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An Examination of the Reciprocal Association of Collective Efficacy and Community Violence Exposure in Low-Resourced, Urban African American Adolescents

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An Examination of the Reciprocal Association of Collective Efficacy and Community Violence Exposure in Low-Resourced, Urban African American Adolescents

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Biography

The author was born in Payson, Utah, April 10, 1988. He graduated from Woodland High School in Woodland, California. He received His Bachelor of Science degree in Psychology from Brigham Young University in 2013, and his Masters of Arts degree in Community Psychology from DePaul University in 2016.

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Abstract

African American adolescents are exposed to community violence at alarming rates. Compared to Caucasian adolescents, African American adolescents are 112% more likely to be exposed to community violence and 6 to 9 times more likely to be victims of homicide. There are many risk factors and behavioral/emotional issues associated with community violence exposure. Collective Efficacy Theory posited that collective efficacy (i.e., social cohesion and informal social control) influence community violence, and that a reciprocal association exists between collective efficacy and community violence. While the influence of collective efficacy on community violence exposure is established, the influence of community violence exposure on collective efficacy is understudied. The present study examined the reciprocal association between collective efficacy, or one of its subscales, and community violence, over time, in a sample of low-resourced, urban African American adolescents. Using Cross-Lagged Panel Models, reciprocal associations were tested. For each hypothesis, multiple models were tested to determine which model best fit the data. No significant cross-lagged paths were found between community violence exposure and collective efficacy (or one of its subscales, social cohesion and informal social control). Several significant within-wave associations were found, suggesting a positive association between collective efficacy and community violence exposure, a negative association between social cohesion and community violence exposure, and a positive association between informal social control and community violence exposure. Explanations for and implications of findings are

discussed in light of theory and contextual issues, along with suggestions for future research.

Introduction

Survey reports of a representative sample of youth in the United States of America suggest that nearly two-thirds of youth, ages 14 to 17, have witnessed some form of community violence during their lives, with almost half reporting witnessing community violence in the past year (Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009). While these national rates are high, African American adolescents have even higher rates. African American adolescents are victims of serious violent crimes (e.g., assault, robbery, sexual assault) at higher rates than both Caucasian and Latino adolescents (Bureau of Justice Statistics [BJS], 2016). Additionally, African American adolescents are 6 to 9 times more likely than Caucasian adolescents to be victims of homicide (BJS, 2013). In fact, homicide is the leading cause of death for African American males between the ages of 15 and 19, and the second leading cause of death for African American females between the ages of 15 and 19 (Centers for Disease Control and Prevention [CDC], 2014a; CDC, 2014b). In brief, urban, low-resourced African American adolescents are exposed to significant amounts of community violence, either indirectly or through direct victimization.

Considering the magnitude of this problem for adolescents, particularly African American adolescents, there are a plethora of explanations of the causes of community violence and factors that influence levels of community violence. Past researchers have suggested (a) individual factors, (b) family factors, (c) social factors, and (d) neighborhood factors, as causes of community violence and risk factors for exposure to community violence. Individual factors (e.g., lack of

self-control, normative beliefs about aggression, poor academic readiness, emotional dysregulation, and cognitive distortions) are associated with increased community violence perpetration and exposure (Lambert, Bradshaw, Cammack, & Ialongo, 2011; Robinson, Paxton, & Jonen, 2011; Sweeney, Golder, & Richards, 2011; Thomas et al., 2012; Zimmerman & Messner, 2013). Family and social factors associated with community violence exposure include living with one parent or having parents who are unmarried, living in a lower socioeconomic status (SES) household, and affiliation with violent peers (Sampson, Morenoff, & Raudenbush, 2005; Sampson, Raudenbush, & Earls, 1997; Zimmerman & Messner, 2013). Neighborhood factors associated with community violence exposure include poverty, residential instability, concentrated neighborhood disadvantage, lower levels of youth service, and neighborhood social processes, among others (Sampson, Morenoff, & Raudenbush, 2005; Zimmerman & Messner, 2013). Community violence is complex; individual, family, social, neighborhood, and many other factors interact to influence community violence and increase individuals' exposure to community violence, and these factors may help explain the racial disparities in community violence exposure.

Collective efficacy, one factor influencing community violence, has received significant attention from psychologists, sociologists, and criminologists. Collective efficacy, defined as social cohesion among community members and members' willingness to enact informal social control, is theorized to influence levels of community violence (Sampson, Raudenbush, & Earls, 1997). Those communities that exhibit higher levels of collective efficacy have lower levels of

community violence (Sampson et al., 1997). Collective efficacy also has been shown to affect violence over time (Sampson, 2012). While ample research has suggested that collective efficacy predicts community violence, some research suggests that community violence affects a community's collective efficacy, or specific aspects of collective efficacy, like social cohesion (Sweatt, Harding, Knight-Lynn, Rasheed, & Carter, 2002). The purpose of this study is to test the bidirectional relation between collective efficacy and community violence posited in Collective Efficacy Theory, using a longitudinal study of urban African American adolescents. This study will examine the directional influence of collective efficacy on community violence exposure, as well as the directional influence of community violence exposure on collective efficacy, over time.

Definition of Community and Community Violence

Definition of Community

Prior to delving into community violence exposure, a definition of community and community violence is needed. Individuals from various fields (e.g., philosophy, psychology, political science, biology, and others) have attempted to define community and defined community in different ways. Gusfield (1975) identified two major definitions of the term "community." The first is location-specific and tied to geographic location, specifically that community refers to geographical areas, such as neighborhoods or towns. The second definition eschews the need for shared location, focusing instead on relational characteristics between individuals and groups. These definitions may essentially be termed territorial communities and relational communities,

respectively (McMillan & Chavis, 1986). In addition to these two definitions of community, Heller (1989) added a third: community as collective political power. While many other individuals have provided differing definitions of community than the above, they often share some of the above aspects. In brief, definitions of community are not mutually exclusive, and communities may be defined by locality, relationships, and collective political power simultaneously.

Community as a locality. The term community frequently refers to a locality or geographic area. "Communities as localities were initially developed to take advantage of economic markets, or were set up as defensive enclaves" (Heller, 1989, p. 4). While these communities aren't often developed with social processes in mind, procedures and norms often develop to help individuals interact. References to community as locality often use community to refer to a territory, such as a neighborhood (McMillan & Chavis, 1986; Perkins, Florin, Rich, Wandersman, & Chavis, 1990). Much of the early work on sense of community, or the relationship between the individual and the social structure, expects neighborhood-level action by residents (Chavis & Wandersman, 1990). Chavis and Wandersman (1990) proposed a framework of sense of community, consisting of four domains: (a) perception of the environment, (b) social relations, (c) control and empowerment, and (d) participation in neighborhood action. Local action, whether at the block level or neighborhood level, were considered essential to developing a sense of community.

