



Academic Achievement After Violence Exposure: The Indirect Effects of School Attachment and Motivation to Succeed

Melanie Sonsteng-Person¹ · Jeremiah W. Jagers² · Alysse M. Loomis²

Accepted: 6 April 2023 / Published online: 5 May 2023
© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2023

Abstract

Disparities in educational outcomes for students living in communities burdened with high rates of violence are striking as they are at an increased risk for misbehavior, low GPA, poor school attendance, and decreased standardized test scores. However, limited research identifies the role that schools play in exacerbating exposure to violence to inform changes that aid in mitigating violence exposure. As such, this study utilizes the Pathways to Desistance Study to explore the mediating roles of school attachment and motivation to succeed on students' academic outcomes after exposure to community violence. Using a serial mediation model, findings indicate that school attachment and motivation to succeed mediate the relationship between exposure to violence and grades. Implications for adapting school programs and policies as well as providing teacher training to increase school attachment and motivation are discussed.

Keywords Violence exposure · Academic outcomes · School attachment · Motivation to succeed · Serial mediation

Introduction

In the U.S., 60% of youth are exposed to violence annually and 59% report witnessing community violence within their lifetime (Finkelhor et al., 2015). This exposure includes witnessing or direct victimization of bullying, harassment, sexual or physical assaults (Finkelhor et al., 2015). Each year exposure to violence has a significant impact on communities that experience the physical, mental, and economic costs of violence (U.S. Department of Justice, Children Exposed to Violence Task Force, 2012). Children exposed to violence have an increased risk for difficulty in school such as misbehavior, low GPA, poor school attendance, and decreased standardized test scores (Loomis et al., 2020; McGill et al., 2014; Voisin et al., 2016a, b), all of which impact educational attainment and future educational success.

While schools can be significant buffers of environmental stress and act as the main entry point for students to receive mental health services, it can be challenging for

schools located within neighborhoods burdened with high rates of violence to protect and aid in children's development (Hobbs et al., 2019; Maring & Koblinksy, 2013). Further in-depth research is needed to inform school-wide policies and programs that seek to mitigate the impacts of exposure to violence. A robust body of literature has identified the significance of school attachment on school outcomes. In particular, research has found that a student's attachment to school is associated with academic achievement (Bryan et al., 2012). Along with this, school attachment has been found to improve student motivation to succeed (Learner & Kruger, 1997). Indeed, students who perceive more positive relationships with teachers tend to have trajectories of high motivation over time (Guay et al., 2020; Hong et al., 2020). In turn, motivation to succeed is a well-known predictor of academic success. Based on these findings, research looking to understand the relationship between violence exposure and academic outcomes should consider the role of school attachment and motivation to succeed in this relationship.

While a significant amount of research has focused on the relationship between violence exposure and academic outcomes, the causal links between this relationship are not well understood, limiting the ability to develop impactful interventions for youth. As such, this study seeks to identify how violence exposure impacts adolescent attachment

✉ Melanie Sonsteng-Person
masonsteng@yahoo.com

¹ College of Education, University of Florida, 1414 Norman Hall, PO Box 117050, Gainesville, FL 32611, USA

² College of Social Work, University of Utah, 395 South 1500 East #111, Salt Lake City, UT 84112, USA

to school and, in turn, their motivation to succeed in the classroom. Rooted in the stress process model, the current study answers the following research questions: (1) Does school attachment mediate the relationship between violence exposure and grades? (2) Does motivation to succeed mediate the relationship between violence exposure and grades? (3) Does school attachment mediate the relationship between community violence exposure, motivation to succeed, and grades?

Literature Review

Typically, violence in a community is common and repetitive (Chen et al., 2016) and has the potential to impact the lives of everyone in the community, resulting in young people continually hearing about and witnessing the victimization of friends, family, and neighbors (Fowler et al., 2009). While crime has decreased nationally (Gramlich, 2017), disadvantaged and segregated communities continue to be disproportionately affected by high levels of violent crime (Office of Policy Development and Research, 2016). Research indicates that neighborhoods with a higher concentration of poverty have higher crime rates. Furthermore, there is a prominent racial imbalance in areas with high violent crime rates (Office of Policy Development and Research, 2016). Communities that consist of majority Black residents had five times as many reported violent crimes. Those with a majority of Latinx residents had two and a half times as many violent crime reports compared to majority white communities. These extreme variances are linked to systemic racism (Burrell et al., 2021) and structural disparities, including a lack of access to resources (Office of Policy Development and Research, 2016).

Expulsion is an educational outcome that has been linked to trauma and violence exposure among young children (Loomis et al., 2020). Youth of color are not only exposed to disproportionate rates of community violence, but also experience disparate rates of discipline within schools (Losen & Skiba, 2010). In particular, research has found extreme suspension disparities among Black and Latinx students in urban middle schools compared to the national average (Losen & Skiba, 2010). As Black and Latinx youth experience disproportionate exposure to violence and criminalization in schools, it becomes imperative for schools to identify ways in which they exacerbate poor academic outcomes following exposure to violence and, in turn, provide services that address exposure to violence to keep students in the classroom and increase academic success.

Children's ability to concentrate and take advantage of school becomes compromised when they are preoccupied with violent incidents within their communities (McCoy et al., 2015). Exposure to crime and violence is associated

with underperformance on standardized test scores in reading, writing, and math as well as lower GPA (Busby et al., 2013; Gonzalez et al., 2016; Hurt et al., 2001; McGill et al., 2014; Voisin et al., 2016a, b). As students exposed to violence within their community are at an increased risk for emotional and behavioral symptoms that can diminish learning and decrease educational outcomes (Busby et al., 2013), researchers have aimed to identify what factors can alleviate its impact.

Stress Process Model

The conception and adaptation of the Stress Process Model is presented here as a framework with which the study is guided. Created by Leonard Pearlin et al. in 1981, the Stress Process Model identifies a dynamic causal relationship between a source of stress and the outcome of stress (Wheaton et al., 2013). This model has been used to explain the impact of exposure to violence within the community on childhood outcomes (Foster & Brooks-Gunn, 2009; Motley et al., 2017) and other stress outcomes, which have included academic outcomes (Wheaton et al., 2013). This study builds on these adaptations to the stress process model as it identifies the how school attachment and motivation to success mediate the relationship between exposure to violence within the community and educational success.

The Stress Process Model combines three main components of stress to explain the causal relationship between stress and its outcomes; the source of stress, the mediators and moderators, and the manifestations of stress (Pearlin et al., 1981). First, an individual experiences a source of stress termed a stressor (Pearlin et al., 1981). Stressors refer to situations and experiences that are difficult to adjust to and can negatively impact emotions, cognition, behavior, physiological functioning, and well-being (Pearlin & Bierman, 2013). Stressors can be either an isolated event or an ongoing problem (Pearlin et al., 1981). Isolated events are sudden one-time or unanticipated events, whereas continuous or chronic stressors persistently impact an individual and include concepts such as poverty, violence, and crime (Aneshensel & Mitchell, 2014). For the current study, exposure to violence within the community is conceptualized as the stressor, and the outcome of this stressor is its impact on grades.

Next, moderators and mediators can influence the impact of stressful situations on individuals. Moderators and mediators can intervene at various moments throughout the process, such as before a stressor, between a stressor and its indirect effect, or before a stress outcome (Pearlin et al., 1981). As interactions among several school factors can likely influence the academic performance of students exposed to violence within the community, this study seeks to determine if school attachment and motivation to succeed

mediate the relationship between the stressor, exposure to violence within the community, and the stress outcome - grades in school.

