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Associations Between Community Violence Exposure, Emotional Desensitization, and
Internalizing and Externalizing Symptoms: The Influence of Route of Exposure and
Interpersonal Proximity to the Victims of Violence

A Dissertation

Submitted to the Graduate Faculty of the
University of New Orleans
in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Developmental Psychology

by

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Abstract

The current study examines associations between community violence exposure (CVE) and internalizing and externalizing symptoms. The emotional desensitization hypothesis states that moderate levels of CVE will be associated with increased internalizing symptoms, whereas high levels of CVE will be associated with decreases in internalizing distress. The current study extends prior research by examining whether patterns of emotional desensitization differ based on the route of exposure – either being personally victimized or witnessing community violence. Further, associations examined the influence of interpersonal proximity to the victims of violence – that is, whether individuals are victims themselves (most proximal), witness violence against known individuals, or witness violence against strangers (least proximal). Participants include 714 undergraduate students ($M_{\text{age}} = 20.5$ years, $SD = 3.9$) who completed an online survey of CVE, internalizing and externalizing outcomes, and cognitions supporting aggression. Results revealed significant moderation by interpersonal proximity. Specifically, curvilinear associations between CVE and internalizing symptoms, reflecting emotional desensitization, were stronger at lower levels of proximity, whereas positive linear associations emerged at higher levels of proximity. Associations between CVE and more externalizing behaviors were stronger at low, compared to high, levels of proximity. Internalizing symptoms and cognitions supporting aggression partially mediated the association between CVE and externalizing behaviors. Further, latent profile analysis revealed that distinct groups of individuals were classified based on cumulative frequency of CVE and types of violent experiences. Thus, route of exposure, relationship to the victims of violence, and type of violence are each salient characteristics of CVE that may relate differentially to adjustment.

Keywords: Community Violence Exposure, Emotional Desensitization, Externalizing

Introduction

Over half of adolescents in the United States have witnessed community violence (CV) in their lifetime (Finkelhor, Turner, Shattuck, Hamby, & Kracke, 2015), and many adolescents in urban communities experience chronic exposures to violence (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003). According to a meta-analysis of 114 studies, exposure to CV shows consistent relations with post-traumatic stress disorder (PTSD) and externalizing problems, as well as weaker, albeit significant, links with anxiety and depression (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009). Many adolescents witness CV, some are exposed through direct victimization, and others experience both witnessing and victimization, yet prior research has done relatively little to disentangle the effects of these different routes of exposure. The current study seeks to examine whether victimization and witnessing CV are associated with distinct outcomes. This will inform future research on effective ways to prevent and treat adjustment problems in individuals exposed to CV.

How is Community Violence Exposure (CVE) Defined?

CV is commonly defined as aggression or violent events that take place outside of the home (Fowler et al., 2009), although researchers note a range of inconsistencies in how studies operationalize this construct (Guterman, Cameron, & Staller, 2000). Although a few studies include descriptions or qualifiers of ‘community,’ most researchers do not include explicit definitions in their measures and instead rely on participants’ perceptions of the term (Trickett, Duran, & Horn, 2003). Community is often considered to be synonymous with neighborhood, and thus CV typically includes violent acts that take place on the streets surrounding one’s home (Guterman et al., 2000).

With regard to violence, deliberate acts causing clear physical injury are almost always included in measures of CV, but it is unclear whether ‘deliberate’ and ‘physical injury’ are necessary components to this definition (Guterman et al., 2000). Although earlier studies included non-intentional violent acts in measures of CVE (Guterman et al., 2000), being in an accident or disaster does not correlate well with exposure to interpersonal violence (Brennan, Molnar, & Earls, 2007), suggesting that it is not violent acts per se but the intentional and interpersonal nature of violence that distinguishes CVE from other traumas. Thus, the current consensus is that accidents and disasters should be considered separately from interpersonal violence (Brennan et al., 2007). A more relevant consideration is whether threats of injury should be included on measures of CVE, given that verbal threats of violence do not cause physical injury but may cause similar levels of psychological distress as actual violent acts (Guterman et al., 2000). Similarly, events and circumstances that may give rise to violence or feelings of danger, such as drug deals and weapons possession, are included on some measures of CV but not others (Guterman et al., 2000). In their review, Trickett and colleagues (2003) found that shooting, knifing, and beating events were usually included across violence exposure measures, but few other consistencies were identified.

Finally, there are multiple ways in which one may be exposed to violence. Researchers have empirically distinguished three routes of exposure: personal victimization, witnessing violence, and hearing about or learning of violence (Brennan et al., 2007; van Dulmen, Belliston, Flannery, & Singer, 2008). Victimization refers to having been the object of intentional acts of violence initiated by another person to cause one harm (Brennan et al., 2007; Buka, Stichick, Birdthistle, & Earls, 2001). Witnessing CV refers to witnessing an event that involves loss of property, threat of physical injury, actual injury, or death of someone else without being a victim

oneself (Fowler et al., 2009). Although witnessing typically denotes eye-witnessing, this route also includes hearing gunshots or hearing threats of violence (Trickett et al., 2003). Hearing about CV refers to learning of another person's victimization by neighborhood violence (Fowler et al., 2009), although this construct is typically assessed only in relation to learning of a close friend or family member's victimization. These three routes of exposure are highly correlated (Brennan et al., 2007) yet show distinct relations with adjustment (Fowler et al., 2009). Nevertheless, the majority of existing research utilizes measures that combine experiences of witnessing violence and victimization into one CVE score (Kennedy & Ceballo, 2014).

Following Kennedy and Ceballo (2014), the current study defines CV as instances of interpersonal harm or threats of harm within one's neighborhood or community, excluding violence in the home and media violence. Any reference to CVE that does not distinguish the route of exposure indicates a composite measure of victimization and witnessing. In addition to distinctions based on route of exposure, other dimensions of violence exposure, such as severity of violence, also may be relevant (Kennedy & Ceballo, 2014). For instance, exposure to serious violence (e.g., knife attacks or shootings) is statistically distinguishable from victimization or witnessing that does not involve a weapon (van Dulmen et al., 2008). However, few researchers distinguish between moderate and severe violence exposure in their studies (Kennedy & Ceballo, 2014). Therefore, an important goal of the current study is to measure individuals' exposure to a range of violent experiences and examine whether specific types of CVE (e.g., weapon-related versus non-weapon-related violence) are differentially associated with adjustment problems.

What is the Prevalence of CVE among Adolescents?

According to the National Survey of Children's Exposure to Violence, 33% of adolescents aged 14 to 17 years have witnessed CV in the past year and 58% have witnessed CV

in their lifetime (Finkelhor et al., 2015). Another large national study reported prevalence rates based on specific acts of violence: witnessing violence in which a gun or knife was used was relatively rare (3% and 7%, respectively), witnessing threats involving a weapon was more common (19%), and witnessing someone beaten badly enough to need medical attention was the most common violent incident witnessed (28%; Zinzow et al., 2009). Although nationwide data on the prevalence of community victimization is lacking, victimization is generally less prevalent than is witnessing violence (Lambert, Nylund-Gibson, Copeland-Linder, & Ialongo, 2010).

Despite the high rates of CVE reported in national studies, even higher rates are found in urban or racial/ethnic minority samples (Foster & Brooks-Gunn, 2009; Stein et al., 2003). In urban communities, CVE often begins at a young age, and rates of exposure increase through childhood and adolescence (Kennedy & Ceballo, 2016). One recent study suggests that about half of adolescents from low-income neighborhoods have witnessed at least one violent act against a stranger in the past six months (Farrell, Mehari, Kramer-Kuhn, & Goncy, 2014). Consistent with national samples, witnessing someone being beaten up is one of the most common forms of CVE in urban samples (Farrell et al., 2014; Lambert et al., 2010). However, studies that assess whether participants have heard gunfire suggest that this type of exposure is the most common (Kennedy & Ceballo, 2016), with one study reporting that more than 95% of children attending an urban middle school had heard guns being shot in their lifetime (Farrell & Bruce, 1997). Eye-witnessing violence involving weapons is relatively less common, although high rates of witnessing potentially lethal violence are nonetheless reported, including witnessing someone being shot (12%), stabbed (10%), or killed (10%; Farrell et al., 2014).

Witnessing and being a victim of CV are highly correlated in urban samples (Brennan et al., 2007), and witnessing CV is almost always more prevalent than victimization in the

community (Stein et al., 2003). Research indicates that most urban youth witness and hear about CV, and a subset also experience high levels of personal victimization (Zimmerman & Posick, 2016). The prevalence of personal victimization in high-risk communities varies widely across studies, with estimates ranging from 7% (Mrug & Windle, 2009) to 82% (Farrell et al., 2014), likely due to discrepancies in the types of violent acts assessed. Being injured by someone with a weapon is the least common form of victimization, whereas acts such as being pushed or shoved are the most common, occurring in about two-thirds of early adolescents in just the past 30 days (Farrell et al., 2014). Socioeconomic indicators, including neighborhood disadvantage (Farrell et al., 2014) and family income (Mrug & Windle, 2009), are more strongly related to witnessing CV than victimization. Thus, the discrepancy in prevalence rates across communities may be larger for witnessing CV than for victimization, although victimization is still more prevalent in urban compared to non-urban neighborhoods.

Although prevalence data simply accounts for the percentage of individuals exposed to a single incident of CV, it is important to note that most adolescents who experience CVE are exposed to multiple violent acts each year (Gorman-Smith, Henry, & Tolan, 2004). Furthermore, the frequency of CVE is generally stable or increases across the adolescent years, constituting a chronic experience for many urban youth (Lambert et al., 2010). Thus, CVE is a highly prevalent experience for many adolescents, particularly those living in urban communities.

Associations Between CVE and Externalizing Problems

CVE has robust relations with many indices of externalizing problems (i.e., behaviors that are directed outward and negatively affect other people who are external to the individual; Jenson, Harward, & Bowen, 2011). Specifically, more exposure through a combination of

victimization, witnessing, and/or learning of CV is associated with more antisocial behavior (Slattery & Meyers, 2014), delinquency (Chen, Voisin, Jacobson, 2016), aggression (Ma, Grogan-Kaylor, & Delva, 2016), violence perpetration (Gorman-Smith et al., 2004), and general externalizing problems (Cecil, Viding, Barker, Guiney, & McCrory, 2014). Furthermore, after controlling for initial levels, CVE predicts subsequent increases in externalizing behaviors (Gorman-Smith & Tolan, 1998; Haradaway, Sterrett-Hong, Larkby & Cornelius, 2016), conduct problems (Pearce, Jones, Schwab-Stone, & Ruchkin, 2003), conduct disorder (McCabe, Lucchini, Hough, Yeh, & Hazen, 2005), and aggression (Gorman-Smith & Tolan, 1998). Cross-sectional studies show that CVE is associated with reactive forms of aggression, which are more impulsive in nature, as well as proactive forms of aggression, which are instrumental in achieving a goal (Hamner, Latzman, & Chan, 2015; Scarpa, Tanaka, & Haden, 2008). However, longitudinal research suggests that CVE predicts subsequent reactive aggression but is not associated with changes in proactive aggression when the effect of reactive aggression is controlled (Wall Myers et al., 2018).

While the most proximal exposure may be expected to have the strongest association with maladjustment, results of several studies indicate that witnessing CV is more strongly associated with the development of externalizing behaviors than victimization. For instance, Bacchini, Affuso, and Aquilar (2015) found that exposure to neighborhood violence as a witness, but not as a victim, was uniquely associated with antisocial behavior. Additionally, witnessing CV, but not victimization, during early adolescence predicted subsequent delinquency and conduct problems one to two years later (Mrug & Windle, 2009). Similarly, adolescents' exposure through witnessing, but not through victimization, was associated with increases in physical aggression over the course of the school year (Farrell et al., 2014). However, Fowler

and colleagues' (2009) meta-analysis revealed that the magnitude of the relationship between CVE and externalizing outcomes did not significantly differ for victimization and witnessing CV. Thus, victimization and witnessing CV may have similar associations with externalizing behaviors concurrently, yet only witnessing CV is associated with greater externalizing behaviors over time, suggesting that victimization and witnessing CV may influence externalizing behaviors through different underlying mechanisms.

Both witnessing and being the victim of CV likely lead to increased aggression and other externalizing behaviors by providing models of antisocial behavior and by altering individuals' cognitive processing of certain social situations (Mrug & Windle, 2009). Research on social information processing suggests that individuals prone to aggression are more likely than non-aggressive individuals to exhibit a hostile attribution bias – that is, they assume that the actions of peers reflect hostile intentions (Crick & Dodge, 1994). Furthermore, some individuals exhibit additional biases supporting aggression that may influence their decision to behave aggressively rather than respond in a non-aggressive manner. Specifically, compared to their non-aggressive peers, aggressive individuals are more likely to evaluate aggressive responses more positively, more likely to expect positive outcomes of aggression, and are more likely to have confidence in their ability to effectively use aggression (Crick & Dodge, 1994). Exposure to CV may increase the likelihood of these social cognitive biases, yet the specific biases that result may differ for those who witness compared to those who are victims of CV. Additionally, witnessing and victimization may have diverse effects on emotion regulation processes, which may affect the likelihood of engaging in aggressive or antisocial behavior. The distinct mechanisms through which witnessing and being a victim of CV may lead to externalizing behaviors are reviewed next.

Witnessing community violence. Witnessing CV is robustly related to many indices of externalizing behavior, including more antisocial behavior (Bacchini et al., 2015), conduct problems (Mrug & Windle, 2009), delinquency (Goldner, Gross, Richards, & Ragsdale, 2015; Mrug & Windle, 2009), and aggression (Farrell et al., 2014; Goldner et al., 2015). Several longitudinal studies report bidirectional relationships between witnessing CV and externalizing behaviors (Esposito, Bacchini, Eisenberg, & Affuso, 2017; Farrell et al., 2014; Mrug & Windle, 2009), suggesting that adolescents who engage in externalizing behaviors may spend time in situations where violence is likely to occur, although bidirectional effects have not been found for victimization. Furthermore, witnessing CV mediated the relationship between earlier and later aggression (Esposito et al., 2017), suggesting that witnessing CV and externalizing behaviors reinforce each other cyclically over time.

In an influential study by Schwartz and Proctor (2000), witnessing CV, but not victimization, was indirectly associated with increased physical aggression during adolescence through three social cognitive biases supporting aggression: a more positive evaluation of aggressive strategies, greater expectations of positive outcomes of aggression, and greater efficacy beliefs for aggression. Similarly, a longitudinal study found that aggressive fantasies and normative beliefs approving of aggression mediated the association between higher levels of witnessed CV and subsequent aggressive behavior (Guerra, Huesmann, & Spindler, 2003). Additionally, witnessing CV was associated with a greater tendency to expect positive outcomes of aggression among a sample of juvenile violent offenders (Shahinfar, Kupersmidt, & Matza, 2001), suggesting that witnessing CV may increase the likelihood of engaging in violent criminal activity at least partially through cognitive biases. Thus, individuals who witness violence may come to perceive aggression as a justifiable and effective response to conflict. Although some

research suggests that the cognitive mechanisms through which violence exposure leads to increased aggression is specific to positive evaluations of reactive aggression (McMahon, Felix, Halpert, & Petropoulos, 2009), beliefs supporting the justification of violence also have been found to mediate the relationship between witnessing violence and proactive aggression (Calvete & Orue, 2013).

Children's social cognitions supporting aggression increase with age beginning in first grade and become particularly stable as they approached the later elementary school years, suggesting that witnessing CV as early as middle childhood can have long-term effects on cognitive biases supporting aggression (Guerra et al., 2003). In communities characterized by frequent, extreme violence, a positive attitude toward violence is associated with *better* psychosocial functioning and fewer concerns about future threat (Weierstall et al., 2013), implying that cognitions supporting aggression may be adaptive in the context of violence. Accordingly, adolescents who witness CV learn that using aggression against others can aid in achieving goals, and such adolescents are likely to view aggression as an appropriate behavioral option in times of conflict. When aggression is viewed as a useful response to conflict, adolescents may be less likely to learn problem-solving skills that are more socially accepted, such as taking another's perspective and talking about disagreements (McMahon et al., 2009). Consequently, some individuals who have witnessed CV may see engaging in further aggression as the most effective means for achieving goals. Due to research suggesting that emotion dysregulation is not associated with witnessing CV (Schwartz & Proctor, 2000), alterations in cognitions supporting aggression is likely a primary mechanism through which witnessing CV leads to increased externalizing behaviors.

Victimization in the community. Victimization in the community also is associated with more antisocial behavior (Bacchini et al., 2015), delinquency (Goldner et al., 2015), and aggression (Farrell et al., 2014; Goldner et al., 2015) cross-sectionally, although longitudinal relations with externalizing behaviors are less consistent (Esposito et al., 2017; Farrell et al., 2014; Mrug & Windle, 2009). Like witnessing CV, victimization in the community is associated with cognitive biases that may give rise to antisocial behavior, but the precise nature of those cognitions may differ for victims as compared to those who witness violence (Shahinfar et al., 2001). While witnessing CV is associated with viewing aggression as an effective problem-solving strategy, the detrimental effects of personally experiencing victimization may impede the development of positive evaluations of aggression (Schwartz & Proctor, 2000). The experience of victimization may alter cognitive processes, resulting in distortions in how one evaluates social situations. Specifically, victimization, but not witnessing CV, is associated with greater hostile attribution biases (HAB) and more hostile social goals (Shahinfar et al., 2001). Thus, victims of CV may be more likely than witnesses to see changes in their appraisal of the social environment. Impairments in social relationships, such as increased peer rejection and bullying, also have been observed for victims, but not witnesses of CV (Schwartz & Proctor, 2000). Thus, compared to witnesses of CV, victims of CV may be less likely to expect positive outcomes of aggression, yet more likely to exhibit HAB that lead to increased externalizing behavior.

Furthermore, in contrast to findings regarding witnessing CV, the relationship between victimization and increased aggression seems to be mediated through emotion dysregulation (Schwartz & Proctor, 2000). Compared to witnessing CV, victimization may have a stronger impact on physiological stress response systems, which mediate the association between violence exposure and externalizing problems during adolescence (Busso, McLaughlin, & Sheridan,

2017). In sum, witnessing CV and victimization in the community each relate to more engagement in externalizing behaviors. However, there are differences in the mechanisms through which each route of exposure leads to externalizing problems. For witnesses, the primary mechanism underlying this relationship appears to be increased cognitions supporting aggression. In contrast, victimization seems to increase the risk of externalizing problems via its more pervasive impact on emotion dysregulation and HAB.

Associations Between CVE and Internalizing Problems

CVE has been linked to increases in internalizing problems (Fowler et al., 2009), primarily through disruptions in emotion regulation (Heleniak, King, McLaughlin, & Monahan, 2017). Across cultures and gender, victims of CV experience more depression, anxiety, and somatization symptoms than witnesses of CV, and witnesses experience more of these symptoms than adolescents who have not been exposed to CV (Schwab-Stone, Kogosov, Vermeiren, & Ruchkin, 2013).

Emotional desensitization to violence. Despite consistent relations between CVE and internalizing problems, these associations are relatively weak compared to CVE's relationship with externalizing problems (Fowler et al., 2009; Taylor et al., 2016), possibly because of an underlying non-linear relationship between CVE and internalizing symptoms. Specifically, very high levels of violence exposure may be associated with *decreased* emotional distress, despite the tendency of emotional distress to increase with moderate levels of CVE (Kennedy & Ceballo, 2014). According to the theory of emotional desensitization to violence, individuals experience distress to violent events initially, but those who have experienced chronic CVE may experience a reduction in internalizing symptoms over time (McCart et al., 2007). Supporting this theory, a quadratic, inverse U-shaped association between CVE and internalizing behaviors has been

reported cross-sectionally (Ng-Mak, Salzinger, Feldman, & Stueve, 2004) and longitudinally (Gaylord-Harden, So, Bai, Henry, & Tolan, 2016; Kennedy & Ceballo, 2016; Mrug, Madan, & Windle, 2015). Although this research typically operationalizes internalizing symptoms as a combination of anxiety and depression, the curvilinear association with CVE may be specific to depression, whereas associations with anxiety remain linear (Gaylord-Harden, Cunningham, & Zelencik, 2011).

Findings of emotional desensitization are in line with theory and research on stress responsivity, which suggests that biological stress response systems are adaptive, developing in a manner that promotes functioning and survival in one's current environment (Boyce & Ellis, 2005). According to the adaptive calibration model proposed by Del Giudice, Ellis, and Shirtcliff (2011), most individuals exposed to danger or adversity will develop a physiological profile of high responsivity to stress. However, if this exposure involves chronic and severe trauma, individuals may develop a physiological profile of low responsivity to stress. Frequent activation of the stress response system can trigger anxiety and depression, making internalizing symptoms more likely among individuals with highly responsive systems. Those who show a pattern of low responsivity typically report few internalizing problems, consistent with emotional desensitization.

Adolescents who experience chronic CVE may feel a need to develop a tough façade in order to protect themselves against being personally victimized (Taylor et al., 2016). Thus, adolescents may suppress feelings of anxiety or depression because they view these symptoms as weak, undermining the perception of a tough exterior. Indeed, somatic complaints have been found to be the most common internalizing symptom reported by urban adolescents (Reynolds, O'Koon, Papademetriou, Szczygiel, & Grant, 2001), perhaps because somatic symptoms are

considered more acceptable than symptoms of anxiety and depression. Therefore, the inverse U-shaped relationship between CVE and internalizing symptoms may be explained by a reduction in emotional distress due to desensitization, the adoption of a tough façade, or (most likely) both.

Differences between victimization and witnessing CV. Most studies examining emotional desensitization to violence have employed measures that operationalize CVE as a composite of witnessing and victimization without distinguishing between the two. Only one known study has examined desensitization effects of witnessing alone, revealing the expected curvilinear relationship between witnessing CV and depressive symptoms (Gaylord-Harden et al., 2016). No known study has examined desensitization effects resulting from victimization, but the existing research suggests that victimization may have a linear, rather than curvilinear relationship, with internalizing symptoms.

Compared to witnessing CV, victimization shows stronger and more consistent linear relations with internalizing outcomes across studies (Fowler et al., 2009). This is likely due to the more pervasive effects of victimization, compared to witnessing CV. For instance, victims of CV are more likely than witnesses to report problems with emotion regulation (Schwartz & Proctor, 2000), which is associated with subsequent internalizing problems (Dvir, Ford, Hill, & Frazier, 2014). Additionally, victimization, but not witnessing CV, is associated with greater peer rejection and bullying by peers (Schwartz & Proctor, 2000), suggesting that victimization has a more persistent impact across domains, which may lead to greater internalizing distress.