It should be noted that attempts to confirm the factor structure of the sense of community theory proposed by Chavis and Wandersman have often failed

(Chipuer & Pretty, 1999; Stevens, Jason, & Ferrari, 2011). Others have proposed related conceptualizations to account for these inconsistencies and measure sense of community at different ecological levels (Jason, Stevens, & Ram, 2015). Jason et al. (2015) conceptualized the experience of an individual as part of a system as having three ecological levels: (1) Entity, incorporating the unit of the community (e.g., neighborhood, school, organization); (2) Membership, or the relationship between members of the group; and (3) Self, or one's connection and commitment to the group. This conceptualization highlights the community as a stable structure, the interdependent nature of community members, and the individual commitment to maintaining interdependence (Jason et al., 2016).

Community as relationships. Communities may often coalesce around shared experiences, history, and identity. Community, as relationships, may be characterized by strong social cohesion and community ties (Heller, 1989). These types of communities, while they may be location-specific, do not have to be geographically-bounded. Technological advancements, especially with social media, have enhanced individuals' ability to make connections outside of face-to-face interactions. These relational communities may provide other benefits, in addition to providing sense of community and social support. Berger and Neuhaus (1977) suggest that these communities serve to connect individuals to larger structures or orders, while simultaneously satisfying individual and group needs. Indeed, some suggest that, with the mobility of individuals and families, the social ties and capital are often created outside of geographic neighborhoods,

facilitating the creation of relational communities, and perhaps hindering contacts with neighbors (Heller, 1989).

Community as collective political power. The idea of community as collective political power may incorporate aspects of both community as a locality and community as relationships. Heller (1989) argues that informal associations (e.g., those developed in locality-based or relational communities) and formal associations (e.g., block/neighborhood associations or coalitions) may enable individuals, neighborhoods, or organizations to garner political power beyond what the individual may provide. With political influence and power distributed across local, regional, state, and national entities, the power of individuals to influence political action may necessitate collective action (Heller, 1989). In terms of local-level political change, opportunities for positive contact among neighborhood residents may increase political influence, as residents come together to support one another and discuss differing viewpoints, eventually building consensus (Heller, 1989). These positive contact opportunities may help individuals and groups recognize commonalities and work toward common goals. These principles are applicable in territorial, communities as well as relational communities.

It is clear that the term community means different things to different people, and it has changed over time. While people still identify social ties with those likely to live in close proximity (e.g., family, friends, neighbors), place-based (e.g., church/synagogue affiliation, local community organizations) relations have become less important (Putnam, 2000). Beyond the classification

of community as location, relation, and collective political power, Chavis and Lee (2015) suggested several aspects of communities, based on research and field experience. First, they suggest that community is not about place, but about people. Community is both a feeling and relationships among people. Community develops as trust, belonging, sense of safety, and caring develop. They specify that neighborhoods, schools, and other organizations/groups can be contexts in which community develop, but they are not communities themselves (Chavis & Lee, 2015). Second, people live in multiple communities (Chavis & Lee, 2015). People join communities to help meet certain needs, so people may join multiple communities to meet those needs. Third, communities are nested (Chavis & Lee, 2015). While a neighborhood may be a community, other communities (e.g., churches, community organizations, or ethnic or racial communities) may reside within neighborhood boundaries. Looking simply at the neighborhood as a community may mask other communities and needs existent in the neighborhood. Fourth, communities have formal and informal institutions (Chavis & Lee, 2015).

Definition of Community Violence

Similar to defining community, varying definitions have been used for community violence (Trickett, Duran, & Horn, 2003). One problem involved in defining community violence is defining community, which, as discussed earlier, is a difficult thing to do. Operational definitions of community violence should contain two parts: definitions of community and definitions of violence (Trickett et al., 2003). Some definitions of community violence or community violence

exposure avoid directly addressing the construct of community. For example, Osofsky (1995, p. 782) defined community violence exposure as "frequent and continual exposure to the use of guns, knives, and drugs, and random violence." According to this definition, community violence would be the use of weapons or drugs, or other random violence, and exposure to community violence would be frequent and continual exposure to these acts. This definition considers acts that generally occur outside of the home, but does not specify that this exposure must occur outside of the home. Other studies attempted to identify types of violent events that occur in communities in which individuals reside (Richters and Saltzman, 1990). After identifying types, awareness of these events is then gauged to determine exposure to community violence. Still others define the community aspect of community violence as anything outside of the home (Lynch, 2003). Measures to assess community violence exposure defining community as anything outside of the home measure violent acts that occur in one's neighborhood, at school, and outside of one's neighborhood. Unfortunately, many of the studies using community violence exposure fail to explicitly define or identify community, and often rely on the child to define what community means, but not necessarily to provide researchers with their definition of community (Trickett et al., 2003). For example, a person may be asked to report on the extent of violence in their community, with no further definitions or parameters to qualify community given by the researcher (Trickett et al., 2003). These definitional issues prove problematic to accurately assessing exposure to

community violence, as the respondents may have entirely different ideas as to what constitutes community.

Other definitions of community violence or community violence exposure are more explicit about how they define community. However, these definitions do not consider varied aspects of community. Most often, these definitions equate community to neighborhood. To measure community violence exposure, Richters and Martinez (1990) asked participants to report on violence that occurred around their home or neighborhood. Cooley, Turner, and Beidel (1995) operationally defined community violence as "deliberate acts intended to cause physical harm against a person or persons in the community" (p. 202), then specifically asked participants to report on violence in their school or neighborhood. For this study, references to community violence or community violence exposure refer to violence that occurs outside of the home, most frequently in one's neighborhood.

Exposure to Community Violence

Exposure to community violence exists on a spectrum of severity, including (a) hearing about violence in the community, (b) witnessing violence in the community, and (c) direct violent victimization (McDonald, Deatrick, Kassam-Adams, & Richmond, 2011), and is a significant stressor for low-resourced, urban African American adolescents. Urban African American adolescents are exposed to community violence on a regular basis. Richards et al. (2015), using a daily sampling method, found that urban African American youth experience, on average, one violent incident per day, ranging from witnessing community violence to direct victimization. These high rates of community

violence exposure are the result of the intersection of several high-risk identities, including age, neighborhood context, and race.

Risk Factors for Community Violence Exposure

Adolescence. Adolescence is a high-risk developmental stage for exposure to community violence. As stated earlier, nearly two-thirds of adolescents, ages 14-17, have been exposed to community violence during their lives; nearly half of these adolescents have witnessed community violence in the past year, 40% have witnessed assaults in the community, and almost one-third have been victims of community violence in the past year (Finkelhor et al., 2009; Finkelhor, Turner, Shattuck, Hamby, & Kracke, 2015). The likelihood of being exposed to community violence increases significantly with age; as children grow from toddlers to older adolescents, there is a sevenfold increase in rates of community violence exposure, with more than 70% of older adolescents reporting witnessing community violence during their lives (Finkelhor et al., 2009). Compared to other age groups, adolescents, ages 12-17, have the highest prevalence rate of violent crime victimization (Truman & Morgan, 2016). Thus, simply being an adolescent puts urban African American adolescents at risk for community violence exposure.

