagement, which is of focus in the current study, is an important precursor to academic achievement and educational attainment (Connell, Spencer, & Aber, 1994; Skinner, Zimmer-Gembeck, & Connell, 1998). Fostering school belonging for students may play an important role in promoting behavioral engagement for youth exposed to risk factors for low academic engagement, such as violence exposure.

Educational psychologists and researchers contend that school belonging facilitates academic engagement, because most students are academically motivated, in part, by their social interactions in the school environment (Connell & Wellborn, 1991; Furrer & Skinner, 2003; Juvonen, 2007). In previous studies, researchers have identified connections between school belonging and academic engagement. In a study of urban, African-American and Latina/o youth, more school belonging was associated with higher academic motivation and academic effort or persistence in middle and high school (Goodenow & Grady, 2003). Another study found that school belonging was positively associated with academic effort and responsibility for learning for African-American and Caucasian high school students. (Singh, Chang, & Dika, 2010).

Relatedly, school belonging was associated with positive academic orientation (i.e., academic aspirations, academic expectations, and educational value) and academic success in a sample of Latina/o adolescents in urban, low-income communities (Maurizi et al., 2013). High sense of belonging to school also was associated with higher perceived value of education for an ethnically diverse sample of high school students (Neel & Fuligni, 2013). The findings in recent literature are important because the manners in which youth value education ultimately influence their academic engagement and performance.

In Goodenow and Grady's (1993) study of school belonging and academic orientation among urban adolescents, participants with higher sense of school belonging demonstrated more academic motivation and effort to complete academic tasks. Similarly, sense of school belonging was associated with better academic outcomes, including attendance and academic effort, among Latina/o high school students (Sánchez, Colón, & Esparza, 2005). In research on the role of school belonging in academic achievement for students in late adolescence, sense of school belonging predicted better grades and greater self-perceived academic competence (i.e., confidence in one's ability to complete coursework and other academic tasks; Pittman & Richmond, 2007).

It is important to note that some researchers have found a connection between school belonging and academic outcomes in previous studies of African-American adolescents (e.g., Goodenow & Grady, 1993), while other studies have indicated that there was no relationship between school belonging and academics among African-American youth (e.g., Booker, 2004; Voelkl, 1997). Despite the mixed findings, there is enough evidence to warrant further study of school belonging as a protective factor for African-American students because multiple studies have identified school belonging as important to some aspects of school performance (Maurizi et

al., 2013). While many previous studies have examined associations between school belonging and academic outcomes, there are no known studies that have examined school sense of belonging as a protective factor for the negative influence of violence exposure on academic behavioral engagement and long-term educational outcomes. Examining school sense of belonging as a protective factor can provide important insight into the roles that schools play in the lives of African-American youth exposed to violence. The current study examines sense of school belonging as a protective factor for the effects of violence exposure on academic behavioral engagement.

### **Current Study**

This study focuses on neighborhood and school effects on adolescent development for African-American youth exposed to violence. Although various studies have investigated the role of violence exposure on adolescent development, no recent studies have examined the role of neighborhood connectedness in reducing risk for delinquency for adolescents exposed to violence. Studies on the influence of neighborhood social cohesion have identified the potential for neighborhood factors to protect youth from the effects of violence on risk behaviors, warranting further exploration of neighborhood protective effects for violence exposure. Previous studies have also addressed the importance of school belonging to academic performance; however, no known studies have examined how the protective effects of school sense of belonging might influence academic behavioral engagement and long-term educational attainment. These areas highlight important gaps in the research literature. Further, many of the previous studies that have identified risk and protective factors related to violence exposure have been cross-sectional (e.g., Chen, Voisin, and Jacobson, 2013; McGee, 2014). The longitudinal investigation of the associations among violence exposure, risk behaviors, protective factors and



outcomes in this study is a contribution to the literature. Delinquent behaviors and academic behavioral engagement each have long-term effects on adult outcomes, so it is important to develop a better understanding of what factors protect violence-exposed youth from engaging in delinquency and demonstrating low academic behavioral engagement.

Community violence disproportionately affects African-American adolescents, especially those living in low-income communities. Given the known effects of violence exposure on adolescent development, it is important for researchers and policy makers to understand how violence exposure impacts the developmental outcomes for African-American adolescents. More specifically, gaining a greater understanding of what factors protect African-American youth from negative outcomes and promote positive development has important implications for communities affected by violence. To date, there is limited research on factors that promote positive development among African-American adolescents exposed to violence (Patton et al., 2012). There are no previous studies that have specifically examined how neighborhood connectedness might protect for the effects of violence exposure on adult outcomes for African Americans, which can potentially highlight an important point of intervention to promote positive developmental outcomes for African-American youth exposed to violence. Home and family factors are important to adolescent development, and traditionally, studies have focused on individual and family level factors in studies of risk and resiliency among youth (Blum, McNeely, Nonnemaker, Fischhoff, Nightingale, & Iannotta, (2002). However, environmental level factors (i.e., neighborhoods, schools) influence the individual and family processes and are important to healthy adolescent development. Fewer studies have examined environmental factors, and this study contributed to the risk and resiliency literature, by exploring the roles of youths' neighborhood and school experiences in protecting for the negative effects of violence

exposure. This study examined the role of youth perceptions of neighborhood connectedness and school belonging as protective factors in the effects of violence exposure on delinquency/criminal involvement, academic behavioral engagement and educational attainment over time (See Figure 1). A longitudinal design was used to investigate the role of violence exposure on developmental outcomes for African-American youth.

### **Statement of Hypotheses**

Hypotheses for the current study are:

Hypothesis I: More violence exposure at Wave I will predict more delinquency at Wave II.

Hypothesis II: More violence exposure at Wave I will predict lower academic behavioral engagement at Wave II.

Hypothesis III: Delinquency at Wave II will predict lower academic behavioral engagement at Wave II.

Hypothesis IV: More neighborhood connectedness at Wave I will predict less delinquency and more academic behavioral engagement at Wave II.

Hypothesis V: More sense of belonging to school at Wave I will predict more academic behavioral engagement and less delinquency at Wave II.

Hypothesis VI: The data will be a good fit for the structural regression (SR) model illustrated in Figure I. Specifically:

Hypothesis VIa. More violence exposure at Wave I will be associated with more criminal involvement and lower educational attainment at Wave III.

Hypothesis VIb. Delinquency and academic behavioral engagement at Wave II will mediate the association between violence exposure (Wave I) and the outcomes, criminal involvement and educational attainment at Wave III.

Hypothesis VIc. Neighborhood connectedness will moderate the association between violence exposure (Wave I) and delinquency at Wave II, such that greater neighborhood connectedness will weaken the association between violence exposure and delinquency. Sense of belonging to school will moderate the association between violence exposure (Wave I) and academic engagement at Wave II, such that higher sense of belonging to school will weaken the association between violence exposure and academic behavioral engagement.

### **Method**

I examined data from The National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health is a longitudinal, nationally representative study of adolescents who were in grades 7-12 in the 1994-1995 academic school year. Following the initial data collection at Wave I, additional data were collected from the original sample of adolescents. Add Health currently includes data from four waves of data collection, the last of which was collected in 2008. This study includes data from Wave I (1994-1995), Wave II (1996) and Wave III (2001) because the in-home interviews and follow-up interviews were conducted at those times, which include the key variables of interest for the study. Participants were between the ages of 18 and 26 during Wave III data collection. The Add Health study focuses primarily on adolescent health behaviors and outcomes and includes factors that might influence adolescent health and risk behaviors (e.g., social contexts). For the purposes of the study, I examined the relations among the following variables: Self-reported measures of violence exposure, neighborhood connectedness, sense of belonging in school, academic behavioral engagement, criminal justice system involvement and educational attainment.

## Participants

The Add Health sample was derived from the Quality Education Database (QED), which includes data from youth surveyed in 26,666 U.S. High Schools. From that sample, a stratified approach was used to identify 132 schools (80 high schools; 52 middle schools) to participate in the Add Health study. The selected schools ranged in size, including as few as 100 students to as many as 3,000. The schools were situated in urban, suburban and rural U.S. communities. At Wave I data collection, over 90,000 students from diverse racial and ethnic backgrounds participated in the survey. The final public-use Add Health dataset includes a total of 6,504 participants. The sample in the current study includes a subset of participants from the overall public-use Add Health sample who met the following two criteria: a) identified as African American and b) participated at Waves I, II and/or III of the study. The final sample included 1,203 African American youth who were in grades 7-12 at Wave I; the current sample is 56% ( $n = 676$ ) female and 44% male ( $n = 527$ ). Participants lived in urban (49%), suburban (25%), rural (22%) and other (e.g., commercial/industrial) (4%) neighborhoods. Participants' parents reported their highest level of education (i.e., less than high school: 14.5%; high school diploma or equivalent: 27.7%; GED: 2.5%; some college: 21.2%; college degree: 15.2%; graduate or professional degree: 12.9%) and annual household income ( $M = \$36,640$ ,  $SD = \$35,000$ ;  $Mdn = \$30,000$ ; range: \$0-\$600,000) at Wave I.

## Procedures

At Wave I, questionnaires were administered in schools to over 90,000 students. The questionnaires were administered to students on one occasion during a 45- to 60-minute class period. An unequal probability method was used to select participants from the study enrollment rosters (in-school survey administration) to complete the in-home interviews. Most of the

interviews were completed in the participants' homes and were one to two hours long. Data were recorded on researchers' laptop computers during the interviews. Waves II and III data were collected from the original participants who could be located and re-interviewed. On average, interviews lasted for approximately 90 minutes. The results from the Waves I-III in-home interviews were examined in the current study.

### **Measures**

The measures used in the current study were developed as part of Add Health. The measures previously have been used with African-American youth samples; the reliability and validity for the Add Health measures have been confirmed in previous studies (e.g., Sieving, Beuhring, Resnick et al., 2001). All measures for the current study are included in Appendix A.

**Demographic variables.** The survey included a section of items on demographic information. Respondents provided their age, gender (male = 1, female = 2), and race/ethnicity at Wave I and Wave III. Participants' parents reported the parent's highest level of education and household income; I developed a Wave I socio-economic status variable (SES) by transforming the scores for each item to z-scores and calculating a composite variable.

**Violence exposure.** Direct and indirect exposure to violence was assessed using a five-item scale ( $\alpha = .66$ ) at Wave I (Chen, 2010). The measure has been used to assess violence exposure for African-American youth and demonstrated equivalence of scales when used with racially/ethnically diverse adolescent samples (Chen, 2010). The measure included items to assess the extent to which participants had recently witnessed (i.e., indirect exposure) or been victims (i.e., direct exposure) of violence. Response items are on a three-point scale (0 = never; 2 = more than once). For each participant, I dichotomized the responses for each item (0 = not exposed to violent event; 1 = exposed to violent event) and summed the scores across items.

Higher scores indicate a greater breadth of exposure to indirect and direct acts of violence. An example item from the scale is: “During the past 12 months, how often did each of the following things happen? – You saw someone shoot or stab another person.”