Although the theory of emotional desensitization was proposed to operate regardless of the context of violence exposure (Ng-Mak, Salzinger, Feldman, & Stueve, 2002), those who witness, but do not directly experience, CV may be more likely to experience desensitization than are those who are directly victimized. Although this has not been tested empirically, the

only desensitization study using a national probability sample of adolescents, rather than a high-risk sample, did not find support for the emotional desensitization hypothesis (McCart et al., 2007). Instead, symptoms of PTSD increased linearly with greater exposure to CV, whereas the quadratic effect was not significant. Since CVE is more strongly related to PTSD than any other internalizing problems (Fowler et al., 2009), desensitization may only apply to depression or general emotional distress, rather than PTSD specifically. However, another explanation for the lack of a curvilinear association has to do with the sample under study. Although McCart and colleagues (2007) did not report witnessing and victimization statistics separately, these two routes of exposure may be less strongly correlated in a national probability sample compared to a high-risk sample. The high prevalence of CV in urban neighborhoods increases the likelihood that victims of violence in these neighborhoods also experience chronic exposure through witnessing. Thus, for most individuals in an urban sample, a high score on a composite measure of witnessing and victimization likely reflects high levels of witnessing CV, with or without high levels of victimization. In a non-risky neighborhood, however, acts of CV may be more random, and thus adolescents from non-risky neighborhoods that report CVE may have experienced victimization, with relatively low levels of witnessing. Presumably, then, when measures of witnessing and victimization are combined, a high CVE score may represent different experiences for adolescents who are or are not living in a high-risk neighborhood. Thus, if individuals are likely to experience desensitization from witnessing, but not victimization, curvilinear associations with composite scores of witnessing and victimization are more likely to be found in high-risk compared to non-high-risk samples. A greater representation of victimization relative to witnessing chronic CV, then, could explain the lack of desensitization effects in McCart and colleagues' (2007) study.

In sum, victimization in the community may be associated with an array of symptoms that may lead to high levels of internalizing distress. Previous studies have found evidence of emotional desensitization to violence, characterized by high levels of internalizing problems for individuals with moderate levels of CVE and low levels of internalizing problems for individuals with either low or high levels of CVE. However, this study proposes that emotional desensitization patterns will be detected in individuals who have primarily witnessed CV, but not those whose CVE consists primarily of victimization.

Pathological Adaptation and Interpersonal Proximity to Victims of Violence

Findings of emotional desensitization to violence reflect what Ng-Mak and colleagues (2002) have termed a “pathological adaptation” to violence. In other words, emotional desensitization is adaptive in the short-term by reducing distress, but this reduction in emotional distress is often accompanied by cumulative increases in aggressive behaviors, which are pathological over the long-term. Indeed, lower internalizing distress in middle adolescence mediates the relationship between violence exposure in early adolescence and violent behavior in late adolescence (Mrug et al., 2015). Additionally, meta-analytic findings reveal that CVE is more strongly related to externalizing problems in adolescents compared to children, whereas CVE is more strongly related to internalizing problems in children compared to adolescents (Fowler et al., 2009). Since most urban youth experience cumulative increases in CVE across childhood and adolescence (Lambert et al., 2010), the shift from greater internalizing problems to greater externalizing problems provides further support for the pathological adaptation model. In other words, children may initially experience strong internalizing symptoms and moderate externalizing symptoms in response to moderate CVE, while increased CVE over time leads to a

reduction in internalizing symptoms and linear increases in externalizing symptoms across adolescence.

Although previous research has not made the distinction between victimization and witnessing CV, patterns of pathological adaptation, characterized by very high levels of externalizing problems and low levels of internalizing problems, are expected among individuals who have experienced high levels of witnessing CV, with relatively low levels of victimization. Individuals who have experienced high levels of victimization will likely exhibit a pathological pattern of symptoms, but this pattern will likely include high levels of externalizing problems as well as high levels of internalizing problems. Distinguishing between known and unknown victims of witnessed violence may be a useful way to differentiate these symptom patterns even further. Witnessing CV against a family member or close friend is more strongly related to internalizing symptoms than is witnessing CV against a stranger (Lambert, Boyd, Cammack, & Ialongo, 2012), suggesting that emotional desensitization is less likely to result from witnessing CV against a familiar person, relative to a stranger. Additionally, violence in the community is more likely to result in desensitization effects than is family violence (Ng-Mak et al., 2004). The victims of witnessed CV are most commonly strangers (Lambert et al., 2012), whereas family violence necessarily involves known individuals; thus, it may be easier for youth to distance themselves from violence emotionally if they do not have a personal connection with those involved (Mrug & Windle, 2009).

When taken together, the effects of CVE may best be conceptualized on a continuum of interpersonal proximity to the victim(s) of violence. Specifically, patterns of pathological adaptation to CVE (i.e., a strong linear relationship with externalizing problems and a curvilinear relationship with internalizing problems) may be most likely to occur when interpersonal

proximity is low, such as when one witnesses violence against a stranger. In contrast, positive linear relationships with both externalizing problems and internalizing problems may be most likely to occur with the highest levels of interpersonal proximity, such as when one is a victim oneself.

The Current Study

Much of the existing research on the effects of CVE has conceptualized the construct as a summation of one's experiences of victimization and witnessing CV, either as distinct constructs or as a total CVE composite. However, as noted by Kennedy and Ceballo (2014), since many urban youth experience both victimization and witnessing, it may be essential to consider the relative combination of these routes of exposure. Further, very little research has accounted for individuals' relationships to the victims of witnessed violence. Thus, a more useful way to conceptualize CVE may be to distinguish the individual's interpersonal proximity to the victims of violence. For individuals who have had multiple exposures to CV, considering the relative proportion of witnessing against a stranger, witnessing against a known individual, and being personally victimized may be important in predicting adjustment.

Individuals with the greatest interpersonal proximity, those who are primarily victims themselves, often experience severe effects across several social and emotional symptom domains. Victims are likely to experience linear increases in internalizing and externalizing problems with more CVE, although externalizing problems may not be as severe as the externalizing problems of witnesses, since internalizing distress may inhibit perpetration of violent behaviors. Individuals who are least proximal to the victims of violence, those who have primarily witnessed CV against strangers, likely exhibit a very different pattern of symptoms. Witnesses of CV that have not been victimized themselves may experience internalizing distress

initially, but chronic exposure to CV against strangers likely leads to a reduction in internalizing symptoms over time. The lack of emotional distress to violence, combined with increased cognitions supporting aggression, may lead witnesses of CV to exhibit steep increases in aggression and other externalizing behaviors with greater witnessing of CV against strangers. Individuals who have primarily witnessed CV against family members, close friends, or acquaintances likely experience a pattern of symptoms in between the previous two – moderate increases in externalizing behavior with increased CVE, increased internalizing symptoms with moderate CVE, and perhaps a plateau of internalizing symptoms with greater cumulative exposure.

The purpose of the current study is to examine CVE and its relation to internalizing and externalizing outcomes among a diverse sample of young adults attending three universities. The age of the sample will permit an examination of the effects of experiencing CVE during childhood and adolescence on individuals as they are emerging into adulthood. Students of the universities sampled come from diverse socioeconomic and geographic backgrounds that range in the prevalence of violence. Although university students may have fewer adjustment problems than young adults who do not attend college, the high prevalence of violence across the United States, along with the relative lack of research on the effects of CVE in adulthood, necessitates the study of CVE among this population (Scarpa, 2003). Furthermore, existing research suggests that associations between CVE and outcomes of maladjustment do not differ between university samples and samples of young adults not attending college (Rosenthal & Hutton, 2001), suggesting that the results of the current study may tentatively be generalized to young adults more broadly.

The first goal of the current study is to examine linear and curvilinear relationships between CVE and internalizing and externalizing outcomes based on interpersonal proximity to the victims of violence. A second goal is to test cognitions supporting aggression and internalizing symptoms as mediating mechanisms through which CVE leads to externalizing outcomes. The final goal is to determine salient characteristics of CVE that may differentially relate to patterns of adjustment. This study will focus on four relevant characteristics of CVE: (a) the frequency or amount of exposure, (b) the types of CVE experienced (e.g., weapon-involved versus less severe violence), (c) the route of exposure (i.e., victimization or witnessing), and (d) interpersonal proximity to the victims of CV (i.e., strangers, acquaintances, family or friends, or oneself). Specific hypotheses are as follows:

Hypothesis 1: More CVE will be linearly related to more internalizing symptoms for individuals whose exposure is primarily through victimization. Interpersonal proximity to the victims of violence is expected to moderate the association between CVE and internalizing symptoms, such that a curvilinear (i.e., an inverse U-shaped) relationship is expected to emerge for individuals whose exposure primarily consists of witnessing CV against strangers. Specifically, moderate levels of witnessing of CV will be associated with high levels of internalizing symptoms, and low as well as very high levels of witnessing CV will be associated with low levels of internalizing symptoms.

Hypothesis 2: More CVE will be associated with more externalizing symptoms, and this relationship will be weaker with greater interpersonal proximity to victims. That is, the relationship between CVE and externalizing symptoms is expected to be weakest for individuals whose exposure is primarily through victimization and strongest for individuals whose exposure is primarily through witnessing CV against strangers.

Hypothesis 3: More CVE will be associated with more cognitions supporting aggression, and this relationship will be moderated by interpersonal proximity to victims. Specifically, CVE will be more strongly associated with positive evaluations of aggression, positive outcome expectancies for aggression, and efficacy beliefs for aggression at low levels of proximity (i.e., high proportion of witnessing CV against strangers) compared to high levels of proximity (i.e., high proportion of victimization). In contrast, CVE will be more strongly related to HAB at high levels of proximity compared to low levels of proximity.

Hypothesis 4: Cognitions supporting aggression will partially mediate the relationship between CVE and externalizing behaviors, and this effect will be moderated by interpersonal proximity, consistent with Hypothesis 3.

Hypothesis 5: Internalizing symptoms will partially mediate the relationship between CVE and externalizing behaviors, and this effect will be moderated by interpersonal proximity. Specifically, low levels of internalizing symptoms (i.e., emotional desensitization) are expected to mediate the association at low levels of interpersonal proximity (i.e., for individuals who have primarily witnessed CV). This pattern is not expected to emerge at high levels of interpersonal proximity (i.e., for individuals whose CVE is primarily through victimization).

Hypothesis 6: At least three distinct groups will emerge, consisting of a low/no CVE group, a moderate witnessing group, and a high witnessing plus victimization group, characterized by exposure to more serious types of violence. Additional groups that may emerge include a high witnessing only group and a victimization only group.

Hypothesis 7: The low/no CVE group is expected to report low levels of internalizing symptoms and low levels of externalizing symptoms. The moderate witnessing group is expected to report high levels of internalizing symptoms and high levels of externalizing

symptoms. The high witnessing only group is expected to report low levels of internalizing symptoms and very high levels of externalizing symptoms. The victimization only group is expected to report high levels of internalizing symptoms and low levels of externalizing symptoms. The high witnessing plus victimization group is expected to report high levels of internalizing symptoms and high levels of externalizing symptoms.

Method

Participants

Participants included 714 students attending the University of New Orleans ($n = 206$), the University of Alabama ($n = 356$), or Loyola University New Orleans ($n = 152$). The average age of participants was 20.50 years (standard deviation = 3.93). Most participants reported that they were female (81.1%) and White (60.8%). A minority of participants indicated that they were Black or African American (15.7%), Hispanic or Latino (7.5%), Asian (4.9%), belonging to multiple racial/ethnic groups (9.4%), or of another race/ethnicity not listed (1.7%).

Procedure

Following IRB approval, I recruited participants from psychology or human development classes at three universities in the Southeastern United States. Participating instructors at each university distributed to their students an email containing information about the study and a link to the online survey. At the discretion of individual instructors, students received course credit or extra credit as compensation for participating.

Students completed the anonymous online survey during their free time. To maintain anonymity, the last page of the survey directed participants to a separate survey to enter their name and course information to receive credit for participating.

Measures

Demographics. Participants self-reported their age, gender, and race/ethnicity.

Community violence exposure. CVE was assessed using a modified version of the Survey of Exposure to Community Violence (Richters & Saltzman, 1990). Several studies have used a subset of items from this self-report questionnaire and have found these items to be a reliable measure of CVE (see Trickett et al., 2003 for a review). Thirteen types of violence

exposure were assessed (see Appendix A). For each type, participants reported the frequency of their exposure on a nine-point scale (0 = *never* to 8 = *almost every day*). All types are listed in the rows of Table 1; descriptive information is presented separately by proximity to the victims, denoted by the columns of Table 1. Distinct scores were computed as the means of items assessing four levels of proximity: personal victimization, witnessing a family member or friend's victimization, witnessing an acquaintance's victimization, and witnessing a stranger's victimization. CVE that results in death could have been experienced through witnessing but not personal victimization; thus, the victimization composite includes eight items whereas the three specific witnessing composites include 10 items each. The 30 items comprising the three specific witnessing composites, along with three additional items that do not specify a victim of violence, were averaged to form a total witnessing composite. Table 1 shows Cronbach's alpha values for each composite, indicating internal consistency among the respective items. Additionally, a *total CVE* composite score was computed as the mean of all 41 items, $\alpha = .92$. Each score indexed the frequency of experiencing CVE, with higher scores indicating higher levels of CVE.

Proximity to the victims of CV. An interpersonal proximity score was computed to represent levels of proximity across each participant's CVE. Each route of exposure was weighted based on the interpersonal proximity to violence, as follows: witnessing a stranger's victimization or potentially violent contexts = 1, witnessing an acquaintance's victimization = 2, witnessing a family member or close friend's victimization = 3, and experiencing personal victimization = 4. Victimization and witnessing scores were multiplied by their respective weights, summed, and divided by the sum of their unweighted composite scores, yielding an *interpersonal proximity* score on a scale of 1 to 4. Higher proximity scores indicate a greater

Table 1

Means, Standard Deviations, and Frequency Reporting Each Type of Community Violence Exposure, Separately by Proximity.

	Personal Victimization		Witnessed Family or Friend		Witnessed Acquaintance		Witnessed Stranger		Total Witnessing	
	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%
Slapped, punched, or hit	1.25 (1.77)	45.1	1.05 (1.62)	41.5	1.39 (1.72)	54.2	2.11 (1.96)	69.9	1.51 (1.47)	78.7
Threat of physical harm	0.87 (1.44)	38.4	0.80 (1.33)	37.4	0.78 (1.38)	33.9	1.04 (1.60)	40.7	0.88 (1.25)	54.8
Sexual assault by a stranger	0.31 (0.94)	15.4	0.18 (0.72)	8.3	0.17 (0.76)	7.3	0.23 (0.89)	9.6	0.19 (0.69)	15.5
Forced entry into the home	0.21 (0.60)	14.7	0.09 (0.53)	5.1	0.09 (0.51)	4.9	0.17 (0.70)	8.7	0.12 (0.52)	12.6
Chased by gangs or others	0.28 (0.87)	13.5	0.27 (0.91)	12.4	0.29 (0.92)	13.7	0.49 (1.10)	23.5	0.35 (0.83)	29.4
Beaten up or mugged	0.21 (0.93)	8.9	0.31 (1.00)	14.2	0.38 (1.04)	16.9	0.61 (1.32)	24.5	0.43 (0.97)	32.2
Attacked with a knife	0.09 (0.54)	4.3	0.12 (0.57)	6.2	0.11 (0.63)	4.7	0.14 (0.70)	6.1	0.09 (0.49)	10.9
Shot with a gun	0.03 (0.27)	1.6	0.09 (0.48)	4.1	0.08 (0.56)	3.6	0.16 (0.74)	6.8	0.11 (0.52)	9.8
Seen being killed	-	-	0.07 (0.50)	3.2	0.07 (0.50)	2.7	0.12 (0.65)	5.6	0.09 (0.49)	7.9
Dead body in the community	-	-	0.09 (0.62)	3.6	0.10 (0.67)	3.4	0.24 (0.88)	11.4	0.14 (0.64)	13.9
Seen selling illegal drugs	-	-	-	-	-	-	-	-	2.46 (2.62)	60.8
Seen holding a weapon	-	-	-	-	-	-	-	-	1.86 (2.51)	47.6
Heard the sound of gunfire	-	-	-	-	-	-	-	-	1.48 (2.04)	48.2
Composite	0.42 (0.63)	63.0	0.31 (0.55)	62.4	0.36 (0.59)	66.4	0.54 (0.69)	78.5	0.54 (0.62)	91.4
Reliability	8 items; $\alpha = .75$		10 items; $\alpha = .81$		10 items; $\alpha = .81$		10 items; $\alpha = .81$		33 items; $\alpha = .91$	

Note: Bolded values represent scores computed as the mean of items. Specifically, the bolded values in the Total Witnessing column represent the mean of the three specific witnessing items listed on the same row. Bolded values in the bottom two rows represent scores computed from the mean of items representing each route of exposure. Non-bolded values represent scores on individual items.

proportion of victimization and witnessing CV against family or friends, compared to witnessing CV against acquaintances or strangers, regardless of the amount of CVE. That is, a proximity score of 4 indicates all of one's CVE is comprised of personal victimization, whereas a proximity score of 1 indicates all of one's CVE is comprised of witnessing CV against a stranger.

Anxiety. Anxiety symptoms were assessed using the Generalized Anxiety Disorder (GAD-7) scale (Spitzer, Kroenke, Williams, & Lowe, 2006). This scale contains seven items assessing the frequency of anxiety-related problems over the past two weeks (e.g., “feeling nervous, anxious, or on edge”). The GAD-7 has been shown to be a reliable and valid measure of anxiety symptoms in the general population (Lowe et al., 2008). Responses were scored on a four-point scale (0 = *not at all* to 3 = *nearly every day*). Anxiety scores were computed as the mean of the seven items, $\alpha = .93$. Higher scores index higher levels of self-reported anxiety.

Depression. Depressive symptoms were assessed using the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001). This scale contains nine items assessing the frequency of symptoms of depression over the past two weeks, based on DSM-IV diagnostic criteria for major depression (e.g., “little interest or pleasure in doing things”). Prior research indicates that the PHQ-9 is a reliable and valid measure of depression severity (Kroenke et al., 2001). Responses were scored on a four-point scale (0 = *not at all* to 3 = *nearly every day*). Depression scores were computed as the mean of the nine items, $\alpha = .92$. Higher scores indicate higher levels of depressive symptoms.

PTSD. PTSD symptoms were assessed using the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers, Litz, Keane, Palmieri, Marx, & Schnurr, 2013). This scale contains 20 items assessing the frequency of post-traumatic stress symptoms (e.g., “repeated, disturbing, and unwanted memories of the stressful experience”). Existing research indicates

that this scale is a reliable and valid measure of PTSD symptoms in trauma-exposed college students (Blevins, Weathers, Davis, Wittle, & Domino, 2015). Responses were scored on a five-point scale (0 = *not at all* to 4 = *extremely*). PTSD scores were computed as the mean of the 20 items, $\alpha = .96$. Higher scores index higher levels of PTSD symptoms.

Reactive and proactive aggression. Aggression was assessed using the Reactive-Proactive Aggression Questionnaire (RPQ; Raine et al., 2006). The RPQ contains 12 items assessing the frequency of proactive aggression (e.g., “had fights with others to show who was on top”) and 11 items assessing reactive aggression (e.g., “yelled at others when they have annoyed you”). Both verbal and physical forms of proactive and reactive aggressive behaviors were included. There is evidence supporting the reliability and validity of this scale for assessing aggression in college undergraduate samples (Fite, Richey, Dipierro, Brown, & Bortolato, 2016; Tharp et al., 2011). Responses were scored on a three-point scale (0 = *never* to 2 = *often*). Separate scores were computed as the means of the proactive aggression and reactive aggression items, α s = .82 and .84, respectively. Higher scores indicating greater self-reported engagement in aggressive behaviors.

Antisocial behavior. Antisocial behaviors were assessed using items from Cho, Martin, Conger, and Widaman (2010), originally adapted from the National Youth Survey (Elliott, Ageton, & Huizinga, 1985). This scale contains 11 items assessing the frequency of young adults’ engagement in antisocial behaviors during the past 12 months. The severity of behaviors assessed ranged from relatively minor behaviors (e.g., “tell lies to people”) to more serious criminal activity (e.g., “sell stolen goods”). One item from Cho and colleagues’ (2010) scale (i.e., “write bad checks”) was not used due to sociocultural irrelevance at the time of the present study. Responses were scored on a five-point scale (0 = *never* to 4 = *daily or almost daily*).

Antisocial behavior scores were computed as the mean of the 11 items, $\alpha = .65$. Higher scores index greater engagement in antisocial behavior.

Substance use. Substance use was assessed using five items adapted from the National Institute on Drug Abuse (NIDA) Quick Screen and NIDA-Modified ASSIST (National Institute on Drug Abuse, 2012). Items assessed the past-year frequency of (a) consuming four or more alcoholic drinks in one day, (b) tobacco use, (c) cannabis use, (d) other illegal drug use, and (e) non-medical prescription drug use. Responses were scored on a five-point scale (0 = *never* to 4 = *daily or almost daily*). Substance use scores were computed as the mean of the five items, $\alpha = .68$. Higher scores indicating greater substance use.

Cognitions supporting aggression. Cognitions were assessed using five vignettes describing challenging peer situations from Pettit, Lansford, Malone, Dodge, and Bates (2010), adapted from Coccaro, Noblett, and McCloskey (2009). One story was modified slightly to be more relevant to the lives of the participants (e.g., “co-worker” changed to “classmate”). Following each vignette, participants responded to a series of questions to assess various aspects of social information processing. To measure HAB, participants were asked how likely it was that the other actor in the vignette was being mean to them. Responses were scored on a five-point scale (0 = *not at all likely* to 4 = *very likely*). The item from Vignette 2 did not correlate well with the other items and thus was not included in the HAB composite. HAB scores were computed as the mean of responses across four vignettes ($\alpha = .64$), with higher scores indicating greater HAB.

Next, participants were presented with potential responses to each scenario. An aggressive and a neutral response followed each vignette, in a counterbalanced order. Only questions following the aggressive response are used in the current study. After each

hypothetical response, participants were asked six questions assessing cognitions supporting aggression: how good or bad the reaction is (0 = *very bad* to 5 = *very good*), how they would feel about themselves if they acted that way (0 = *very bad* to 4 = *very good*), how likely it is that the other actor in the vignette would do the same undesirable thing again in the future (0 = *definitely* to 4 = *definitely not*), how much the other actor would respect the hypothetical response (0 = *very much* to 4 = *not at all*; reverse coded), how much other people would like the hypothetical response (0 = *very much* to 4 = *not at all*; reverse coded), and how easy it would be for them to act in the way described in the hypothetical aggressive response (0 = *very easy* to 4 = *very hard*; reverse coded). Responses to each item were averaged across the five vignettes to compute six individual scores: positive evaluations of aggressive responding ($\alpha = .67$), positive self-evaluations following aggressive responding ($\alpha = .70$), expectations of positive outcomes following aggression ($\alpha = .49$ for a 4-item composite; one item was excluded to improve reliability), expectations of respect following aggression ($\alpha = .83$), expectations that others will like aggressive responding ($\alpha = .83$), and perceived efficacy in aggressive responding ($\alpha = .77$), respectively. Higher scores on all composites indicate greater cognitions supporting aggression.