Mediators

As explained by the stress process model, not every child that lives in a neighborhood burdened with high rates of violence experiences low academic outcomes. These variations in outcomes may be due, in part, to variations in the mediators. Researchers identify protective factors for community violence exposure. However, the majority of current research focuses on internalizing (anxiety, sadness, traumatic stress, depression, withdrawal) and externalizing (aggression, getting along with other, lack of concentration, substance use) outcomes with much less known about protective factors for academic outcomes (Boxer et al., 2014; Bailey et al., 2005; Kennedy & Ceballo, 2014; McCoy et al., 2015). Furthermore, far less research identifies causal links found within schools. As exposure to violence within the community predicts later academic success (Gonzalez et al., 2016), it is necessary to identify and understand the potential school factors that mediate this relationship. While not explicitly focused on student exposure to violence within the community, research has identified the essential influence schools have on student outcomes in other contexts (Orfield et al., 2004). In particular, research has identified school attachment and motivation to succeed as two factors influencing student success in school.

School Attachment and Academic Outcomes

School attachment has been defined and measured using a variety of scales. However, a comprehensive review found several shared themes when measuring school attachment across scales (Libbey, 2004). These are a student's sense of belonging to the school, students' rating of liking the school, perception of teacher support, presence of peer support, engagement in academic achievement, fair discipline, and participation in extracurricular activities (Libbey, 2004). All of these factors, despite varying measurement tools, are associated with student outcomes in schools. In this study, school attachment is conceptualized as bonding to teachers and school orientation. Bonding to teachers measures students' self-reported feelings of admiration and respect for their teachers. School orientation measures students' commitment towards achievement in school (Cernkovich & Giordano, 1992).

A large body of literature has identified the relationship between school attachment and academic achievement. Strong attachment to school is associated with higher levels of academic achievement (Bryan et al., 2012). In fact, some research indicates that even more so than prior grades,

school attachment predicts an increase in academic success (Carolan & Chesky, 2012). School attachment is of vital importance for students of color. Research has consistently identified that Black and Latinx students report lower academic achievement compared to their white peers (Bryan et al., 2012). Of particular concern, compared to their white counterparts, Latinx students have been found to have a lower rate of school attachment while school attachment was an equal predictor for GPA among both White and Latinx students (LeCroy & Krysik, 2008). However, attachment to teachers has been found to increase students' academic achievement (Bryan et al., 2012). Student relationships with teachers has long-lasting effects; research has identified that the student-teacher relationship in kindergarten impacts future academic and behavioral outcomes (Hamre & Pianta, 2001). A kindergarten teacher's report on a negative student-teacher relationship predicted student grades, test scores, work patterns, disciplinary performance, and suspension throughout elementary school (Hamre & Pianta, 2001). Student-teacher relationships also tend to be relatively stable, with conflict early on in a child's schooling predicting later student-teacher conflict (Jerome et al., 2009).

Furthermore, gender has been found to influence school attachment. Of note, the relationship between school attachment and academic achievement in the upper grade levels is weaker among girls than boys, meaning that although girl's school attachment decreases in their later school years, it does not impact their academic achievement. In one study, 8th grade girls had a statistically significant higher attachment to school than their male counterparts (Johnson et al., 2006). However, this was reversed by grade 11 when boys reported a higher attachment to school than girls (Johnson et al., 2006). Black boys specifically were found to be more attached to school than Black females (Johnson et al., 2006). Boys, however, still present a correlation among school attachment and academic achievement in their later years (Johnson et al., 2006). There have been mixed findings on girls' academic achievement later in high school as some studies find that female high school seniors report lower academic achievement than their male counterparts (Bryan et al., 2012). Along with academic outcomes, school attachment has been found to predict academic motivation (Learner & Kruger, 1997). It is therefore necessary to understand how a student's motivation to succeed might influence their academic outcomes.

Motivation to Succeed and Academic Outcomes

Motivation, similar to school attachment, has been defined and measured in a variety of ways. In this study, motivation to succeed is defined as achievement motivation and is conceptualized as perceptions of opportunities available in an individual's neighborhood for both work and school (Eccles

et al., 1998). In this conceptualization it is understood that students' achievement, persistence, and choice of what task they will focus on are all predicted by their expectancies and beliefs about their abilities for those tasks (Wigfield & Eccles, 2000). With this understanding, a large body of research has focused on the relationship between motivation to succeed and academic achievement.

Motivation to succeed has consistently been identified as a predictive factor for academic success. This relationship has been found to begin as early as elementary school. One study found that first grade students' level of motivation in math and English impacted their relative scores. Meaning that students with a higher level of math motivation typically performed higher in math while performing lower in English (Viljaranta et al., 2016). Further research identifies that this level of motivation to succeed decreases throughout elementary school and middle school (Eccles et al., 1998). In a sample of adolescent Latinx students, motivation to succeed positively influenced GPA among both boys and girls (Alfaro et al., 2009). However, unlike school attachment, in a longitudinal analysis it was determined that motivation did not predict GPA overtime but rather an increase in GPA could have been accounted for by previous high grades (Alfaro et al., 2009). Interestingly, this relationship held true for Latinx males but not Latinx adolescent females indicating that gender might influence an individual's level of motivation to succeed. Differences in motivation among females and males have been identified. In terms of academic motivation these sex differences have been attributed to the individual's perception of what constitutes appropriate activity for males versus females (Wigfield et al., 2002).

Another body of research has examined motivation in the context of violence exposure, finding that exposure to violence within the community is related to lower levels of future educational motivation and future orientation for youth (Hong et al., 2019; Schmidt et al., 2018; Stoddard et al., 2015). Longitudinal research has linked levels of violence exposure in adolescence to youth's sense of stress and future outlook in young adulthood (Schmidt et al., 2018), where violence increases youth's perceived levels of stress and decreases their sense of hope for the future. In similar research, exposure to violence within the community prior to 9th grade was linked to lower levels of future educational goals in 9th grade among a group of Black youth (Stoddard et al., 2015). While not directly related to exposure to violence, this same study identified that motivation to succeed was negatively impacted following Latinx students' experience with discrimination (Alfaro et al., 2009).

Currently, there is a paucity of research examining mechanisms through which violence exposure may influence youth motivation to succeed/future orientation (Schmidt et al., 2018). Of the recent research that has examined mediators, the focus has been primarily on factors internal to the

youth, such as perceived stress (Schmidt et al., 2018) and posttraumatic stress (Hong et al., 2019). There is also a need for research on mediators within the school environment that may influence the relationship between violence exposure and future orientation; there may be unexamined mediators within the school environment that should be targeted in tandem with such interventions. For that reason this study examines school attachment as a potential mediator to the relationship between violence exposure and motivation to succeed.

Current Study

There is a need for a solid foundation of research on the role of school-level mediating factors for youth exposed to violence within the community (Ozer et al., 2017). The effects of exposure to violence within the community are far reaching as violence infiltrates children's learning, behavior, and health. The consequences of exposure and its high incidence among youth, particularly Black and Latinx youth, requires research that can identify mediating factors found in schools that can either buffer or exacerbate outcomes associated with exposure to violence within the community (Chen et al., 2016). As such, this study seeks to determine the mediating roles of school attachment and motivation to succeed on the relationship between exposure to violence within the community and grades. The study tests three hypotheses: (1) school attachment mediates the relationship between violence exposure and grades, (2) motivation to succeed mediates the relationship between violence exposure and grades, and (3) school attachment mediates the relationship between community violence exposure, motivation to succeed, and grades.