Urban environment. Neighborhood context adds to the risk associated with age to increase the likelihood that urban, low-resourced African American adolescents will be exposed to community violence. Urban environments pose a greater risk for violent crime victimization than suburban or rural environments (Truman & Morgan, 2016). The vast majority of urban youth have been exposed

to community violence, with estimates ranging from 50-96% of youth living in urban neighborhoods reporting some exposure to community violence (McDonald et al., 2011; Zimmerman & Messner, 2013). Even more alarming, 70% of these youth will be victims of violent crime during their lives (McDonald et al., 2011; Zimmerman & Messner, 2013). In addition to the general effects of living in urban neighborhoods, spatial proximity to homicide predicts increased homicide rates, as does concentrated neighborhood disadvantage, including percentage of (a) families below the poverty line, (b)neighborhood families receiving public assistance, (c) female-headed households with children, and (d) unemployment, (Morenoff, Sampson, & Raudenbush, 2001).

Race/ethnicity. In addition to neighborhood and age, race is a significant factor in predicting exposure to community violence. Urban African American adolescents are the group at highest ethnic/racial risk for community violence exposure (Aisenberg & Herrenkohl, 2008). African American adolescents report higher levels of community violence exposure than Caucasian adolescents, regardless of household income (Crouch, Hanson, Saunders, Kilpatrick, & Resnick, 2000). Using a large sample of White, Hispanic, and African American adolescents in Chicago neighborhoods, Zimmerman and Messner (2013) compared the likelihood of community violence exposure by race/ethnicity. Compared to White adolescents, Hispanic adolescents were 74% more likely to be exposed to community violence, while African American adolescents were 112% more likely to be exposed to community violence.

Aggression, anxiety, and depression. The presence of various emotions or symptoms for mental disorders, such as aggression, depression, and anxiety, may increase risk for community violence exposure. Boyd, Cooley, Lambert, and Ialongo (2003) examined aggression and anxiety in first grade as predictors of community violence exposure in fifth grade. For girls, early aggression was associated with increases in later community violence exposure. For boys, aggression in first grade was associated with both community violence exposure and violent victimization in fifth grade. These associations differed, however, based on levels of anxiety. For children with low levels of anxiety, higher aggression in childhood was associated with greater exposure to community violence; for children high in anxiety, the aggression-community violence exposure link was buffered.

Lambert, Ialongo, Boyd, and Cooley (2005) found similar associations. Aggression was associated with later community violence exposure and victimization, but anxiety and depression influenced that relation. Among boys with high deviant peer affiliations, the relation between aggression and witnessing community violence was not significant when anxiety levels were high; however, when anxiety levels were low, aggression predicted more community violence exposure. Depression seemed to have the opposite effect. Among boys with low depressive symptoms, aggression did not predict greater community violence exposure; for those with higher depressive symptoms, aggression predicted increased community violence exposure. While anxiety may mitigate the risk of community violence associated with aggression, depression may exacerbate it.

Self-control also influences community violence exposure. In a large study of Chicago youth, Zimmerman and Messner (2013) found that youth who lacked self-control were much more likely to be exposed to community violence.

Family factors. Several family and social factors increase risk for community violence exposure in adolescents. Family structure may influence violence exposure risk. Sampson et al. (2005) examined Chicago youth and young adults to determine reasons for racial disparities in community violence. They found that marital status is predictive of violence; youth with unmarried parents had higher risk for community violence perpetration than youth with married parents. Additionally, youth with unmarried parents are at higher risk for community violence exposure (Zimmerman & Messner, 2013). Family functioning also may influence risk for community violence exposure. Studying African American and Latino adolescents in Chicago, Sheidow, Gorman-Smith, Tolan, and Henry (2001) examined the association between struggling families and community violence exposure. Families with poor parenting practices, low family cohesion, and poor beliefs about the family, predicted higher community violence exposure. However, this relation was only present in individuals who lived in impoverished communities with high social organization (i.e., sense of belonging and support). In other words, these family factors only influence risk for community violence exposure in neighborhoods without financial/economic resources and yet with protective social processes (Sheidow et al., 2001). The family factors influencing community violence and violence exposure may be

attributable, at least partially, to structural conditions such as poverty, segregation, or neighborhood conditions (Sampson et al., 2005).

Social factors. Adolescents' risk for community violence exposure is influenced by social factors, like involvement with deviant peers and peer rejection. Salzinger, Ng-Mak, Feldman, Kam, and Rosario (2006), studying urban minority adolescents in New York City, found that the deviant behavior of an adolescent's peers influence risk of community violence exposure. Friends' deviant behavior contributed to increased community violence exposure for the adolescent. Deviant peer affiliation also has a moderating effect on community violence exposure. Lambert et al. (2005) found a direct association between deviant peer affiliation and community violence exposure. Additionally, they found that youth with high deviant peer affiliation and aggressive behavior had higher community violence exposure than those with low deviant peer affiliation. These findings regarding deviant peer affiliation and community violence exposure have been supported in predominantly African American adolescent populations and adolescent populations in Chicago (Lambert, Bettencourt, Bradshaw, & Ialongo, 2013; Zimmerman & Messner, 2013). Additionally, Lambert et al. (2013) found that early peer rejection was indirectly associated with community violence exposure in African American adolescents.

Other neighborhood factors. In addition to individual, family, and social risk factors, neighborhood factors may increase adolescents' risk for community violence exposure. Impoverished neighborhoods may influence risk, but the effects of impoverished neighborhoods may be dependent on other factors.

Sheidow et al. (2001) found that impoverished neighborhoods alone didn't predict higher community violence exposure, but impoverished neighborhoods combined with poor family functioning may increase risk for community violence exposure. Other studies suggest that concentrated disadvantage increases violence exposure risk. Zimmerman and Messner (2013) found that adolescents living in neighborhoods characterized by concentrated disadvantage (i.e., combination of unemployment levels, median household income, and percentage of families below poverty line, households receiving public assistance, non-intact families with children, and African American residents) were 23% more likely to be exposed to community violence than adolescents living in neighborhoods without concentrated disadvantage. Violence perpetration also is associated with neighborhood factors (Sampson et al., 2013). Sampson et al. (2013) found that neighborhood context (i.e., an index of concentrated disadvantage, residential stability, and the percentage of the neighborhood population holding professional or managerial jobs) was related to violence perpetration and accounted for some of the disparity in violence perpetration between Black and White adolescents. Lastly, poverty is associated with higher levels of community violence exposure (Chen, Voisin, & Jacobson, 2016).