Analysis Plan

Data analysis began with means, variability, and correlations among total and each type of CVE and each of the internalizing and externalizing outcomes. Next, multiple regression equations were computed to test Hypothesis 1 (i.e., that there will be a curvilinear relationship between CVE and internalizing symptoms, reflecting emotional desensitization, and this relationship will be stronger at lower levels of proximity). CVE, the quadratic effect of CVE (CVE^2), interpersonal proximity, the CVE x proximity interaction, and the CVE^2 x proximity interaction were entered as predictors in regression equations with anxiety, depression, and

PTSD as separate outcomes. Centered variables were used to compute all interaction terms. A significant effect of CVE^2 indicates that there is a curvilinear relationship between CVE and internalizing outcomes, and significance of the $CVE^2 \times$ proximity interaction term indicates that the curvilinear effect is moderated by proximity.

To test Hypothesis 2 (i.e., that the relationship between CVE and externalizing symptoms will be moderated by proximity) and Hypothesis 3 (i.e., that the relationship between CVE and cognitions supporting aggression will be moderated by proximity), multiple regression equations were computed with CVE, proximity, and the $CVE \times$ proximity interaction entered as predictors. Statistically significant (i.e., $p < .05$) interactions were decomposed by post hoc probing of the interaction to determine the predictive value of CVE separately at one standard deviation (SD) above and below the mean level of proximity and by calculating the regions of proximity over which CVE was associated significantly with each relevant outcome.

To further test Hypotheses 1-3, one-way analysis of variance (ANOVA) was used to examine whether groups of participants, categorized by their CVE, differ on each outcome. Two sets of groups were formed to reflect (a) high and low levels of victimization and witnessing and (b) participants' most proximal exposure to CV (see the ANOVAs section in the Results for details on the categorization into groups). For all ANOVAs, Levene's test for homogeneity of variance was used to determine whether equal variances could be assumed across groups. When Levene's test was significant, indicating that equal variances could not be assumed, Welch's F was used to adjust for differences in variances across groups. Due to large differences in the size of each group, Games-Howell post hoc tests were used to identify significant differences between individual groups.

Next, to test Hypotheses 4 and 5 (i.e., that cognitive biases supporting aggression and internalizing symptoms will each mediate the relationship between CVE and externalizing symptoms), data were analyzed via structural equation modeling (SEM) using a three-step procedure in Mplus 7.4. The first step assessed the fit of the measurement model. The second step assessed the path model using a combination of observed and latent factors. The third step assessed indirect effects using bootstrapped standard errors. As recommended by Hu and Bentler (1999), root mean squared error of approximation (RMSEA) values below .06, Comparative Fit Index (CFI) values above .95, and standardized root mean squared residual (SRMR) values below .08 were used to indicate a good fit between the hypothesized model and the observed data. The goal of analyses was to obtain the most parsimonious model that did not compromise model fit. The Akaike Information Criterion (AIC) was used to compare non-nested models; lower AIC values indicate better fitting models (Burnham & Anderson, 2002). The chi-square difference test was used to determine whether paths could be removed from the model without worsening the fit of the model to the data. Significance of the chi-square difference statistic indicates that removing a path from the model results in significantly worse model fit and thus the path should be retained; a non-significant chi-square difference statistic supports selecting the more parsimonious model (Kline, 2010).

Following the establishment of the measurement model, several path models were assessed. First, a linear path model employed the total CVE composite score, proximity to the victims of CV, and their interaction as independent variables (IVs). Next, CVE squared and the CVE squared x proximity interaction term were included as additional IVs to test a quadratic path model. Lastly, a parsimonious model was identified by removing all non-significant paths.

Additional SEM models tested the generalizability of the aforementioned models predicting aggressive behaviors from total CVE and the hypothesized mediators. To test if the pattern of associations could be extended to predict externalizing problems more broadly, antisocial behaviors were added as an indicator to the aggressive behaviors dependent variable (DV) to form an externalizing behaviors DV. Final SEM analyses replicated all previous models using the victimization composite and each of the three witnessing composites as IVs in separate models to test for differences in associations based on route of exposure.

Finally, to test Hypothesis 6 (i.e., that distinct groups of participants will emerge based on characteristics of their CVE), latent profile analysis was conducted using Mplus 7.4 with robust maximum likelihood estimation. As recommended by Nylund-Gibson and Choi (2018), after beginning with a one-group model, a series of models with an increasing number of groups were estimated until the addition of new groups resulted in model identification or convergence issues. The Bayesian Information Criteria (BIC), bootstrapped likelihood ratio test (BLRT), and entropy statistics were used to determine the best fitting model (Nylund, Asparouhov, & Muthen, 2007; Nylund-Gibson & Choi, 2018), as well as theoretical considerations. Lower values of the BIC indicate better fit (Nylund-Gibson & Choi, 2018). The BLRT compares the likelihood ratio for each estimated model with that of a model containing one less class; non-significant scores indicate that the model with fewer classes fits significantly better than the current model. Finally, the entropy statistic is an omnibus index ranging from 0-1, with higher scores representing more accurate classification of individual cases into classes; values greater than .8 indicate “good” classification (Clark & Muthen, 2009).

After latent groups were established, a series of one-way ANOVAs examined differences between the groups on each indicator. To test Hypothesis 7 (i.e., that the latent groups will

meaningfully differ on internalizing and externalizing outcomes), ANOVAs examined whether the groups differed on each study variable and Games-Howell post hoc tests were used to identify significant differences between groups. Furthermore, the aforementioned SEM analyses were re-examined using the latent groups as IVs. The latent CVE groups were dummy coded so that each group could be compared to the remainder of the sample.

Results

Descriptive Statistics and Bivariate Correlations

Means and standard deviations of each victimization and witnessing item, as well as the total composites, are presented in Table 1, along with the percentage of participants reporting any experience with each type of CV. Of note, almost two-thirds of participants reported at least one experience with personal victimization in the community, and over 90% of participants reported witnessing CV at least once. Furthermore, 42.9% reported three or more experiences of victimization and 81.3% reported three or more experiences of witnessing CV across their lifetimes. Only 9.8% of participants experienced three or more types of victimization, whereas 54.8% of participants experienced three or more types of witnessing CV.

Table 2 presents the means, standard deviations, and bivariate associations among total CVE, proximity, internalizing and externalizing outcomes, and all cognitive biases supporting aggression. More CVE was significantly associated with higher levels of each internalizing and externalizing outcome – i.e., anxiety, depression, PTSD, proactive aggression, reactive aggression, antisocial behavior, and substance use. More CVE was associated with more positive evaluations of aggressive responding (AR), more positive self-evaluations following AR, greater expectations of respect following AR greater expectations of others liking AR, and greater perceived efficacy in AR; CVE was not associated with expectations of positive outcomes following AR or HAB. Greater interpersonal proximity was associated only with more positive evaluations of AR, more expectations of respect following AR, more expectations of others liking AR, and greater perceived efficacy in AR.

All internalizing and externalizing composites were positively inter-correlated. Anxiety, depression, and PTSD were each associated with more positive evaluations of AR, more positive

Table 2

Means, Standard Deviations, and Bivariate Correlations among Community Violence Exposure, Proximity, and Outcomes

	M (SD)	1	2	3	4	5	6	7	8
1. Total CVE	0.51 (0.59)								
2. Interpersonal Proximity	1.70 (0.63)	.06							
3. Anxiety	1.07 (0.89)	.23***	.00						
4. Depression	0.83 (0.77)	.22***	.06	.82***					
5. PTSD	0.79 (0.86)	.34***	.01	.75***	.78***				
6. Proactive Aggression	0.07 (0.16)	.32***	.07	.20***	.19***	.30***			
7. Reactive Aggression	0.44 (0.34)	.32***	.04	.38***	.38***	.47***	.56***		
8. Antisocial Behavior	0.15 (0.20)	.29***	-.05	.22***	.23***	.29***	.45***	.41***	
9. Substance Use	0.61 (0.67)	.29***	-.07	.25***	.28***	.31***	.34***	.29***	.40***
10. Evaluations of AR	1.05 (0.62)	.20***	.09*	.20***	.20***	.18***	.20***	.30***	.15***
11. Self-Evaluations following AR	1.18 (0.67)	.17***	.04	.15***	.14***	.12**	.17***	.29***	.20***
12. Expecting Positive Outcomes of AR	1.87 (0.68)	.02	-.07	.12**	.07	.07	-.03	.05	.03
13. Expecting Respect following AR	0.98 (0.88)	.12**	.24***	-.06	-.05	-.09*	.19***	-.04	-.01
14. Expecting Others to Like AR	1.16 (0.87)	.13**	.19***	-.06	-.04	-.07	.18***	-.01	.03
15. Perceived Efficacy in AR	1.63 (0.92)	.16***	.12**	.07	.11**	.09*	.21***	.21***	.17***
16. HAB	1.94 (0.79)	.03	-.06	.20***	.15***	.22***	.01	.20***	.12**
		9	10	11	12	13	14	15	
10. Evaluations of AR		.12**							
11. Self-Evaluations following AR		.12**	.80***						
12. Expecting Positive Outcomes of AR		.01	.28***	.30***					
13. Expecting Respect following AR		-.01	.23***	.22***	-.17***				
14. Expecting Others to Like AR		.01	.31***	.35***	-.16***	.87***			
15. Perceived Efficacy in AR		.12**	.37***	.38***	-.15***	.60***	.65***		
16. HAB		.05	.24***	.22***	.22***	-.35***	-.27***	-.11**	

Note: CVE = community violence exposure; PTSD = post-traumatic stress disorder; AR = aggressive responding; HAB = hostile attribution biases.

* $p < .05$. ** $p < .01$. *** $p < .001$.

self-evaluations following AR, and greater HAB. Anxiety, but not depression or PTSD, was associated with greater expectations of positive outcomes following AR. Depression and PTSD were each associated with greater perceived efficacy in aggressive responding, whereas anxiety was not. PTSD, but not anxiety or depression was associated with lower levels of expecting respect following AR. Neither anxiety, depression, nor PTSD were associated with expecting others to like AR. Proactive aggression, reactive aggression, antisocial behavior, and substance use were each associated with more positive evaluations of AR, more positive self-evaluations following AR, and greater perceived efficacy in AR. Proactive aggression, but not the other externalizing composites, was associated with greater expectations of respect following AR and greater expectations of others liking AR. Reactive aggression and antisocial behavior were each associated with HAB, while proactive aggression and substance use were not. No externalizing composites were associated with expectations of positive outcomes of AR.

Finally, evaluations of AR and self-evaluations following AR were each positively correlated with all other cognitions. Expecting positive outcomes of AR was associated with lower expectations of respect following AR, lower expectations of others liking AR, and lower perceived efficacy in AR, but greater HAB. Expectations of respect following AR was highly correlated with more expectations of others liking AR, and each were associated with greater perceived efficacy in AR and lower levels of HAB. Perceived efficacy in aggressive responding was also associated with lower levels of HAB.

Associations among victimization and witnessing composites. The victimization and witnessing composites were all positively inter-correlated, all $ps < .001$. Specifically, more victimization was significantly associated with more witnessing CV against family or friends ($r = .71$), witnessing CV against acquaintances ($r = .67$), and witnessing CV against strangers ($r =$

.67). Witnessing CV against family or friends was correlated with witnessing CV against acquaintances ($r = .84$) and witnessing CV against strangers ($r = .73$), and witnessing CV against acquaintances was associated with witnessing CV against strangers ($r = .81$). Greater interpersonal proximity across all CVE was associated with more victimization ($r = .31, p < .001$), more witnessing CV against family or friends ($r = .18, p < .001$), and more witnessing CV against acquaintances ($r = .10, p < .01$). Proximity was not significantly related to witnessing CV against strangers ($r = -.01$).

Table 3 presents correlations between exposure at each level of proximity and the main study variables. Consistent with the total CVE composite, more personal victimization, witnessing against family or friends, witnessing against acquaintances, and witnessing against strangers were each significantly associated with higher levels of all internalizing and externalizing outcomes, as well as evaluations of AR, self-evaluations following AR, expecting respect following AR, expecting others to like AR, and perceived efficacy in AR, but not expectations of positive outcomes following AR or HAB.

Demographic differences. Older participants reported more victimization ($r = .14, p < .001$), more witnessing CV against a friend or family member ($r = .13, p < .01$), more witnessing CV against an acquaintance ($r = .12, p < .01$), more total witnessing ($r = .12, p < .01$), and more total CVE ($r = .13, p < .001$). Age was not associated with witnessing CV against a stranger, interpersonal proximity, or any of the outcome variables.

On average, males ($M = 0.68, SD = 0.67$) reported more CVE than females ($M = 0.47, SD = 0.55$), $t(172.84) = 3.43, p < .001$. The significant gender difference held true for personal victimization, witnessing against family or friends, witnessing against acquaintances, and witnessing against strangers. Males ($M = 1.98, SD = 0.71$) also experienced greater interpersonal

Table 3

Correlations among Community Violence Exposure at Each Level of Proximity and Outcomes

	Personal Victimization	Witnessing CV against Family or Friends	Witnessing CV against Acquaintances	Witnessing CV against Strangers
Anxiety	.22***	.16***	.12**	.19***
Depression	.25***	.13**	.11**	.18***
PTSD	.34***	.24***	.22***	.30***
Proactive Aggression	.32***	.28***	.27***	.26***
Reactive Aggression	.31***	.24***	.24***	.26***
Antisocial Behavior	.21***	.18***	.26***	.30***
Substance Use	.28***	.15***	.19***	.24***
Evaluations of AR	.18***	.16***	.15***	.19***
Self-Evaluations following AR	.13**	.13**	.14**	.19***
Expecting Positive Outcomes of AR	-.05	.01	.02	.03
Expecting Respect following AR	.14***	.18***	.16***	.12**
Expecting Others to Like AR	.16***	.17***	.13**	.14**
Perceived Efficacy in AR	.18***	.16***	.13**	.16***
HAB	.04	.00	.02	.05

Note: CV = community violence; PTSD = post-traumatic stress disorder; AR = aggressive responding; HAB = hostile attribution biases.

* $p < .05$. ** $p < .01$. *** $p < .001$.

proximity than females ($M = 1.63$, $SD = 0.60$) across their CVE (i.e., more victimization relative to witnessing), $t(161.11) = 5.01$, $p < .001$. Regarding individual types of CV, males reported more victimization and more witnessing of hits, threats, and chasings, compared to females. Males also reported witnessing beatings/muggings and seeing dead bodies in the community

more frequently than females. Interestingly, the gender difference in being sexually assaulted by a stranger did not reach statistical significance, with females reporting only marginally more experiences of sexual assault ($p = .056$). Additionally, males reported marginally more experiences being shot with a gun ($p = .054$). There were no gender differences in the frequency of personally experiencing or witnessing forced entry or attacks with a knife, nor were there gender differences in witnessing someone being sexually assaulted, beaten up/mugged, shot, or killed or exposure to potentially violent contexts. Females reported more anxiety, $t(184.63) = -5.96, p < .001$, more depression, $t(181.93) = -3.87, p < .001$, and more PTSD, $t(185.21) = -3.53, p < .001$, than males. There were no significant gender differences in proactive or reactive aggression, antisocial behavior, or substance use.

Participants significantly differed in their CVE with regard to race or ethnicity, Welch's $F(5, 76.01) = 4.11, p < .01$. However, the only significant difference between groups revealed that participants who reported multiple races or ethnicities ($M = 0.69, SD = 0.77, n = 67$) reported higher levels of CVE than Asian participants ($M = 0.36, SD = 0.33, n = 35$). Differences among Black participants ($M = 0.63, SD = 0.86, n = 112$), Hispanic participants ($M = 0.57, SD = 0.68, n = 54$), White participants ($M = 0.44, SD = 0.43, n = 434$), and participants of another race ($M = 1.08, SD = 0.92, n = 12$) were not significant. Although the omnibus tests were significant, there were no significant differences between groups on victimization or any of the witnessing composites. Participants did not differ in proximity to the victims of CV based on their race or ethnicity. Of the outcome variables, only substance use significantly differed based on participant's race or ethnicity, Welch's $F(5, 75.32) = 6.97, p < .001$. White participants ($M = 0.68, SD = 0.68$) and Hispanic participants ($M = 0.68, SD = 0.60$) reported higher levels of

substance use than Black participants ($M = 0.37$, $SD = 0.55$) and Asian participants ($M = 0.31$, $SD = 0.49$).

Regression Analyses Testing Hypotheses 1, 2, and 3

Internalizing outcomes. Regression equations were computed to test the first hypothesis that CVE will be linearly associated with internalizing symptoms for individuals with high interpersonal proximity to victims of CV, whereas a curvilinear association between CVE and internalizing problems will be significant for individuals with low levels of proximity. Total CVE, total CVE squared, interpersonal proximity, the CVE x proximity interaction term, and the CVE squared x proximity interaction term were entered as predictors. Anxiety, depression, and PTSD symptoms served as dependent variables in separate regression models. As shown in Table 4, the linear and curvilinear effects of CVE on anxiety, depression, and PTSD were each significant. Proximity was not a significant predictor in any of the models, but the CVE x proximity and CVE² x proximity interactions each were. Figure 1 shows the quadratic effect of CVE on each of the internalizing outcomes moderated by proximity. The association between CVE and internalizing symptoms appears to be linear at high levels of proximity, whereas the curvilinear association is more prominent at low levels of proximity. That is, at low levels of proximity, the increase in internalizing outcomes with greater CVE appears to slow down, such that there is a slight plateau at very high levels of CVE.

To further examine whether associations between CVE and internalizing symptoms differ based on interpersonal proximity, separate regression equations examined the curvilinear effect of exposure at each level of proximity. As shown in Table 5, significant linear and curvilinear associations with anxiety, depression, and PTSD were found for victimization, witnessing CV against family or friends, witnessing CV against acquaintances, and witnessing CV against

Table 4

Internalizing Outcomes Regressed on Community Violence Exposure (CVE), CVE², Proximity, and their Interactions

	<i>R</i> ²	B	SE	<i>β</i>
Anxiety				
	.086			
CVE		0.89	0.15	.58***
CVE ²		-0.19	0.07	-.52**
Interpersonal Proximity		-0.08	0.07	-.06
CVE x Proximity		-0.75	0.27	-.25**
CVE ² x Proximity		0.24	0.13	.31 [†]
Depression				
	.100			
CVE		0.86	0.13	.66***
CVE ²		-0.21	0.06	-.65***
Interpersonal Proximity		0.01	0.06	.01
CVE x Proximity		-0.68	0.23	-.26**
CVE ² x Proximity		0.24	0.11	.37*
Post-Traumatic Stress Disorder				
	.138			
CVE		1.04	0.14	.70***
CVE ²		-0.22	0.06	-.61**
Interpersonal Proximity		-0.06	0.07	-.04
CVE x Proximity		-0.79	0.25	-.27**
CVE ² x Proximity		0.31	0.12	.42**

[†]*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

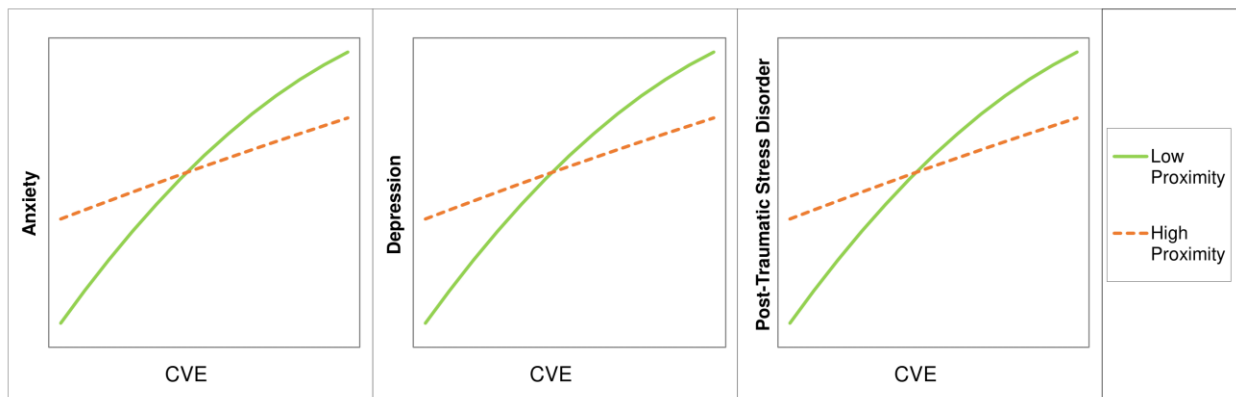


Figure 1. Curvilinear effect of community violence exposure (CVE) on internalizing outcomes, moderated by proximity.

Table 5

Associations Between Community Violence Exposure at Each Level of Proximity and Internalizing Outcomes

	Anxiety	Depression	PTSD
Personal Victimization	.38***	.46***	.46***
(Personal Victimization) ²	-.20**	-.28***	-.18**
Witnessing against Family or Friends	.33***	.35***	.38***
(Witnessing against Family or Friends) ²	-.21**	-.27***	-.18**
Witnessing against Acquaintances	.25***	.30***	.35***
(Witnessing against Acquaintances) ²	-.17**	-.24***	-.17**
Witnessing against Strangers	.36***	.39***	.46***
(Witnessing against Strangers) ²	-.21**	-.26***	-.20**

Note: All coefficients are standardized betas. PTSD = post-traumatic stress disorder.

* $p < .05$. ** $p < .01$. *** $p < .001$.

strangers. To determine whether victimization or witnessing is more strongly associated with each outcome, additional regression equations were computed with the victimization composite, the total witnessing composite, and the square of each composite entered simultaneously. As shown in Table 6, the linear and curvilinear effects of witnessing CV remained significant in predicting anxiety, depression, and PTSD. Victimization was linearly associated with more depression and more PTSD, but the curvilinear effect of victimization did not reach significance in any of the models.