**Neighborhood connectedness.** Neighborhood connectedness was assessed using a six-item scale ( $\alpha = .61$ ) at Wave I (Chen, Corvo, Lee, & Hahm, 2017). The measure has previously been used to assess neighborhood connectedness for African-American youth (Chen et al., 2017). The measure included items to assess youths’ perceptions of neighborhood social cohesion and the extent to which youth perceived themselves as being a part of their neighborhood. A total score on the scale was calculated by taking the sum of the scores on the response items. Response items are dichotomous (1 = true; 2 = false). The items were reversed scored and transformed (0 = false; 1 = true); higher scores indicate more perceived neighborhood connectedness. Example items from the scale include: “You know most of the people in your neighborhood;” “People in this neighborhood look out for each other.”

**School sense of belonging.** School sense of belonging was assessed using a four-item scale ( $\alpha = .76$ ) at Wave I (Mueller & Haines, 2012). The measure has been used in previous studies to assess school sense of belonging for African-American youth and demonstrated comparable internal consistency across diverse racial/ethnic groups (e.g., Mueller & Haines, 2012; Vaquera, 2009). The measure assessed the extent to which youth felt attached to school, that they were a part of their school and that they liked being at school. Participants received a total score on the scale, which I calculated by taking the sum of the scores on the response items. The items were reverse scored so that higher scores indicate more perceived sense of belonging to school. Response items are on a five-point scale (1 = agree; 5 = strongly disagree). An example item is: “You feel like you are a part of your school.”

**Academic behavioral engagement.** During the Wave II in-home interview, participants were asked to report how often they experienced challenges related to academic behavioral engagement in response to two items ( $\alpha = .68$ ), which produced similar internal consistency when used with diverse racial/ethnic groups (Vaquera, 2009). The items have been used to assess academic behavioral engagement for African-American youth in previous studies (e.g. Vaquera, 2009). The response items are on a five-point scale (0 = never; 4 = everyday). The items were reversed scored so that higher scores indicate more academic behavioral engagement, and the total scores were calculated by adding the scores on the two response items. The items are: “Since school started this year, how often have you had trouble paying attention in school?”; “...how often have you had trouble getting your homework done?”

**Delinquency.** Delinquency was assessed with seven items ( $\alpha = .77$ ) at Wave II (Resnick, Ireland, & Borowsky, 2004). The measure has been used in previous studies to assess delinquency for African-American youth (e.g., Resnick et al., 2004). The measure included items to assess youth engagement in risk and/or delinquent behaviors (e.g., fighting, stealing). Participants received a total score on the scale, which I calculated by taking the sum of the scores on the response items. Higher scores indicate more involvement in delinquent acts as a youth. Response items are on a four-point scale (0 = never; 3 = five or more times). A sample item is: “How often did you go into a house or building to steal something?”

**Educational attainment.** Participants’ educational attainment was assessed with the following question at Wave III and included in the analyses for the study: “What degrees or diplomas have you received? Indicate all that apply.” There are 3 response items included in the analyses for this study (i.e., high school diploma, associate’s degree, bachelor’s degree); response items are dichotomous (0 = not marked/no; 1 = marked/yes). The endorsed response

items were transformed based on the level of education (high school diploma = 1; associate's degree = 2; and bachelor's degree = 3); participants received a total score across the three response items. Higher scores indicate higher levels of educational attainment.

**Criminal justice system involvement.** Participant involvement with the criminal justice system was assessed from three items ( $\alpha = .64$ ) at Wave III (Harris-McKoy & Cui, 2013), that asked about adult criminal arrests and convictions. The items have previously been used to assess criminal justice system involvement for African-American youth (e.g., Harris-McKoy & Cui, 2013). Participants received a total score for the three items, which I calculated by taking the sum of the scores on each item. The response items are dichotomous (0 = not marked/no; 1 = marked/yes). Higher scores indicated more frequent involvement with the criminal justice system. An example item is: "Have you ever been arrested or taken into custody by the police?"

## Results

### Preliminary Analyses

Prior to conducting the main analyses, I ran descriptive statistics for each of the variables using the Statistical Package for the Social Sciences (SPSS) program to determine whether the data met the assumptions for each of the statistical tests. I tested the data for normality, by examining histograms for each variable and assessed the data for outliers. I examined missing data for all study variables and replaced all missing values with the number 999 to indicate missing values in the SPSS analyses. I estimated correlations to determine the strength of the linear associations among variables.

I conducted preliminary analyses in SPSS to confirm that the key assumptions of Structural Equation Modeling (SEM) were met. I examined histogram graphs and reviewed the skew and kurtosis statistics for each variable to assess for normality and to identify potential



outliers. The delinquency and criminal justice involvement variables were not normally distributed; I employed Log10 data modifications (Kline, 2011) to prepare the data for analysis. I reviewed scatterplots to confirm linearity among study variables. I also calculated the Cronbach's alpha estimates for each scale (see Method section) and inspected the covariance matrices to assess the data for multicollinearity, which I did not detect for any study variables. Some participants participated in only one or two waves of data collection; therefore, there were missing values in the dataset. To address the missing values, I applied full-information maximum likelihood (FIML) methods to produce parameter estimates and estimate standard errors. The FIML method allows the researcher to perform hypothesis testing on data that contain missing values, without serious bias (Bowen & Guo, 2012; Graham, 2009).

Gender and SES were significantly correlated with one of the outcome variables of interest. Gender and SES at Wave I were significantly associated with Wave III educational attainment. Specifically, there was a positive association between gender and educational attainment (i.e., being female was associated with attaining more education) and a positive association between SES and educational attainment. The variables were included in the model analyses to control for their potential effects on the outcome variables of interest. Delinquency and academic engagement at Wave I also were controlled for in the analyses that included delinquency and academic engagement (Wave II) as mediation/outcome variables. Due to the data collection methods used in the ADD Health study, it also was necessary to include weight variables in the data analysis. To analyze the weighted data, I used the Complex Samples module in SPSS. In the Complex Samples module, researchers can develop a data analysis plan for complex data sets, which allows for the incorporation of the study design specifications into the

data analysis to support valid results (Muthén, 2010). All descriptive analyses for this study were conducted using the Complex Samples module in SPSS.

### **Descriptive Results**

The correlations among study variables and the descriptive results are displayed in Table 1. Statistically significant correlations were found among the study variables. More violence exposure at Wave I was associated with more delinquency and less academic behavioral engagement at Wave II. More delinquency was associated with less academic behavioral engagement at Wave II. A positive association was found between school belonging at Wave I and academic behavioral engagement at Wave II, while school belonging (Wave I) was negatively associated with delinquency at Wave II. These associations supported the study hypotheses.

### **Structural Equation Modeling**

In MPlus 7 (Version 1.4) software, I used SEM techniques to test the study hypotheses. Hypothesis VI stated the data would be a good fit for the structural regression model (illustrated in Figure 1). I examined the SEM model to determine whether delinquency involvement and academic behavioral engagement mediate the association between violence exposure and adult outcomes (i.e., criminal justice involvement and educational attainment). I also tested models in SEM to determine whether neighborhood connectedness and school sense of belonging moderate the associations among variables by testing interaction effects. SEM is a statistical technique that allows the researcher to examine the associations among multiple independent and dependent variables over time, to test the plausibility of theory-based, hypothesized models (Klem, 2000). Researchers most often use SEM to address research questions that would otherwise involve the application of several multiple regression analyses (Tabachnick & Fidell, 2013). The method is

particularly useful because it enables researchers to identify causal relationships among variables (Klem, 2000). I tested a structural model that represented the predicted relations among the study variables (Hypothesis VI) as illustrated in Figure 1.

**SEM models.** To test the study hypotheses, I developed a structural model based on the proposed theoretical model. In addition to the main mediation model, I tested two additional models that included interaction terms to test the moderation hypotheses that neighborhood connectedness and school belonging would moderate the associations between violence exposure and delinquency and violence exposure and academic behavioral engagement, respectively. When testing latent moderation variables in MPlus, including interaction terms in the SEM model is the preferred method of analysis (Muthén, 2010). I tested the moderation effects to determine whether there were interaction effects for violence exposure and neighborhood connectedness (i.e., VExNC) predicting delinquency and to test for the interaction effects of violence exposure and school belonging (i.e., VExSB) predicting academic behavioral engagement. In the hypothesized models the latent constructs were violence exposure, neighborhood connectedness, delinquency, school belonging, academic behavioral engagement, criminal justice involvement and educational attainment; the manifest variables were the control variables, gender and SES.

For all of the SEM models (including the measurement model), I examined the following fit indices to assess the goodness of fit: The Chi Square statistic, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker Lewis Index (TLI). I considered the model to be a good fit if it met the following requirements: A non-significant Chi-Square value, a RMSEA value less than or equal to .08, a CFI value greater than .90, and a TFI value greater than .90. (Bowen & Guo, 2012).

**Measurement model.** Before analyzing the structural models, I determined the goodness of fit of the measurement model, using confirmatory factor analysis (CFA) model specification in MPlus. Bowen and Guo (2012) define model specification as determining how many factors are represented by data in the form of observed indicators, which variables are related to the model factors, and which latent constructs and error terms are correlated. CFA is an important first step to assessing the adequacy of the measurement model, prior to testing the structural model using SEM. To specify the model, I estimated the full hypothesized measurement model:  $\chi^2(413) = 4309.001, p = .000$ ; CFI = 0.86; TFI = 0.84; RMSEA = 0.044. When large samples are included in SEM analyses, the Chi-Square value is almost always significant (Kline, 2011); therefore, the significant  $p$  value was not concerning. According to the fit criteria (i.e., non-significant Chi-Square value; CFI and TLI values  $> .90$ ; RMSEA value  $\leq .08$ , Bowen & Guo, 2012), the results indicated that the model was a moderately good fit for the data. Although the CFI and TLI values fell slightly below .90, the other values met the established criteria.

**Structural model analysis.** After confirming that the measurement model is a good fit, I used SEM to analyze the structural models to determine the directional linear influences and to assume explanatory relationships among the latent constructs (Bowen & Guo, 2012). To test the mediational model, I examined both direct and indirect effects. I included the control variables, gender and SES, and the Wave 1 variables, delinquency and academic behavioral engagement, in the model. The model was a good fit for the data,  $\chi^2(755) = 1060.72, p = .000$ ; CFI = .91; TLI = .90; RMSEA = .02 (see Figure 2). The chi-square test was significant; this finding was likely due to the large sample size. The RMSEA and CFI values met the criteria; the TLI value was slightly below .90.

In addition to examining the fit for the overall model, I examined the path analysis results to determine the directional relationships among the variables. Hypothesis I stated that more violence exposure at Wave I would be associated with more delinquency at Wave II; and Hypothesis II stated that more violence exposure would be associated with lower academic behavioral engagement at Wave II. The SEM results indicated that more violence exposure at Wave I significantly predicted more delinquency at Wave II ( $b = 0.19, SE = 0.07, \beta = 2.56, p < .05$ ), while violence exposure at Wave I did not significantly predict academic behavioral engagement at Wave II ( $b = -0.09, SE = 0.07, \beta = -1.31, p = 1.91$ ) (Figure 2). The results provided support for Hypotheses I but did not support Hypothesis II.

Next, I examined the path analysis results for Hypothesis III, which stated that more delinquency at Wave I would be associated with less academic behavioral engagement at Wave II. The results indicated that more delinquency predicted less academic behavioral engagement ( $b = -0.24, SE = 0.05, \beta = -4.45, p < .000$ ) (Figure 2), which supported the hypothesis.