Correlates of Community Violence Exposure

Community violence exposure may correlate with several important aspects of an adolescent's life. Exposure to community violence negatively influences mental health and increases the likelihood of engaging in risky behaviors for adolescents (Fowler, Tompsett, Braciszewski, Jacques-Tiura, &

Baltes, 2009), especially among low-resourced, urban African American adolescents (Cooley-Quille et al., 2001). Low-resourced, urban African American adolescents exposed to high levels of community violence are at higher risk for emotional and behavioral difficulties such as anxiety, depression, suicidality, aggression, interpersonal violence, and risk behaviors such as substance use and risky sexual behavior.

Anxiety symptoms. Exposure to community violence can increase anxiety or anxiety symptoms in low-resourced, urban African American adolescents. Community violence exposure and anxiety are positively associated (Mohammad, Shapiro, Wainwright, & Carter, 2015) and the association is linear, rather than curvilinear (Gaylord-Harden, Cunningham, & Zelencik, 2011). This linear association suggests that youth experience heightened anxiety symptoms, like hypervigilance or physiological hyperarousal, as community violence exposure increases (Gaylord-Harden et al., 2011). Kennedy, Bybee, Sullivan, & Greeson (2009) studied the association between exposure to community and school violence and anxiety. They reported that increases in community and school violence exposure were associated with 4-point increases in anxiety.

The increases in anxiety associated with community violence exposure are particularly salient for urban youth. Urban African American adolescents exposed to high levels of community violence report more anxiety symptoms than low exposure (Cooley-Quille, Boyd, Frantz, & Walsh, 2001). However, not all studies show differences in anxiety levels associated with community violence exposure. Gaylord-Harden, Dickson, & Pierre (2015) used latent class analysis to

identify community violence exposure profiles in African American youth. They found three classes of violence exposure: low exposure, victimization, and high exposure. Anxiety levels did not differ between violence exposure groups. However, the similar levels of anxiety across groups may reflect errors in measuring anxiety rather than suggesting no influence of community violence exposure (Gaylord-Harden et al., 2015). Gaylord-Harden et al. (2015) used self-reports of anxiety. The use of physiological markers of stress reaction and anxiety, like heart rate or cortisol levels, in addition to self-reported anxiety symptoms may enhance the understanding of the relation between community violence exposure and anxiety, thus better accounting for seemingly disparate findings about the negative influence of community violence exposure on anxiety.

Depression symptoms. In addition to anxiety, exposure to community violence also is associated with increases in other internalizing problems, like depression (Schwab-Stone, Koposov, Vermeiren, & Ruchkin, 2013). Exposure to community violence is associated with increases in depression one year later (Gorman-Smith & Tolan, 1998). Kennedy, Bybee, Sullivan, and Greeson (2010) studied the effects of community violence and depression trajectories in a majority African American child sample. They found a positive relation between community violence exposure and depression, such that a unit increase in violence exposure was associated with 2.77 unit increase in depression. Contrary to the linear relation of anxiety and community violence exposure, some researchers have found curvilinear relations between community violence exposure and depression (Kennedy & Ceballo, 2016). Examining community

violence exposure and depression in African American adolescents, Gaylord-Harden, Cunningham, and Zelencik (2011) found a curvilinear association between community violence exposure and depressive symptoms, suggesting that African American youth become desensitized to community violence and manifest depression in non-traditional ways. Examining the desensitization model further, Gaylord-Harden et al. (2015) found that the group of African American adolescents who had the highest exposure and/or victimization to community violence had the lowest levels of depression, while the moderate exposure and/or victimization group had significantly higher levels of depression than the high exposure group.

Suicidality. The findings on the relation between community violence exposure and suicidality are mixed. While African American youth historically have had low rates of suicide, these rates have been increasing (Gibbs, 1997; Goldston et al., 2008). Indeed, race itself may be a salient factor in suicidality for African American youth; Robinson, Droege, Hipwell, Stepp, and Keenan (2016) found that African American girls were more likely to report thoughts of death or suicide than Caucasian girls. Some studies have demonstrated a direct effect of community violence exposure on suicide or suicidal behavior (Cohen, 2000). In a large national study of adolescents, several factors associated with community violence predicted increases in suicidal behavior, including getting in a fight and carrying a weapon in the community (Nickerson & Slater, 2009). Vermeiren, Ruchkin, Leckman, Deboutte, and Schwab-Stone (2002) found that, in urban European adolescents, violence exposure was associated with both suicidal

ideation and self-harm. However, studies focusing on minorities in the United States (U.S.), primarily African American adolescents, have been unable to find direct effects between community violence exposure and suicide. In a large sample of African American and Latino adolescents, Bennett and Joe (2015) did not find a direct association between exposure to community violence and suicidality, but did find an indirect association through depressive symptomology and substance abuse. Similarly, in a sample of predominantly urban African American adolescents, Lambert, Copeland-Linder, and Ialongo (2008) found indirect associations between community violence exposure and suicidal ideation through depressive symptoms for males and females, and through aggression for males. While it is clear that an association between community violence and suicidality, the findings regarding the nature of the association are mixed.

Aggression and interpersonal violence. African American youth exposed to community violence are at increased risk for aggression and interpersonal violence. Aggression, here, is defined as "any behavior directed toward another individual that is carried out with the proximate intent to cause harm. In addition, the perpetrator must believe that the behavior will harm the target, and that the target is motivated to avoid the behavior (Anderson & Bushman, 2002, p. 28). Community violence exposure is associated with higher levels of aggression (Bradshaw, Rodgers, Ghandour, & Garbarino, 2009; Calvete & Orue, 2011; McMahon, Felix, Halpert, & Petropoulos, 2009), and low-resourced, urban African American adolescents report higher levels of overt aggression than White or Latino adolescents (McLaughlin, Hilt, & Nolen-

Hoeksema, 2007). In a study of urban African American adolescents, Copeland-Linder, Lambert, Chen, and Ialongo (2011) found that contextual stress (e.g., community violence exposure, neighborhood disorder, racial discrimination) was positively associated with aggressive behavior over time; contextual stress in eighth grade was associated with more aggressive behavior two years later. Barroso and colleagues (2006), examining the association of exposure to community violence and aggression in urban youth, found that youth exposed to high levels of community violence were more likely to be involved in aggressive behavior; compared to urban youth exposed to low levels of community violence, the high exposure group were 7.7 times more likely to carry a handgun and 2.8 times more likely to be injured as a result of fighting.

Community violence exposure also is associated with increased violent behavior. Violence, while associated with aggression, tends to be defined as an extreme form of aggression with the goal of severe physical harm to another individual (Allen & Anderson, 2017). In one study of African American and Latino male adolescents, African American adolescents were 2.45 times more likely to perpetrate violence than Latino adolescents (Gorman-Smith, Henry, & Tolan, 2004). Disparate levels of community violence exposure may account for these high levels of violent behavior. Baskin and Sommers (2013) studied community violence exposure and violent crimes, over time, within a population of adolescents in the juvenile justice system. They found that high levels of community violence exposure were associated with high levels of violent offending over a five-year time period. Similarly, this association exists in

community samples of youth. Studying a community sample of African American and Latino male adolescents in urban environments, Gorman-Smith and colleagues (2004) found that higher levels of community violence exposure were associated with a greater likelihood of violent perpetration.