Externalizing outcomes. Regression equations were computed to test the second hypothesis that more CVE will be associated with more externalizing symptoms and that this relationship will be moderated by interpersonal proximity to the victims of CV. Total CVE, interpersonal proximity, and the CVE x proximity interaction term were entered as predictors of proactive aggression, reactive aggression, antisocial behavior, and substance use in four separate models. Table 7 summarizes the results from these analyses. More CVE was associated with

Table 6

Linear and Curvilinear Effects of Victimization and Witnessing CV on Internalizing Outcomes

	<i>R</i> ²	B	SE	β
Anxiety				
	.078			
Victimization		0.17	0.14	.12
Victimization ²		-0.00	0.05	-.01
Witnessing CV		0.53	0.13	.36***
Witnessing CV ²		-0.10	0.04	-.28*
Depression				
	.094			
Victimization		0.26	0.12	.20*
Victimization ²		-0.00	0.04	-.01
Witnessing CV		0.43	0.12	.34***
Witnessing CV ²		-0.10	0.03	-.34**
Post-Traumatic Stress Disorder				
	.138			
Victimization		0.28	0.14	.19*
Victimization ²		-0.00	0.05	-.00
Witnessing CV		0.56	0.13	.39***
Witnessing CV ²		-0.09	0.04	-.26*

Note: CV = community violence.

* $p < .05$. ** $p < .01$. *** $p < .001$.

more proactive aggression, reactive aggression, antisocial behavior, and substance use. Lower levels of proximity was associated with more antisocial behavior and substance use. The CVE x proximity interaction was significant in predicting reactive aggression, antisocial behavior, and substance use.

Figure 2 shows the effect of CVE on reactive aggression, antisocial behavior, and substance use at low (i.e., 1 SD below the mean) and high (i.e., 1 SD above the mean) levels of proximity. Post hoc probing revealed that CVE was more strongly associated with reactive aggression at low levels of interpersonal proximity ($b = 0.34$, $SE = 0.05$, $p < .001$), compared to high levels of interpersonal proximity ($b = 0.10$, $SE = 0.03$, $p < .01$). Regions of significance showed that CVE was associated with more reactive aggression at levels of proximity 1.23 SDs

Table 7

Externalizing Outcomes Regressed on Community Violence Exposure (CVE), Proximity, and their Interaction

	R^2	B	SE	β
Proactive Aggression				
	.097			
CVE		0.08	0.01	.30***
Interpersonal Proximity		0.01	0.00	.06
CVE x Proximity		0.00	0.03	.01
Reactive Aggression				
	.105			
CVE		0.22	0.03	.38***
Interpersonal Proximity		-0.04	0.03	-.07
CVE x Proximity		-0.19	0.06	-.17**
Antisocial Behavior				
	.101			
CVE		0.13	0.02	.37***
Interpersonal Proximity		-0.05	0.02	-.16***
CVE x Proximity		-0.13	0.04	-.19***
Substance Use				
	.116			
CVE		0.45	0.05	.39***
Interpersonal Proximity		-0.23	0.05	-.21***
CVE x Proximity		-0.56	0.12	-.24**

* $p < .05$. ** $p < .01$. *** $p < .001$.

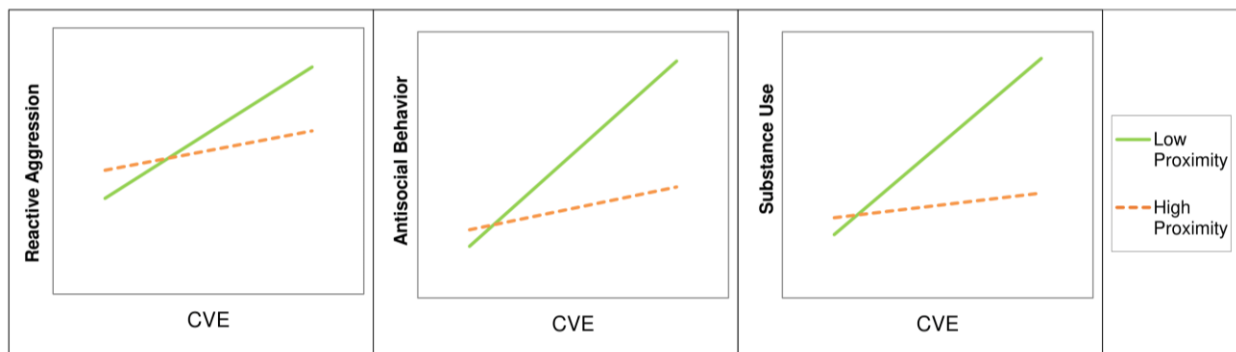


Figure 2. Community violence exposure (CVE) x interpersonal proximity to the victims of violence predicting externalizing outcomes.

above the mean and lower. Similarly, CVE was more strongly associated with antisocial behavior at low levels of interpersonal proximity ($b = 0.21, SE = 0.03, p < .001$), compared to high levels of proximity ($b = 0.05, SE = 0.02, p < .05$). Regions of significance showed that more CVE was associated with more antisocial behavior at levels of proximity 1.10 SDs above the mean and lower. CVE was associated with more substance use at low ($b = 0.79, SE = 0.11, p < .001$), but not high ($b = 0.11, SE = 0.06, p = .072$), levels of interpersonal proximity. Regions of significance showed that more CVE was associated with reactive aggression at levels of proximity 0.96 SDs above the mean and lower.

Cognitions supporting aggression. Final regression equations were computed to test the third hypothesis that more CVE will be associated with more cognitive biases supporting aggression and that this relationship will be moderated by interpersonal proximity to the victims of CV. Total CVE, interpersonal proximity, and the CVE x proximity interaction term were entered as predictors of each cognitive bias in separate models. Table 8 summarizes the results from these analyses. The CVE x proximity interaction was significant in predicting evaluations of AR, self-evaluations following AR, expectations of respect following AR, and expectations that others will like AR. More CVE was associated with more perceived efficacy in AR, and lower proximity was associated with more expectations of positive outcomes of AR. There were no significant predictors of HAB.

Figure 3 shows the effect of CVE on evaluations of AR, self-evaluations following AR, expectations of respect following AR, and expectations that others will like AR at low (i.e., 1 SD below the mean) and high (i.e., 1 SD above the mean) levels of proximity. Post hoc probing revealed that CVE was associated with evaluations of AR at low levels of interpersonal proximity ($b = 0.39, SE = 0.10, p < .001$), but not at high levels of interpersonal proximity ($b =$

Table 8

Cognitive Biases Supporting Aggression Regressed on Community Violence Exposure (CVE), Proximity, and their Interaction

	R^2	B	SE	β
Evaluations of Aggressive Responding				
	.045			
CVE		0.24	0.05	.22***
Interpersonal Proximity		0.02	0.05	.02
CVE x Proximity		-0.25	0.11	-.12*
Self-Evaluations following Aggressive Responding				
	.035			
CVE		0.24	0.05	.21***
Interpersonal Proximity		-0.03	0.05	-.03
CVE x Proximity		-0.29	0.12	-.13*
Expectations of Positive Outcomes of Aggressive Responding				
	.009			
CVE		0.06	0.06	.05
Interpersonal Proximity		-0.12	0.06	-.11*
CVE x Proximity		-0.24	0.13	-.10
Expectations of Respect following Aggressive Responding				
	.078			
CVE		0.09	0.06	.06
Interpersonal Proximity		0.41	0.07	.30***
CVE x Proximity		0.44	0.15	.15**
Expectations that Others will Like Aggressive Responding				
	.054			
CVE		0.12	0.07	.08
Interpersonal Proximity		0.31	0.07	.23***
CVE x Proximity		0.35	0.15	.19*
Perceived Efficacy in Aggressive Responding				
	.034			
CVE		0.24	0.07	.16**
Interpersonal Proximity		0.14	0.07	.10
CVE x Proximity		0.00	0.17	.00
Hostile Attribution Biases				
	.004			
CVE		0.05	0.06	.04
Interpersonal Proximity		-0.09	0.06	-.07
CVE x Proximity		-0.11	0.15	-.04

* $p < .05$. ** $p < .01$. *** $p < .001$.

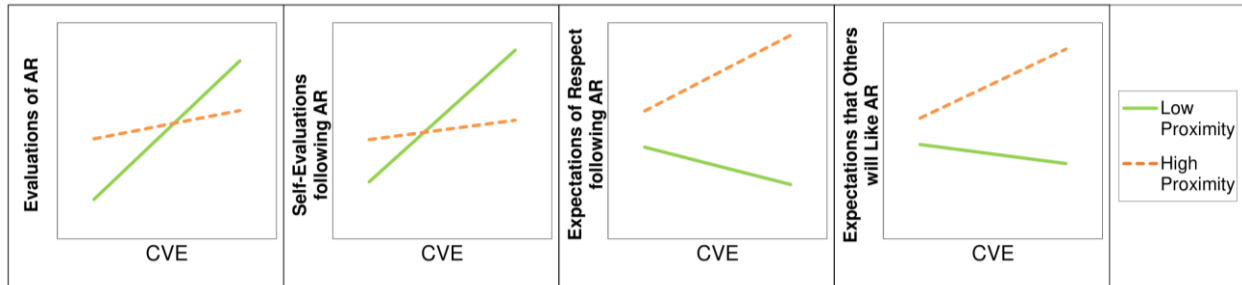


Figure 3. Community violence exposure (CVE) x interpersonal proximity to the victims of violence predicting cognitive biases supporting aggression.

0.08, $SE = 0.06$, $p = .197$). Regions of significance showed that CVE was associated with more positive evaluations of AR at levels of proximity 0.83 SDs above the mean and lower. Similarly, CVE was associated with self-evaluations following AR at low levels of interpersonal proximity ($b = 0.42$, $SE = 0.11$, $p < .001$), but not at high levels of proximity ($b = 0.06$, $SE = 0.07$, $p = .357$). Regions of significance showed that more CVE was associated with more positive self-evaluations following AR at levels of proximity 0.74 SDs above the mean and lower. In contrast, CVE was associated with expectations of respect following AR at high ($b = 0.36$, $SE = 0.08$, $p < .001$), but not low ($b = -0.18$, $SE = 0.14$, $p = .200$), levels of interpersonal proximity. Regions of significance showed that more CVE was associated with greater expectations of respect following AR at levels of proximity 0.11 SDs above the mean and higher. At levels of proximity 2.00 SDs below the mean and lower, more CVE was associated with lower expectations of respect following AR. CVE was associated with expecting others to like AR at high ($b = 0.33$, $SE = 0.08$, $p < .001$), but not low ($b = -0.09$, $SE = 0.14$, $p = .511$), levels of interpersonal proximity. Regions of significance showed that more CVE was associated with greater expectations that others would like AR at levels of proximity 0.04 SDs above the mean and higher. There was a trend toward a negative association between CVE and expecting others

to like AR at very low levels of proximity, but this association only reached significance at levels of proximity greater than 7 SDs below the mean.

ANOVAs Testing Hypotheses 1, 2, and 3

ANOVAs were used to further examine Hypotheses 1-3 regarding whether CVE is differentially associated with internalizing problems, externalizing problems, or cognitions supporting aggression based on interpersonal proximity. The first set of ANOVAs examines groups distinguished by high or low levels of victimization and witnessing, while the second set examines groups based on their most proximal exposure to CV.

Victimization and witnessing groups. Participants were categorized into groups by dividing the distribution of victimization and witnessing scores into top, middle, and bottom thirds. The high CVE group ($n = 158$) consists of individuals who scored in the top third of the distribution of both victimization and witnessing. The high victimization group ($n = 74$) consists of individuals who scored in the top third of the distribution of victimization and the middle or bottom third of the distribution of witnessing CV. The high witnessing group ($n = 90$) consists of individuals who scored in the top third of the distribution of witnessing CV and the middle or bottom third of the distribution of victimization. The low CVE group ($n = 154$) consists of individuals who scored in the bottom third of both victimization and witnessing. Of note, 37% of the sample reported no victimization; thus, no one in the low CVE group reported any instances of victimization. Individuals who reported moderate CVE (i.e., the middle third of the distribution of either victimization or witnessing, combined with the middle or lower third of the distribution of the other composite; $n = 237$) were not included in the present analysis.

Table 9 presents the means and SDs of each group on internalizing outcomes, externalizing outcomes, and cognitions supporting aggression. Levene's test for homogeneity of

Table 9

Means and Standard Deviations on Outcome Variables by Victimization and Witnessing Groups

	High CVE (<i>n</i> = 158)	High Victimization Only (<i>n</i> = 74)	High Witnessing Only (<i>n</i> = 90)	Low CVE (<i>n</i> = 154)
Internalizing Symptoms				
Anxiety	1.41 (0.93) ^d	1.07 (0.87) ^d	1.33 (0.85) ^d	0.71 (0.78) ^{a, b, c}
Depression	1.17 (0.80) ^d	0.90 (0.87) ^d	0.99 (0.76) ^d	0.50 (0.60) ^{a, b, c}
Post-Traumatic Stress Disorder	1.25 (0.97) ^d	0.92 (0.85) ^d	1.03 (0.88) ^d	0.36 (0.57) ^{a, b, c}
Externalizing Symptoms				
Proactive Aggression	0.15 (0.23) ^{b, d}	0.05 (0.15) ^a	0.08 (0.17) ^d	0.02 (0.06) ^{a, c}
Reactive Aggression	0.63 (0.39) ^{b, d}	0.47 (0.32) ^{a, d}	0.53 (0.32) ^d	0.26 (0.28) ^{a, b, c}
Antisocial Behavior	0.25 (0.29) ^{b, d}	0.12 (0.15) ^a	0.19 (0.21) ^d	0.07 (0.10) ^{a, c}
Substance Use	1.02 (0.80) ^{b, d}	0.56 (0.58) ^{a, d}	0.77 (0.73) ^d	0.33 (0.42) ^{a, b, c}
Cognitions Supporting Aggression				
Evaluations of AR	1.22 (0.64) ^d	1.15 (0.60) ^d	1.19 (0.58) ^d	0.86 (0.62) ^{a, b, c}
Self-Evaluations following AR	1.33 (0.69) ^d	1.19 (0.62)	1.34 (0.63) ^d	1.03 (0.71) ^{a, c}
Expecting Positive Outcomes of AR	1.82 (0.69)	1.90 (0.68)	1.98 (0.68)	1.83 (0.77)
Expecting Respect following AR	1.07 (0.90)	1.10 (0.91)	1.08 (0.85)	0.94 (0.98)
Expecting Others to Like AR	1.31 (0.91)	1.32 (0.87)	1.21 (0.79)	1.06 (0.97)
Perceived Efficacy in AR	1.88 (0.88) ^d	1.77 (0.90)	1.82 (0.86)	1.49 (0.98) ^a
Hostile Attribution Biases	1.91 (0.86)	2.07 (0.67)	1.99 (0.74)	1.88 (0.84)

Note: Superscripts indicate that the value is significantly different from the corresponding value in column a, b, c, or d, respectively. That is, ^a indicates that the mean is significantly different from the mean of the High CVE group. Likewise, ^b indicates a significant difference from the High Victimization group, ^c from the High Witnessing Group, and ^d from the Low CVE group. CVE = community violence exposure; AR = aggressive responding.

variance revealed that the variances were significantly different across groups for all internalizing and externalizing outcomes; thus, Welch's *F* was used for these analyses. The results of the ANOVAs revealed that there was a significant effect of group membership on all internalizing outcomes, including anxiety, Welch's $F(3, 203.65) = 19.59, p < .001$, depression, Welch's $F(3, 195.63) = 23.76, p < .001$, and PTSD, Welch's $F(3, 190.02) = 37.36, p < .001$.

Results were consistent across outcomes, with each of the three high exposure groups reporting higher levels of internalizing symptoms than the low CVE group. Specifically, the high CVE group, high victimization group, and high witnessing group each reported more anxiety than the low CVE group ($p < .001$ for high CVE and witnessing, $p < .05$ for victimization). The high CVE group, high victimization group, and high witnessing group also reported more depression than the low CVE group ($p < .001$ for high CVE and witnessing, $p < .01$ for victimization). Additionally, the high CVE group, high victimization group, and high witnessing group each reported more PTSD than the low CVE group (all $ps < .001$).

There also was a significant difference among the groups on all externalizing outcomes, including proactive aggression, Welch's $F(3, 165.154) = 16.33, p < .001$, reactive aggression, Welch's $F(3, 199.67) = 33.08, p < .001$, antisocial behavior, Welch's $F(3, 181.21) = 23.15, p < .001$, and substance use, Welch's $F(3, 187.24) = 31.21, p < .001$. Games-Howell post hoc tests revealed that the high CVE group (i.e., high levels of both victimization and witnessing) reported significantly more proactive aggression than the high victimization group ($p < .01$) and the low CVE group ($p < .001$). The high witnessing group also reported more proactive aggression than the low CVE group ($p < .05$). The high CVE group, high victimization group, and high witnessing group each reported more reactive aggression than the low CVE group (all $ps < .001$). Additionally, the high CVE group reported more reactive aggression than the high victimization group ($p < .001$). The high CVE group reported more antisocial behavior than the high victimization group and the low CVE group (both $ps < .001$). The high witnessing group also reported more antisocial behavior than the low CVE group ($p < .001$). Furthermore, the high CVE group reported more substance use than the high victimization group and the low CVE

group (both $ps < .001$), and the high victimization group and the high witnessing group each reported more substance use than the low CVE group ($p < .05$ and $p < .001$, respectively).

Lastly, there was a significant difference among the groups on evaluations of AR, $F(4, 128.35) = 11.57, p < .001$, self-evaluations following AR, $F(4, 647) = 5.45, p < .001$, and efficacy in AR, $F(4, 646) = 4.30, p < .001$. The high CVE group, high victimization group, and high witnessing group each reported more positive evaluations of AR than the low CVE group ($p < .001$ for high CVE and witnessing, $p < .01$ for victimization). The high CVE and high witnessing group also reported more positive self-evaluations following AR than the low CVE group (both $ps < .01$), and the high CVE group reported greater efficacy in AR than the low CVE group ($p < .01$). There were no significant group differences on expectations of positive outcomes of aggression, expecting respect following AR, expecting others to like AR, or HAB.

In sum, individuals who experienced high rates of CVE, through victimization, witnessing, or both, reported significantly higher levels of internalizing symptoms than individuals with low CVE. Individuals who experienced high rates of both witnessing and victimization reported significantly higher levels of each externalizing outcome compared to individuals who reported high rates of victimization only, but not individuals who reported witnessing only. Individuals who witnessed high levels of CV, with or without being victimized, also reported higher rates of externalizing problems than individuals with low CVE, whereas there were no significant differences between the high victimization and the low CVE group on either proactive aggression or antisocial behavior. Differences on cognitions supporting aggression were minimal and generally indicated that individuals who experienced high rates of victimization and witnessing reported greater cognitions supporting aggression than individuals with low CVE. Individuals with high victimization or high witnessing also reported more

positive evaluations of AR than individuals with low CVE, and individuals with high witnessing, but not those with high victimization, reported more positive self-evaluations following AR compared to individuals with low CVE.

Most proximal exposure. Next, groups were categorized based on participants' most proximal exposure to CV. The majority of participants ($n = 428$) reported some exposure through personal victimization. The second largest group ($n = 87$) consisted of individuals who had witnessed CV against family or friends but had not been personally victimized. Forty-one participants had witnessed CV against an acquaintance, but had not witnessed CV against family or friends or experienced personal victimization. The most proximal exposure for 47 participants was witnessing CV against a stranger, and 72 participants reported no CVE.

Table 10 shows the means and SDs of each group on all outcomes. Levene's test for homogeneity of variance revealed that the variances were significantly different across groups for all internalizing and externalizing outcomes, as well evaluations of AR, expecting respect following AR, and expecting others to like AR. The results of the ANOVAs revealed that there was a significant effect of the most proximal violence exposure on all internalizing outcomes, including anxiety, Welch's $F(4, 134.72) = 11.00, p < .001$, depression, Welch's $F(4, 139.27) = 14.19, p < .001$, and PTSD, Welch's $F(4, 142.60) = 18.84, p < .001$. Games-Howell post hoc tests revealed that the victimization group reported significantly higher levels of anxiety than the witnessing family or friends group, the witnessing strangers group, and the no CVE group (all $ps < .001$). The victimization group also reported significantly higher levels of depression than the witnessing family or friends group ($p < .001$), the witnessing acquaintances group ($p < .01$), the witnessing strangers group ($p < .001$), and the no CVE group ($p < .001$). Additionally, the victimization group reported significantly higher levels of PTSD than the witnessing family or

Table 10

Means and Standard Deviations on Outcome Variables by Most Proximal Community Violence Exposure

	Personally Victimized (n = 428)	Witnessed Family or Friend (n = 87)	Witnessed Acquaintance (n = 41)	Witnessed Stranger (n = 47)	No CVE (n = 72)
Internalizing Symptoms					
Anxiety	1.23 (0.91) ^{b, d, e}	0.82 (0.77) ^a	0.90 (0.90)	0.73 (0.69) ^a	0.75 (0.82) ^a
Depression	0.98 (0.80) ^{b, c, d, e}	0.62 (0.64) ^a	0.57 (0.60) ^a	0.47 (0.57) ^a	0.55 (0.69) ^a
Post-Traumatic Stress Disorder	0.98 (0.93) ^{b, c, d, e}	0.53 (0.64) ^a	0.51 (0.67) ^a	0.44 (0.56) ^a	0.39 (0.62) ^a
Externalizing Symptoms					
Proactive Aggression	0.09 (0.18) ^{b, c, d, e}	0.05 (0.12) ^a	0.03 (0.09) ^a	0.03 (0.07) ^a	0.02 (0.06) ^a
Reactive Aggression	0.51 (0.35) ^{b, d, e}	0.38 (0.33) ^{a, e}	0.41 (0.29) ^e	0.29 (0.27) ^a	0.21 (0.27) ^{a, b, c}
Antisocial Behavior	0.17 (0.22) ^{d, e}	0.12 (0.15)	0.12 (0.18)	0.09 (0.12) ^a	0.07 (0.10) ^a
Substance Use	0.72 (0.71) ^{c, e}	0.56 (0.65) ^e	0.29 (0.46) ^a	0.52 (0.48)	0.29 (0.40) ^{a, b}
Cognitions Supporting Aggression					
Evaluations of AR	1.15 (0.62) ^{b, e}	0.93 (0.47) ^{a, e}	1.08 (0.74) ^e	0.97 (0.47) ^e	0.66 (0.58) ^{a, b, c, d}
Self-Evaluations following AR	1.25 (0.67) ^e	1.08 (0.60)	1.27 (0.75)	1.00 (0.59)	0.91 (0.72) ^a
Expecting Positive Outcomes of AR	1.90 (0.67)	1.90 (0.72)	1.84 (0.61)	1.87 (0.61)	1.68 (0.80)
Expecting Respect following AR	1.03 (0.86)	0.82 (0.83)	0.98 (0.78)	0.80 (0.73)	0.98 (1.14)
Expecting Others to Like AR	1.22 (0.84)	1.08 (0.85)	1.12 (0.79)	0.95 (0.70)	1.09 (1.14)
Perceived Efficacy in AR	1.73 (0.89) ^e	1.53 (0.92)	1.62 (0.84)	1.40 (0.86)	1.32 (1.11) ^a
Hostile Attribution Biases	1.96 (0.78)	1.96 (0.80)	1.95 (0.75)	1.96 (0.74)	1.77 (0.90)

Note: Superscripts indicate that the value is significantly different from the corresponding value in column a, b, c, d, or e, respectively. That is, ^a indicates that the mean is significantly different from the mean of the Personally Victimized group. Likewise, ^b indicates a significant difference from the Witnessed Family or Friend group, ^c from the Witnessed Acquaintance group, and ^d from the Witnessed Stranger group, and ^e from the No CVE group. CVE = community violence exposure; AR = aggressive responding.

friends group ($p < .001$), the witnessing acquaintances group ($p < .01$), the witnessing strangers group ($p < .001$), and the no CVE group ($p < .001$).