To further assess the results for Hypothesis IV and V, I examined the path models to determine whether greater neighborhood connectedness (Wave I) would be associated with less delinquency and more academic behavioral engagement (Wave II) and whether more school belonging (Wave I) was associated with more academic behavioral engagement and less delinquency (Wave II) (Figure 2). According to the path analysis results, neighborhood connectedness significantly predicted more delinquency ( $b = 0.15, SE = 0.06, \beta = 2.65, p < .05$ ), but did not significantly predict academic behavioral engagement ( $b = -0.04, SE = 0.06, \beta = -0.65, p = .513$ ), when controlling for delinquency and academic behavioral engagement at Wave I. Thus, the results did not support Hypothesis IV. It was also found that school belonging did not significantly predict academic behavioral engagement ( $b = 0.04, SE = 0.06, \beta = 0.57, p =$

.568); however, school belonging significantly predicted less delinquency at Wave II ( $b = -0.14$ ,  $SE = 0.05$ ,  $\beta = -3.16$ ,  $p < .05$ ), which provided partial support for Hypothesis V.

Hypothesis VI stated that the data would be a good fit for the structural regression model. Specifically, I predicted that more violence exposure at Wave I would be associated with more criminal involvement and lower educational attainment at Wave III and that delinquency and academic behavioral engagement at Wave II would mediate the association between violence exposure (Wave I) and the adult outcomes (i.e., criminal involvement and educational attainment) (Wave III). The SEM path analysis results partially supported the hypothesis. Violence exposure at Wave I significantly predicted criminal involvement at Wave III ( $b = 0.19$ ,  $SE = 0.06$ ,  $\beta = 2.95$ ,  $p < .05$ ) but did not predict educational attainment at Wave III ( $b = -0.17$ ,  $SE = 0.11$ ,  $\beta = -1.57$ ,  $p = .116$ ).

To further test the mediation hypothesis, I examined the indirect effect for delinquency on the relationship between violence exposure and criminal involvement and the indirect effect for academic behavioral engagement on the relationship between violence exposure and educational attainment; the indirect effects were not statistically significant ( $b = -0.01$ ,  $SE = 0.01$ ,  $\beta = -0.50$ ,  $p = .619$ ;  $b = -0.03$ ,  $SE = 0.02$ ,  $\beta = -1.18$ ,  $p = .237$ ). Delinquency and academic behavioral engagement at Wave II did not mediate the associations between violence exposure (Wave I) and the adult outcomes (Wave III). Although violence exposure predicted delinquency, delinquency did not significantly predict criminal justice involvement ( $b = 0.04$ ,  $SE = 0.08$ ,  $\beta = 0.53$ ,  $p = .594$ ). Violence exposure did not predict academic behavioral engagement; however, more academic behavioral engagement significantly predicted more educational attainment ( $b = 0.33$ ,  $SE = 0.14$ ,  $\beta = 2.40$ ,  $p < .05$ ) (Figure 2).

**Moderation analyses.** I tested two additional SEM models to test the moderation hypotheses; the first model tested whether school belonging moderated the relationship between violence exposure and academic behavioral engagement (Figure 3), and the second model tested whether neighborhood connectedness moderated the relationship between violence exposure and delinquency (Figure 4). The control variables gender and SES were included in the models. Latent moderated structural equations (LMS) methods do not produce test statistics, but provide regression statistics to test the moderation hypotheses (Maslowsky, Jagar, & Hemken, 2015); the fit statistics are reported from the main model. The LMS models include the interaction effects and produce the regression coefficients for the interaction terms (Maslowsky et al., 2015). The interaction effect for violence exposure and school belonging on academic behavioral engagement was not significant, ( $b = 0.05$ ,  $SE = 0.05$ ,  $\beta = 1.10$ ,  $p = .274$ ), indicating that school belonging did not moderate the association between violence exposure and academic behavioral engagement. The interaction effect for violence exposure and neighborhood connectedness was not statistically significant ( $b = -0.13$ ,  $SE = 0.76$ ,  $\beta = -0.17$ ,  $p = .867$ ), indicating that neighborhood connectedness did not moderate the association between violence exposure and delinquency. Thus, the moderation hypotheses were not supported.

### Discussion

This study examined the effects of violence exposure on youth academic behavioral engagement, delinquency and related early adulthood outcomes and the protective effects of neighborhood connectedness and school belonging for those outcomes among African-American adolescents. The need for additional research on the mechanisms by which violence exposure affects vulnerable youth populations and further research on related protective factors has been noted in previous studies (e.g., Ozer, Lavi, Douglas, & Wolf, 2017). This study is the first to

examine adolescent delinquency and academic behavioral engagement as mediators for adulthood outcomes among African-American youth exposed to violence. The study contributes to the limited research literature on neighborhood connectedness and school belonging as protective factors for violence-exposed youth and elucidates important considerations about the role of neighborhood connectedness in youth development and delinquent behaviors among youth.

The results showed that more violence exposure in adolescence predicted more delinquency among youth during adolescence and that more delinquency is associated with less academic behavioral engagement in adolescence. Interestingly, delinquency did not predict criminal justice system involvement in young adulthood. The study results also revealed that violence exposure did not significantly predict academic behavioral engagement. Academic behavioral engagement predicted later educational attainment, however. In testing for potential protective effects of neighborhood connectedness and school belonging for adolescent violence exposure, the results revealed that school belonging did not protect for the negative effects of violence exposure on academic behavioral engagement nor did neighborhood connectedness protect for the effects of violence exposure on delinquency in adolescence. The findings raise important considerations for the effects of violence exposure on African-American youth development and the importance of youth's surrounding community and school in developmental outcomes.

For youth in the current study, more violence exposure predicted more delinquency. The finding supported the research hypothesis and is consistent with previous research examining adolescent violence exposure and developmental outcomes. In Chen et al.'s (2016) study of the promotive factors influencing the association between community violence exposure and



delinquency for a sample of socioeconomically and racially diverse youth, more violence exposure was associated with more delinquency among youth. Relatedly, youth with more promotive factors (i.e., school attachment, neighborhood cohesion, family warmth, future expectations) were less likely to report delinquency involvement (Chen et al., 2016).

Connections between violence exposure in early childhood and the development of conduct problems later in adolescence are also evident in previous research (e.g., Briggs-Gowan, Carter, Clark, Augustyn, McCarthy, & Ford, 2010; Weaver, Borkowski, & Whiteman, 2008).

To understand the relationship between violence exposure and delinquency among youth in the current study, it is important to consider the characteristics of youth's communities and youths' many potential responses to violence exposure. Youth who live in communities affected by violence may be more likely to encounter and interact with peers and other individuals engaging in violence and other crimes, increasing the likelihood that youth become involved in delinquent acts because of their proximity to others engaging in criminal acts (Lauritsen, Laub, & Sampson, 1992). The specific types of violence to which youth are exposed might also influence whether youth become involved in violence or other delinquent activities (Baskin and Sommers (2014). Further, youth who are exposed to violence often fear for their own safety and, as a result, some youth may engage in delinquent acts (e.g., fighting, initiating gang membership) in an effort to avoid becoming targets of violence themselves. It is important to consider these and other nuances of youth's experiences when exposed to violence in order to identify effective approaches to reducing the impact of violence on youth risk behaviors.

Unexpectedly, violence exposure did not significantly predict academic behavioral engagement among the youth in this study. The influence of violence exposure on academic engagement has been established in previous literature. There is evidence that youth exposed to

violence are at greater risk for problems in school (Basch, 2011). In a study examining community violence exposure and academic outcomes among racially/ethnically diverse adolescents, Borofsky et al. (2013) found that more violence exposure predicted less school engagement for youth. Further, school engagement was a mediator for violence exposure and school GPA (Borofsky et al., 2013), highlighting the impact of violence exposure on immediate and long-term outcomes. There is evidence that violence exposure affects academic engagement due to the direct influence of violence exposure on youth internalizing (e.g., anxiety, depression) and externalizing (e.g., aggression) behaviors. Busby et al. (2013) examined the effects of violence exposure on African-American youth and found that more violence exposure was associated with lower academic functioning (i.e., less attention, engagement, effort and eagerness to learn); the association was mediated by aggressive behaviors. Findings in previous studies also suggest that violence exposure affects academic engagement, due to its effects on students' feelings of safety in their communities and schools (Grover, 2015). Youth who feel safe in school demonstrate better academic engagement than youth who feel unsafe in school (Cote-Lussier & Fitzpatrick, 2016).

While academic behavioral engagement was examined in the current study, other types of engagement (e.g., emotional engagement) may be more directly affected by violence exposure. Emotional engagement is defined as the affective or cognitive orientation a student has towards academics and the school environment (Jimerson, Campos, & Greif, 2003). Due to the traumatic nature of experiencing first or second-hand violence, it is possible that students' academic emotional engagement is influenced by violence exposure. Violence exposure has been associated with posttraumatic stress symptoms in adolescence, a condition that has been linked to poorer academic functioning for young students (McGill et al., 2014); therefore, it is likely that

violence exposure influences emotional engagement for youth in school. Given previous research findings on the influence of violence exposure on academics, it is important to determine what other factors might influence the association between violence exposure and academic engagement. Socioecological factors, such as caregiver or peer support (Estell & Perdue, 2013), may influence academic engagement for violence-exposed youth. In a study of the effects of social support on academic engagement for racially and ethnically diverse students (i.e., third to sixth grade), parent support was related to higher behavioral engagement in school, which peer support was related to higher emotional engagement (Estell & Perdue, 2013).

The study results also showed that more delinquency significantly predicted less academic behavioral engagement, supporting the study hypothesis. Behavioral engagement is defined in part by the individuals' display of proper conduct and the absence of disruptive behaviors (Fredricks, Filsecker, & Lawson, 2016), and classroom misconduct and disruptive behaviors are more prevalent among youth who engage in delinquency (Schmidt, 2003). In a study that examined the reciprocal relationship among school engagement and youth problem behaviors, lower levels of delinquency predicted higher levels of academic behavioral engagement among for African-American and European-American youth (Wang & Fredricks, 2014). There also is evidence that academic behavioral engagement may act as a protective factor for delinquency involvement. In a study of the school engagement trajectories of racially and ethnically diverse middle school-aged youth, youth who experienced high, stable academic behavioral engagement over time demonstrated less delinquency involvement than youth with low or decreasing levels of academic engagement (Li & Lerner, 2011).

Surprisingly, neighborhood connectedness predicted more delinquency and was not associated with academic behavioral engagement in the current study; these findings did not

support the study hypotheses. It is possible, however, that the characteristics of surrounding neighborhoods can lead to less desirable outcomes for youth exposed to violence. For example, previous research suggests that neighborhood poverty and existing crime in neighborhoods contribute to delinquency among youth (Graif, Gladfelter, & Matthews, 2014). Depending on the neighborhood, adolescents who are most connected to their neighborhoods may be more likely to get involved in problem behaviors that are prevalent among adults and peers in the community. In the current study, the youth who reported greater neighborhood connectedness and more delinquency involvement may have been spending more time with community members engaged in crimes or delinquent activities (e.g., older youth, peers), contributing to their increased involvement in delinquency.