Substance use. In addition to adverse effects on emotional well-being, community violence exposure increases the risk of participating in risk behaviors, like substance use. While African American adolescents generally use drugs or alcohol less frequently than youth of other ethnicities (CDC, 2014c), African American adolescents exposed to community violence tend to report more alcohol and drug use than African American adolescents not exposed to violence (Hilarski, 2006). In a large study of adolescents in Chicago, Pinchevsky, Wright, and Fagan (2013) found indirect exposure to violence was associated with increases in binge drinking and marijuana use, while direct violent victimization predicted increases in binge drinking in females. Similarly, Wright, Fagan, and Pinchevsky (2013) found community violence exposure to be predictive of increased marijuana use three years later, although these results included adolescents of other ethnicities in addition to African American adolescents. Additionally, community violence exposure increases the likelihood of using specific substances. African American adolescents who were exposed to high levels of community violence were 2.2 times more likely to have used alcohol, 2.9 times more likely to have used cigarettes, 2.9 times more likely to have used marijuana, 4.6 times more likely to have used codeine, and 9.2 times more likely to have used ecstasy, than African American adolescents reporting low levels of

community violence exposure (Voisin, Patel, Hong, Takahashi, & Gaylord-Harden, 2016).

Risky sexual behavior. Exposure to community violence may lead to risky sexual behavior. This relation exists in both adult and adolescent samples. Senn, Walsh, and Carey (2016) found that adults who were exposed to higher levels of community violence were at higher risk for sexual risk behaviors, such as having more sexual partners and having more episodes of unprotected sex. This relation was mediated by substance use and mental health. In a sample of detained youth, Voisin, Tan, Tack, Wade, and DiClemente (2012) found a positive relation between exposure to community violence and risky sexual behavior, mediated by parental monitoring, behavior in detained youth. African American adolescents exposed to high rates of community violence are twice as likely to have had sex, twice as likely to have either gotten pregnant or impregnated someone else, 2.2 times more likely to have not used protection during last sexual encounter, and 6.5 times more likely to have used drugs during sex than youth exposed to low levels of community violence (Voisin et al., 2016).

Collective Efficacy

Over the past twenty years, neighborhood factors influencing community violence and violence exposure have seen increased prominence in research. Of these neighborhood factors, one of the most well-researched factors is a construct called collective efficacy. Collective efficacy, as defined by Sampson, Raudenbush, and Earls (1997), is the combination of a community's social cohesion and the community members' willingness to intervene to enact informal

social control. The construct of collective efficacy was originally proposed by Bandura (1982), as an extension of self-efficacy and as part of Social Cognitive Theory. Self-efficacy refers to judgments of one's confidence to execute courses of action to deal with situations (Bandura, 1982). These confidence judgments influence individual behavioral and environmental choices. As self-efficacy is generally focused on individual behavioral change, and as much of the work individuals do to solve problems involve collective work with others, Bandura (1982) proposed the construct of collective efficacy. Collective efficacy, similar to self-efficacy, was conceptualized as a group's confidence to solve collective problems and affect social change through concerted efforts (Bandura, 1982). As Bandura theorized, "perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when group efforts fail to produce results" (Bandura, 1982, p. 143). While Collective efficacy acts in similar ways to self-efficacy, collective efficacy is not simply the sum of neighborhood residents' self-efficacy; rather, "it is an emergent group-level property" (Bandura, 2000, p. 76).

Sampson et al. (1997) took the psychological construct of collective efficacy and applied it to neighborhood-level factors. Studying neighborhoods in Chicago, Sampson et al. (1997) proposed a link between collective efficacy and community violence. It is evident, in Chicago and other major cities, that neighborhoods experiencing higher levels of concentrated disadvantage (e.g., percentage of families in a neighborhood below the poverty line, percentage of families receiving public assistance, levels of unemployment, racial community

makeup, number of female-headed families with children) tend to experience more community violence (Morenoff, et al., 2001; Sampson, 2012). In an effort to explain the link between neighborhood structural characteristics and levels of community violence, Sampson et al. (1997) proposed collective efficacy, a social process, as a mediator. Collective efficacy, including socially cohesive neighborhoods and a willingness of community members to intervene on behalf of the common good, directly influenced levels of violence and mediated the relation between concentrated disadvantage and community violence (Sampson et al., 1997).

Collective Efficacy Theory

Collective Efficacy Theory (CET) was proposed by Sampson et al. (1997) to address conceptual issues with previous theories about crime and violence. Social Disorganization Theory (SDT), proposed by Shaw and McKay (1942), posited that disruptions to the social organization of communities led to crime and delinquency. Specifically, factors such as low economic status, ethnic heterogeneity, and residential mobility would disrupt social organization and lead to increased crime. According to SDT, higher community-level social disorganization, defined as the inability of a community to maintain common values and enforce informal social control (Kornhauser, 1978), leads to higher levels of crime and delinquency. Neighborhood factors, like poverty, ethnic heterogeneity, and population turnover, disrupt social organization by undermining the development of community social ties and involvement. The undermining of social ties then weakens the community's ability to enact informal

social control to prevent crime and delinquency (Sampson, 2012). While this theory has found support over the years (e.g., Sampson & Groves, 1989), it has not been without criticism. For example, Whyte (1943) questioned the claim that social disorganization was present in all high-crime areas, and argued that what appeared to be social disorganization may be a level of organization, as in illegal/black market networks or gangs.

Over time, SDT was modified to include social capital. Social capital refers to social networks and connections among individuals, including trustworthiness and reciprocity that develops between individuals (Putnam, 2000). Bursik (1999) suggested that lack of social capital leads to social disorganization. More specifically, when neighborhoods lack social capital, they are unable to realize common values and enforce informal social control to protect against crime in the community. In this conceptualization of neighborhood factors and crime, higher social capital would increase social organization, thus decreasing crime and delinquency. However, strong social networks may not always lead to informal social control (Wilson, 1996). According to Wilson (1998), some neighborhoods in Chicago have very high levels of social integration, but residents of these neighborhoods still report low levels of informal social control. In neighborhoods where joblessness is high, strong social networks may be detrimental, as social interactions among those with access to employment opportunities or skills are limited. Many of the residents in the high-joblessness neighborhoods, even though strong social networks existed, reported having little

informal social control because of the absence of foundational resources or institutions to assist in enacting such social control (Wilson, 1998).