There also was a significant effect of the most proximal violence exposure on all externalizing outcomes, including proactive aggression, Welch's $F(4, 154.94) = 9.98, p < .001$, reactive aggression, Welch's $F(4, 135.24) = 19.52, p < .001$, antisocial behavior, Welch's $F(4, 141.73) = 11.46, p < .001$, and substance use, Welch's $F(4, 138.93) = 16.10, p < .001$. Post hoc tests revealed that the personal victimization group reported significantly higher levels of proactive aggression than the witnessing family or friends group ($p < .05$), the witnessing acquaintances group ($p < .05$), the witnessing strangers group ($p < .001$), and the no CVE group ($p < .001$). The personal victimization group also reported significantly higher levels of reactive aggression compared to the witnessing family or friends group ($p < .05$), the witnessing strangers group ($p < .001$), and the no CVE group ($p < .001$). Additionally, the witnessing family or friends group and the witnessing acquaintances group each reported significantly higher levels of reactive aggression than the no CVE group (both $ps < .01$). The victimization group reported significantly higher levels of antisocial behavior than the witnessing strangers group and the no CVE group (both $ps < .001$). Finally, the victimization group reported significantly higher levels of substance use than the witnessing acquaintances group and the no CVE group (both $ps < .001$). Additionally, the witnessing family or friends group reported significantly higher substance use than the no CVE group ($p < .05$).

Finally, there was a significant effect of the most proximal violence exposure on evaluations of AR, Welch's $F(4, 128.35) = 11.57, p < .001$, self-evaluations following AR, $F(4, 647) = 5.45, p < .001$, and efficacy in AR, $F(4, 646) = 4.30, p < .001$. Post hoc tests revealed that the victimization group reported more positive evaluations of AR than the witnessing family

or friends group ($p < .01$) and the no CVE group ($p < .001$). The witnessing family or friends group, the witnessing acquaintances group, and the witnessing strangers group also reported more positive evaluations of AR than the no CVE group (all $ps < .05$). Additionally, the victimization group reported more positive self-evaluations following AR compared to the no CVE group ($p < .01$) and greater efficacy in AR compared to the no CVE group ($p < .05$). There were no significant group differences on expectations of positive outcomes of aggression, expecting respect following AR, expecting others to like AR, or HAB.

In sum, victims of CV reported more internalizing and externalizing symptoms, on average, than participants who did not report personal victimization. Participants who witnessed CV against known individuals reported more reactive aggression and more substance use than participants with no CVE. However, the other outcome variables did not significantly differ among the witnessing groups or between those who had only witnessed CV and those with no CVE. Victims of CV reported more positive evaluations of AR than witnesses of CV and those with no CVE; victims also reported more positive self-evaluations following AR and greater perceived efficacy in AR compared to individuals with no CVE.

Structural Equation Modeling Testing Hypotheses 4 and 5

Structural equation modeling examined whether the relationship between CVE and externalizing outcomes is mediated by cognitions (Hypothesis 4) and low levels of internalizing distress (Hypothesis 5); the path between CVE and each mediator was expected to be moderated by interpersonal proximity. Specifically, CVE was expected to be more strongly related to cognitions supporting aggression at low, compared to high, levels of proximity, whereas CVE was expected to be more strongly related to HAB at high, compared to low, levels of proximity. After establishing the measurement model, the initial path model examined the linear effects of

CVE, proximity, and their interaction. Then, the quadratic effect of CVE and its interaction with proximity were added to the model as predictors. Internalizing symptoms were expected to mediate the curvilinear effect of CVE on externalizing outcomes for individuals whose CVE is characterized by low proximity, but not for individuals whose CVE is characterized by high proximity.

Measurement model. In the initial measurement model, 18 manifest variables were specified as indicators of six latent variables. Specifically, proactive aggression and reactive aggression indicated the aggressive behaviors latent factor. Anxiety, depression, and PTSD symptoms indicated the internalizing latent factor. The evaluations of aggression factor was indicated by positive evaluations of AR and positive self-evaluations following AR. The expectations of outcomes of aggression factor was indicated by expectations of positive outcomes following AR, expectations of respect following AR, and expectations of others' approval following AR. Finally, the perceived efficacy in AR factor was indicated by individual responses to each of the five efficacy items, and the HAB factor was indicated by responses to each of the five HAB items.

The initial measurement model provided a poor fit to the data. The chi-square value was statistically significant, $\chi^2(155) = 625.24, p < .001$, and other fit indices, RMSEA = .067 (90% CI = .062 - .073), CFI = .918, SRMR = .066, AIC = 26666.46, did not meet Hu and Bentler's (1999) criteria for good fit. All factor loadings were significant at $p < .001$, but three of the indicators had standardized loadings below .5 and thus were removed from the model. This included expectations of positive outcomes following AR on the outcome expectations of aggression factor and the first and second items on the HAB factor. Removing these items improved the fit of the model, AIC = 21841.19. However, the outcome expectations of

aggression factor did not significantly correlate with either the externalizing or internalizing factor. Thus, outcome expectations of aggression factor was removed from the model, which further improved model fit, AIC = 19893.60. The final measurement model, shown in Figure 4, provided an adequate fit to the data, $\chi^2(80) = 248.03, p < .001$, RMSEA = .056 (90% CI = .048 - .064), CFI = .956, SRMR = .044.

Linear path model. The initial path model regressed the aggressive behaviors latent factor on the internalizing, evaluations of aggression, efficacy in AR, and HAB latent factors, as well as the CVE, proximity, and CVE x proximity manifest variables. Internalizing symptoms, evaluations of aggression, efficacy in AR, and HAB also were regressed on the three manifest predictors. The model fit the data well, $\chi^2(110) = 300.96, p < .001$, RMSEA = .053 (90% CI =

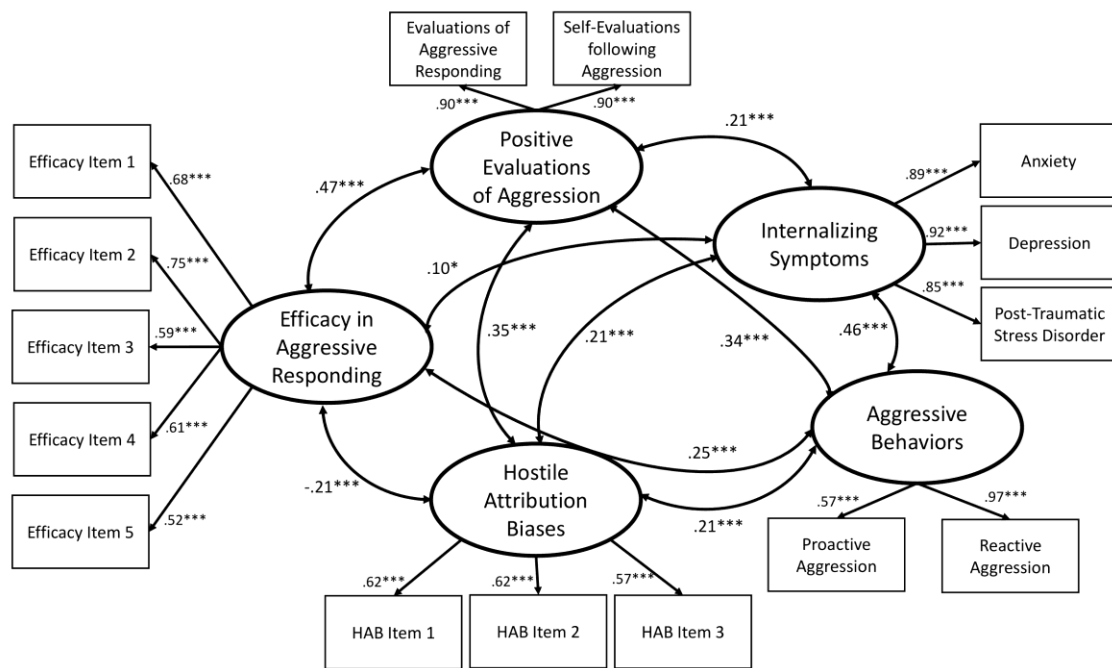


Figure 4. Measurement model of evaluations of aggression, efficacy, hostile attribution biases, internalizing symptoms, and aggressive behaviors latent factors. All coefficients are standardized betas.

* $p < .05$. ** $p < .01$. *** $p < .001$.

.046 - .060), CFI = .947, SRMR = .041. Path coefficients show that CVE predicted more internalizing symptoms ($\beta = .37$), more positive evaluations of aggression ($\beta = .25$), greater efficacy beliefs ($\beta = .20$), and more aggressive behaviors ($\beta = .22$), all $ps < .001$, but CVE was not associated with HAB. Proximity was not directly associated with any of the latent factors, but the CVE x proximity interaction predicted internalizing symptoms ($\beta = -.22, p < .01$) and evaluations of aggression ($\beta = -.15, p < .05$). Internalizing symptoms ($\beta = .35, p < .001$) and efficacy in AR ($\beta = .16, p < .05$), but not evaluations of AR or HAB, predicted more aggressive behaviors.

Post hoc probing of the significant interactions revealed the predictive value of CVE separately at one SD above and below the mean level of proximity. As shown on the left side of Figure 5, CVE was associated with internalizing symptoms at low levels of interpersonal proximity ($b = 0.87, SE = 0.13, p < .001$), but not at high levels of interpersonal proximity ($b = 0.14, SE = 0.08, p = .063$). Regions of significance showed that more CVE was associated with more internalizing symptoms at levels of proximity 0.98 SDs above the mean and lower. Similarly, as shown on the right side of Figure 5, CVE was associated with more positive evaluations of aggression at low levels of interpersonal proximity ($b = 0.40, SE = 0.10, p < .001$),

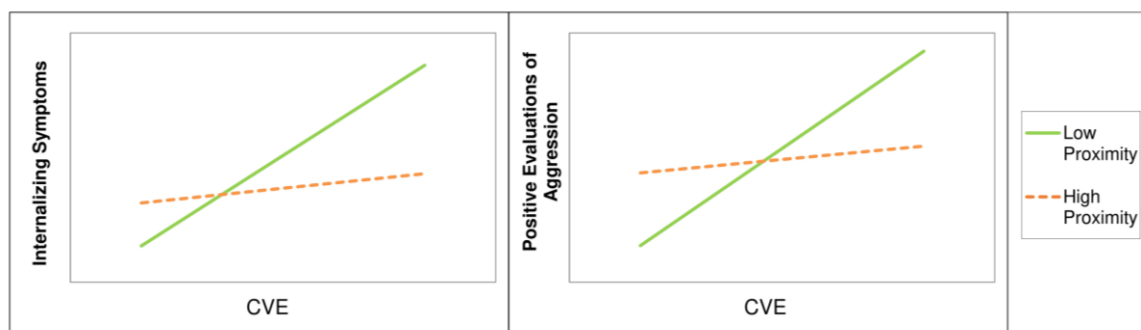


Figure 5. Community violence exposure (CVE) x interpersonal proximity to the victims of violence predicting latent factors from the linear path model.

but not at high levels of proximity ($b = 0.06, SE = 0.06, p = .343$). Regions of significance showed that more CVE was associated with more positive evaluations of aggression at levels of proximity 0.78 SDs above the mean and lower.

Finally, indirect effects were examined. The indirect effect from CVE to aggressive behaviors through internalizing problems was significant, $b = 0.02, SE = 0.00, \beta = .13, p < .001$, as were the indirect effects through evaluations of aggression, $b = 0.01, SE = 0.00, \beta = .03, p < .05$, and through efficacy in AR, $b = 0.01, SE = 0.00, \beta = .03, p < .05$.

Quadratic path model. Next, CVE^2 and the $CVE^2 \times$ proximity interaction terms were added as predictors of internalizing symptoms, evaluations of aggression, efficacy in AR, HAB, and aggressive behaviors, as shown in Figure 6. The model fit the data well, $\chi^2(130) = 322.76, p$

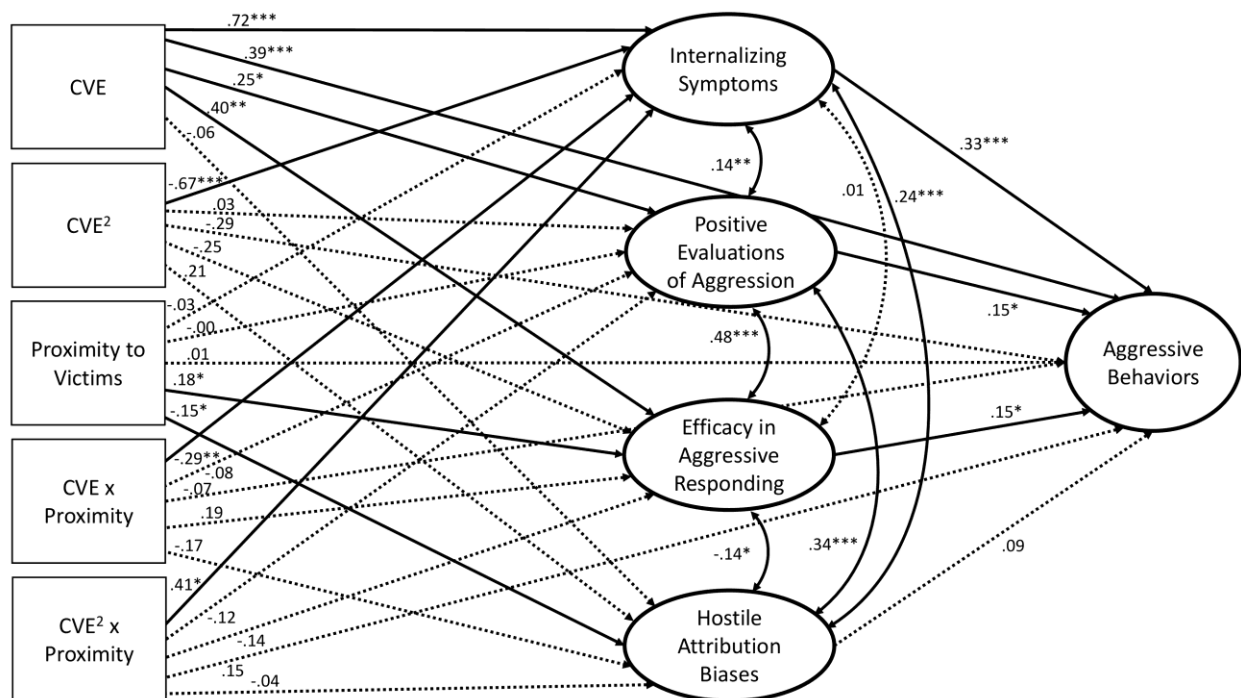


Figure 6. Model of the quadratic effects of community violence exposure (CVE) on aggressive behaviors. Solid lines indicate significant paths; dashed lines indicate non-significant paths. All coefficients are standardized betas.

* $p < .05$. ** $p < .01$. *** $p < .001$.

$< .001$, RMSEA = .049 (90% CI = .042 - .055), CFI = .947, SRMR = .040, AIC = 18414.04.

Consistent with the previous model, the linear effect of CVE was significantly associated with internalizing symptoms, evaluations of aggression, efficacy in AR, and aggressive behaviors, but not HAB. The curvilinear effect of CVE was significantly associated with internalizing symptoms only. The direct effect of proximity predicted greater perceived efficacy and lower HAB, whereas proximity's interaction with CVE and CVE² significantly predicted internalizing symptoms only. Internalizing symptoms, evaluations of aggression, and efficacy in AR, but not HAB predicted aggressive behaviors.

Plotting of the quadratic interaction revealed that, consistent with the associations between CVE and each individual internalizing indicator shown in Figure 1, the association between CVE and internalizing symptoms resembled a linear pattern at high levels of proximity but a curvilinear pattern at low levels of proximity. That is, more CVE is generally associated with more internalizing symptoms, but the increase in internalizing symptoms slows at high levels of CVE, when CVE is characterized by low levels of proximity.

The indirect effect from CVE to aggressive behaviors through internalizing symptoms was significant, $b = 0.04$, $SE = 0.01$, $\beta = .24$, $p < .001$. However, the indirect effects through evaluations of aggression, $b = 0.01$, $SE = 0.01$, $\beta = .04$, $p = .211$, and through efficacy in AR, $b = 0.01$, $SE = 0.01$, $\beta = .06$, $p = .109$, were not significant.

Final model. To identify a parsimonious model of aggressive behaviors, variables without significant predictive value were removed. Comparison of the AIC values indicated that removing HAB improved the fit of the model to the data, $\chi^2(88) = 195.87$, $p < .001$, AIC = 13448.44. Next, non-significant paths were removed individually, and the chi-square difference

test was used to determine the best fit among the nested models. The non-significant paths from $CVE^2 \times$ proximity to evaluations of aggression, efficacy in AR, and aggressive behaviors were removed, as were the paths from $CVE \times$ proximity to efficacy and aggressive behaviors and the path from proximity to aggressive behaviors. The paths from CVE^2 to evaluations of aggression and aggressive behaviors also were removed, as was the non-significant covariance between internalizing symptoms and efficacy in AR. Removing the non-significant associations did not significantly worsen the fit of the model, $\Delta\chi^2(9) = 9.11, p > .10$. Removing the non-significant paths from $CVE^2 \times$ proximity resulted in the path from $CVE \times$ proximity to evaluations of aggression and the path from CVE^2 to efficacy to become significant. Proximity was not significantly associated with either internalizing symptoms or evaluations of aggression, but these paths were retained in the model because of the significance of the $CVE \times$ proximity interaction in predicting both outcomes. The final model, shown in Figure 7, fit the data well, $\chi^2(97) = 204.98, p < .001, RMSEA = .042$ (90% CI = .034 - .050), CFI = .967, SRMR = .033.

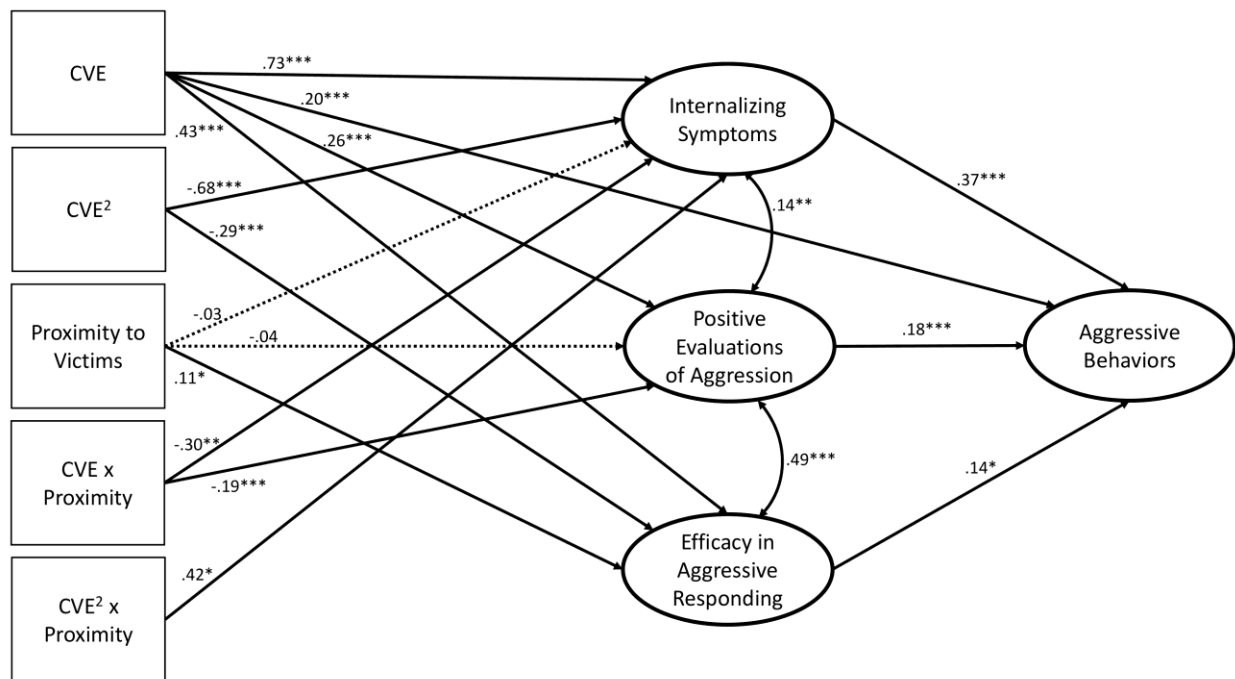


Figure 7. Parsimonious model of the quadratic effects of community violence exposure (CVE) on aggressive behaviors. All coefficients are standardized betas.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

More CVE was associated with more internalizing symptoms, evaluations of aggression, efficacy in AR, and aggressive behaviors, and the curvilinear effect of CVE also predicted internalizing symptoms and efficacy in AR. Greater proximity predicted greater efficacy in AR only. The CVE x proximity interaction predicted evaluations of aggression and internalizing symptoms, and the CVE² x proximity interaction was additionally significant in predicting internalizing symptoms.

As shown on the left side of Figure 8, there is a linear association between more CVE and more internalizing symptoms at high levels of proximity, whereas the association is curvilinear at low levels of proximity. Specifically, there is a sharp increase in internalizing symptoms for individuals reporting moderate levels of CVE, compared to those who reported low levels of CVE, but increases in internalizing symptoms become less prominent at high levels of CVE, particularly when CVE is characterized by low levels of proximity. As shown on the right side of Figure 8, CVE was associated with more evaluations of aggression at low levels of interpersonal proximity ($b = 0.45$, $SE = 0.09$, $p < .001$), but the relationship was not significant at high levels of proximity ($b = 0.02$, $SE = 0.06$, $p = .681$).