The sample in the current study included African-American youth from diverse socioeconomic backgrounds, living in various types of communities (i.e., urban, suburban, rural), so it is also important to consider other factors that may have influenced the association between neighborhood connectedness and delinquency in the current study. While the participants reported limited information about other neighborhood characteristics, other factors, such as population density and transiency, influence the likelihood that youth become involved in delinquent activities (Law & Quick, 2013; Shaw & McKay, 1942). It is also important to consider that while this study examined neighborhood connectedness defined as perceptions of social cohesion and connectedness, the study did not assess other elements of neighborhood connectedness (i.e., social capital, informal social control) that may be more closely associated with prosocial behaviors in adolescence. It is possible, that a more robust measure of neighborhood connectedness would more accurately assess youths' perceptions of connectedness to their communities and reveal a negative association between connectedness and delinquency.

Neighborhood connectedness did not significantly predict academic behavioral engagement in the current study, a finding that was also contrary to the study hypothesis. There are mixed findings in previous studies of the impact of neighborhoods on adolescent schooling experiences and outcomes, and few studies have examined the influence of neighborhood connectedness on academic engagement. I was only able to find one study that examined the role of neighborhood belonging in academic outcomes for Latina/o youth, and in that study neighborhood belonging was inversely related to academic achievement, aspirations, expectations and values (Maurizi et al., 2013). The authors proposed that the values of youths' neighborhoods may conflict with education-oriented values, resulting in neighborhood belonging leading to less desirable academic outcomes. The findings suggested that neighborhood belonging may be a protective factor for some aspects of adolescent development (e.g., psychological wellbeing) and simultaneously hinder prosocial behaviors and outcomes in school. Other studies have investigated the roles of neighborhoods in academic outcomes for youth, by focusing on factors other than belonging, such as youth perception of neighborhood safety. In a study of contextual factors influencing academic performance for urban, African-American adolescent, perceptions of neighborhood deterioration (e.g., incidence of crime) were associated with lower GPA (Williams, Davis, Cribs, Saunders, & Williams, 2002). Neighborhood satisfaction, on the other hand, has been positively associated with students' perceptions of their ability to succeed in school (Woolley & Grogan-Kaylor, 2006). These findings raise important considerations about the characteristics of neighborhoods and the resulting influence on youth development. Perhaps most importantly, researchers should further investigate how neighborhood connectedness can be a risk factor for negative developmental outcomes for youth in some communities.

The study results indicated that school belonging did not significantly predict academic engagement, which did not support the study hypothesis. According to socio-cultural perspectives on education, students' sense of belonging to others in the school community is necessary for optimal academic experiences and outcomes, including academic engagement (Booker, 2006). In Neel and Fuligni's study (2013) of school belonging and academic motivation among diverse high school students, school belonging was positively associated with students' intrinsic value of schooling and academic motivation, two factors that are related to academic engagement for youth. Despite these findings, the results of some previous studies suggest that school belonging may function differently for racial and ethnic minority youth than other youth.

While there is some research evidence that school belonging is important to academic engagement and achievement for African-American and other ethnic minority youth (e.g., Booker, 2006), the findings in other studies suggest that school belonging may be less indicative of academic effort or engagement for racial/ethnic minority students than for other students (e.g., (e.g., Johnshon, Crosnoe, & Elder, 2001). There is evidence that the ways in which racial and ethnic minority youth relate to the school environment is complex, due to the sociocultural history of minority schooling experiences. The value of education among ethnic minority students often is influenced by their experiences of marginalization and discrimination in society and formal institutions, including school. For example, African-American and Latina/o students often experience simultaneous, conflicting views about the value of education (i.e., school is important; academic effort/success will not afford equal opportunities to racial/ethnic minorities). As a result, African-American youth may be socially integrated and experience a high sense of belonging in school, yet remain academically disengaged, which is a potential explanation for why sense of belonging to school for youth in the current did not directly

influence academic engagement. The findings in the current study suggest that it may be important to incorporate measures to assess other aspects of schooling that might influence academic behavioral engagement for violence-exposed youth, such as school climate and peer associations (Ryan, 2000; Wang & Holcombe, 2010)

For the youth in this study, more school belonging was associated with less delinquency. There is evidence in previous research that school belonging affects student engagement in problem behaviors. Higher perceived school belonging has been associated with less misconduct in school among ethnically diverse students (Demant & Van Houtte, 2011). In an earlier study of school-based interventions for delinquency involvement among students, interventions targeting improvements in the school environment reduced delinquency involvement among students by promoting a sense of belonging to school (Gottfredson, 1986). Youth who feel connected to the school environment are more likely to attend school regularly and to engage in prosocial activities (Cemalcilar, 2010; Sánchez, Colón, & Esparza, 2005). The results from this study suggest that school belonging may be a protective factor for youth delinquency.

I examined adolescent delinquency and academic behavioral engagement as mediating variables for the influence of violence exposure on long-term outcomes, criminal justice involvement and educational attainment. Although more violence exposure predicted more delinquency during adolescence, the study results revealed that delinquency during adolescence did not significantly predict criminal justice system involvement in young adulthood. This finding did not the study hypothesis and is contrary to the findings in previous studies, which have established a link between adolescent delinquency and adult criminal justice system involvement (e.g., Bonta, Law, & Hanson, 1998; Tracy, Kempf-Leonard, & Abramoske-James, 2009). However, it is possible that the types of delinquent activities addressed in the current

study are less predictive of adult criminal justice system involvement than other or more serious types of delinquent offenses. The current study assessed participants' involvement in delinquent acts such as fighting or shoplifting; however, more serious or violent offenses (e.g., assault) are likely to be better predictors of continued or prolonged involvement in criminal acts (Tracy & Kempf-Leonard, 1996; Tracy et al., 2009). Further, the delinquency measure for the current study did not address juvenile justice system involvement due to delinquent acts, which previous research has established as a common precursor to adult criminal justice system involvement (Bonta et al., 1998).

It was also found that violence exposure did not predict academic behavioral engagement, as previously discussed; however, more academic behavioral engagement predicted higher educational attainment. The association between academic behavioral engagement and educational attainment found in the current study is supported by the research literature. There is evidence that academic engagement is important to academic achievement and school completion. In a study of contextual risk factors (i.e., neighborhood, family, school factors), African-American students, youth who reported more school engagement were more likely to remain in high school over time (less likely to drop out) (Connell, Halpern-Felsher, Clifford, Crichlow, USinger, 1995).

In this study, I also examined neighborhood connectedness and school belonging as protective factors for the effects of violence exposure on delinquency and academic behavioral engagement. The results indicated that neighborhood connectedness and school belonging did not have protective effects for the influence of violence exposure on the adolescent adjustment variables. The findings raise important considerations regarding the protective roles of community and school factors for African-American youth exposed to violence. When



examining the protective effects of neighborhood and school factors for youth exposed to violence, it is important to consider the ecological and sociocultural contexts and how those contexts impact the experiences, values and behaviors of racial and ethnic minority youth.

In neighborhoods, there are multiple factors that influence youth development, such as socioeconomic status, the prevalence of crime and the values and behaviors of adults and peers within community. In the current study, the findings suggest that neighborhood connectedness has implications for increased risk for delinquency involvement during adolescence. For youth in neighborhoods affected by violence, youth may be exposed to negative influences that increase their risk for problem behaviors (e.g., delinquency, substance use). Previous studies suggest that parental monitoring and positive relationships with caregivers and other adults are important to positive youth development in high-risk neighborhoods (Janssen, Weerman, & Fichelsheim, 2017). Therefore, it is plausible that youths' experiences in their neighborhoods only have protective effects when specific elements are present; factors such as adult supervision and peer associations affect how youth experience their neighborhoods and likely influence whether youths' neighborhood connectedness protects for the effects of developmental risk factors, such as violence exposure. Parental involvement plays an important role for adolescents in high-risk environments, especially as it relates to reducing risk for externalizing behaviors (Beyers, Bates, Pettit, & Dodge, 2003). Family and peer factors were not examined in the current study, but should be addressed in future studies of neighborhood protective effects for violence-exposed youth.

It also is important to consider the multitude of influences impacting youths' schooling experiences to understand why school belonging might have protective effects for only some academic outcomes for African-American youth. There is a wealth of evidence that school

belonging has a positive influence on academic outcomes for youth (e.g., Maurizi et al., 2013; Sánchez, Colón, & Esparza, 2005). However, the observed effects of school belonging on academics likely depend largely on the educational processes and/or outcomes studied. The academic variable of focus in the current study was academic behavioral engagement, which reflects students' academic effort and is important to academic achievement (i.e., grade point average, test scores). However, other types of academic engagement or measures of achievement may be more directly influenced by school belonging. Further, given that students' schooling experiences are greatly influenced by their racial/ethnic identities, incorporating an analysis of sociocultural experiences and related outcomes would likely clarify the relationships between school belonging and academic outcomes and identify educational outcomes for which school belonging might have protective effects.

### **Implications**

The findings in this study have implications for the development of community and school-based prevention and intervention programs for African-American youth exposed to violence. First, interventions should address the context of the multiple domains in which youth develop, including their communities and schools, and be culturally-tailored to address the specific needs of ethnic minority youth populations. Interventionists should take care to consider the nuances of youths' experiences in their neighborhoods and schools and to understand the role of key relationships that youth have with individuals in those environments to most effectively address their needs and support healthy development. The relationships between youth and their neighborhoods are complex and are largely dependent on their interactions with others in their communities. Providing preventive intervention programs that are readily accessible within the neighborhoods where youth spend most of their time, such as local community centers, can

enhance youths' access to key resources and supports; such programs may be especially important to development for youth in high-risk neighborhoods for whom neighborhood connectedness can potentially become a risk factor for problem behaviors.

The findings in this study highlight the need to promote positive relationship building for youth in communities. Developing community and school-based mentoring programs can be an essential resource for youth in high-risk neighborhoods, providing access to positive influences outside of the home. Regarding youths' experiences in school, sense of belonging is an important component of youth's educational experiences and outcomes, and promoting school belonging is a core element of many successful intervention programs. Strengthening the link between school sense of belonging and academic engagement for African-American youth exposed to violence may increase the potential for school belonging to be a protective factor for developmental outcomes. Providing peer-learning experiences for students is one way to positively influence the value of education in youth's key peer groups and promote academic engagement. Researchers and interventionist should make efforts to implement community and school-based violence prevention and intervention programs as early as elementary school, because the negative effects of violence exposure can influence delinquency involvement in early adolescence. Early interventions that address multiple risk factors and build supports in youths' homes, neighborhoods and schools are likely to be the most effective.