The Broken Windows Theory also has influenced CET. Posited by Wilson and Kelling (1982), the Broken Windows theory hypothesizes that community disorganization and public incivilities lead to future crime. According to this theory, signs of disorder are evidence to potential offenders that residents are indifferent about their community (Sampson, 2012). Regardless of neighborhood composition, physical disorder, like a broken window, will lead to more physical disorder (Wilson & Kelling, 1982). Zimbardo (1969) tested the assertion that social disorder leads to crime by placing broken down cars in two neighborhoods. In one neighborhood with more physical disorder, the car was vandalized within minutes. In a neighborhood with less physical disorder, the car remained intact for more than a week, until Zimbardo smashed it with a sledgehammer. After this, the car was destroyed within hours. Social disorder also may lead to crime. Social disorder (e.g., drinking in the street, strangers in the neighborhood, loitering) may signal to potential offenders that community members are unwilling to intervene, confront strangers, or call the police (Skogan, 1990; Wilson & Kelling, 1982). These ideas highlight the main thesis of the Broken Windows Theory: cues of physical or social disorder highlight residents' perceived powerlessness and lead to future crime (Sampson, 2012).

The Broken Windows theory is not without criticism. Some researchers question whether cues of disorder cause crime, or whether cues of disorder are produced by other community-level processes (Sampson, 2012). Sampson and

Raudenbush (1999) posited that the theory itself is circular in its explanation; cues of disorder, like graffiti or public drinking, are crimes in and of themselves. If this is the case, the Broken Windows theory states that crime causes more crime, which cannot explain the presence of crime or disorder in the first place. Additionally, other factors may influence both crime and cues of disorder. These factors may include structural characteristics of the community, community composition, collective efficacy, or concentrated poverty (Sampson, 2012).

Sampson (2012) and others recognized limitations with these theories, particularly SDT. In many communities considered disorganized, there exist dense social networks, whether they are criminal organizations or other organizations. Reiss (1986) identified a seeming paradox in SDT, that many communities with high levels of crime can look both organized and disorganized at the same time. This paradox contradicts the tenets of SDT, that social disorganization leads to crime. In addition, Bursik (1988) identified a definitional issue for SDT. Disorganization was not clearly differentiated from crime itself. However, this poses a concern, as the theory does not provide individual explanatory mechanisms for crime, but rather equates crime with social disorganization (Sampson, 2012). This realization shifted the focus of SDT to the density of social networks as an independent explanatory mechanism. While the shift of SDT to social networks addressed the definition issue, there are several issues with the focus on density of social networks protecting against crime. First, dense social networks may not necessarily produce the informal social control necessary to deter crime. This may be especially true for marginalized or

poor neighborhoods, where dense social networks may be isolated from law enforcement institutions (Wilson, 1996). Second, dense social networks are used by both law-abiding citizens and criminal organizations. The incorporation of dense criminal networks in communities may thwart the ability to control neighborhood behavior (Patillo, 1998). Third, weak or moderate social ties have been associated with lower crime, compared to strong or dense social ties (Bellair, 1997).

To address these issues, Sampson et al. (1997) developed CET. CET incorporates positive, useful aspects of SDT, and deleted the aspects that haven't held up to scrutiny, specifically that strong social ties are required for enacting informal social control. Sampson et al (1997) proposed that social cohesion (i.e., the collective part of collective efficacy) and shared expectations for control (i.e., the efficacy part of collective efficacy, can account for disproportionate levels of crime and community violence in demographically-similar neighborhoods (Sampson, 2012). As Sampson (2008) suggested, "collective efficacy theory unites the constructs of mutual support which largely defines cohesion, with a collective-action orientation, in this case the activation or generation of community social order" (p. 152).

CET integrates expectations of social control and collective agency. Social control requires some level of interaction between neighborhood residents, and the expectation of future interactions (Sampson, 2008). While this idea has been central to SDT and the idea of social capital generally, CET departs from common expectations of social cohesion and crime prevention in that CET posits

that shared norms may be developed outside of strong ties. CET asserts that neighbors don't have to be friends to ensure social control; some ties are required, but these ties only need to be strong enough to ensure trust among community members (Sampson, 2008). In addition to expectations of social control, CET highlights agency. Collective efficacy refers to shared beliefs of a community's capability to prevent or stop crime in their community (Sampson, 2008). While social ties, even weak social ties, are necessary for social control to occur, it is not sufficient. According to Sampson (2008), in order for social networks to be efficacious in preventing crime and violence, such networks must be activated, or engaged and willing to act for the good of the neighborhood.

CET proposed a mediation model to explain the association between concentrated disadvantage/disorder and community violence (Sampson, 2012). Concentrated disadvantage and residential instability, and subsequent network ties and neighborhood organizations, influence levels of community violence. However, collective efficacy explains much of this association; concentrated disadvantage, residential instability, network ties, and neighborhood organizations influence a community's collective efficacy. Neighborhood disadvantage and residential instability are associated with decreased collective efficacy (Sampson, 2012). Collective efficacy, or social cohesion and informal social control, then influence violence and crime. As such, collective efficacy mediates the association between disorganization and violence. Additionally, Sampson (2012) posits a reciprocal association between collective efficacy and community violence, such that collective efficacy influences levels of community violence,

and community violence then influences levels of collective efficacy. CET also assumes the influence of individual-level and structural characteristics on the mediation relation.

The Influence of Collective Efficacy on Community Violence

Since the conceptualization of CET, many studies have found associations between collective efficacy and violence or violent crime. Sampson et al. (1997) proposed CET, and tested the hypothesis that community collective efficacy was associated with reduced neighborhood violence. This hypothesis was tested using data from the Project on Human Development in Chicago Neighborhoods (PHDCN). The PHDCN was a large-scale longitudinal study of individuals in Chicago. About 8,000 people, across the various neighborhoods of Chicago, were interviewed about a myriad of constructs, including collective efficacy and community violence. Sampson et al. (1997) reported a negative association between collective efficacy and different types of violence exposure and victimization. They found that higher collective efficacy was associated with lower perceived community violence, while a 2-standard deviation increase in collective efficacy was associated with a 30% decrease in the odds of violent victimization, and a 40% decrease in expected homicide rates.

This association has been replicated in other studies. Sampson, Raudenbush, and Earls (1998) compared high- and low-collective efficacy neighborhoods on violent crime. They reported that neighborhoods with higher collective efficacy had crime rates that were 40% lower than those with lower collective efficacy. Also, they found that collective efficacy was a better

predictor of violent crime rates than race or poverty. Morenoff, Sampson, and Raudenbush (2001) tested the association between concentrated disadvantage, collective efficacy, and homicide. They found that both concentrated disadvantage and low collective efficacy predicted higher levels of homicide. Collective efficacy is even associated with lower rates of violent crime after controlling for perceived social/physical disorder and the reciprocal effects of community violence and collective efficacy (Sampson & Raudenbush, 1999).