Methods

Sample

The current study utilized secondary data from the Pathways to Desistance Study, a multi-site, longitudinal study of serious adolescent offenders age 14 to 18. The Pathways to Desistance Study was conducted in order to identify the various pathways out of involvement in the juvenile justice system, to describe the social and developmental changes that lead to desistance, and to determine the effectiveness of various sanctions and interventions that lead the participants out of the juvenile justice system. The mean age of participants in the study was 16.04 years. Data were collected between November 2000 and January 2003. While these data were collected over 20 years ago, they provide unique assessment for school protective factors among young

people that have been exposed to violence. There is currently no other source of data that measures violence exposure, school attachment, motivation to succeed, and grades in a similar sample. Enrolled youth had been found guilty of a serious offense, predominantly felonies. Participants were followed every six months for 36 months, and then every 12 months through month 84. See Schubert et al. (2004) for more detail. While the dataset is longitudinal, the current study was cross-sectional as the participants were sampled from the baseline interview of the Pathways to Desistance study ($n = 1,212$). At baseline $n = 972$ of the sample were enrolled in school.

Analytic Strategy

To assess the indirect effects of school attachment and motivation to succeed on the relationship between exposure to violence and academic performance measured by grades, bootstrapped mediation analysis was employed. Bootstrapping is a nonparametric method used to overcome problems that typically occur when assessing indirect effects, including the requirement of normally distributed data (Preacher & Hayes, 2008). Serial mediation differs from structural equation modeling by the way in which calculations occur; SEM uses a maximum likelihood approach, while serial mediation uses ordinary least squares regression (Hayes, et al., 2017). When using observed variables, serial mediation models like the one used here implement a stepwise approach, providing a greater focus on the model components, rather than focusing explicitly on the whole model. When estimating observed variables only, SEM and regression-based approaches vary little (Cole, et al., 2008). The model is parametrized as follows:

$$c = c' + a_1b_1 + a_2b_2 + a_1d_2b_2$$

Analysis was conducted for Model 6 using Hayes (2018) PROCESS macro for IBM SPSS (Preacher & Hayes, 2004; Preacher et al., 2007).

Measures

Violence Exposure

The Exposure to Violence Inventory (Selner-O'Hagan et al., 1998) was modified for this study to assess the frequency of exposure to violent events. The types of violence include 6 items to measure experienced violence (“Have you ever been chased where you thought you might be seriously hurt?”) and 7 items to measure observed violence (“Have you ever seen someone else being raped, an attempt made to rape someone or any other type of sexual attack?”). The victimization variable has a mean of 1.58 while the witness

variable has a mean of 3.77. The sum total of the ‘witness’ and ‘experience’ subscales result in the final ‘exposure to violence’ variable that ranged from 0 to 13. Normed fit index (0.927) and comparative fit index (0.944) both indicated strong reliability. The mean score was 5.34, with higher scores indicating greater exposure to violence. This mean is explained by 70% of participants having never been exposed to or witnessed violence.

School Attachment

The school attachment measure used in the data was taken from the work of Cernkovich & Giordano (1992). The measure evaluates educational experience along two dimensions, including Bonding to Teachers (e.g., “Most of my teachers treat me fairly.”) and School Orientation (e.g., “Schoolwork is very important to me.”). Respondents rated 13 statements, using a 5-point Likert scale ranging from 1 “Strongly Disagree” to 5 “Strongly Agree,” with higher scores indicating a greater degree of academic commitment. The likert scale was recoded into two categories; “strongly disagree” and “disagree” as a 0, and “agree” and “strongly agree” as a 1. “Neither agree or disagree” was dropped. Restructuring the variable was done to simplify the model and to remove indecisive responses. These types of responses are difficult to interpret and offer little for evaluating the proposed relationships (c.f. Chimi & Russell, 2009). Scores for Chronbach’s alpha ($\alpha = 0.83$) test indicated strong reliability. On average, 25% of the participants disagreed with the statements and 74.9% agreed with the statements. The mean score was 3.46, with higher values indicating greater school attachment.

Table 1 Descriptive Statistics for Key Variables ($n = 1,212$)

| Variable | % |
|-----------------------|--------------|
| Gender | |
| Female | 13.6 |
| Male | 86.4 |
| Race/Ethnicity | |
| Other | 5 |
| Black | 41.4 |
| Latinx | 33.5 |
| White | 20 |
| Variable | M(SD) |
| Age | 16.04(1.14) |
| Violence Exposure | 5.34(2.99) |
| School Attachment | 3.46(0.73) |
| Motivation to Succeed | 3.32(0.72) |
| Grades | 4.2(1.89) |

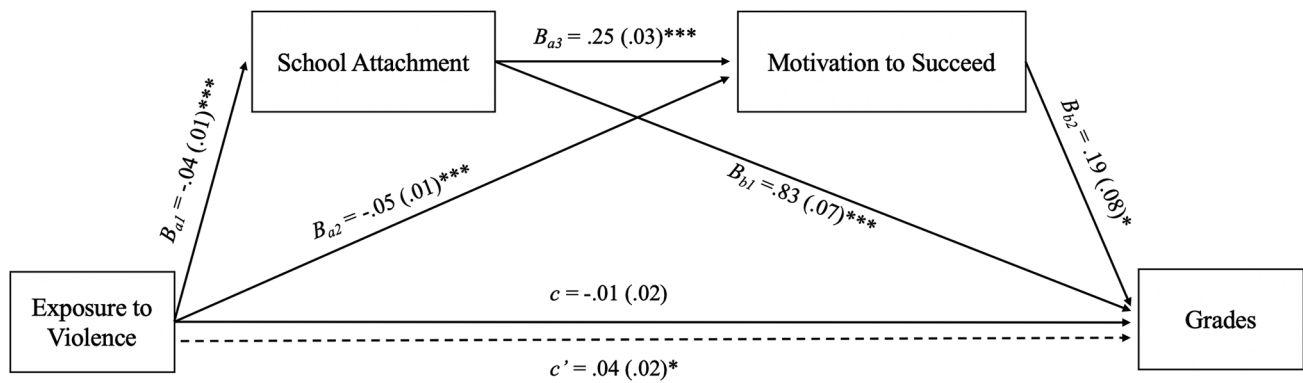


Fig. 1 Serial mediation of school attachment and motivation to succeed in the relationship between violence exposure and grades and non-standardized beta values. * $p < .05$, ** $p < .01$, *** $p < .001$

Motivation to Succeed

Six likert scale items were used to measure motivation to succeed (Eccles et al., 1998). The items assessed opportunities available in the youth's neighborhood regarding schooling (e.g., "Most of my friends will graduate from high school.") and work (e.g., "In my neighborhood it is easy for young person to get good job."). Respondents rated the items using a 5-point Likert scale ranging from 1 "Strongly Disagree" to 5 "Strongly Agree," with higher scores indicating more optimism for future success. Similar to school attachment, motivation to succeed was recoded into two categories with "strongly disagree" and "disagree" as a 0, and "agree" and "strongly agree" as a 1; "neither agree or disagree" was dropped. On average, 31.5% of participants disagreed while the remaining 68.5% agreed with the statements. Confirmatory factor analysis was used to determine instrument reliability. Comparative fit index results (CFI = 0.97) provide evidence of strong reliability. The mean score was 3.32, with higher values indicating greater motivation to succeed.