### **Limitations**

There were limitations to the current study. First, I did not directly assess between-participant differences in violence exposure based on the frequency, severity or proximity (i.e., direct, indirect) of the violence experienced. Violence exposure was assessed based on the endorsement of a total number of items, indicating whether participants experienced more or less

exposure to violence in general; however, there are likely differences in the effects of violence exposure on youth development and the variable of interests based on the nature of the violence experienced. Relatedly, the youth in the current study reported relatively low levels of violence exposure overall. The sample included African-American youth from diverse socioeconomic backgrounds and communities (e.g., urbanity). Given the trends in youth violence exposure in the U.S., a study focused on African-American youth from urban, low-income communities would likely reveal more about the impact of violence on adolescent outcomes and potentially more significant associations among the study variables. The violence exposure measure was also limited in that it did not include a question on where in their communities youth were exposed to violence. It is also important to note that although the internal consistency for the scales in this study were similar to those reported in previous studies, the Cronbach's alpha for many of the measures were relatively low (i.e.,  $\alpha =$  less than .70). Therefore, it is important to consider whether some of the measures adequately assessed the study variables (e.g., neighborhood connectedness) and whether the findings fully reflect the associations among key variables.

Another limitation is that this study focused on specific aspects of key risk and protective factors in the study and did not account for some variables that might also be important to the developmental processes affecting violence-exposed youth. Broadening the conceptualization of key variables in the study (e.g., including other elements of neighborhood connectedness and academic engagement in the analyses) may reveal more about the associations among the protective factors and developmental outcomes for youth exposed to violence. Finally, this study did not examine differences in violence exposure and related outcomes for the participants based on SES or gender. While gender and SES-based differences in violence exposure were not the

focus of the current study, both are likely to have significant influences on how youth experience violence in their communities and how those experiences affect immediate and long-term developmental outcomes. Finally, this study includes the analysis of data collected between 1994 and 2001. The nature of adolescent experiences during the 90's and early 2000's is likely much different from the experiences of youth in the present day. When considering trends in community violence, for example, in many cities youth are exposed to less violence than seen in previous years (Finkelhor, Shattuck, Turner, & Hamby, 2014). Therefore, while the findings highlight important considerations regarding the influence of violence on youth development, researchers should acknowledge the limited application of the findings to today's youth.

### **Future Directions**

This study contributed to the literature on risk and protective factors for violence exposure in the contexts of youths' communities and schools. The findings can inform the development of community and school-based interventions to promote resilience for African-American youth exposed to violence. Future studies should further examine the characteristics of neighborhoods that might contribute to risk for delinquency. For example, researchers should explore how youths' interactions with adult and peer residents may influence their involvement in risk behaviors or promote their participation in prosocial activities. Learning more about how key relationships impact youths' experiences and perceptions of their neighborhoods will help illuminate the processes that contribute to neighborhood risk and protective factors. Mixed methods studies that incorporate the use of qualitative methodologies would be particularly useful in such studies.

Researchers also should continue to examine the sociocultural factors unique to African-American youth that influence schooling experiences, to promote school belonging and

strengthen the relationship between school belonging and academic engagement. Incorporating explorations of the factors contributing to academic value, effort and persistence for racial/ethnic minority youth should also be of focus in future studies. These efforts will support existing and new approaches to promoting school belonging and academic engagement for adolescents exposed to community violence. Finally, more research should be done to determine how to identify and leverage existing assets and resources in youths' communities and schools to promote resiliency for youth exposed to violence and other environmental risk factors.

Understanding the complexities of the environmental risk and protective factors impacting adolescent development is critical to supporting desirable developmental outcomes for youth.

Violence intervention programs should build upon current and future research to incorporate evidence-based approaches to supporting healthy development for youth exposed to community violence.

## References

- Aisenberg, E., & Herrenkohl, T. (2008). Community violence in context: Risk and resilience in children and families. *Journal of Interpersonal Violence, 23*(3), 296-315.
- Basch, C. E. (2011). Aggression and violence and the achievement gap among urban minority youth. *Journal of School Health, 81*(10), 619-625.
- Baskin, D., & Sommers, I. (2014). Exposure to community violence and trajectories of violent offending. *Youth Violence and Juvenile Justice, 12*(4), 367-385.
- Beyers, J. M., Bates, J. E., Pettit, G. S., & Dodge, K. A. (2003). Neighborhood structure, parenting processes, and the development of youths' externalizing behaviors: A multilevel analysis. *American Journal of Community Psychology, 31*(1-2), 35-53.
- Blum, R. W., McNeely, C., Nonnemaker, J., Fischhoff, B., Nightingale, E. O., & Iannotta, J. G. (2001). Vulnerability, risk, and protection. *Adolescent Risk and Vulnerability: Concepts and Measurement, 50-72*.
- Bolland, K. A., Bolland, A. C., Bolland, J. M., Church, W. T., Hooper, L. M., Jagers, J. W., & Tomek, S. (2016). Trajectories of school and community connectedness in adolescence by gender and delinquent behavior. *Journal of Community Psychology, 44*(5), 602-619.
- Bonta, J., Law, M., & Hanson, K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: a meta-analysis. *Psychological bulletin, 123*(2), 123
- Booker, K. C. (2004). Exploring school belonging and academic achievement in African American adolescents. *Curriculum and Teaching Dialogue, 6*, 133-146.
- Booker, K. C. (2006). School belonging and the African American adolescent: What do we know and where should we go?. *The High School Journal, 89*(4), 1-7.

- Borofsky, L. A., Kellerman, I., Baucom, B., Oliver, P. H., & Margolin, G. (2013). Community violence exposure and adolescents' school engagement and academic achievement over time. *Psychology of Violence, 3*(4), 381.
- Bowen, N. K., & Bowen, G. L. (1999). Effects of crime and violence in neighborhoods and schools on the school behavior and performance of adolescents. *Journal of Adolescent Research, 14*(3), 319-342.
- Bowen, N. K., & Guo, S. (2012). *Structural Equation Modeling*. New York, New York: Oxford University Press, Inc.
- Boyce, W. F., Davies, D., Gallupe, O., & Shelley, D. (2008). Adolescent risk taking, neighborhood social capital, and health. *Journal of Adolescent Health, 43*(3), 246-252.
- Briggs-Gowan, M. J., Carter, A. S., Clark, R., Augustyn, M., McCarthy, K. J., & Ford, J. D. (2010). Exposure to potentially traumatic events in early childhood: Differential links to emergent psychopathology. *Journal of Child Psychology and Psychiatry, 51*(10), 1132-1140.
- Busby, D. R., Lambert, S. F., & Ialongo, N. S. (2013). Psychological symptoms linking exposure to community violence and academic functioning behavior in African American adolescents. *Journal of Youth and Adolescence, 42*(2), 250-262.
- Cemalcilar, Z. (2010). Schools as socialisation contexts: Understanding the impact of school climate factors on students' sense of school belonging. *Applied Psychology, 59*(2), 243-272.
- Chen, W. Y. (2010). Exposure to community violence and adolescents' internalizing behaviors among African American and Asian American adolescents. *Journal of Youth and Adolescence, 39*(4), 403-413.



- Chen, W. Y., Corvo, K., Lee, Y., & Hahm, H. C. (2017). Longitudinal trajectory of adolescent exposure to community violence and depressive symptoms among adolescents and young adults: understanding the effect of mental health service usage. *Community Mental Health Journal, 53*(1), 39-52.
- Chen, P., Voisin, D. R., & Jacobson, K. C. (2013). Community violence exposure and adolescent delinquency: Examining a spectrum of promotive factors. *Youth & Society, 48*(1), 33-57.
- Cooley, M. R., Turner, S. M., & Beidel, D. C. (1995). Assessing community violence: The children's report of exposure to violence. *Journal of the American Academy of Child and Adolescent Psychiatry, 34*(2), 201–206.
- Connell, J. P., Spencer, M. B., & Aber, J. L. (1994). Educational risk and resilience in African-American youth: Context, self, action, and outcomes in school. *Child Development, 65*(2), 493-506.
- Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunmar & L. A. Sroufe (Eds.), *Self processes and development: The Minnesota symposia on child development* (pp. 43–78). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Connell, J.P., Halpern-Felsher, B.L., Clifford, E., Crichlow, W., & Usinger, P. (1995). Hanging in there: Behavioral, psychological, and contextual factors affecting whether African-American adolescents stay in school. *Journal of Adolescent Research, 10*, 41– 63.
- Côté-Lussier, C., & Fitzpatrick, C. (2016). Feelings of safety at school, socioemotional functioning, and classroom engagement. *Journal of Adolescent Health, 58*(5), 543-550.
- Cuevas, C. A., Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2013). Children's exposure to violence and the intersection between delinquency and victimization. In L. A. Prock

- (Ed.), *The Societal Burden of Child Abuse: Long-Term Mental Health and Behavioral Consequences* (53-74). Boca Raton, FL: CRC Press.
- Davis, R. A. (2014). Preventing urban violence to save lives and foster healthy communities. *National Civic Review*, *103*(1), 55-56.
- Davis, T., Ammons, C., Dahl, A., & Kliewer, W. (2015). Community violence and callous-unemotional traits in adolescents: Testing parental support as a promotive versus protective factor. *Personality and Individual Differences*, *77*, 7-12.
- Demant, J., & Van Houtte, M. (2012). School belonging and school misconduct: The differing role of teacher and peer attachment. *Journal of Youth and Adolescence*, *41*(4), 499-514.
- Diez Roux, A. V. (2001). Investigating neighborhood and area effects on health. *American Journal of Public Health*, *91*(11), 1783-1789.
- Estell, D. B., & Perdue, N. H. (2013). Social support and behavioral and affective school engagement: The effects of peers, parents, and teachers. *Psychology in the Schools*, *50*(4), 325-339.
- Fagan, A. A., Wright, E. M., & Pinchevsky, G. M. (2014). The protective effects of neighborhood collective efficacy on adolescent substance use and violence following exposure to violence. *Journal of Youth and Adolescence*, *43*(9), 1498-1512.
- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health*, *26*, 399-419.
- Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and Instruction*, *43*, 1-4.
- Finkelhor, D. (2008). *Childhood victimization: Violence, crime, and abuse in the lives of young*

- people*. New York, NY: Oxford University Press.
- Finkelhor, D., Shattuck, A., Turner, H. A., & Hamby, S. L. (2014). Trends in children's exposure to violence, 2003 to 2011. *JAMA pediatrics*, *168*(6), 540-546.
- Furrer, C., & Skinner, E. (2003). Sense of relatedness as factor in children's academic engagement and performance. *Journal of Educational Psychology*, *95*, 148-163.
- Goodenow, C. (1993). The psychological sense of school membership among adolescents: Scale development and educational correlates. *Psychology in the Schools*, *30*(1), 79-90.
- Goodenow, C., & Grady, K. E. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *Journal of Experimental Education*, *62*, 60-71.
- Gottfredson, D. C. (1986). An empirical test of school-based environmental and individual interventions to reduce the risk of delinquent behavior. *Criminology*, *24*(4), 705-731.
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*, 549-576.
- Graif, C., Gladfelter, A. S., & Matthews, S. A. (2014). Urban poverty and neighborhood effects on crime: Incorporating spatial and network perspectives. *Sociology Compass*, *8*(9), 1140-1155.
- Grover, A. (2015). *Student perception of school safety and how it affects their academic achievement* (Unpublished doctoral dissertation). Northwest Nazarene University, Idaho.
- Hammack, P. L., Richards, M. H., Luo, Z., Edlynn, E. S., & Roy, K. (2004). Social support factors as moderators of community violence exposure among inner-city African American young adolescents. *Journal of Clinical Child and Adolescent Psychology*, *33*(3), 450-462.