In addition to the influence of collective efficacy on community violence exposure and violence, collective efficacy influences other factors associated with violence, such as perceptions of safety and violent attitudes. Thomas, Caldwell, Jagers, and Flay (2015) studied the association between collective efficacy and perceptions of safety, and the moderating effects of collective efficacy on the relation between violent experiences and perceptions of neighborhood safety, in a sample of African American adolescent boys. They found a significant direct effect of collective efficacy on perceptions of safety, such that higher collective efficacy was associated with better perceptions of neighborhood safety. Additionally, they found an interaction between collective efficacy and violent experiences on perceptions of safety, such that higher collective efficacy predicted better perception of neighborhood safety in low violent experiences and high violent experiences groups. Johnson, Finigan, Bradshaw, Haynie, and Cheng (2011) studied African American caregivers and their adolescent children living in high-poverty neighborhoods. For adolescents, collective efficacy was associated with attitudes towards violence, with higher collective efficacy

predicting less violent attitudes. For parents, collective efficacy predicted the messages they shared with their children about violence. When collective efficacy was higher, parents shared messages that were less supportive of violence than when collective efficacy was lower.

The association between collective efficacy and community violence has been replicated in other major cities in the U.S. and internationally. In New York City, Ahern and colleagues (2013) found that collective efficacy was associated with prevalence of violent victimization. For those living in neighborhoods with high collective efficacy, the prevalence of violent victimization was 3.5 incidents per 100 persons, while the prevalence of violent victimization for those living in low collective efficacy neighborhoods is 7.5 incidents per 100 individuals. Sutherland, Brunton-Smith, and Jackson (2013) tested collective efficacy and violence in London. In a large sample of London residents, they found a negative association between collective efficacy and police-recorded violence. The findings in Australia were similar. Higher collective efficacy was associated with lower levels of violent victimization (Mazerolle, Wickes, & McBroom, 2010). This relation persists even in Sweden, where the population is much more ethnically and economically homogenous than that of the U.S. (Sampson, 2012). To test the influence of collective efficacy on neighborhood violence, Sampson and Wikström (2008) surveyed nearly 4,000 individuals across 200 different neighborhood clusters in Stockholm, Sweden. Using similar methodology and measures to the PHDCN study, they found a nearly identical association between collective efficacy and violence; that is, collective efficacy was directly linked to

community violence, and higher levels of collective efficacy were associated with less community violence. The only real difference between findings in Chicago and Stockholm was that rates of violence were higher in Chicago.

Alternative Findings on Collective Efficacy and Exposure to Community Violence

While many studies have supported the assertions of CET, especially that of a direct, negative link between collective efficacy and violence, other studies have found different results. Hipp and Wickes (2016), studying neighborhoods in Brisbane, Australia, were unable to find evidence for a direct association between collective efficacy and community violence; rather, they found an indirect association between collective efficacy and community violence through concentrated disadvantage. Testing the association between collective efficacy and violent crime in a 2-wave cross-lagged panel model analysis, collective efficacy and violent crime were not significantly associated; in fact, the coefficient between the two constructs was positive (Hipp & Wickes, 2016). There were reciprocal associations between collective efficacy and concentrated disadvantage, and concentrated disadvantage and violent crime, in the expected directions. Low collective efficacy increased concentrated disadvantage, and higher concentrated disadvantage increased violent crime rates, suggesting an indirect relation, rather than a direct relation, between collective efficacy and violence. This differs from the model posited by CET, which suggests an indirect relation between concentrated disadvantage and violent crime, through collective efficacy.

While these results provide mixed results about the influence of collective efficacy on community violence, other results using longitudinal designs support CET's assertion that collective efficacy is directly associated with community violence. For example, Sampson (2012) examined collective efficacy and homicide rates over a 10-year period. Collective efficacy at the beginning of the 10-year period predicted lower levels of homicide ten years later. Additionally, rates of decreases in homicide were greatest for those neighborhoods that experienced increases in collective efficacy over time (Sampson, 2012).

Other findings suggest different relations between collective efficacy and violent crime based on the collective efficacy subscales of social cohesion and willingness to intervene. Using a survey of 800 participants in Arizona, Armstrong, Katz, and Schnebly (2015) tested the association between collective efficacy, including social cohesion and willingness to intervene, and neighborhood violence. When collective efficacy and its subscales were entered into a regression equation individually, with violent crime as the dependent variable, each variable significantly predicted violent crime in the expected direction. However, when the subscales of collective efficacy were included in a regression equation together, only social cohesion predicted neighborhood violence. Social cohesion and neighborhood violence were negatively associated. The influence of social cohesion on crime and violence is consistent with the concept of social capital; however, CET posits that both social cohesion and willingness to intervene are required for effective crime prevention.

In addition to differing findings on the direct association of collective efficacy and violence, and the performance of collective efficacy subscales, some evidence suggests that collective efficacy may not directly influence violence perpetration in adolescents. Sampson (2012) reported that collective efficacy did not predict adolescents' violent offending. Adolescent violent offending may occur both in the neighborhood and outside of the neighborhood. Sampson (2012) described collective efficacy as being a trait of the neighborhood itself, and the influence of the neighborhood-level collective efficacy may only have efficacy on individuals within its borders. Hence, as long as adolescents are within the borders of the neighborhood, they will be influenced by the social cohesion and informal social control enacted by neighborhood residents. However, once outside of the neighborhood, those effects may no longer influence the individual's behavior. Of course, as adolescents leave their own neighborhoods and enter other neighborhoods, they would be influenced by the collective efficacy of the new neighborhood; however, according to CET, the new neighborhood would need to have high collective efficacy to continue to protect against violent behavior.

The Influence of Community Violence Exposure on Collective Efficacy

In addition to the direct influence of collective efficacy on community violence, CET posits a reciprocal influence of community violence on collective efficacy. Although hypothesized in CET, the influence of violence or violent crime on collective efficacy is relatively understudied (Hipp & Wo, 2015). Many longitudinal studies account for the influence of violent crime on collective

efficacy when explaining the influence of collective efficacy on violent crime (Sampson, 2012); however, few studies directly test these effects. Those that do tend to find that violent crime has a negative influence on collective efficacy or its sub-constructs. Armstrong and colleagues (2015) reported a reciprocal relation between neighborhood violent crime and social cohesion. Violence and social cohesion were negatively associated, such that increases in violent crime predicted decreases in neighborhood collective efficacy. Duncan, Duncan, Okut, Stryker, and Hix-Small (2003) examined the influence of neighborhood violent crime on collective efficacy. Greater perceptions of neighborhood violent crime and greater number of violent crime arrests were associated with less collective efficacy.

Sampson and Raudenbush (1999) tested these reciprocal associations between collective efficacy and violent crime. After controlling for simultaneous feedback loops between collective efficacy and violent crime, the influence of collective efficacy on violent crime was still significant. To test the theorized reciprocal feedback of violent crime on collective efficacy, they also tested the direct influence of robbery, a type of violent crime, on collective efficacy. They found a negative relation between robbery and collective efficacy, such that higher rates of robbery predicted decreased neighborhood collective efficacy. They suggested that the presence of violent crime, particularly violent crime by strangers perpetrated in public, undermined residents' sense of control over neighborhood activities and social cohesion. Violent crimes like robbery may inhibit social interactions between residents by increasing fear of crime. While

low levels of collective efficacy may lead to increased violence and violent crime, this violence may in turn decrease subsequent levels of collective efficacy; thus, neighborhoods with low collective efficacy may have additional barriers to increasing their collective efficacy and reducing violent crime.