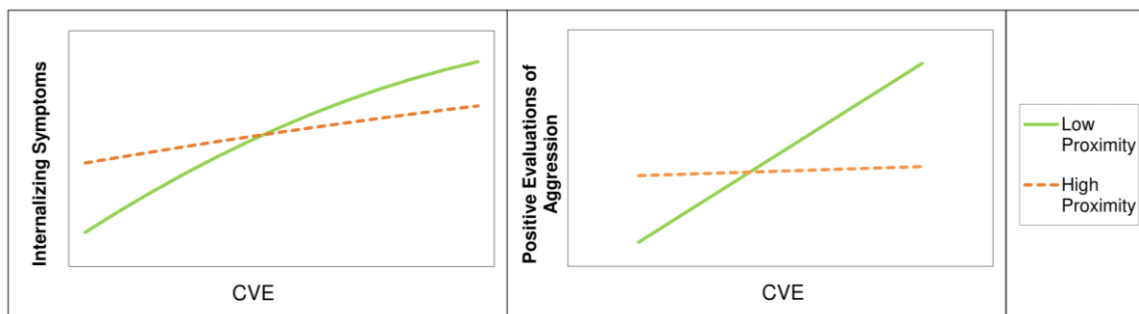


Figure 8. Associations between community violence exposure (CVE) and latent mediators from the final path model, moderated by proximity.

The indirect effect from CVE to aggressive behaviors through internalizing symptoms was significant, $b = 0.05$, $SE = 0.01$, $\beta = .27$, $p < .001$, as was the indirect effect through efficacy in AR, $b = 0.01$, $SE = 0.01$, $\beta = .06$, $p < .05$. Furthermore, the indirect effect through evaluations of aggression was significant at low levels of proximity, $b = 0.02$, $SE = 0.01$, $p < .01$, but not at high levels of proximity, $b = 0.00$, $SE = 0.00$, $p = .682$. Specifically, the indirect effect from CVE to aggressive behaviors through positive evaluations of aggression was significant at levels of proximity 0.63 SDs above the mean and lower. The direct path from CVE to aggressive behaviors was removed from the model to examine support for full mediation. Removing the direct effect significantly worsened the fit of the model to the data, $\Delta\chi^2(1) = 22.37$, $p < .001$, indicating that internalizing symptoms, evaluations of aggression, and efficacy in AR partially mediate the association between CVE and aggressive behaviors. Thus, the direct path from CVE to aggressive behaviors was retained.

In sum, the association between CVE and higher levels of aggressive behaviors is partially mediated through internalizing symptoms, evaluations of aggression, and efficacy in AR. The association between CVE and internalizing symptoms takes a curvilinear form at low levels of proximity, such that there are sharp increases in internalizing symptoms from low to moderate levels of CVE, but only modest increases in internalizing symptoms from moderate to high levels of CVE. Additionally, CVE is associated with more positive evaluations of aggression only at low or moderate levels of proximity. Hostile attribution biases did not significantly contribute to the model of aggressive behaviors.

Generalizability of the models. To determine whether the final parsimonious model is specific to aggression or can be generalized to all externalizing symptoms, the models were

replicated with additional externalizing indicators added to the aggressive behaviors latent factor. Specifically, an “externalizing behaviors” latent factor was initially examined with four manifest indicators: proactive aggression, reactive aggression, antisocial behaviors, and substance use. The standardized loading of substance use onto the externalizing factor was below .5, and thus this indicator was removed from the model. Consequently, the externalizing behaviors factor was indicated by proactive aggression, $\beta = .66$, reactive aggression, $\beta = .84$, and antisocial behaviors, $\beta = .54$, all $ps < .001$. The specified models were otherwise identical to those reported previously. Patterns of significance in the linear and quadratic models were identical to those in the corresponding models of aggressive behaviors. The final parsimonious model of externalizing behaviors also retained all significant associations from the parsimonious model of aggressive behaviors, yet the curvilinear effect of CVE on externalizing behaviors was additionally significant, $\beta = -.15$, $p < .05$, and could not be removed without significantly worsening model fit. Consistent with the other curvilinear effects, the association between CVE and externalizing behaviors reached a slight plateau at high levels of CVE. The final model fit the data well, $\chi^2(112) = 256.40$, $p < .001$, RMSEA = .045 (90% CI = .038 - .053), CFI = .959, SRMR = .034. Thus, the reported pattern of associations in the model of aggressive behaviors can be extended to externalizing behaviors more broadly, with the potential caveat of a slight decline in the strength of the association between CVE and externalizing behaviors at very high levels of CVE.

Finally, to further explore any differences based on interpersonal proximity, all models were re-assessed with victimization and each of the witnessing composites as independent variables in separate models. The measurement model was identical to that reported previously, since CVE was included as a manifest variable only in the path models. Consistent with the path

model utilizing the full CVE composite and proximity, victimization and each of the three witnessing composites predicted internalizing symptoms, positive evaluations of aggression, perceived efficacy in AR, and aggressive behaviors, but not HAB, in separate models. Additionally, each quadratic term predicted internalizing symptoms and efficacy in AR. However, evaluations of aggression also were significantly predicted by the quadratic effect of victimization ($\beta = -.22, p < .01$), the quadratic effect of witnessing CV against family or friends ($\beta = -.15, p < .05$), and the quadratic effect of witnessing CV against acquaintances ($\beta = -.14, p < .05$), but not the quadratic effect of witnessing CV against strangers. Furthermore, the quadratic effect of witnessing CV against acquaintances significantly predicted aggressive behaviors ($\beta = -.15, p < .05$). Associations were similar in the models of externalizing behaviors, such that the quadratic effect of witnessing CV against acquaintances significantly predicted externalizing behaviors ($\beta = -.18, p < .01$), while the quadratic effects of victimization and the other two witnessing composites did not.

Latent Profile Analyses Testing Hypotheses 6 and 7

Finally, latent profile analysis tested Hypothesis 6, that distinct groups would emerge based on the frequency of CVE, route of exposure, and/or type of violence. Indicators for classification were chosen from the types of CV listed in Table 1, experienced through either personal victimization or total witnessing (i.e., mean of witnessing CV against family/friends, acquaintances, and strangers). To permit examination of the effects of serious violence exposure, the most commonly endorsed CV type – slapped, punched, or hit – was not included in the analyses. Additionally, forced entry into the home was excluded due to the low mean and variability of the victimization and witnessing items. Due to the low endorsement rate of exposure to knife attacks and shootings, these two items were combined for this analysis. This

revealed that 5.1% of participants were personally victimized with a weapon ($M = 0.06$, $SD = 0.38$) and 15.3% of participants witnessed CV involving a weapon ($M = 0.11$, $SD = 0.46$). Thus, ten indicators total were used for classification, encompassing the frequency of exposure to five types of CV – threats of physical harm, sexual assault by a stranger, chasing by gangs or others, beatings or muggings, and weapon-involved CV – through both victimization and witnessing.

Fit statistics for the 1-group, 2-group, 3-group, and 4-group models are presented in Table 11. A 5-group model was additionally examined, but parameters of this model were deemed untrustworthy due to possible non-identification; thus, this model was not considered. The BIC and BLRT indicate that the 4-group model fit the data better than the models with fewer groups. Although the entropy statistic suggested that the 2-group model is more accurate in classifying individuals into groups, the entropy statistic for the 4-group model still suggests highly accurate classification. The 2-group model consisted of a large group with low scores on all indicators, and a very small group with high scores on all indicators. Given the limited theoretical utility of a 2-group model the 4-group model was selected for further analysis.

Table 11
Model Fit Statistics for Latent Profile Models

Model	BIC	BLRT (p value)	Entropy
1-group	16323.73	-	-
2-group	14213.84	<.001	1.00
3-group	13306.93	<.001	.978
4-group	12795.36	<.001	.986

Note: BIC = Bayesian Information Criteria; BLRT = bootstrapped likelihood ratio test.

Characteristics of the latent profiles. Class membership is visually depicted in Figure 9, and the group means on each indicator variable are shown in Table 12. The four groups significantly differed on all indicator variables. Group A and Group C reported significantly

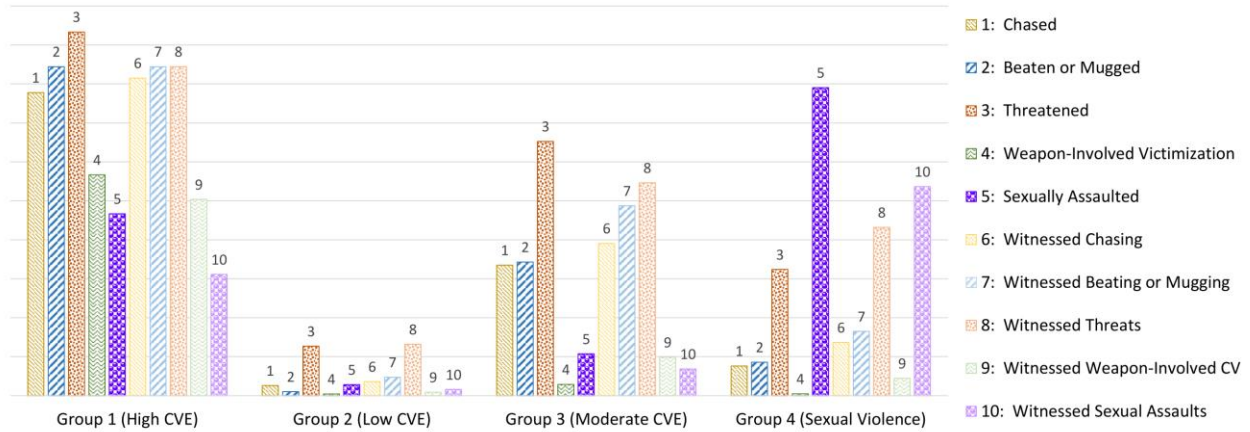


Figure 9. Latent means on indicator variables. CVE = community violence exposure; CV = community violence.

higher levels of being chased, being beaten or mugged, being threatened with serious physical harm, and witnessing beatings or muggings compared to Group B and Group D. Additionally, Group D reported more threats of physical harm than Group B. Groups A, C, and D reported witnessing more threats of serious physical harm than Group B. Group A reported more weapon-involved victimization and witnessing others being chased compared to Groups B, C, and D. Group C additionally witnessed others being chased more so than Groups B and D. Group A witnessed more weapon-involved CVE than Group B and Group D, and Group C witnessed more weapon-involved CVE than Group B. Group D reported experiencing and witnessing more sexual assaults than Groups B and C. Based on these differences, Group A was labeled the “High CVE” group ($n = 9$), Group B was labeled the “Low CVE” group ($n = 637$), Group C was labeled the “Moderate CVE” group ($n = 43$), and Group D was labeled the “Sexual

Violence” group ($n = 21$). Of note, 86% of the Sexual Violence group were females; however, this rate did not significantly differ from the expected gender composition of the group, given the large majority of females compared to males in the total sample.

Table 12
Means and Standard Deviations on Indicator Variables by Latent Profiles

	Group A (High CVE, $n = 9$)	Group B (Low CVE, $n = 637$)	Group C (Moderate CVE, $n = 43$)	Group D (Sexual Violence, $n = 21$)
Chased	3.89 (2.93) ^{b, d}	0.13 (0.46) ^{a, c}	1.67 (1.63) ^{b, d}	0.38 (0.80) ^{a, c}
Beaten or Mugged	4.22 (3.07) ^{b, d}	0.05 (0.30) ^{a, c}	1.70 (2.19) ^{b, d}	0.43 (0.98) ^{a, c}
Threatened with Physical Harm	4.67 (2.40) ^{b, d}	0.63 (1.08) ^{a, c, d}	3.23 (2.33) ^{b, d}	1.62 (1.56) ^{a, b, c}
Victimized with a Weapon	2.83 (1.30) ^{b, c, d}	0.02 (0.13) ^a	0.14 (0.37) ^a	0.02 (0.11) ^a
Sexually Assaulted	2.33 (2.87)	0.14 (0.43) ^d	0.53 (1.05) ^d	3.95 (1.60) ^{b, c}
Witnessed Chasing	4.07 (1.56) ^{b, c, d}	0.18 (0.40) ^{a, c}	1.95 (1.39) ^{a, b, d}	0.68 (1.34) ^{a, c}
Witnessed Beating or Mugging	4.22 (2.21) ^{b, d}	0.23 (0.51) ^{a, c}	2.43 (1.56) ^{b, d}	0.83 (1.28) ^{a, c}
Witnessed Threats of Harm	4.22 (2.20) ^b	0.65 (0.93) ^{a, c, d}	2.73 (1.85) ^b	2.16 (1.74) ^b
Witnessed CV with a Weapon	2.52 (2.00) ^{b, d}	0.04 (0.18) ^{a, c}	0.49 (0.80) ^b	0.23 (0.54) ^a
Witnessed Sexual Assault	1.56 (2.69)	0.08 (0.28) ^d	0.34 (0.76) ^d	2.68 (1.48) ^{b, c}

Note: Superscripts indicate that the value is significantly different from the corresponding value in column a, b, c, or d, respectively. That is, ^a indicates that the mean is significantly different from the mean of Group A, ^b indicates a significant difference from the mean of Group B, ^c from the mean of Group C, and ^d from the mean of Group D. CVE = community violence exposure; CV = community violence.

Table 13 presents the means and standard deviations of each CVE composite separately by group. The four groups significantly differed on total CVE, proximity, and each composite measuring separate levels of proximity. As expected, the Low CVE group reported less CVE than the other three groups, and the Sexual Violence group reported less CVE than the High

CVE group. The CVE reported by individuals in the High CVE group and the Moderate CVE group was characterized by greater interpersonal proximity compared to the CVE reported by individuals in the Low CVE group. That is, across all CVE, the High CVE and Moderate CVE

Table 13
Means and Standard Deviations on CVE Composites by Latent Profiles

	Group A (High CVE, n = 9)	Group B (Low CVE, n = 637)	Group C (Moderate CVE, n = 43)	Group D (Sexual Violence, n = 21)
Total CVE	3.22 (1.73) ^{b, d}	0.38 (0.32) ^{a, c, d}	1.53 (0.56) ^b	1.29 (0.74) ^{a, b}
Interpersonal Proximity	2.15 (0.37) ^b	1.66 (0.64) ^{a, c}	1.94 (0.38) ^b	1.74 (0.35)
Victimization	3.25 (1.73) ^{b, c, d}	0.28 (0.36) ^{a, c, d}	1.39 (0.76) ^{a, b}	1.11 (0.64) ^{a, b}
Witnessing CV against Family/Friends	3.17 (1.95) ^{b, d}	0.20 (0.27) ^{a, c, d}	1.10 (0.63) ^b	0.79 (0.65) ^{a, b}
Witnessing CV against Acquaintances	2.92 (2.09) ^b	0.24 (0.29) ^{a, c, d}	1.24 (0.75) ^b	1.07 (0.95) ^b
Witnessing CV against Strangers	3.24 (1.68) ^{b, d}	0.40 (0.42) ^{a, c, d}	1.74 (0.74) ^b	1.31 (1.09) ^{a, b}
Witnessing Potentially Violent Contexts	4.29 (3.05)	1.70 (1.77) ^{c, d}	4.01 (2.60) ^b	4.17 (2.02) ^b
Total Witnessing	3.21 (1.79) ^b	0.40 (0.34) ^{a, c, d}	1.57 (0.68) ^b	1.34 (0.87) ^b

Note: Superscripts indicate that the value is significantly different from the corresponding value in column a, b, c, or d, respectively. That is, ^a indicates that the mean is significantly different from the mean of Group A, ^b indicates a significant difference from the mean of Group B, ^c from the mean of Group C, and ^d from the mean of Group D. CVE = community violence exposure; CV = community violence.

groups reported a greater proportion of victimization compared to witnessing, compared to the Low CVE group. Accordingly, the Low CVE group reported less victimization and less

witnessing against family or friends, acquaintances, and strangers, compared to the other three groups. The High CVE group also reported more victimization than the Moderate CVE and Sexual Violence groups. Additionally, the High CVE group reported more witnessing CV against family or friends and more witnessing CV against strangers compared to the Sexual Violence group.

Group differences on study variables. To test Hypothesis 6 that the latent groups would differ on internalizing and externalizing outcomes, ANOVAs were used to examine differences between the groups on all study variables. Table 14 presents the means and standard deviations of each group on all outcomes and cognitive biases supporting aggression. The four groups significantly differed on all internalizing and externalizing outcomes, as well as expectations of respect following AR, expectations of others to like AR, and efficacy beliefs. There were no significant group differences on evaluations of AR, self-evaluations following AR, expectations of positive outcomes of AR, or HAB.

Post hoc tests revealed that the Sexual Violence group reported more anxiety, depression, PTSD, and substance use, compared to the Low CVE group. Despite significant omnibus tests, none of the groups significantly differed from any other on proactive aggression or antisocial behavior, although the difference between the Moderate CVE group and the Low CVE group on antisocial behavior approached significance ($p = .054$). Compared to the Low CVE group, the Moderate CVE group reported higher levels of reactive aggression, PTSD, expectations of respect following aggression, expectations that others would like aggressive responding, and efficacy in aggressive responding. Although the High CVE group had higher mean scores than the other groups on many outcome variables, this group was not significantly different from the

other groups on any outcomes, likely due to the small size of this group and large variation in scores.

Finally, to further explore differences between the latent groups, the SEM analyses were repeated using dummy coded latent groups as the independent variable. The measurement

Table 14

Means and Standard Deviations on Outcome Variables by Latent Profiles

	Group A (High CVE, n = 9)	Group B (Low CVE, n = 637)	Group C (Moderate CVE, n = 43)	Group D (Sexual Violence, n = 21)
Anxiety	1.38 (1.32)	1.03 (0.88) ^d	1.32 (0.90)	1.66 (0.79) ^b
Depression	1.07 (1.25)	0.79 (0.76) ^d	1.05 (0.77)	1.46 (0.66) ^b
PTSD	1.50 (1.43)	0.73 (0.82) ^{c, d}	1.29 (0.99) ^b	1.66 (0.90) ^b
Proactive Aggression	0.42 (0.36)	0.06 (0.13)	0.15 (0.24)	0.17 (0.25)
Reactive Aggression	0.76 (0.49)	0.42 (0.33) ^c	0.64 (0.40) ^b	0.58 (0.42)
Antisocial Behavior	0.33 (0.56)	0.13 (0.17)	0.29 (0.35)	0.26 (0.32)
Substance Use	1.39 (1.12)	0.57 (0.63) ^d	0.91 (0.88)	1.06 (0.63) ^b
Evaluations of AR	1.14 (0.85)	1.03 (0.61)	1.33 (0.77)	1.19 (0.52)
Self-Evaluations following AR	1.17 (1.02)	1.16 (0.67)	1.37 (0.72)	1.24 (0.59)
Expecting Positive Outcomes of AR	1.39 (1.10)	1.88 (0.67)	1.68 (0.78)	2.21 (0.70)
Expecting Respect following AR	1.94 (1.59)	0.94 (0.85) ^c	1.46 (1.06) ^b	0.95 (0.72)
Expecting Others to Like AR	1.91 (1.53)	1.12 (0.84) ^c	1.69 (1.11) ^b	1.13 (0.75)
Perceived Efficacy in AR	2.43 (1.22)	1.59 (0.91) ^c	2.22 (0.92) ^b	1.62 (0.84)
HAB	1.57 (1.52)	1.94 (0.77)	1.94 (1.00)	2.07 (0.65)

Note: Superscripts indicate that the value is significantly different from the corresponding value in column a, b, c, or d, respectively. That is, ^a indicates that the mean is significantly different from the mean of Group A, ^b indicates a significant difference from the mean of Group B, ^c from the mean of Group C, and ^d from the mean of Group D. CVE = community violence exposure;

PTSD = post-traumatic stress disorder; AR = aggressive responding; HAB = hostile attribution biases.

models remain unchanged from those reported previously. Additionally, the patterns of associations among internalizing symptoms, cognitions supporting aggression, HAB, and aggressive or externalizing behaviors remained unchanged and thus are not reported. Patterns of significance were identical in the models predicting aggressive behaviors and the models predicting externalizing behaviors; therefore, only coefficients from the model of externalizing behaviors are reported.

Group A – High CVE. Membership in the High CVE group was associated with lower levels of HAB, $\beta = -.12, p < .05$, higher levels of perceived efficacy, $\beta = .10, p < .05$, and higher levels of externalizing behaviors, $\beta = .17, p < .001$, compared to the rest of the sample. The High CVE group did not differ from the rest of the sample on evaluations of aggression or internalizing symptoms.

Group B – Low CVE. Individuals in the Low CVE group reported lower levels of internalizing symptoms, $\beta = -.19, p < .001$, evaluations supporting aggression, $\beta = -.09, p < .05$, perceived efficacy, $\beta = -.17, p < .001$, and externalizing behaviors, $\beta = -.20, p < .001$, compared to individuals in the other groups; they did not differ on HAB.

Group C – Moderate CVE. Individuals in the Moderate CVE group reported more internalizing symptoms, $\beta = .10, p < .05$, evaluations supporting aggression, $\beta = .10, p < .05$, perceived efficacy, $\beta = .18, p < .001$, and externalizing behaviors, $\beta = .10, p < .05$, compared to individuals in the other groups, but they did not differ on HAB.

Group D – Sexual Violence. Individuals in the Sexual Violence group reported more internalizing symptoms than the rest of the sample, $\beta = .16, p < .001$. Membership in this group

was not significantly associated with any of the cognitions supporting aggression or externalizing behaviors.

Summary of latent groups. Latent profile analysis revealed four distinct groups of participants that differed based on their CVE. These groups appear to differ based on their overall amount of CVE, the types of CV to which they were exposed, and the routes of exposure. The High CVE group generally reported the most CVE across types, whereas the Low CVE group reported the least exposure across types. The Moderate CVE group reported relatively high levels of CVE overall, but was distinguished from the High CVE group in reporting less victimization. The Sexual Violence group reported low levels of most types of CVE, yet high levels of exposure to sexual assault in the community, through both victimization and witnessing.

Results of the ANOVAs and SEM analyses revealed that the Low CVE group reported the lowest levels of internalizing outcomes, externalizing outcomes, and cognitive biases supporting aggression. The Moderate CVE group is characterized by high levels of externalizing problems and cognitions supporting aggression, whereas the Sexual Violence group is characterized by high levels of internalizing symptoms. The SEM analyses suggest that the High CVE group is characterized by high levels of externalizing behaviors and low levels of HAB, although the ANOVAs did not reveal any significant differences.

Discussion

The purpose of the current study was threefold. The first goal was to examine whether interpersonal proximity to the victims of CV moderates patterns of pathological adaptation – that is., decreased internalizing distress and increased aggression at high levels of CVE. The second goal was to examine whether cognitions supporting aggression and emotional desensitization serve as mediating mechanisms in the link between CVE and externalizing problems. The final goal was to examine whether specific characteristics of lifetime CVE – particularly frequency, types, and routes of CVE – are differentially associated with indicators of adjustment among young adults attending college.