- Harris-McKoy, D., & Cui, M. (2013). Parental control, adolescent delinquency, and young adult criminal behavior. *Journal of Child and Family Studies, 22*(6), 836-843.
- Jain, S., & Cohen, A. K. (2013). Fostering resilience among urban youth exposed to violence: A promising area for interdisciplinary research and practice. *Health Education & Behavior, 40*(6), 651-662.
- Janssen, H. J., Weerman, F. M., & Eichelsheim, V. I. (2017). Parenting as a protective factor against criminogenic settings? Interaction effects between three aspects of parenting and unstructured socializing in disordered areas. *Journal of Research in Crime and Delinquency, 54*(2), 181-207.
- Jimerson, S. R., Campos, E., & Greif, J. L. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist, 8*(1), 7-27.
- Johnson, M. K., Crosnoe, R., & Elder Jr, G. H. (2001). Students' attachment and academic engagement: The role of race and ethnicity. *Sociology of Education, 318-340*.
- Jose, P. E., Ryan, N., & Pryor, J. (2012). Does Social Connectedness Promote a Greater Sense of Well-Being in Adolescence Over Time? *Journal of Research on Adolescence, 22*(2), 235-251.
- Juvonen, J. (2007). Reforming middle schools: Focus on continuity, social connectedness, and engagement. *Educational Psychologist, 42*(4), 197-208.
- Kirk, D. S., & Sampson, R. J. (2013). Juvenile arrest and collateral educational damage in the transition to adulthood. *Sociology of Education, 86*(1), 36-62.

- Klem, L. (2000). Structural equation modeling. In L.G. Grimm, & P.R. Yarnold (Eds.), *Reading and understanding more multivariate statistics*. Washington, D. C.: American Psychological Association.
- Kliwer, W., Cunningham, J. N., Diehl, R., Parrish, K. A., Walker, J. M., Atiyeh, C., Neace, B., Duncan, L., Taylor, K., & Mejia, R. (2004). Violence exposure and adjustment in inner-city youth: Child and caregiver emotion regulation skill, caregiver–child relationship quality, and neighborhood cohesion as protective factor. *Journal of Clinical Child and Adolescent Psychology, 33*(3), 477-487.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling (Third edition)*. New York, New York: The Guildford Press.
- Lauritsen, J. L., Laub, J. H., & Sampson, R. J. (1992). Conventional and delinquent activities: Implications for the prevention of violent victimization among adolescents. *Violence and Victims, 7*(2), 91.
- Law, J., & Quick, M. (2013). Exploring links between juvenile offenders and social disorganization at a large map scale: A Bayesian spatial modeling approach. *Journal of Geographical Systems, 15*(1), 89-113
- Lenzi, M., Vieno, A., Pastore, M., & Santinello, M. (2013). Neighborhood social connectedness and adolescent civic engagement: An integrative model. *Journal of Environmental Psychology, 34*, 45-54.
- Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*(1), 233.

- Libbey, H. P. (2007). *School connectedness: Influence above and beyond family connectedness* (Doctoral dissertation). Retrieved from ProQuest. (3287822)
- Lösel, F., & Farrington, D. P. (2012). Direct protective and buffering protective factors in the development of youth violence. *American Journal of Preventive Medicine, 43*(2), S8-S23.
- Low, S., & Espelage, D. (2014). Conduits from community violence exposure to peer aggression and victimization: Contributions of parental monitoring, impulsivity, and deviancy. *Journal of Counseling Psychology, 61*(2), 221.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543-562.
- Mahar, A. L., Cobigo, V., & Stuart, H. (2012). Conceptualizing belonging. *Disability & Rehabilitation, 35*(12), 1026-1032.
- Maslowsky, J., Jager, J., & Hemken, D. (2015). Estimating and interpreting latent variable interactions: A tutorial for applying the latent moderated structural equations method. *International Journal of Behavioral Development, 39*(1), 87-96.
- Maurizi, L. K., Ceballo, R., Epstein-Ngo, Q., & Cortina, K. S. (2013). Does neighborhood belonging matter? Examining school and neighborhood belonging as protective factors for Latino adolescents. *American Journal of Orthopsychiatry, 83*(2-3), 323-334.
- McGee, Z. (2014). Exposure to violence and problem behavior among urban adolescents: Assessing risk factors and coping strategies. *Journal of the Institute of Justice & International Studies, 14*, 73.
- McGill, T. M., Self-Brown, S. R., Lai, B. S., Cowart-Osborne, M., Tiwari, A., LeBlanc, M., & Kelley, M. L. (2014). Effects of exposure to community violence and family violence on

- school functioning problems among urban youth: The potential mediating role of posttraumatic stress symptoms. *Frontiers in Public Health*, 2.
- McMahon, S. D., Keys, C. B., Berardi, L., & Crouch, R. (2011). The ecology of achievement among students diverse in ethnicity and ability. *Journal of Community Psychology*, 39(6), 645-662.
- McNeely, C., & Falci, C. (2004). School connectedness and the transition into and out of health-risk behavior among adolescents: A comparison of social belonging and teacher support. *Journal of School Health*, 74(7), 284-292.
- Mueller, C., & Haines, R. T. (2012). Adolescent perceptions of family connectedness and school belonging: Links with self-concept and depressive symptoms among gifted African American and Hispanic youth. *Gifted Children*, 5(2), 3.
- Muthén, L. K. (2010). Mplus User's Guide, (Muthén & Muthén, Los Angeles). *Mplus User's Guide*, (Muthén & Muthén, Los Angeles).
- Neel, C. G. O., & Fuligni, A. (2013). A longitudinal study of school belonging and academic motivation across high school. *Child Development*, 84(2), 678-692.
- Newman, B. M., Lohman, B. J., & Newman, P. R. (2007). Peer group membership and a sense of belonging: Their relationship to adolescent behavior problems. *Adolescence*, 42(166), 241.
- Oggers, C. L., Moffitt, T. E., Tach, L. M., Sampson, R. J., Taylor, A., Matthews, C. L., & Caspi, A. (2009). The protective effects of neighborhood collective efficacy on British children growing up in deprivation: A developmental analysis. *Developmental Psychology*, 45(4), 942.

- Osofsky, J. D. (1995). The effect of exposure to violence on young children. *American Psychologist, 50*(9), 782.
- Ozer, E. J., Lavi, I., Douglas, L., & Wolf, J. P. (2017). Protective factors for youth exposed to violence in their communities: A review of family, school, and community moderators. *Journal of Clinical Child & Adolescent Psychology, 46*(3), 353-378.
- Patchin, J. W., Huebner, B. M., McCluskey, J. D., Varano, S. P., & Bynum, T. S. (2006). Exposure to community violence and childhood delinquency. *Crime & Delinquency, 52*(2), 307-332.
- Patton, D. U., Woolley, M. E., & Hong, J. S. (2012). Exposure to violence, student fear, and low academic achievement: African American males in the critical transition to high school. *Children and Youth Services Review, 34*(2), 388-395.
- Pittman, L. D., & Richmond, A. (2007). Academic and psychological functioning in late adolescence: The importance of school belonging. *The Journal of Experimental Education, 75*(4), 270-290.
- Plybon, L. E., Edwards, L., Butler, D., Belgrave, F. Z., & Allison, K. W. (2003). Examining the link between neighborhood cohesion and school outcomes: The role of support coping among African American adolescent girls. *Journal of Black Psychology, 29*(4), 393-407.
- Resnick, M. D., Ireland, M., & Borowsky, I. (2004). Youth violence perpetration: What protects? What predicts? Findings from the National Longitudinal Study of Adolescent Health. *Journal of Adolescent Health, 35*(5), 424e1-424e10.
- Rios, R., Aiken, L. S., & Zautra, A. J. (2012). Neighborhood contexts and the mediating role of neighborhood social cohesion on health and psychological distress among Hispanic and non-Hispanic residents. *Annals of Behavioral Medicine, 43*(1), 50-61.



- Ryan, A. M. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist, 35*(2), 101-111.
- Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing “neighborhood effects”: Social processes and new directions in research. *Annual Review of Sociology, 28*(1), 443-478.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*(5328), 918-924.
- Sánchez, B., Colón, Y., & Esparza, P. (2005). The role of sense of school belonging and gender in the academic adjustment of Latino adolescents. *Journal of Youth and Adolescence, 34*(6), 619-628.
- Schmidt, J. A. (2003). Correlates of reduced misconduct among adolescents facing adversity. *Journal of Youth and Adolescence, 32*(6), 439-452.
- Schwartz, D., & Gorman, A. H. (2003). Community violence exposure and children's academic functioning. *Journal of Educational Psychology, 95*(1), 163-173.
- Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas*. Chicago: University of Chicago Press.
- Sieving, R. E., Beuhring, T., Resnick, M. D., Bearinger, L. H., Shew, M., Ireland, M., & Blum, R. W. (2001). Development of adolescent self-report measures from the National Longitudinal Study of Adolescent Health. *Journal of adolescent health, 28*(1), 73-81.
- Silver, E., & Miller, L. L. (2004). Sources of informal social control in Chicago neighborhoods. *Criminology, 42*(3), 551-584.
- Singh, K., Chang, M., & Dika, S. (2010). Ethnicity, self-concept, and school belonging: Effects on school engagement. *Educational Research for Policy and Practice, 9*(3), 159-175.

- Skinner, E. A., Zimmer-Gembeck, M. J., & Connell, J. P. (1998). Individual differences and the development of perceived control. *Monographs of the Society for Research in Child Development, 63*(2-3).
- Slattery, T. L., & Meyers, S. A. (2014). Contextual predictors of adolescent antisocial behavior: The developmental influence of family, peer, and neighborhood factors. *Child and Adolescent Social Work Journal, 31*(1), 39-59.
- Tabachnick, B. J., and Fidell, L. S. (2013). *Using multivariate statistics, 6th ed.* Boston: Allyn and Bacon.
- Tracy, P. E., & Kempf-Leonard, K. (1996). *Continuity and discontinuity in criminal careers.* New York: Springer Science & Business Media.
- Tracy, P. E., Kempf-Leonard, K., & Abramoske-James, S. (2009). Gender differences in delinquency and juvenile justice processing: Evidence from national data. *Crime & Delinquency, 55*(2), 171-215.
- U.S. Department of Justice, Federal Bureau of Investigation. (September 2015). *Crime in the United States, 2014.* Retrieved 2016, from <https://ucr.fbi.gov/crime-in-the-u.s>.
- Vaquera, E. (2009). Friendship, educational engagement, and school belonging: Comparing Hispanic and White adolescents. *Hispanic Journal of Behavioral Sciences, 31*(4), 492-514.
- Voelkl, K. E. (1997). Identification with school. *American Journal of Education, 105*, 294-318.
- Voisin, D. R., Neilands, T. B., & Hunnicutt, S. (2011). Mechanisms linking violence exposure and school engagement among African American adolescents: Examining the roles of psychological problem behaviors and gender. *American Journal of Orthopsychiatry, 81*(1), 61-71.