Grades

Grades were measured as a self-report item asking respondents "What were your grades like in school?" Prior research

identified students' self-reported grades as reliable indicators of students' actual grades (Sticca et al., 2017). It was measured using an 8 point likert scale with 1 being mostly As and 8 being Mostly below Ds. For this study grades were reverse coded so that 8 was mostly As and 1 was Mostly Below Ds. The mean score was 4.20 (1.89). While this is a crude measure of grades, it does reflect student perceptions of grades.

Covariates

As seen in Table 1 participants in the current study were overwhelmingly Black (41.4%) and Latinx (33.5%). White participants accounted for 20% of individuals and individuals identifying as Other represented 5% of youth in the study. Male participants were a larger proportion of the sample (86.4%). Ethnicity was recoded so that ethnic groups were composed of either white youth (code = 1) or youth of color (code = 0).

Results

A serial mediation analysis was conducted by estimating the indirect effects of M_1 (school attachment) and M_2 (motivation to succeed) on the relationship between X (exposure to

Table 2 Analysis Summary

| | b(se) | | |
|-----------------------|-------------------|-----------------------|-------------|
| | School Attachment | Motivation to Succeed | Grades |
| Exposure to Violence | -0.04(0.007)* | -0.05(0.007)* | 0.04(0.02)* |
| School Attachment | - | 0.25(0.03)* | 0.83(0.07)* |
| Motivation to Succeed | - | - | 0.19(0.08)* |
| Ethnicity (White) | 0.097(0.05) | -0.28(0.05)* | -0.31(0.13) |
| Gender (Male) | 0.06(0.06) | 0.02(0.06) | 0.44(0.15)* |
| r^2 | 0.035 | 0.15 | 0.13 |

* $p < .05$

Table 3 Total and Direct Effects of Exposure to Violence on Grades

| | Effect | SE | 95% Confidence Interval | |
|---------------------------|--------|-------|-------------------------|-------|
| | | | Lower | Upper |
| Total Effect (c) Model | - 0.01 | 0.018 | -0.047 | 0.025 |
| Ethnicity (White) | -0.28* | -0.13 | - | - |
| Gender (Male) | 0.49* | 0.16 | - | - |
| r-squared | 0.013 | | | |
| Direct Effect (c')* Model | 0.036* | 0.018 | 0.0003 | 0.071 |

* $p < .05$

violence) and Y (grades). Initial analyses were conducted using bias-corrected bootstrapping, with 5,000 bootstrap samples. Figure 1 provides a statistical representation of the mediation model with the regression coefficients and standard errors included. In addition to Figure 1, Table 2 reports the analysis summary, which includes the regression coefficients for each relationship and accounting for model covariates.

Total Effect

The total effect (path c) is the effect of a variable X on an outcome Y without any mediating effect (Hayes, 2009). The relationship between exposure to violence and grades, the Total Effect, was not significant (Table 3). However, the full Total Effect Model, which is equivalent to the model results in ordinary least squares regression, was statistically significant [$F = 5.26; p = 0.001$].

Direct & Indirect Effects

Generally, the total effect is reduced by the direct and indirect effects. The direct effect (path c') represents the relationship between X and Y, accounting for variance of the mediators and covariates (Hayes, 2009). The full Direct Effect [$b = .036(0.02)$, 95% CI = $-.049, -.024, p = .05$] was statistically significant (Table 3), demonstrating

a significant association between exposure to violence and grades.

The indirect effect is the amount by which X differs in its effect on Y as a consequence of M_N (Hayes, 2009). The results of each pathway (Table 4) are discussed below. There are three indirect effects in the present study, which include the effect of X and M_1 on Y [$b = -0.047(0.008)$, 95% CI = $-.063, -.32, p = 0.03$], X and M_2 on Y [$b = -0.009(0.004)$, 95% CI = $-.017, -.002, p < 0.01$], and the serial mediation of X, M_1 , and M_2 on Y [$b = -0.002(0.0009)$, 95% CI = $-.004, -.0004, p < 0.01$].

Covariates

Gender was added into the model as a covariate and was only a significant predictor of grades (Table 1). Males were more likely to be exposed to violence than females [$b = 0.46, p = 0.04$]. Ethnicity was significantly associated with motivation to succeed and grades. White youth scored higher on the motivation to succeed scale and typically had higher grades.

Discussion

The effects of exposure to violence within the community are far reaching as violence infiltrates children’s learning, behavior, and health. The consequences of exposure and its high incidence among youth requires research that can identify comprehensive factors that work against outcomes associated with violence exposure (Chen et al., 2016). Current evidence demonstrates a relationship between exposure to violence within the community and academic achievement (McGill et al., 2014). There is less evidence for school mediators of this relationship as this body of literature has mainly focused on mental health and behavioral outcomes. While experiences within schools are likely to impact outcomes of those exposed to violence within the community outcomes (Chen et al., 2016), there are few studies that have considered these factors as potential mediators. This dearth of research evidence necessitates the use of the pathways to desistance dataset as it includes potential protective factors

Table 4 Indirect Effects of Exposure to Violence on Grades through School Attachment and Motivation to Succeed and its specific indirect effects

| Effects | Effect | Boot SE | 95% Confidence Interval | |
|--|---------|---------|-------------------------|---------|
| | | | Lower | Upper |
| Total of Indirect Effects | -0.047 | 0.008 | -0.063 | - 0.32 |
| Violence Exposure → School Attachment → Grades | -0.036* | 0.007 | -0.049 | -0.024 |
| Violence Exposure → School Attachment → Motivation to Succeed → Grades | -0.002* | 0.001 | -0.004 | -0.0004 |
| Violence Exposure → Motivation to Succeed → Grades | -0.009* | 0.004 | -0.017 | -0.002 |

* $p < .05$

found in schools. To address this, the current study utilized the stress process model (Pearlin et al., 1981) to examine the relationship among exposure to violence, school attachment, motivation to succeed, and grades. Results supported our hypothesis that the relationship between exposure to violence and grades would be mediated by school attachment and motivation to succeed.

Violence Exposure and Grades

Results from this study found a significant direct effect of exposure to violence within the community and grades; individuals that had higher levels of exposure to violence reported lower grades. This finding affirms certain research (McGill et al., 2014; Voisin et al., 2016a, b) although counters other work that has found no relationship between violence exposure and academic performance (Hong et al., 2019). However, the direct effect was no longer significant once mediators were added into the model, suggesting the value of the included mediators.

Similar to previous literature (Fowler et al., 2009) males in this study were more likely to be exposed to violence than females. In terms of grades, White students reported higher grades compared to students of color. This finding aligns with national data, in which lower academic achievement is reported for minority students compared to white peers (Bryan et al., 2012). These experiences are caused, and often exacerbated, by racism embedded within institutions. For example, this is also reflected in forms of behavioral punishment within schools, such as suspensions and expulsions, that result in decreased academic achievement (McGill et al., 2014; Voisin et al., 2016a, b). Of concern, there is a documented racial gap in suspension and expulsion rates and therefore academic outcomes among Black and Latinx students (Losen & Skiba, 2010). Experiences of racial and ethnic discrimination are negatively linked to academic achievement (Benner & Wang, 2018), and although not included in the current study, warrant focus in future studies.

Violence Exposure, School Attachment, and Grades

Although the direct effect of exposure to violence and grades was initially significant, once proposed mediators were added into the model this relationship was no longer significant, which suggests that the relationship between community violence exposure and grades was mediated through a pathway of associations from school attachment and motivation to succeed.