The current study examined two routes of exposure, victimization and witnessing CV, which were further divided into four levels of proximity to the victims: personal victimization, witnessing CV against family or friends, witnessing CV against acquaintances, and witnessing CV against strangers. Results indicate that the association between CVE and more externalizing problems tends to be stronger when CVE is characterized by low interpersonal proximity. CVE was linearly related to more internalizing problems at high levels of proximity, whereas the association at low levels of proximity reached a plateau at high levels of CVE. Internalizing symptoms and positive evaluations of aggressive responding, but not HAB, partially mediated the relationship between CVE and externalizing behaviors. Frequency of CVE, route of exposure, interpersonal proximity to the victims of CV, and type of violence all appear to play a role in predicting internalizing and externalizing outcomes.

Associations Between CVE, Interpersonal Proximity, and Internalizing Problems

As expected, more CVE was related to higher levels of anxiety, depression, and PTSD. Consistent with prior research indicating that victimization is more strongly related to

internalizing symptoms than is witnessing CV (Fowler et al., 2009), victims of CV reported more internalizing symptoms than witnesses who had not experienced personal victimization. Furthermore, supporting Hypothesis 1, a curvilinear association between CVE and each internalizing outcome emerged and was moderated by interpersonal proximity. Specifically, the association between CVE and each internalizing outcome takes a linear form when CVE is characterized by high levels of proximity but a curvilinear form when CVE is characterized by low levels of proximity.

It is important to keep in mind that the proximity variable accounts for the proportion of witnessing versus victimization across all of one's experiences of CVE. Since most individuals experienced both victimization and witnessing, the current findings do not indicate that the association between victimization and internalizing symptoms is linear whereas the association with witnessing CV is curvilinear. In fact, significant curvilinear associations with internalizing symptoms emerged for the victimization composite as well as the three witnessing composites. Rather, the combination of one's experiences of victimization and witnessing CV appears to be key. When the victimization and witnessing composites were entered simultaneously as predictors in the regression equation, the curvilinear association between witnessing CV and each internalizing outcome remained significant, while the curvilinear effect of victimization did not. In other words, internalizing symptoms continue to increase linearly with more experiences of victimization; witnessing CV is also associated with increases in internalizing symptoms, but the strength of the association declines at high levels of CVE.

Prior research has suggested that the curvilinear association between CVE and internalizing symptoms may be specific to depression or general emotional distress (Gaylord-Harden et al., 2011; McCart et al., 2007), yet the current study found a significant curvilinear

association between CVE and each internalizing outcome. However, the curvilinear effect does appear to be stronger for depression and PTSD compared to anxiety. Specifically, the interaction between proximity and the curvilinear effect of CVE was only marginally significant, although the direct effect of the quadratic term was statistically significant. Additionally, when controlling for the curvilinear effect of witnessing CV, victimization was linearly associated with depression and PTSD but was not significantly associated with anxiety, indicating that witnessing CV has a stronger impact on anxiety than does victimization. This is consistent with prior research suggesting that CVE is more strongly associated with depression than anxiety (Scarpa, 2001; Scarpa et al., 2002). In sum, the curvilinear effect representing emotional desensitization was detected for all internalizing outcomes in the current study, yet CVE, and in particular victimization, appears to be more strongly associated with depression and PTSD compared to anxiety.

Although other studies of emotional desensitization have reported a decrease in internalizing symptoms at very high levels of CVE (Gaylord-Harden et al., 2016; Kennedy & Ceballo, 2016; Mrug et al., 2015; Ng-Mak et al., 2004), the curvilinear effect in the current sample consisted of only a slight decline in the strength of the association. That is, the otherwise linear association between CVE and more internalizing symptoms appears to approach a plateau at high levels of CVE, rather than curving downward in an inverted U-shaped pattern. Additionally, contrasting Hypothesis 1, the group of participants reporting high levels of victimization but low levels of witnessing did not significantly differ on internalizing symptoms from the group reporting high levels of witnessing only or the group reporting high levels of both routes of exposure. This similarly suggests that internalizing symptoms do not diminish, but become stable, at high levels of CVE. However, the failure of the current study to find a

decrease in internalizing symptoms at high levels of witnessing CV may be due to the nature of a university sample. All known previous studies reporting evidence of emotional desensitization to violence have utilized high-risk samples of youth (Gaylord-Harden et al., 2016; Kennedy & Ceballo, 2016; Mrug et al., 2015; Ng-Mak et al., 2004). Given the higher rates of CVE, particularly witnessing CV, in urban compared to general population samples (Stein et al., 2003), it may be that the frequency of witnessing CV in the current sample was not high enough to see a significant decline in internalizing symptoms. Thus, future studies should examine whether interpersonal proximity to the victims of CV moderates the curvilinear effect of CVE on internalizing symptoms in a sample reporting higher rates of CVE. However, it is noteworthy that this is the first known study to report a curvilinear association between CVE and internalizing symptoms in a low-risk sample, suggesting that emotional desensitization to violence can occur among relatively well-adjusted young adults attending college.

Associations Between CVE, Interpersonal Proximity, and Externalizing Problems

Consistent with a robust body of literature (Fowler et al., 2009), experiencing more CVE was associated with higher levels of each externalizing outcome in the current study. Hypothesis 2 predicted that the relationship between CVE and externalizing problems would be stronger for individuals whose exposure consists of relatively low levels of victimization and high levels witnessing CV, particularly against strangers. Consistent with this hypothesis, interpersonal proximity to the victims of CV moderated the relationships between CVE and reactive aggression, antisocial behavior, and substance use. Specifically, CVE was more strongly associated with each outcome at low levels of interpersonal proximity, compared to high levels of interpersonal proximity. In other words, results suggest that the effect of CVE on externalizing symptoms may be particularly strong for individuals who have relatively more

exposure through witnessing CV, particularly against strangers, rather than being victimized themselves.

The first set of ANOVAs also provides some support for Hypothesis 2. Although each of the CVE groups reported more reactive aggression and more substance use than the low CVE group, the high witnessing group, but not the high victimization group, reported more proactive aggression and more antisocial behavior compared to the low CVE group. Furthermore, the high victimization group, but not the high witnessing group, reported significantly lower levels of each externalizing outcome than the high CVE group. Thus, the general trend suggests that frequent witnesses of CV engage in more externalizing behaviors than individuals who have not witnessed much CV, even if they have experienced high rates of victimization. However, it should be noted that direct comparisons between the high witnessing group and the high victimization group were not statistically significant.

In contrast, results from the second set of ANOVAs seem to contradict Hypothesis 2. Grouping participants by their most proximal exposure, regardless of the frequency of exposure, suggests that experiences of victimization outweigh experiences of witnessing in terms of their associations with externalizing outcomes. Victims of CV reported the highest rates of proactive aggression, reactive aggression, antisocial behavior, and substance use compared to individuals with no CVE or individuals who had only witnessed CV. The three witnessing groups did not significantly differ from one another on any externalizing outcome.

Taken together, the findings suggest that being a victim of CV increases one's risk of externalizing behaviors beyond the effect of witnessing CV. However, individuals who experience relatively more witnessing than personal victimization have greater externalizing problems than individuals with relatively more victimization compared to witnessing. Prior

research has shown that CVE is a chronic experience for many urban youth, with rates of CVE increasing across childhood and adolescence (Kennedy & Ceballo, 2016). Socioeconomic indicators more strongly relate to witnessing violence than victimization (Farrell et al., 2014; Mrug & Windle, 2009; Zimmerman & Posick, 2016), suggesting that youth in high-risk neighborhoods may frequently witness CV, without experiencing comparable rates of victimization. Accordingly, relatively high rates of witnessing CV, compared to victimization, is likely the norm for youth growing up in dangerous neighborhoods. Experiencing high rates of victimization, without comparably high rates of witnessing CV, is relatively rare, and thus individuals with this history of CVE may exhibit other risk factors that are protective against developing externalizing problems (Zimmerman & Posick, 2016).

Although the purpose of the current study is to identify potential outcomes of victimization and witnessing CV, the findings only illustrate a correlation between CVE and the outcomes. While this could indicate that CVE leads to differential outcomes based on proximity, it may also be true that individuals who differ in externalizing behaviors are then exposed to CVE at different levels of proximity. Indeed, existing research has established that witnessing CV and externalizing behaviors influence one another over time, yet there is relatively little evidence of bidirectional relationships with victimization (Esposito et al., 2017; Farrell et al., 2014; Mrug & Windle, 2009). Aggressive or antisocial youth may be more likely to witness CV than experience victimization because these youth are perpetrating violence themselves. In communities characterized by high levels of violence, youth, particularly boys, who are seen as aggressive are less likely to become targets of violent attacks than non-aggressive youth (Voisin, Bird, Hardesty, & Shiu, 2011). Thus, witnesses of CV may engage in aggressive behaviors as a form of self-defense to protect themselves from becoming victimized (Taylor et al., 2016;

Zaykowski, 2019). Additionally, risky peer norms are a unique risk factor for witnessing CV, but not victimization (Elsaesser & Voisin, 2014), suggesting that youth may be exposed to CV because they are associating with peers who perpetrate violence or engage in other risk-taking behaviors. Research suggests that, rather than predicting violent behavior from violence exposure or vice versa, CVE and violent behavior are best conceptualized as parallel representations of general involvement in violence (Halliday-Boykins & Graham, 2001). Longitudinal research is needed to examine the role of interpersonal proximity to the victims of CV in the reciprocal relationships between CVE and perpetration of violence.

Mechanisms Linking CVE with Externalizing Behaviors

Internalizing symptoms and four types of cognitions supporting aggression (i.e., positive evaluations of aggression, expectations of positive outcomes of aggression, perceived efficacy in AR, and HAB) were examined as mediators of the relationship between CVE and externalizing behaviors. The strength of all associations with CVE was expected to differ based on levels of interpersonal proximity.

Positive evaluations of aggression. One mechanism through which CVE leads to externalizing behaviors is through the normalization of aggression (Boxer, Morris, Terranova, Kithakye, Savoy, & McFaul, 2008). Following cumulative CVE, youth begin to view aggression as normal and therefore believe that it is acceptable to engage in aggressive behavior. In the current study, more CVE was associated with more positive evaluations of AR and more positive evaluations of oneself following hypothetical AR, and these associations were moderated by proximity to the victims of CV. Specifically, supporting Hypothesis 3, more CVE was associated with more positive evaluations only when CVE was characterized by low or moderate levels of interpersonal proximity. When CVE was characterized by high levels of proximity

(i.e., more victimization relative to witnessing against strangers), CVE was not related to evaluations of aggression. In further support of Hypothesis 3, individuals who experienced high levels of witnessing CV, with or without high levels of victimization, reported more positive evaluations of AR and more positive self-evaluations following AR than individuals with low CVE. Individuals who reported high levels of victimization without co-occurring witnessing also reported more positive evaluations of AR compared to the low CVE group, but they did not significantly differ from the low CVE group on positive self-evaluations following AR. This is consistent with prior research indicating that witnessing CV is associated with more cognitions approving of aggression (Bradshaw, Rodgers, Ghandour, & Garbarino, 2009; Guerra et al., 2003). Furthermore, some research suggests that increases in cognitions supporting aggression are exclusive to the less proximal exposure. At least two studies have found that witnessing CV, but not victimization, is associated with positive evaluation of aggressive strategies (Calvete & Orue, 2013; Schwartz & Proctor, 2000). In the current study, positive evaluations of aggression were related to both victimization and witnessing, albeit the association between CVE and evaluations of aggression was stronger when CVE was characterized by relatively more witnessing than victimization.

Consistent with research revealing that cognitions justifying aggression mediate the relationship between witnessing CV and both proactive and reactive aggression (Calvete & Orue, 2013), the current study found that positive evaluations of aggression were related to each type of aggression, the latent aggressive behaviors factor, and the latent externalizing behaviors factor. Moreover, positive evaluations of aggression significantly mediated the relationship between CVE and aggressive behaviors, and this association was moderated by proximity, such that positive evaluations of aggression mediated the relationship between CVE and aggressive

behaviors at low or moderate levels of interpersonal proximity, but not at high levels of proximity. This is consistent with research showing that more cognitions approving of aggression mediated the relationship between witnessing violence and more aggressive behaviors, yet victimization was associated with fewer cognitions approving of aggression, which in turn predicted less aggressive behavior (Boxer et al., 2008).

Perceived efficacy of engaging in aggression. More victimization, each level of witnessing, and total CVE were each associated with greater perceived ease in engaging in a hypothetical aggressive response. The association between CVE and efficacy was hypothesized to be stronger at low levels of interpersonal proximity, given prior research showing that witnessing CV, but not victimization, is related to efficacy beliefs for aggression (Schwartz & Proctor, 2000). However, contrary to Hypothesis 3, neither proximity nor its interaction with CVE predicted perceived efficacy. Nevertheless, perceived efficacy of engaging in aggression significantly mediated the association between CVE and externalizing behaviors.

Expectations of positive outcomes of aggression. Three expectations of the outcomes of aggression were assessed in the current study – expecting that the adverse event in the vignette would not occur again following an aggressive response, expecting respect following AR, and expecting others to like AR. The first expectation, that of positive outcomes of AR, was associated with lower expectations of respect and liking AR, suggesting that these variables tap into different constructs in the current sample. Greater expectations of positive outcomes was associated with lower levels of proximity to the victims of CV, but not the amount of CVE or the interaction between proximity and CVE. The outcome expectations composite had very low reliability in the current sample; thus, it is likely that the failure to reliably assess outcome expectations of aggression explains the lack of expected associations with this measure.

In contrast, expectations of respect and expecting others to like AR were highly positively correlated with one another and also were related to more positive evaluations of aggression and greater efficacy in AR. Furthermore, individuals with more CVE were more likely to expect that the victim of the aggressive response would respect them if they acted that way and also that other people would approve of the aggressive response. These patterns held true for the total CVE composite, as well as victimization and each of the witnessing composites. Additionally, greater proximity to the victims of CV was associated with both expectations, a somewhat surprising finding, given that proximity was not correlated with any of the internalizing or externalizing symptoms (i.e., the value of proximity in predicting internalizing and externalizing outcomes lies in its interaction with CVE).

Proximity additionally interacted with CVE to predict expectations of respect and expecting others to like AR, although the effect of the interaction is contrary to the prediction in Hypothesis 3. In light of other research indicating that witnessing CV, but not victimization, is related to expectations of positive outcomes of aggression (Schwartz & Proctor, 2000; Shahinfar et al., 2001), Hypothesis 3 predicted that CVE would be more strongly associated with outcome expectations at low, compared to high, levels of proximity. On the contrary, results revealed that CVE was associated with greater expectations only at high levels of proximity to the victims of CV. At low or moderate levels of proximity, CVE was not associated with expecting respect or expecting others to like AR. At very low levels of proximity, there was a trend such that more CVE was associated with lower expectations of respect. Essentially, for individuals whose only exposure to CV consists of witnessing violence against strangers, more witnessing is associated with lower expectations that a peer would respect an aggressive response to conflict. However,

the negative association did not reach statistical significance within the range of proximity reported in the current study.

Although expecting respect and expecting others to like AR were each associated with more proactive aggression, expecting positive outcomes of aggression was not associated with the aggressive behaviors latent factor in the structural measurement model, likely because of the non-significant correlation between each expectation and reactive aggression. Thus, expectations of outcomes of aggression are not a mechanism through which CVE leads to aggression in the current sample, and these indices were not included in the path models of aggressive or externalizing behaviors.

Hostile attribution bias. While the other cognitions were expected to more strongly relate to CVE at low levels of interpersonal proximity, the prediction regarding HAB was reversed. Although some research suggests that witnessing CV is associated with greater HAB (Bradshaw et al., 2009), other research suggests that HAB is related to victimization, but not witnessing CV (Shahinfar et al., 2001). Thus, HAB was hypothesized to be more strongly associated with CVE at high levels of proximity. However, the current findings revealed that HAB was not associated with any of the measures of CVE, proximity, or their interaction.

Within the literature and in the current study's findings, associations between HAB and other cognitions supporting aggression are mixed. For instance, HAB was related to more cognitions justifying aggression in a sample of suburban adolescents (Bradshaw et al., 2009), yet HAB was not associated with cognitions approving of aggression or perceived outcomes of aggression among a sample of juvenile offenders (Shahinfar et al., 2001). In the current study, more HAB was associated with more positive evaluations of aggression, as well as more expectations of positive outcomes of AR. In contrast, HAB was associated with fewer

expectations of respect following AR and fewer expectations that others would like AR, as well as lower perceived efficacy in AR. Thus, individuals in the current sample who assume that others act with hostile intent are more likely to positively regard aggression and believe that aggression will produce the desired outcome, yet they do not believe that others approve of aggression and do not feel confident in using aggressive responses themselves.

Prior research on associations between HAB and aggressive behavior also contain mixed findings, with some studies showing reciprocal longitudinal relationships between the two constructs (e.g., Quan et al., 2019) and other studies reporting that HAB was not related to aggressive behavior (Bradshaw et al., 2009). In the current study, HAB was associated with more reactive aggression and more antisocial behavior, but HAB did not predict the aggressive or externalizing behaviors latent factors in the path models. Thus, there was no support for HAB as a mediating mechanism linking CVE with greater externalizing behaviors in the current sample. HAB was, however, related to more anxiety, depression, and PTSD, as well as the internalizing latent factor in the SEM models. This is consistent with prior research suggesting that anxious youth tend to misinterpret ambiguous situations as hostile (Bell-Dolan, 1995).

Emotional desensitization to violence. Finally, internalizing symptoms were expected to mediate the relationship between CVE and externalizing symptoms, but the relationship between internalizing symptoms and externalizing symptoms is often complex. Internalizing distress may be one mechanism through which CVE leads to increased externalizing problems (Hong, Huang, Golden, Patton, & Washington, 2014; Maschi, Morgen, Hatcher, Rosato, & Violette, 2009); for instance, anxious individuals who feel threatened may seek to defend themselves preemptively through engaging in an act of aggression. On the other hand, internalizing symptoms also may protect against the development of externalizing behaviors

(Ng-Mak et al., 2002). For instance, youth with aggressive tendencies and high levels of anxiety are exposed to less CV compared to aggressive youth with low levels of anxiety (Boyd, Cooley, Lambert, & Ialongo, 2003; Lambert, Ialongo, Boyd, & Cooley, 2005).

In the current study, all internalizing and externalizing problems were positively correlated, suggesting that, in general, individuals who exhibited any sign of maladjustment were more likely to report additional symptoms, regardless of the type of maladjustment. Emotional desensitization, indexed by an increase in internalizing distress with moderate levels of CVE and a decline in internalizing distress at high levels of CVE, has been found to mediate the association between CVE and externalizing behaviors (Mrug et al., 2015). Accordingly, Hypothesis 5 stated that the curvilinear effect of CVE on internalizing symptoms, moderated by proximity, would underlie the increased externalizing problems seen with greater amounts of CVE. In light of previous findings that emotion dysregulation mediates the association between victimization and aggression, but not witnessing CV and aggression (Schwartz & Proctor, 2000), victimization was expected to be linearly associated with internalizing symptoms, whereas a curvilinear association with internalizing symptoms was hypothesized for witnessing CV. In other words, at low levels of proximity, as levels of CVE increase from low to moderate, internalizing and externalizing symptoms would similarly increase. However, as levels of CVE increase from moderate to high, internalizing symptoms would begin to decline as individuals become desensitized to the chronic violence exposure. The low levels of internalizing symptoms experienced by individuals with very high levels of witnessing CV was expected to underlie the corresponding high levels of externalizing problems exhibited by these individuals.

The current study found modest support for Hypothesis 5. Specifically, the path models revealed that the interaction between proximity and the curvilinear effect of CVE significantly

predicted internalizing symptoms, which mediated the effect of CVE on aggressive and externalizing behaviors. However, as noted previously, the curvilinear effect was modest, such that the positive linear association between CVE and internalizing symptoms approached a plateau at high levels of CVE, rather than decreasing.

Although most studies operationalize desensitization as a decline in internalizing symptoms (Gaylord-Harden et al., 2016; Kennedy & Ceballo, 2016; Mrug et al., 2015), further examination of the physiological effects of CVE can help to elucidate desensitization mechanisms. There is some evidence that psychophysiological changes do not act as a mediator, but a moderator, of the effects of chronic victimization and witnessing CV (Scarpa, Tanaka, & Haden, 2008). Further research should utilize physiological measures to examine models of desensitization. Moreover, symptoms of post-traumatic hyperarousal have been shown to mediate the association between CVE and aggressive behavior, suggesting that an alternative path from chronic CVE to aggressive behavior may be through physiological hyper-sensitization to threat (Gaylord-Harden, Bai, & Simic, 2017).

Summary of mediating mechanisms. Findings from the current study indicate that positive evaluations of aggression, perceived efficacy in acting aggressively, and internalizing symptoms partially mediate the association between CVE and externalizing problems, particularly when exposure is characterized by relatively high levels of witnessing CV compared to victimization. Boxer and colleagues (2008) described two pathways through which CVE impacts adjustment: a normalization pathway, through which the normalizing of aggression leads to engagement in antisocial behavior, and a distress pathway, through which CVE leads to emotional symptoms. Results of the current study generally support the existence of these two pathways but also illustrate the complexities involved in capturing the many paths through which

combinations of victimization and witnessing CV may lead to maladjustment. The specified mediators in the current model only explain a modest portion of the variance in externalizing behaviors. Given the robust association between CVE and externalizing problems, future research must explore additional mechanisms that may underlie this relationship.

Although the cognitive mediators had a relatively small effect on externalizing behaviors, the cognitions included in the current study are not the only theorized cognitive biases implicated in aggressive behaviors. Crick and Dodge's (1994) model of social information processing includes six steps. In a social situation, an individual must first notice and encode the available social cues and then interpret the cues. HAB play a role in the interpretation stage, as individuals with high levels of HAB are more likely to attribute others' actions to malicious intent. The individual must also clarify his or her goals in the social situation. Although unexplored in the current study, social goals may be another mechanism through which CVE is associated with increased externalizing behaviors, and the association also may depend on proximity to the victims of CV. For instance, victimization, but not witnessing CV, was associated with the more hostile social goals of dominance and revenge, rather than less hostile goals, among a sample of juvenile offenders (Shahinfar et al., 2001). Once goals are identified, individuals must generate possible responses or problem-solving strategies in the situation. Victimization and/or witnessing CV may contribute to maladaptation at this step as well. More witnessing CV is associated with generating more aggressive responses, which in turn relates to more engagement in aggressive behavior (Bradshaw et al., 2009). Once behavioral responses are identified, one's evaluations of aggression, expectations of the outcomes of aggression, and perceived efficacy in engaging in aggression all contribute to the decision to choose a response. Finally, the individual must enact the response in the situation and repeat the cycle as peers similarly process and

respond to the social situation. Biases supporting aggression at any of these steps will increase the likelihood of engaging in aggressive behaviors, and engaging in aggressive behaviors can reciprocally reinforce the cognitive biases (Quan et al., 2019). Yet, interventions that address social information processing have reduced aggressive behavior among youth (Sullivan, Farrell, Bettencourt, & Helms, 2008), suggesting that cognitive biases should not be ignored in research linking CVE with externalizing problems.