- Voisin, D. R., Patel, S., Hong, J. S., Takahashi, L., & Gaylord-Harden, N. (2016). Behavioral health correlates of exposure to community violence among African-American adolescents in Chicago. *Children and Youth Services Review, 69*, 97-105.
- Wang, M. T., & Fredricks, J. A. (2014). The reciprocal links between school engagement, youth problem behaviors, and school dropout during adolescence. *Child Development, 85*(2), 722-737.
- Wang, M. T., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, and academic achievement in middle school. *American Educational Research Journal, 47*(3), 633-662.
- Weaver, C. M., Borkowski, J. G., & Whitman, T. L. (2008). Violence breeds violence: Childhood exposure and adolescent conduct problems. *Journal of Community Psychology, 36*(1), 96-112.
- Wellborn, J. G. (1991). Engaged and disaffected action: The conceptualization and measurement of motivation in the academic domain. Unpublished doctoral dissertation, University of Rochester, New York.
- Williams, T. R., Davis, L. E., Saunders, J., & Williams, J. H. (2002). Friends, family, and neighborhood: Understanding academic outcomes of African American youth. *Urban Education, 37*(3), 408-431.
- Woolley, M. E., & Grogan-Kaylor, A. (2006). Protective family factors in the context of neighborhood: Promoting positive school outcomes. *Family Relations, 55*(1), 93-104.
- Wright, A. W., Austin, M., Booth, C., & Klierer, W. (2016). Exposure to community violence and physical health outcomes in youth: A systematic review. *Journal of Pediatric Psychology, 1-15*.

Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development.

*Psychological Bulletin, 139*(6), 1342.

Zolkoski, S. M., & Bullock, L. M. (2012). Resilience in children and youth: A review. *Children*

*and Youth Services Review, 34*(12), 2295-2303.

Zimmerman, G. M., & Messner, S. F. (2013). Individual, family background, and contextual

explanations of racial and ethnic disparities in youths' exposure to violence. *American*

*Journal of Public Health, 103*(3), 435-442.

Table 1

*Descriptive Statistics and Intercorrelation Estimates*

<u>Variable</u>	<u>M (SD)</u>	<u>N</u>	<u>AVE</u>	<u>DEL</u>	<u>ABE</u>	<u>NC</u>	<u>SB</u>	<u>CJSI</u>	<u>ED</u>
<b>Adolescent Violence Exposure (W1)<sup>+</sup></b>	0.80 (.061)	1197	1.00	.261**					
<b>Delinquency (W2)<sup>+</sup></b>	1.10 (.132)	898	.261**	1.00					
<b>Academic Behavioral Engagement (W2)</b>	8.12 (.037)	844	-.139**	-.237**	1.00				
<b>Neighborhood Connectedness (W1)<sup>+</sup></b>	-.436 (.129)	1195	-.089**	.022	.029	1.00			
<b>School Belonging (W1)</b>	14.69 (.129)	1181	-.199**	-.089**	.155**	.215**	1.00		
<b>CJS Involvement (W3)<sup>+</sup></b>	0.86 (.037)	1203	.068	.017**	-.193	.101	.061	1.00	
<b>Educational Attainment (W3)</b>	1.21 (.082)	1203	.133**	-.078**	.076*	-.031	.010	.077	1.00

Note: "<sup>+</sup>": Standardized variable; "\*\*":  $p < .05$ ; "\*\*\*":  $p < .001$ .

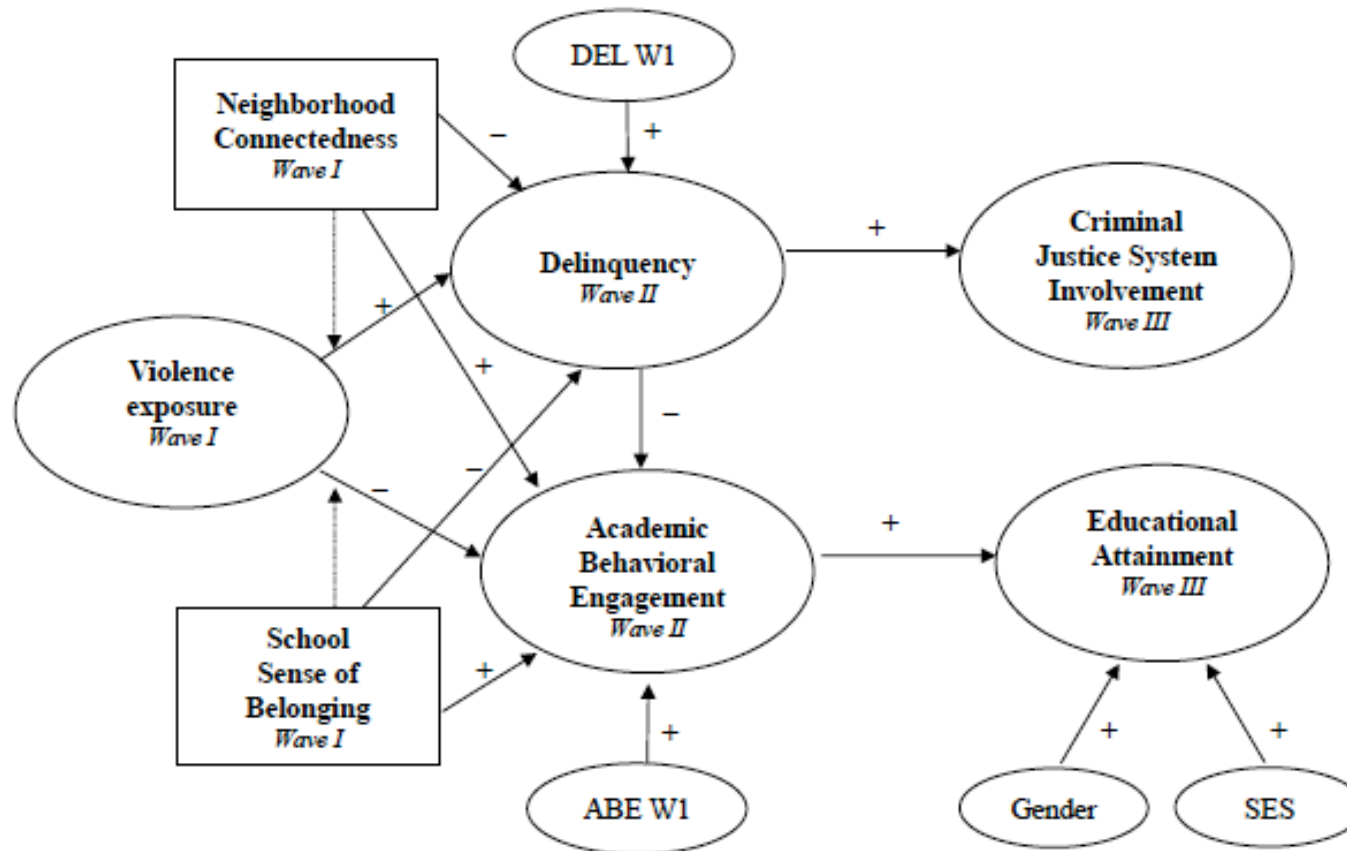


Figure 1. Proposed conceptual model of the predicted directional associations among variables.

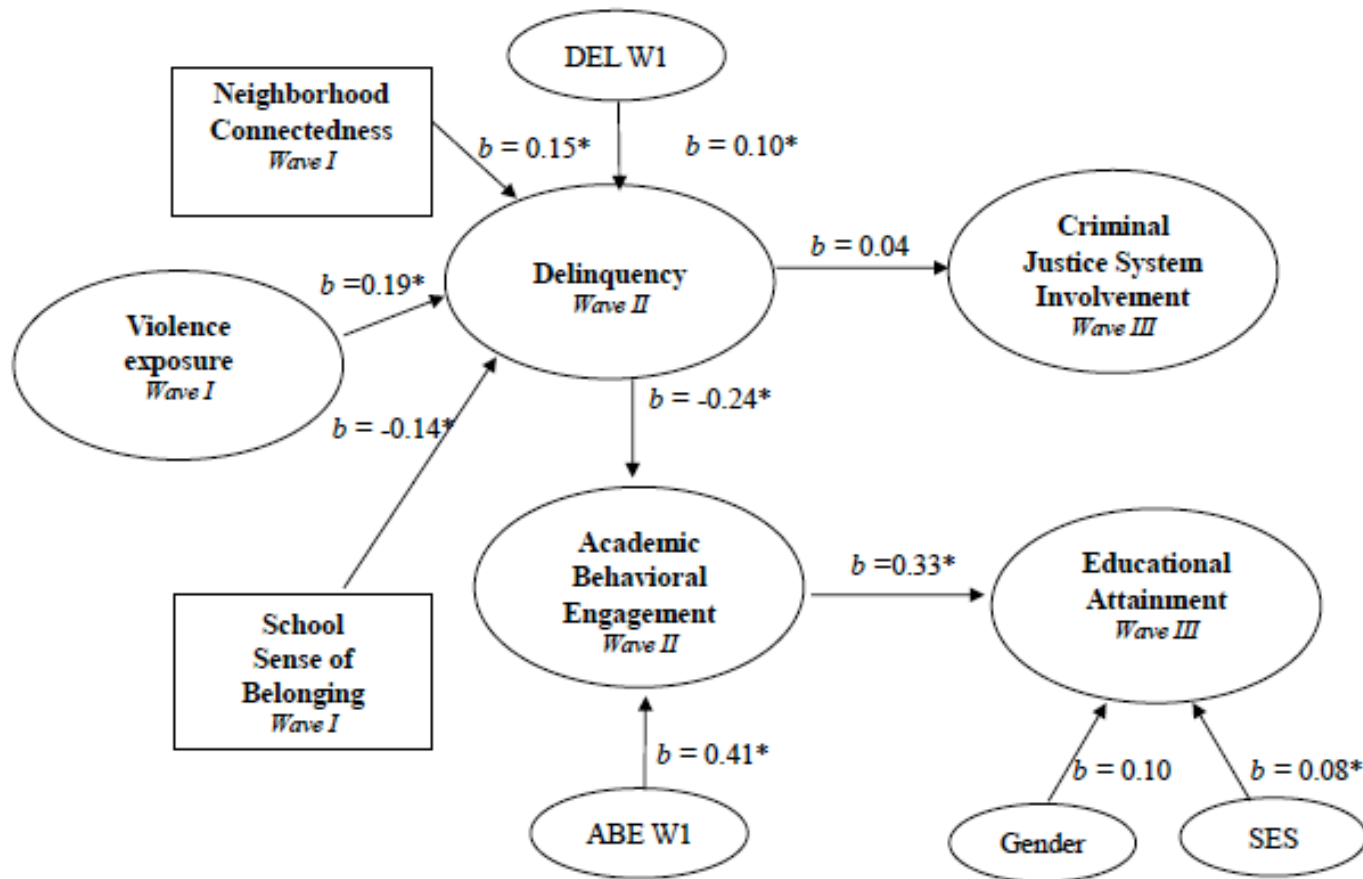


Figure 2. Simplified structural model with significant variable associations.

Note:  $* = p < .05$ ; DEL W1 = Delinquency Wave I; ABE W1 = Academic Behavioral Engagement Wave I.