Our first tested pathway, from violence exposure to grades through school attachment, was significant, suggesting that violence predicts lower school attachment, which in turn may be related to lower grades. Findings support

previous research which indicates that exposure to community violence is negatively correlated with school bonding among African American youth (Voisin et al., 2016a, b). On the other hand, studies have found that following exposure to violence within the community identification with school and teacher support can act as a protective factor as it increases hope and decreases psychological symptoms (internalizing and externalizing) (Ludwig & Warren, 2009). This becomes concerning as the current study found that exposure to violence is a risk factor for poor school attachment. In other words, students in this sample that reported higher total levels of exposure to violence were more likely to report lower school attachment. As research indicates that school attachment predicts grades (Carolan & Chesky, 2012) it is of no surprise that a lower school attachment would lead to lower GPA. The Stress Process Model indicates that the outcomes of stressors are explained by mediators and moderators (Pearlin et al., 1981). In this study, school attachment partially explains the relationship between exposure to violence and lower grades. When gender and race were added into the model they had no impact on school attachment.

Violence, Motivation, and Grades

The pathway from violence exposure to grades through motivation was significant in the hypothesized direction as well. Higher violence exposure was significantly related to lower levels of motivation. This finding aligns with prior research linking violence/stress to future orientation/motivation (Alfaro et al., 2009; Hong et al., 2019; Schmidt et al., 2018; Stoddard et al., 2015). Racial discrimination, although not measured in the current study, has also been found to influence student motivation (Benner & Wang, 2018). As our sample was predominately comprised of Black and Latinx students, it is possible, and even likely, that many of the students also experienced racial discrimination. Future work should aim to disentangle the unique influence of different types of violence and trauma, such as that of community violence and discrimination on contextual factors within the school environment. Such research can help to inform trauma-informed, equity-oriented interventions that can enhance school attachment and motivation by addressing the unique influence of different types of violence against students of color.

Violence Exposure, School Attachment, Motivation to Succeed, and Grades

Finally, our serial mediation was significant, indicating that the relationship between violence exposure and grades is mediated by both school attachment and motivation to succeed. There was a significant relationship between school attachment and motivation to succeed- the lower the

school attachment, the lower the motivation to succeed. As expected, students that have been exposed to violence have lower grades, and this relationship is explained by the indirect effects of school attachment and motivation to succeed. This is particularly pertinent given that previous research has found that, among African American adolescents, teacher support increases school motivation (Hong et al., 2020) but that exposure to discrimination among Latinx males decreases motivation to succeed (Alfaro et al., 2009). Findings from this study combine this previous research by identifying mediators for the relationship between violence exposure and grades. Furthermore, this study confirms prior research which indicates that school attachment predicts academic motivation (Learner & Kruger, 1997).

This research is important, as prior work has identified student-level factors that mediate between violence and motivation (Hong et al., 2019; Schmidt et al., 2018) but there is little work on contextual factors within the school environment. In fact, in a systematic review of the experiences of violence exposure among Latinx communities, authors identified a lack of research that delineates risk or protective factors found in macrosystems as the research focused primarily on individual and familial factors (Santacrose et al., 2021). The current study centers school attachment as an important factor to consider, both as an outcome of violence exposure and as a predictor of student motivation and grades. Students who experience low levels of school connection as a result of violence exposure may feel less hopeful about their educational capacities and goals which may result in poorer grades.

Implications

In this study, exposure to violence had a significant effect on school attachment, motivation to succeed, and student grades, indicating the importance of trauma-informed school programming to support student engagement and achievement. Trauma-informed school-based models are increasing in popularity (Thomas et al., 2019) and have been found to decrease psychosocial outcomes associated with trauma exposure, such as behavioral difficulties (Dorado et al., 2016; Mendelson et al., 2015). Such models often take a comprehensive wrap-around approach, including a focus on the school climate, teacher training and supports, and targeted supports for trauma-exposed youth (Thomas et al., 2019). The documented effects of violence exposure on academic achievement in this study provides further evidence in support of integrating trauma-informed approaches within school systems.

In the current study, school attachment was a significant mediator to the relationship between violence exposure and grades, indicating that it is important for trauma-informed

approaches to consider global indicators of school attachment. Finding ways to promote school attachment within trauma-informed frameworks may help to reduce the effects of violence exposure. One way to promote school attachment, that also fits within a trauma-informed framework, is attention to teaching practices and student-teacher relationships. Research identifies that trust in teachers and feelings of safety increase student identification with school even when accounting for SES and ethnicity (Mitchell et al., 2018). Teacher's classroom management is also predictive of school attachment (McNeely et al., 2002). Research finds that teachers often do not feel comfortable responding to trauma-related behaviors in the classroom (Alisic et al., 2012) but that trauma-informed training can help to increase trauma knowledge and reduce trauma-related difficulties for teachers (Sonsteng-Person & Loomis, 2021). Providing trauma-informed supports and training for teachers, such as recognizing how community violence may manifest in the classroom and promoting an understanding of how to build trust and safety with their students, may also help to support teacher practices and support teacher attachment. This type of training may also help to interrupt pathways through which violence exposure and victimization lead to increased exclusionary discipline (Loomis et al., 2020); teachers who are more confident in responding to trauma-related behaviors and building relationships with students who have experienced trauma may be less likely to move toward exclusionary discipline practices.

Of note, the secondary data used in the current study was approximately 20 years old, during which time focus on trauma-informed care in organizations, such as schools, has increased exponentially (Purtle, 2018). However, despite this increase in attention, there continue to be no dominant framework for implementing trauma-informed school approaches (Thomas et al., 2019), no rigorous empirical evaluations of trauma-informed school approaches (Maynard et al., 2019), and persistent gaps in the extent to which trauma-informed approaches address racial trauma and racial disparities in youth outcomes (Alvarez, 2020). Thus, it is not clear the extent to which school practices have tangibly shifted in the time since the Pathways to Desistance data was collected.

There are several other student and school factors that have been found to influence school attachment, including student academic resilience (Seçer & Ulaş, 2020) as well as student's participation in extracurricular activities and small school sizes (McNeely et al., 2002). Future trauma-informed programming and research may also attend to how these factors may enhance or restrict student attachment to schools. Similarly, schools should also take note of what policies or practices they utilize that decrease the feelings of safety among students at the school. For example, zero tolerance discipline policies have been critiqued for their contribution

to overall school disengagement and increased racial disparities in educational outcomes (Teasley, 2014). In contrast, fair discipline policies can help to promote school attachment (McNeeley et al., 2002). It is imperative that school reformers, particularly in schools located within neighborhoods that experience high rates of violence, adapt policies and programs that work to increase student attachment to school.

Next, as exposure to violence negatively impacts a student's motivation to succeed, schools should implement policies and programs that increase students' motivation to succeed following exposure to violence. Motivation to succeed has been found to be influenced by teacher practices and classroom and school environments (Eccles et al., 1998). As such, schools should seek to increase motivation by providing concrete training to their teachers on ways to increase academic motivation among their students. In one study, researchers found that use of technology increased student motivation (Olsen & Chernobilsky, 2016) indicating that it might be beneficial for teachers to adapt their curriculum to include online components. Along with this, curriculum that includes project-based learning has been found to increase student motivation compared to curriculum that focuses primarily on direct instruction (Carrabba & Farmer, 2018). Because of this, it is particularly important for teachers working in schools located within neighborhoods burned with high rates of violence to include more project-based learning in their curriculum. Furthermore, as prior research has attributed gender differences in motivation to succeed on perceptions of what is appropriate for males and females (Wigfield et al., 2002) schools should find ways to specifically address perceived gender differences in both school subjects and future careers. As exposure to violence impacts a students' motivation to succeed schools surrounded by neighborhoods that experience high crime and violence rates should implement innovative policies and curriculum that have been proven to increase student motivation.