Finally, it is worth noting that the model of aggressive behaviors was replicated with an externalizing factor that included antisocial behavior along with proactive and reactive aggression. The fit of the models were very similar, as were the associations among variables. The only difference between the models was that the curvilinear effect of CVE significantly predicted externalizing behaviors but not aggressive behaviors. A curvilinear association between CVE and efficacy in AR also emerged in each model, even though a curvilinear association was hypothesized only for internalizing symptoms. The curvilinear associations with efficacy and externalizing behaviors indicated only a slight curve in the association at high levels of each variable, and the effects were not moderated by proximity. Thus, in contrast to the theorized inverted-U shaped pattern between CVE and internalizing symptoms, the significant curvilinear effect of CVE on efficacy and externalizing problems likely reflects a ceiling effect in the current sample, such that very high levels of externalizing behaviors are unlikely to be seen regardless of the amount of CVE.

Salient Characteristics of CVE

The vast majority of CVE research only captures frequency, or total amount of exposure, in their measures of CVE, despite suggestion that many other characteristics may be important in predicting adjustment (Kennedy & Ceballo, 2014). Thus, a final goal of the current study was to

elucidate the aspects of CVE that are most salient in predicting internalizing and externalizing outcomes, concentrating on four characteristics: frequency of exposure, route of exposure, interpersonal proximity to the victims of CV, and type of violence. The results of the latent profile analysis are most pertinent to this goal. However, all analyses in the current study provide information about one or more of characteristics of CVE.

The current sample reported relatively low levels of CVE overall, although there was adequate variability across participants and over 90% reported some exposure. Results of the latent profile analysis suggest that frequency is likely the most important dimension differentiating individuals based on their CVE. Four latent profiles emerged that consisted of (a) high CVE, (b) low CVE, (c) moderate CVE, and (d) generally moderate CVE but relatively high rates of experiencing and witnessing sexual violence in the community. Compared to the low CVE group, the moderate CVE group reported higher levels of reactive aggression and PTSD, as well as greater expectations of respect following AR, greater expectations that others would like AR, and greater perceived efficacy in AR. The high CVE group did not significantly differ from any other group on any outcomes. However, the high CVE group reported (non-significantly) higher mean levels of each internalizing and externalizing outcome compared to the moderate CVE group, and the moderate CVE group reported higher mean levels of each outcome than the low CVE group. Thus, the lack of statistical significance of the group comparisons is likely due to the discrepancy in the sizes of each group as well as high variability in outcomes among the smaller groups. Specifically, the low CVE group comprised close to 90% of the sample, whereas the moderate and high CVE group consisted of only 6% and 1.3%, respectively. Furthermore, as discussed previously, the results of the other analyses indicate robust associations between frequency of CVE and internalizing and externalizing outcomes. Thus, consistent with other

research suggesting that cumulative level of CVE is the defining factor in determining developmental outcomes (Zimmerman & Posick, 2016), the current study concludes that frequency is perhaps the most salient characteristic of CVE in both classifying individuals based on their exposure and predicting adjustment outcomes.

Victimization and witnessing CV were considered as two distinct routes of CVE. The results of the latent profile analysis indicate that route of exposure plays a modest role in distinguishing groups of individuals. Specifically, the high CVE group could be distinguished from the moderate CVE group by higher levels of victimization, whereas differences between the two groups on each of the witnessing composites were not significant. Accordingly, mean interpersonal proximity levels were higher in the high CVE group and moderate CVE group compared to the low CVE group, suggesting relatively more victimization than witnessing in the high and moderate groups. Overall, however, the results generally suggest that groups were differentiated based on frequency of each route of exposure, rather than groups categorized by high levels of victimization only or high levels of witnessing only, as hypothesized.

Interpersonal proximity to the victims of CV accounts for route of exposure as well as relationship to the victims of witnessed violence. Most participants reported at least one violent experience at each level of proximity. Specifically, around two-thirds of participants reported personal victimization, witnessing CV against family or friends, and witnessing CV against acquaintances, whereas almost four-fifths reported witnessing CV against a stranger. Interpersonal proximity was not directly associated with any of the outcomes but did interact with CVE to predict most of the psychosocial symptoms assessed, illustrating the need to consider multiple characteristics of CVE in tandem.

Finally, eight distinct types of CV were assessed across both victimization and witnessing. The most common type was being or witnessing someone being slapped, punched, or hit (45.1% and 78.7% for victimization and witnessing, respectively), followed in frequency by threats of serious physical harm (38.4% and 54.8% for victimization and witnessing, respectively). The least commonly experienced types were attacks with a knife or gun, yet a sizable minority of participants did personally experience (5.1%) or witness (15.3%) acts of violence utilizing a weapon. Prevalence rates of each type of CVE were comparable to those found in other samples utilizing university students (Scarpa, 2001; Scarpa et al., 2002). Although rates of weapon-involved CV are higher in urban samples (Bradshaw et al., 2009; Scarpa, 2003), findings indicate that a small but notable portion of emerging adults who may be considered lower risk, because they are attending college, have experienced life-threatening violence in their community. Somewhat surprisingly, however, exposure to weapon-involved violence did not emerge as a distinguishing factor in differentiating individuals based on their CVE, despite prior research suggesting that severity of violence is a key dimension (Kennedy & Ceballo, 2014). Thus, future research should continue to examine whether more versus less severe violence is differentially related to psychosocial outcomes.

Although the latent profiles were primarily distinguished based on frequency across all types of CVE, one group emerged that was distinguished by elevated rates of only one type – sexual violence in the community (i.e., perpetrated by a stranger). This group reported the highest rates of being sexually assaulted and witnessing sexual assault of all the groups, yet rates of the other types of CV were generally comparable to the rates reported by the low CVE group. Furthermore, the high sexual violence group reported significantly more anxiety, depression, PTSD, and substance use compared to the low CVE group, but there were no significant

differences on the other externalizing problems or cognitive biases supporting aggression. Although the ratio of females to males did not significantly differ from any of the other groups, the sexual violence group consisted of mostly females. Accordingly, the well-established finding that females display more internalizing problems than males (Zahn-Waxler, Shirtcliff, & Marceau, 2008) could explain the higher levels of internalizing outcomes, but not externalizing outcomes, in the sexual violence group compared to the low CVE group. However, it is also possible that sexual violence is more strongly associated with internalizing symptoms than are other types of CV. Indeed, among a sample of female college students, internalizing symptoms were more strongly related to sexual assault than other types of trauma (Krupnick, Green, Stockton, Goodman, Corcoran, & Petty, 2004). Although there is a vast literature on associations between sexual assault and psychopathology more broadly (Dworkin, Menon, Bystrynski, & Allen, 2017), sexual assault is not often included in measures of CVE (Kennedy & Ceballo, 2014), which may hinder the ability of researchers to accurately capture the effects of CVE, particularly among girls. According to a large-scale nationally representative survey, 45% of female victims and 31% of male victims of non-rape sexual violence report that the violence was perpetrated by a stranger (Black et al., 2011). Thus, sexual assault as a form of CV may be quite prevalent, yet very little research has included sexual assault in their measures of CVE (Kennedy & Ceballo, 2014). Additionally, other types of violence that were not assessed in the current study, such as incidents involving police, may be a common and impactful experience for urban youth that has not been adequately considered in existing research (Voisin et al., 2011).

Limitations

First, it is important to keep in mind that this is a correlational, cross-sectional study. Although CVE is presumed to lead to internalizing and externalizing problems, causation cannot

be inferred from the current study. Several other variables, such as socioeconomic status and exposure to family violence or other trauma, are associated with both CVE and symptoms of maladjustment. Furthermore, lifetime CVE was assessed in relation to current symptoms of maladjustment, to potentially capture the effects of CVE in childhood or adolescence on adjustment in early adulthood, but the current study is not able to decipher when internalizing or externalizing problems originated for those who reported them. Longitudinal research is needed to determine whether increases in CVE over time are associated with increases in adverse outcomes.

The method of data collection employed in the current study is advantageous in many respects but also carries limitations. The convenience of online data collection likely increased participation rates, resulting in the benefit of a large sample size. Additionally, the anonymous nature of the study reduces concerns of social desirability bias; participants were able to complete the survey in privacy and did not have to directly submit their answers to a researcher, which likely increased their willingness to be honest in their responding. However, at the same time, a researcher was not present during data collection to ensure that participants were fully engaging in the study. Some participants may have been doing other tasks simultaneously while completing the survey, which could increase the chances that items or measures were misunderstood. Thus, we cannot be certain of the accuracy of participants' responses, although this is true of any self-report study.

Additionally, characteristics of the sample may limit generalizability of the results to some extent. The sample consists of undergraduate students attending one of three universities in the Southeastern United States that serve students from a variety of socioeconomic and geographic backgrounds. Around 80% of the participants were female, although this rate is

consistent with other college samples (Scarpa, 2003). Since males are more likely than females to experience CVE (Finkelhor, Turner, Shattuck, & Hamby, 2013; Lambert et al., 2012), it is important to examine whether the results of the current study are upheld while accounting for gender. Furthermore, the majority of participants were White, although individuals from a variety of racial and ethnic backgrounds were adequately represented. In contrast to previous research that has found greater rates of CVE among ethnic minorities (Buka et al., 2001; Lauritsen, 2001), and in particular greater prevalence to victimization compared to witnessing CV (Zimmerman & Posick, 2016), racial and ethnic differences were minimal in the current study. Young adults of lower socioeconomic status are likely underrepresented in college samples, compared to the population at large, which could partially account for the lack of racial/ethnic differences in the current study. However, prior research suggests that differences between college and non-college samples in CVE and in the associations between CVE and maladjustment are minimal (Rosenthal & Hutton, 2001). Nevertheless, it is important to replicate the current study's findings in high-risk samples with greater levels of CVE, particularly with regard to determining the salient characteristics of CVE, as this has not received much attention in the literature to date.

Finally, although the current study found evidence of mediation by cognitive biases supporting aggression, the effects were generally small and not significant for all types of cognition. Low reliability of some of the indices – particularly expectations of positive outcomes of AR and HAB, the only composites that were not related to CVE – likely contributed to the null findings. Additionally, the hypothetical responses presented in the measure assessing cognitive biases generally depicted relational aggression, which involves behaviors designed to harm others by damaging relationships, rather than causing physical harm (Archer & Coyne,

2005). Although this type of aggression is more frequently engaged in by the sample under study, it may be less relevant to models of CVE than is physical aggression. For instance, perhaps expectations of positive outcomes of physical aggression mediates the relationship between CVE and externalizing behaviors, but expectations of the outcomes of relational aggression taps into a different construct. Future research should examine cognitive biases supporting physical aggression as a potential mediating mechanism linking CVE with greater externalizing behaviors.

Future Directions

Measurement of CVE. In addition to addressing the limitations mentioned above, the current study gives way to several areas of future research. First and foremost, the current study illustrates the complexity in accurately capturing the salient aspects of CVE that may be related to symptoms of maladjustment. Specifically, route of exposure, interpersonal proximity to the victims of violence, and type of violent act may have distinct effects on the development of psychosocial outcomes. Even though many studies operationalize victimization and witnessing CV as separate constructs (Kennedy & Ceballo, 2014), this distinction may not adequately capture one's relative experiences of each route of exposure. All analyses in the current study were replicated with the distinct victimization and witnessing composites, yet there were no meaningful differences between any of the associations. Across outcomes, the effect of victimization was similar in magnitude to the effect of witnessing CV, suggesting minimal differences in the impact of each route. However, the interpersonal proximity variable, that accounted for the relative proportion of each route of exposure, did play a role in predicting adjustment. Thus, it is important to consider interacting effects of one's experiences of victimization and witnessing CV, rather than assessing the effects of each route individually.

Additionally, hearing about CV is a third route of exposure that has been paid little empirical attention to date. Hearing about CV can be a salient experience for youth, particularly girls (Voisin et al., 2011), suggesting that measures of CVE that exclude this route of exposure may not adequately capture experiences of CV among females.

Furthermore, distinguishing an individual's relationship to the victim of CV adds further specificity to the conceptualization of CVE. Grouping individuals by their most proximal exposure generally led to different conclusions than the other results, suggesting that identifying one's most proximal exposure to violence may not be a useful way of measuring CVE. However, the vast majority of the current sample reported at least one experience of victimization, resulting in a large discrepancy in the size of this group compared to the other groups. Perhaps excluding minor acts of violence that are commonly experienced would result in a more even distribution of groups, providing a useful conceptualization of individuals' experiences. Nevertheless, it is clear that the field could benefit from a more nuanced assessment of victimization and witnessing violence than is typically found in most studies of CVE.

Additionally, it is likely important to consider the type of violent events assessed when selecting a measure of CVE. Few CVE measures assess exposure to sexual violence, yet this was the only type of violent event that was a distinguishing factor in the latent profile analysis. Results suggest that individuals who are exposed to sexual violence in the community report distinct outcomes from individuals who are not exposed to sexual violence, even when the levels of exposure to other types of CV are comparable. The current measures only included sexual assault in the community by someone the victim did not know. Since most victims of rape know their perpetrator (Black et al., 2011), future work should examine associations among sexual

assault in the community, sexual assault by a known individual, and exposure to other types of violence in the community and in the home. Regardless of the type of violence, relationship to the perpetrator may be important (Kennedy & Ceballo, 2014), as recent research suggests that route of exposure interacts with relationship to the perpetrator in predicting psychological symptoms (Dubé, Gagné, Clément, & Chamberland, 2018).

Lastly, the current research is a study of the effects of lifetime CVE on the psychosocial functioning of young adults. Presumably, much of the reported CVE occurred during the periods of childhood or adolescence; thus, a more nuanced examination of the timing of CVE is warranted. Recent witnessing of CV, but not witnessing that occurred over a year prior, was associated with increased risk of criminal behavior among young adults (Eitle & Turner, 2002). Victimization was associated with criminal offending regardless of timing, suggesting that timing and route of exposure may interact in predicting antisocial outcomes. Additionally, effects may differ depending on the stages of childhood or adolescence during which CVE was experienced. Further study of the developmental timing of CVE is necessary, as well as longitudinal research to examine prospective associations between CVE and psychosocial outcomes across childhood and adolescence.

Other Moderating Mechanisms. In addition to considering how different aspects of CVE may differentially impact adjustment, other protective or risk factors may interact with the effects of co-occurring witnessing and victimization to influence the development of internalizing and externalizing symptom patterns. For instance, supportive parents and family members can buffer the detrimental effects of CVE on youth, yet family factors may be differentially associated with victimization versus witnessing CV (Hardaway, Sterrett-Hong,

Larkby, & Cornelius, 2016; Zimmerman & Posick, 2016). Peer and school factors also may impact the experience of CVE (Elsaesser & Voisin, 2014).

Temperament, particularly the dimensions of approach and inhibition (Gray, 1991), also may moderate the effects of CVE on psychosocial adjustment. Temperamental inhibition is robustly associated with internalizing problems but may protect against the development of externalizing behavior problems (Sanson, Hemphill, & Smart, 2004). In contrast, excessive behavioral approach tendencies may lead to the development of externalizing problems (Frick & Morris, 2004). Gudiño, Nadeem, Kataoka, and Lau (2012) found that the association between violence exposure and externalizing problems was stronger among adolescents who exhibited high, compared to low, levels of behavioral approach. Likewise, violence exposure was more strongly related to internalizing problems among adolescents who exhibited high, compared to low, levels of behavioral inhibition. However, prior research has not examined whether temperament differentially interacts with victimization compared to witnessing CV. Thus, examining how known protective and risk factors interact with each route of exposure should be a priority of future studies.

Conclusion

In conclusion, CVE is a complex construct; types of violence, route of exposure, and interpersonal proximity to the victims of CV each may play an important role in psychosocial adjustment, in addition to the frequency or overall amount of exposure. This is the first known study to report evidence that patterns of emotional desensitization differ by interpersonal proximity to the victims of CV. The results of the current study suggest that CVE characterized by relatively high levels of victimization compared to witnessing is linearly associated with both internalizing and externalizing symptoms. However, CVE characterized by relatively high levels

of witnessing and low levels of victimization has a comparatively stronger association with externalizing symptoms and a curvilinear association with internalizing symptoms. Specifically, at low levels of proximity, internalizing symptoms increase from low to moderate levels of CVE but begin to reach a plateau at high levels of CVE. This suggests that individuals who experience chronic CVE, particularly witnessing CV against strangers, may become desensitized to the effects of violence, and no longer experience proportionate increases in emotional distress that were experienced at lower levels of CVE. The association between CVE and externalizing behaviors is mediated in part by the effect of CVE on internalizing symptoms, positive evaluations of aggressive behaviors, and perceived efficacy in engaging in aggression, but not HAB. By delineating the salient characteristics of CVE that are associated with distinct patterns of adjustment, results of the current study can inform efforts to tailor prevention and intervention services for youth exposed to CV.

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Appendix A

Listed below are various kinds of violence and things related to violence that you may have experienced, seen, or heard about *in your neighborhood or community* (that is, on the streets surrounding your home and/or school). For each question, choose the option that best describes your experience. **Do NOT include in your answers things you may have seen or heard about at home or on TV/movies/social media.** Please indicate the highest frequency with which you have experienced each event during any time in your life. For example, if at one time in your life you were experiencing an event almost every day, you should select option “i,” even if you have not experienced the event recently.

Response options will include (a) never, (b) 1 time, (c) 2 times, (d) 3 or 4 times, (e) 5 or 6 times, (f) 7 or 8 times, (g) at least once a month, (h) at least once a week, (i) almost every day.

Page 1: Slapping, Hitting, Punching

1. How many times have you *yourself* been slapped, punched, or hit by someone who is not a member of your family?
2. How many times have you seen *a family member or close friend* getting slapped, punched, or hit by someone who was not a member of their family?
3. How many times have you seen *an acquaintance* getting slapped, punched, or hit by someone who was not a member of their family?
4. How many times have you seen *a stranger* getting slapped, punched, or hit by someone who was not a member of their family?
5. How many times have you only heard about *a family member or close friend* getting slapped, punched, or hit by someone who was not a member of their own family?

6. How many times have you only heard about *an acquaintance* getting slapped, punched, or hit by someone who was not a member of their own family?

Page 2: Beatings and Muggings

1. How many times have you *yourself* been beaten up or mugged?
2. How many times have you seen *a family member or close friend* getting beaten up or mugged?
3. How many times have you seen *an acquaintance* getting beaten up or mugged?
4. How many times have you seen *a stranger* getting beaten up or mugged?
5. How many times have you only heard about *a family member or close friend* being beaten up or mugged?
6. How many times have you only heard about *an acquaintance* being beaten up or mugged?

Page 3: Threats

1. How many times have you *yourself* been threatened with serious physical harm by someone?
2. How many times have you seen *a family member or close friend* being threatened with serious physical harm by someone?
3. How many times have you seen *an acquaintance* being threatened with serious physical harm by someone?
4. How many times have you seen *a stranger* being threatened with serious physical harm by someone?
5. How many times have you only heard about *a family member or close friend* being threatened with serious physical harm by someone?

6. How many times have you only heard about *an acquaintance* being threatened with serious physical harm by someone?

Page 4: Sexual Assault

1. How many times have you *yourself* been sexually assaulted, molested, or raped by a stranger (someone you did not know prior to the assault)?
2. How many times have you seen *a family member or close friend* being sexually assaulted, molested, or raped by someone they did not know?
3. How many times have you seen *an acquaintance* being sexually assaulted, molested, or raped?
4. How many times have you seen *a stranger* being sexually assaulted, molested, or raped?
5. How many times have you only heard about *a family member or close friend* being sexually assaulted, molested, or raped by someone they did not know?
6. How many times have you only heard about *an acquaintance* being sexually assaulted, molested, or raped by someone they did not know?

Page 5: Knife Attacks

1. How many times have you *yourself* been attacked or stabbed with a knife?
2. How many times have you seen *a family member or close friend* being attacked or stabbed with a knife?
3. How many times have you seen *an acquaintance* being attacked or stabbed with a knife?
4. How many times have you seen *a stranger* being attacked or stabbed with a knife?
5. How many times have you only heard about *a family member or close friend* being attacked or stabbed with a knife?

6. How many times have you only heard about *an acquaintance* being attacked or stabbed with a knife?

Page 6: Shootings

1. How many times have you *yourself* been shot with a gun?
2. How many times have you seen *a family member or close friend* get shot with a gun?
3. How many times have you seen *an acquaintance* get shot with a gun?
4. How many times have you seen *a stranger* get shot with a gun?
5. How many times have you only heard about *a family member or close friend* getting shot with a gun?
6. How many times have you only heard about *an acquaintance* getting shot with a gun?

Page 7: Killings

1. How many times have you seen *a family member or close friend* being killed by another person?
2. How many times have you seen *an acquaintance* being killed by another person?
3. How many times have you seen *a stranger* being killed by another person?
4. How many times have you only heard about *a family member or close friend* being killed by another person in your community?
5. How many times have you only heard about *an acquaintance* being killed by another person in your community?

Page 8: Dead Bodies

1. How many times have you seen *a family member or close friend* lying dead in the community after an incidence of violence? (do not include wakes and funerals)

2. How many times have you seen *an acquaintance* lying dead in the community after an incidence of violence? (do not include wakes and funerals)
3. How many times have you seen *a stranger* lying dead in the community after an incidence of violence? (do not include wakes and funerals)

Page 9: Being Chased

1. How many times have you *yourself* been chased by gangs or individuals?
2. How many times have you seen *a family member or close friend* get chased by gangs or other individuals?
3. How many times have you seen *an acquaintance* get chased by gangs or other individuals?
4. How many times have you seen *a stranger* get chased by gangs or other individuals?
5. How many times have you only heard about *a family member or close friend* being chased by gangs or other individuals?
6. How many times have you only heard about *an acquaintance* being chased by gangs or other individuals?

Page 10: Forced Entry

1. How many times have you *yourself* been at home when someone has broken into or tried to force their way into your home?
2. How many times has your house been broken into when you *weren't* home?
3. How many times have you seen someone trying to force their way into *a family member or close friend's* house or apartment?
4. How many times have you seen someone trying to force their way into *an acquaintance's* house or apartment?

5. How many times have you seen someone trying to force their way into *a stranger's* house or apartment?
6. How many times have you only heard about someone trying to force their way into *a family member or close friend's* house or apartment?
7. How many times have you only heard about someone trying to force their way into *an acquaintance's* house or apartment?

Page 11: Other Potentially Violent Contexts

1. How many times have you seen someone in your community selling or distributing illegal drugs?
2. How many times have you seen someone in your community carrying or holding a gun or knife? (do not include police, military, or security officers)
3. How many times have you *yourself* heard the sound of gunfire outside in your community? (not while hunting or at a shooting range)

Vita

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