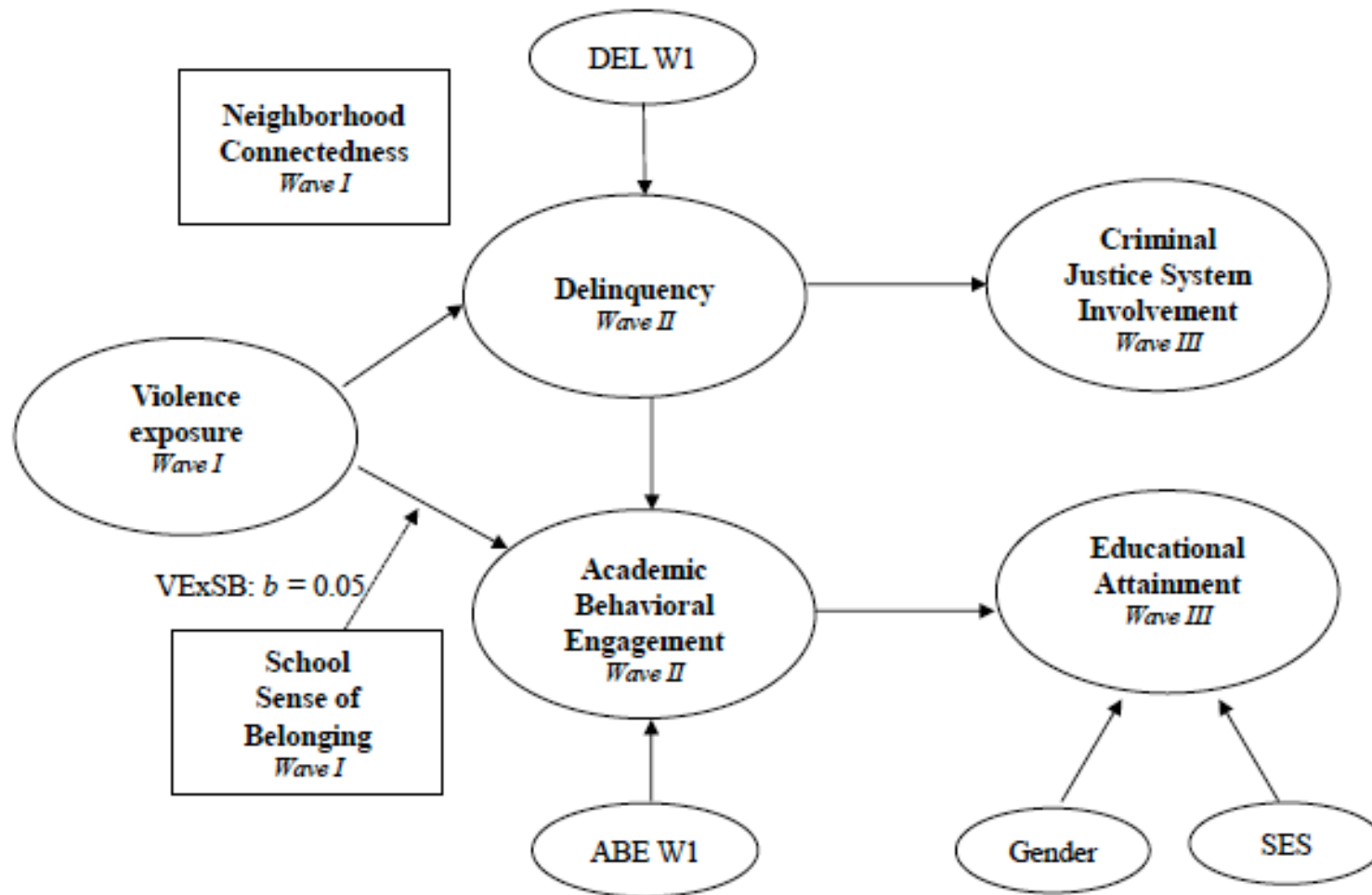


Figure 3. Simplified structural model with the school sense of belonging moderation effect.  
 Note: The interaction effect was not statistically significant: VExSB:  $p = .274$ .



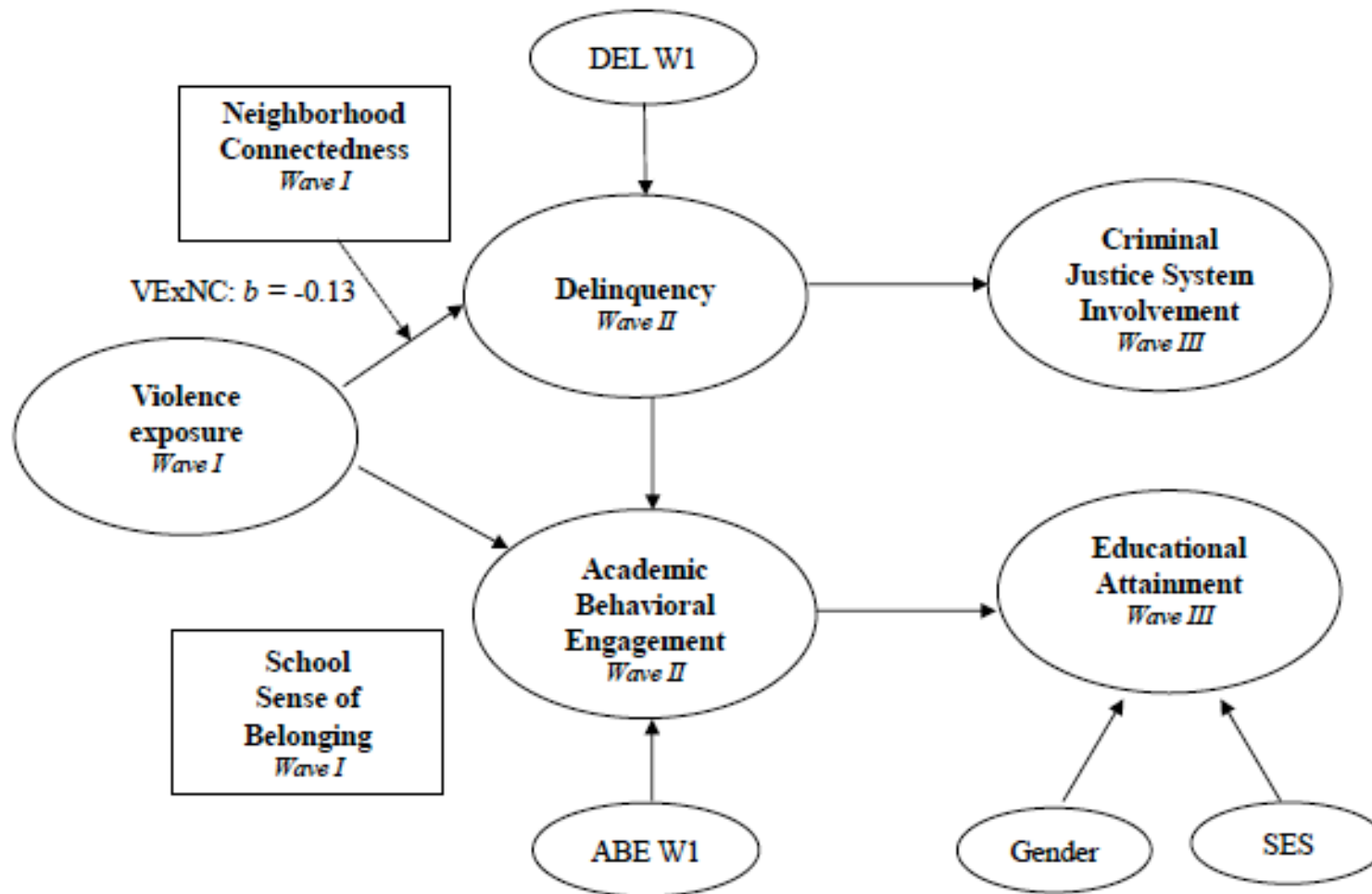


Figure 4. Simplified structural model with the neighborhood connectedness moderation effect.

Note: The interaction effect was not statistically significant: VExNC:  $p = .867$ .

## Appendix A

### Measures

The variables in the current study were assessed, using measures from the ADD Health Survey, Wave I – III (1994-2002). The measures for each study variables are included below:

### Adolescent Violence Exposure

Items from the Fighting and Violence measure (ADD Health, Wave I)

5 Items:

During the past 12 months, how often did each of the following things happen?

1. You saw someone shoot or stab another person.
2. Someone pulled a knife or gun on you.
3. Someone shot you.
4. Someone cut or stabbed you.
5. You were jumped.

Response items:

- 0 = Never
- 1 = Once
- 2 = More than once

### Neighborhood Connectedness

Items from the Neighborhood measure (ADD Health, Wave I)

6 items (reverse scored):

Indicate which of the following statements is true for you:

1. You know most of the people in our neighborhood.
2. In the past month, you have stopped on the street to talk to someone who lives in your neighborhood.
3. People in this neighborhood look out for each other.

Response items:

- 1 = True
- 2 = False

4. Do you usually feel safe in your neighborhood?

Response items:

0 = No

1 = Yes

5. On the whole, how happy are you with living in your neighborhood?

Response items:

1 = Not at all

2 = Very little

3 = Somewhat

4 = Quite a bit

5 = Very much

6. If for any reason, you had to move from here to some other neighborhood, how happy or unhappy would you be?

Response items:

1 = Very unhappy

2 = A little unhappy

3 = Wouldn't make any difference

4 = A little happy

5 = Very happy

### **School Belonging**

Items from the Academics and Education measure (ADD Health, Wave I)

4 items:

How much do you disagree or agree with the following statements?

1. You feel close to people at your school.
2. You feel like you are a part of your school.
3. You are happy to be at your school.
4. You feel safe in your school.

Response items:

1 = Strongly agree

2 = Agree

3 = Neither agree or disagree

4 = Disagree

5 = Strongly disagree

**Academic Engagement**

Items from the Academics and Education measure (ADD Health, Wave II)

2 items (reverse scored):

Since school started this year, how often have you had trouble:

1. Paying attention in school.
2. Getting your homework done.

Response items:

- 1= Never
- 2= Just a few times
- 3= About once a week
- 4= Almost everyday
- 5= Everyday

**Delinquency**

Items from the Fighting and Violence and Delinquency measures (ADD Health, Wave II)

7 items:

In the past 12 months, how often did you:

1. Take something from a store without paying for it?
2. Steal something worth more than \$50?
3. Go into a house or building to steal something?
4. Use or threaten to use a weapon to get something from someone?
5. Sell marijuana or other drugs?
6. Steal something worth less than \$50?
7. Take part in a fight where a group of your friends was against another group?

Response items:

- 0 = Never
- 1 = 1 or 2 times
- 2 = 3 or 4 times
- 3 = 5 or more times

**Educational Attainment**

Items from the Education measure (ADD Health, Wave III)

What degrees or diplomas have you received? Indicate all that apply.

1. High school diploma
2. Associate or junior college degree
3. Bachelor's degree

Response items:

0 = Not marked

1 = Marked

### **Criminal Justice System Involvement**

Items from the Involvement with the Criminal Justice System measure (ADD Health, Wave III)

1. Have you ever been arrested since you were 18?
2. Have you ever been convicted or pled guilty to a crime in adult court?

Response items:

0 = No

1 = Yes

3. When you were convicted or pled guilty as an adult, were you sentenced to probation, jail or prison?

Response items:

1 = Probation

2 = Jail

3 = Prison

4 = Other