Limitations

There are a number of limitations in the current study that should be noted. The first and most notable is the age of the data set, drawing into question the significance of the findings. While school systems have certainly changed since these data were originally collected, research has only recently taken up the task of understanding what factors inform trauma-informed schools. Particularly within schools located in communities burdened with high rates of violence (Sonsteng-Person, 2022). As such, the findings from this study provide necessary evidence for the advancement of trauma-informed approaches in schools.

Along with this, the sample includes only youth offenders convicted of serious crimes, most of which were felonies,

limiting the generalizability to other adolescent offenders who may be on parole or who are administratively deferred. The current model presents information not presumed to be causally related, though the statistical diagram may make it appear so. This is done to demonstrate specific hypothesized and mediated relationships. It does not account for change in those relationships. Mediation is a common technique to examine cross sectional data (Maxwell & Cole, 2007), and is similar to other path analysis methods. However, future research using longitudinal data should examine changes in these constructs over time. Additionally, while this study focused on the effects of community violence exposure, there is also a documented relationship between family violence and academic achievement (Supol et al., 2020); future research should include family violence as a measure of interest, perhaps examining the interaction of family and community violence as predictors of academic achievement. Furthermore, research should work to identify the process through which student attachment to school and motivation to succeed are impacted after they have been exposed to violence. While the current study is able to determine that this is occurring, it is unable to determine why. Qualitative studies examining school attachment and motivation to succeed among violence-exposed adolescents may provide additional context to help explain these processes. In order for schools to increase school attachment and motivation after exposure to violence they need to understand the reasons for the decrease in the first place.

Next, the measurement of grades was not strictly numeric. Rather, grades were self-reported using letter values. This limits the amount of variability that can be assumed to be part of a letter grade. Other academic outcome data, such as GPA could add depth to the current findings. However, it should be noted that measuring grades as an outcome of academic achievement is problematic as well due to the inherent teacher biases that may influence grading, particularly based on student race/ethnicity (Malouff & Thorsteinson, 2016).

Finally, the data were derived from self-reported information, including a retrospective report of behavior and educational achievement, potentially biasing the results. Although collateral information was not available in the current dataset, obtaining information such as test scores could also provide depth to the current study questions. Furthermore, measures identifying additional resources to aid in success in school such as mentoring programs are warranted to gain a more complete understanding of what factors influence the relationship presented.

Conclusion

The Stress Process Model is used to identify the causal relationship between violence exposure and grades. In this model we find that lower grades are not an inherent outcome

of exposure to violence but are rather explained by the mediating effects of school attachment and motivation to succeed. As such, it is imperative for schools to understand the role that they play in this relationship in order to mitigate the impact of students' exposure to violence.

Author Contributions Mulvey, Edward P. Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000–2010. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2016–03–14. <https://doi.org/10.3886/JCPSR29961.v2>. Mulvey, E.P. Steinberg, L., Fagan, J., Cauffman, E., Piquero, A.R., Chassin, L., Knight, G.P., Brame, R., Schubert, C.A., Hecker, T., Losoya, S.H. (2004). Theory and Research on Desistance from Antisocial Activity Among Serious Adolescent Offenders. *Youth Violence and Juvenile Justice*, 2(3), 213–236.

Data Availability Data not available due to IRB restrictions.

Code Availability Not available due to IRB restrictions.

Declarations

Conflicts of Interest/Competing Interests The authors claim no conflicts of interest.

References

- Alfaro, E. C., Umana-Taylor, A. J., Gonzales-Bcken, M. A., Bamaca, M. Y., & Zeiders, K. H. (2009). Latino adolescents' academic success: The role of discrimination, academic motivation, and gender. *Journal of Adolescence*, 32(4), 941–962. <https://doi.org/10.1016/j.adolescence.2008.08.007>
- Alicis, E., Bus, M., Dulack, W., Pennings, L., & Spinter, J. (2012). Teachers' experiences supporting children after traumatic exposure. *Journal of Traumatic Stress*, 25, 98–101.
- Alvarez, A. (2020). Seeing race in the research on youth trauma and education: A critical review. *Review of Educational Research*, 90(5), 583–626.
- Aneshensel, C. S., & Mitchell, U. A. (2014). The stress process: Its origins, evolution, and future. In R. J. Johnson, R. J. Turner, & B. G. Link (Eds.), *Sociology of mental health: Selected topics from forty years 1970s–2010s* (pp. 53–74). Springer.
- Bailey, B. N., Delaney-Black, V., Hannigan, J. H., Ager, J., Sokol, R. J., & Covington, C. Y. (2005). Somatic complaints in children and community violence exposure. *Developmental and behavioral pediatrics*, 26(5), 341–348.
- Benner, A. D., & Wang, Y. (2018). Racial / Ethnic Discrimination and Well-Being During Adolescence: A Meta-Analytic Review. *American Psychologist*, 73(7), 855–883. <https://psycnet.apa.org/doi/10.1037/S0954579409000145>
- Boxer, P., Sloan-Power, E., Piza, E., & Schappell, A. (2014). Using police data to measure children's exposure to neighborhood violence: A new method for evaluating relations between exposure and mental health. *Violence and Victims*, 2(1), 24–33.
- Bryan, J., Moore-Thomas, C., Gaenzle, S., Kim, J., Lin, C. H., & Na, G. (2012). The effects of school bonding on high school seniors' academic achievement. *Journal of Counseling & Development*, 90(4), 467–480. <https://doi.org/10.1002/j.1556-6676.2012.00058.x>
- Burrell, M., White, A. M., Frerichs, L., Funchess, M., Cerulli, C., DiGiovanni, L., & Hassmiller Lich, K. (2021). Depicting “the system”: How structural racism and disenfranchisement in the United States can cause dynamics in community violence among males in urban black communities. *Social Science and Medicine*, 272. <https://doi.org/10.1016/j.socscimed.2020.113469>
- Busby, D. R., Lambert, S. F., & Ialongo, N. S. (2013). Psychological symptoms linking exposure to community violence and academic functioning in african american adolescents. *J Youth Adolescence*, 42, 250–262. <https://doi.org/10.1007/s10964-012-9895-z>
- Carolan, B. V., & Chesky, N. Z. (2012). The relationship among grade configuration, school attachment, and achievement. *Middle School Journal*, 43(4), 32–39. <https://doi.org/10.1080/00940771.2012.11461818>
- Carrabba, C., & Farmer, A. (2018). The impact of project-based learning and direct instruction on the motivation and engagement of middle school students. *Teaching and Educational Research*, 1(2), 163–174.
- Cernkovich, S., & Giordano, P. (1992). School bonding, race and delinquency. *Criminology, and Psychopathology*, 21, 227–259. <https://doi.org/10.1111/j.1745-9125.1992.tb01105.x>
- Chen, P., Voisin, D. R., & Jacobson, K. C. (2016). Community violence exposure and adolescent delinquency: Examining a spectrum of promotive factors. *Youth and Society*, 48(1), 33–57. <https://doi.org/10.1177/0044118X13475827>
- Chimi, C. J., & Russell, D. L. (2009). The Likert Scale: A proposal for improvement using quasi-continuous variables. *Proceedings of ISECON (Information Systems Education Conference)*, 26, 1–10.
- Cole, M. S., Walter, F., & Bruch, H. (2008). Affective mechanisms linking dysfunctional behavior to performance in work teams: A moderated mediation study. *Journal of Applied Psychology*, 93(5), 945–958. <https://doi.org/10.1037/0021-9010.93.5.945>
- Dorado, J. S., Martinez, M., McArthur, L. E., & Leibovitz, T. (2016). Healthy Environments and Response to Trauma in Schools (HEARTS): A whole-school, multi-level, prevention and intervention program for creating trauma-informed, safe and supportive schools. *School Mental Health*, 8(1), 163–176. <https://doi.org/10.1007/s12310-016-9177-0>
- Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 1017–1095). John Wiley & Sons Inc.
- Finkelhor, D., Turner, H., Shattuck, A., Hamby, S., & Kracke, K. (2015). Children's exposure to violence, crime, and abuse: an update. *Office of Juvenile Justice and Delinquency Prevention*. Retrieved October 20, 2017, from <https://www.ojjdp.gov/publications/PubResults.asp?sei=94>
- Foster, H., & Brooks-Gunn, J. (2009). Toward a Stress Process Model of Children's Exposure to Physical Family and Community Violence. *Clinical Child and Family Psychology Review*, 12(2), 71–94. <https://doi.org/10.1007/s10567-009-0049-0>
- Fowler, P. J., Tompsett, C. J., Braciszewski, J. M., Jacques-Tiura, A. J., & Balthes, B. B. (2009). Community violence: a meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology*, 21, 227–259. <https://doi.org/10.1017/S0954579409000145>
- Gonzalez, A., Monzon, N., Solis, D., Jaycox, L., & Langley, A. K. (2016). Trauma exposure in elementary school children: description of screening procedures, level of exposure, and posttraumatic stress symptoms. *School Mental Health*, 8(1), 77–88.
- Gramlich, J. (2017, February 21). 5 facts about crime in the US Retrieved October 20, 2017, from <http://www.pewresearch.org/fact-tank/2017/02/21/5-facts-about-crime-in-the-u-s/>
- Guay, F., Morin, A. J. S., Litalien, D., Howard, J. L., & Gilbert, W. (2020). Trajectories of self- determined motivation during the secondary school: A growth mixture analysis. *Journal of Educational Psychology*. Advance online publication. <https://doi.org/10.1037/edu0000482>

- Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72*(2), 625–638.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional Process analysis: A regression-based approach*. Guilford Press.
- Hayes, A. F., Montoya, A. K., & Rockwood, N. J. (2017). The analysis of mechanisms and their contingencies: PROCESS versus structural equation modeling. *Australasian Marketing Journal, 25*(1), 76–81.
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408–420.
- Hobbs, C., Paulsen, D., & Thomas, J. (2019). *Trauma-informed practice for pre-service teachers*. Oxford University Press, United Kingdom.
- Hong, J. S., Lee, J., Thornberg, R., Peguero, A. A., Washington, T., & Voisin, D. R. (2020). Social-ecological pathways to school motivation and future orientation of African American adolescents in Chicago. *The Journal of Education Research, 113*(5), 384–395. <https://doi.org/10.1080/00220671.2020.1838408>
- Hong, J. S., Lee, J. J., Kim, J., Iadipaolo, A. S., Espelage, D. L., & Voisin, D. R. (2019). Posttraumatic Stress, Academic Performance, and Future Orientation as Pathways to Community Violence Exposure and Sexual Risk among African American Youth in Chicago's Southside. *Behavioral Medicine, 0*(0), 1–11. <https://doi.org/10.1080/08964289.2019.1601610>
- Hurt, H., Malmud, E., Brodsky, N. L., & Giannetta, J. (2001). Exposure to violence: psychological and academic correlates in child witnesses. *Arch Pediatric Adolescent Medicine, 155*, 1351–1356.
- Jerome, E. M., Hamre, B. K., & Pianta, R. C. (2009). Teacher-child relationships from kindergarten to sixth grade: Early childhood predictors of teacher-perceived conflict and closeness. *Social Development, 18*(4), 915–945. <https://doi.org/10.1111/j.1467-9507.2008.00508.x>
- Johnson, M. K., Crosnoe, R., & Thaden, L. (2006). Gendered patterns in adolescents' school attachment. *Social Psychology Quarterly, 69*(3), 284–295.
- Kennedy, T. M., & Ceballos, R. (2014). Who, what, when, and where? Toward a dimensional conceptualization of community violence exposure. *Review of General Psychology, 18*(2), 69–81. <https://doi.org/10.1037/gpr0000005>
- Lerner, D. G., & Kruger, L. J. (1997). Attachment, self-concept, and academic motivation in high-school students. *American Journal of Orthopsychiatry, 67*(3), 485–492. <https://doi.org/10.1037/h0080249>
- LeCroy, C. W., & Krysik, J. (2008). Predictors of academic achievement and school attachment among hispanic adolescents. *Children & Schools, 30*(4), 197–209. <https://doi.org/10.1093/cs/30.4.197>
- Libbey, H. P. (2004). Measuring student relationships to school: Attachment, bonding, connectedness, and engagement. *Journal of School Health, 74*(7), 274–283. <https://doi.org/10.1111/j.1746-1561.2004.tb08284.x>
- Loomis, A., Sonsteng-Person, M., Jaggars, J., & Osteen, P. (2020). School discipline as a consequence of violent victimization: Understanding the mediating roles of head injury and fighting. *Journal of Interpersonal Violence, 1*–29. <https://doi.org/10.1177/0886260520959635>
- Losen, D. J., & Skiba, R. J. (2010). Suspended education: urban middle schools in crisis. Retrieved from <https://civilrightsproject.ucla.edu/research/k-12-education/school-discipline/suspended-education-urban-middle-schools-in-crisis>
- Ludwig, K. A., & Warren, J. S. (2009). Community violence, school-related protective factors, and psychosocial outcomes in urban youth. *Psychology in the Schools, 46*(10), 1061–1073. <https://doi.org/10.1002/pits.20444>
- Malouff, J. M., & Thorsteinsson, E. B. (2016). Bias in grading: A meta-analysis of experimental research findings. *Australian Journal of Education, 60*(3), 245–256. <https://doi.org/10.1177/0004944116664618>
- Maynard, B. R., Farina, A., Dell, N. A., & Kelly, M. S. (2019). Effects of trauma-informed approaches in schools: A systematic review. *Campbell Systematic Reviews, 15*(1-2).
- Maring, E. F., & Koblinsky, S. A. (2013). Teachers' challenges, strategies, and support needs in schools affected by community violence: a qualitative study. *Journal of School Health, 83*(6), 379–389. <https://doi.org/10.1111/josh.12041>
- Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods, 12*(1), 23–44.
- McCoy, D. C., Raver, C. C., & Sharkey, P. (2015). Children's cognitive performance and selective attention following recent community violence. *Journal of health and social behavior, 56*(1), 19–36. <https://doi.org/10.1177/0022146514567576>
- 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*. <https://doi.org/10.3389/fpubh.2014.00008>
- McNeely, C. A., Nonemaker, J. M., & Blum, R. W. (2002). Promoting school connectedness: Evidence from the National Longitudinal Study of Adolescent Health. *The Journal of School Health, 72*(4), 138–146. <https://doi.org/10.1111/j.1746-1561.2002.tb06533.x>
- Mendelson, T. S., Tandon, D., O'Brennan, L., Leaf, P. J., & Jalongo, N. S. (2015). Brief report: Moving prevention into schools: The impact of a trauma-informed school-based intervention. *Journal of Adolescence, 43*, 142–147. <https://doi.org/10.1016/j.adolescence.2015.05.017>
- Mitchell, R. M., Kensler, L., & Tschannen-Moran, M. (2018). Student trust in teachers and student perceptions of safety: Positive predictors of student identification with school. *International Journal of Leadership in Education, 21*(2), 135–154. <https://doi.org/10.1080/2374068X.2016.1157211>
- Motley, R., Sewell, W., & Chen, Y.-C. (2017). Community Violence Exposure and Risk Taking Behaviors Among Black Emerging Adults: A Systematic Review. *Journal of Community Health, 42*(5), 1069–1078. <https://doi.org/10.1007/s10900-017-0353-4>
- Office of Policy Development and Research. (2016). Neighborhoods and violent crime. *Evidence Matters*. <https://www.huduser.gov/portal/periodicals/em/summer16/highlight2.html>
- Olsen, A. K., & Chernobilsky, E. (2016). *The effects of technology on academic motivation and achievement in middle school mathematics classrooms*. NERA Conference Proceedings. <https://opencommons.uconn.edu/nera-2016/2>
- Orfield, G., Losen, D., Wald, J., & Swanson, C. B. (2004). *Losing our future: How minority youth are being left behind by the graduation rate crisis*. Urban Institute.
- 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 and Adolescent Psychology: The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 46*(3), 353–378. <https://doi.org/10.1080/15374416.2015.1046178>
- Pearlin, L. I., Liberman, M. A., Menghan, E. G., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior, 22*, 337–356.
- Pearlin, Leonard I., & Bierman, Alex. (2013). Current issues and future directions in research into the stress process. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the Sociology of Mental Health* (pp. 325–340). Springer Science + Business Media.

- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891.
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, *36*(4), 717–731.
- Preacher, K. J., Rucker, D. D., & Hayes, R. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*, 185–227.
- Purtle, J. (2018). Systematic review of evaluations of trauma-informed organizational interventions that include staff trainings. *Trauma, Violence, & Abuse*, *21*, 725–740. <https://doi.org/10.1177/1524838018791304>
- Santacrose, D. E., Kia-Keating, M., & Lucio, D. (2021). A systematic review of socioecological factors, community violence exposure, and disparities for Latinx youth. *International Society for Traumatic Stress Studies*, *34*, 1027–1044. <https://doi.org/10.1002/jts.22733>
- Schmidt, C. J., Zimmerman, M. A., & Stoddard, S. A. (2018). A longitudinal analysis of the indirect effect of violence exposure on future orientation through perceived stress and the buffering effect of family participation. *American Journal of Community Psychology*, *62*(1–2), 62–74. <https://doi.org/10.1002/ajcp.12254>
- Schubert, C. A., Mulvey, E. P., Steinberg, L., Cauffman, E., Losoya, S., Hecker, T., Chassin, L., et al. (2004). Operational Lessons from the Pathways to Desistance Project. *Youth Violence and Juvenile Justice*, *2*(3), 237–255.
- Seçer, İ., & Ulaş, S. (2020). The mediator role of academic resilience in the relationship of anxiety sensitivity, social and adaptive functioning, and school refusal with school attachment in high school students. *Frontiers in Psychology*, *11*(April), 1–12. <https://doi.org/10.3389/fpsyg.2020.00557>
- Selner-O'Hagan, M. B., Kindlon, D. J., Buka, S. L., Raudenbush, S. W., & Earls, F. J. (1998). Assessing exposure to violence in urban youth. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *39*(2), 215–224.
- Sonsteng-Person, M. (2022). The (re)production of violence and trauma in high schools: How institutional policies and practices influence teacher and staff decision making. [Doctoral Dissertation, University of California, Los Angeles]. ProQuest <https://escholarship.org/uc/item/00g6h683>
- Sonsteng-Person, M., Loomis, A. (2021). The role of trauma-informed training in helping Los Angeles teachers manage the effects of student exposure to violence and trauma. *Journal of Child and Adolescent Trauma*, *14*, 189–199. <https://doi.org/10.1007/s40653-021-00340-6>
- Sticca, F., Goetz, T., Bieg, M., Hall, N. C., Eberle, F., & Haag, L. (2017). Examining the accuracy of students' self-reported academic grades from a correlational and a discrepancy perspective: Evidence from a longitudinal study. *PLoS One*, *12*(11), <https://doi.org/10.1371/journal.pone.0187367>
- Stoddard, S. A., Heinze, J. E., Choe, D. E., & Zimmerman, M. A. (2015). Predicting violent behavior: The role of violence exposure and future educational aspirations during adolescence. *Journal of Adolescence*, *44*, 191–203. <https://doi.org/10.1016/j.adolescence.2015.07.017>
- Supol, M., Satyen, L., Ghayour-Minaie, M., & Toumbourou, J. W. (2020). Effects of family violence exposure on adolescent academic achievement: A systematic review. *Trauma, Violence, & Abuse*. <https://doi.org/10.1177/1524838019899486>
- Teasley, M. L. (2014). Shifting from zero tolerance to restorative justice in schools. *Children and Schools*, *36*(3), 131–133. <https://doi.org/10.1093/cs/cdu016>
- Thomas, M. S., Crosby, S., & Vanderhaar, J. (2019). Trauma-informed practices in schools across two decades: An interdisciplinary review of research. *Review of Research in Education*, *43*(1), 422–452. <https://doi.org/10.3102/0091732X18821123>
- US Department of Justice, Task Force on Children Exposed to Violence. (2012). *Report of the Attorney General's National Task Force on Children Exposed to Violence*. <https://www.justice.gov/defendingchildhood/cev-rpt-full.pdf>
- Viljaranta, J., Aunola, K., & Hirvonen, R. (2016). Motivation and academic performance among first graders: A person-oriented approach. *Learning and Individual Differences*, *49*, 366–372. <https://doi.org/10.1016/j.lindif.2016.06.002>
- Voisin, D. R., Kim, D. H., & Hung, J. S. (2016b). A closer look at school bonding among African American adolescents in low-income communities: A latent class analysis. *Journal of Health Psychology*, *23*(11). <https://doi.org/10.1177/1359105316658970>
- Voisin, D. R., Patel, S., Hong, J. S., Takahashi, L., & Gaylord-Harden, N. (2016a). Behavioral health correlates of exposure to community violence among African-American adolescents in Chicago. *Children and Youth Services Review*, *69*, 97–105. <https://doi.org/10.1016/j.childyouth.2016.08.006>
- Wheaton, B., Young, M., Montazer, S., & Stuart-Lahman, K. (2013). Social stress in the twenty-first century. In C. S. Aneshensel, J. C. Phelan, & A. Bierman (Eds.), *Handbook of the sociology of mental health* (pp. 325–340). Springer Science + Business Media.
- Wigfield, A., Battle, A., Keller, L. B., & Eccles, J. S. (2002). *Sex differences in motivation, self-concept, career aspiration, and career choice: Implications for cognitive development*. In A. McGillicuddy-De Lisi & R. De Lisi (Eds.), *Advances in applied developmental psychology, Vol. 21. Biology, society, and behavior: The development of sex differences in cognition* (p. 93–124). Ablex Publishing.
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology*, *25*(1), 68–81. <https://doi.org/10.1006/ceps.1999.1015>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.