Rationale

Community violence exposure influences a host of negative emotional and behavioral outcomes, including anxiety, depression, suicide, aggression, interpersonal violence, substance use, and risky sexual behavior (Bradshaw et al., 2009; Gaylord-Harden et al., 2011; Kennedy et al., 2010; Vermeiren et al., 2002; Voisin et al., 2016). These effects may be particularly strong for low-resourced, urban African American adolescents, who are exposed to more community violence and risk factors for community violence than their resourced counterparts of other ethnicities (Aisenberg & Herrenkohl, 2008; Zimmerman & Messner, 2013). Additionally, the risk factors associated with higher community violence exposure (e.g., adolescence, living in an urban environment, ethnicity, and other social and neighborhood factors) may be disproportionately experienced by low-resourced, urban African American adolescents.

Despite the complex nature of community violence and the myriad factors influencing it, neighborhood collective efficacy has been established as a strong neighborhood-level factor predicting community violence (Sampson, 2012). While higher levels of collective efficacy may predict decreases in community violence and community violence exposure, low levels of collective efficacy may increase violence exposure and victimization. CET posits that collective efficacy,

consisting of both social cohesion and informal social control, influences community violence. While research generally supports the aforementioned assertion, varied findings exist regarding the relation between the components of collective efficacy and community violence. Some research suggests that the individual factors are negatively associated with community violence; however, when considered together, informal social control no longer significantly influenced community violence (Armstrong et al., 2015). More research is needed to understand how the individual factors contributing to collective efficacy influence community violence.

While much research exists on the directional influence of collective efficacy on community violence, there is a dearth of literature examining the influence of community violence on collective efficacy. Much of the work examining the posited association between collective efficacy and community violence controls for prior community violence, but does not directly examine the influence of community violence on collective efficacy (Sampson, 2012). Those few studies that have directly considered this influence report that community violence thwarts collective efficacy. Sampson (2012) considered the dearth of evidence on the influence of community violence on collective efficacy and suggested that future studies examine the reciprocal association longitudinally, using cross-lagged panel analysis. This type of analysis would test the reciprocal association of collective efficacy and community violence over time, and test CET's assumption that the association between these variables is bidirectional.

The current study examined the relation between collective efficacy and community violence exposure within a sample of low-resourced, urban African American adolescents. Specifically, the temporal relation between collective efficacy and community violence exposure and the strength of these relations, was explored. Additionally, the relation between the factors of collective efficacy and community violence was examined. A cross-lagged panel model, using data from a 2-year longitudinal study of the efficacy of a coping with stress course for low-resourced, urban African American adolescents, was examined. Four data points were included to test the assumptions of CET, namely, that collective efficacy influences community violence exposure, and that community violence exposure influences collective efficacy. This study attempted to respond to Sampson's (2012) call to examine reciprocal influences of collective efficacy and community violence. Several research questions guided the analysis of these data: (1) Does collective efficacy influence community violence exposure? (2) Does community violence exposure influence collective efficacy? (3) Do social cohesion and informal social control influence community violence exposure? (4) Does community violence exposure influence social cohesion and informal social control?

Statement of Hypotheses

Hypothesis I: Collective efficacy and community violence would be inversely related.

Hypothesis Ia: Collective efficacy would negatively predict community violence exposure over time, such that higher levels of

collective efficacy would be associated with lower levels of community violence exposure at subsequent waves.

Hypothesis Ib: Community violence exposure would negatively predict collective efficacy over time, such that higher levels of community violence exposure would be associated with lower levels of collective efficacy at subsequent waves.

Hypothesis II: Social cohesion and community violence exposure would be inversely related.

Hypothesis IIa: Social cohesion would negatively predict community violence exposure over time, such that higher levels of social cohesion would be associated with lower levels of community violence exposure at subsequent waves.

Hypothesis IIb: Community violence exposure would negatively predict social cohesion over time, such that higher levels of community violence exposure would be associated with lower levels of social cohesion at subsequent waves.

Hypothesis III: Informal social control and community violence exposure would be inversely related.

Hypothesis IIIa: Informal social control would negatively predict community violence exposure over time, such that higher levels of informal social control would be associated with lower levels of community violence exposure at subsequent waves.

Hypothesis IIIb: Community violence exposure would negatively predict informal social control over time, such that higher levels of community violence exposure would be associated with lower levels of informal social control at subsequent waves.

Method

Overview

This project utilized previously collected data from an efficacy trial of a prevention intervention program designed to prevent interpersonal aggression and suicidality. The efficacy trial involved 766 male and female adolescents from four public high schools in Chicago with predominantly African American student enrollment. Two cohorts of participants were recruited from ninth grade classes at each participating school between 2014 (i.e., Cohort 1) and 2015 (i.e., Cohort 2). Recruiters spoke to students and parents at registration events held at the participating schools, and to students during homeroom periods and lunch. Students were eligible to participate in the study if they were current ninth grade students and were not in immediate need of clinical intervention for suicide risk. The study was approved by DePaul University's Institutional Review Board and Chicago Public School's Research Review Board, and all participants were enrolled using IRB-approved informed assent and permission procedures. Participants were enrolled and tracked over 2 years.

Participants

For this study, only African American participant data were used. A total of 604 African American students were enrolled in the efficacy trial. All participants were ninth grade students enrolled at one of four predominantly African American public high schools in Chicago. Slightly more than half of the participants were female (54.6%). The average age of participants was 14.5 years (*SD* = .58). Of all participants, 77.5% received food stamps.

Procedure

Students who returned both assent and parental permission forms completed a screening assessment. At time of screening, demographic information was collected (e.g., age, race, gender). The screening assessment measured healthy eating and exercise behaviors, suicidal ideation, exposure to community violence, neighborhood environment, and collective efficacy. After completing the screening assessment, participants deemed at imminent risk for suicide were referred to the school-based health center (SBHC) for suicide risk assessment. Participants not at imminent risk completed a baseline assessment and were randomized into either the intervention condition or control condition. The intervention condition consisted of the Adolescent – Coping with Stress course (*A-CWS*). The *A-CWS* is a 15-session, culturally- and contextually-grounded, cognitive-behavioral, school-based stress reduction program (for more information on the *A-CWS*, its cultural adaptation, or preliminary efficacy results, see Robinson et al., 2016 and Robinson, Droege, Case, & Jason, 2015). Intervention sessions were group-based, consisting of eight to ten adolescents. Each group met weekly for 45 minutes during a non-instructional period at school. The control condition consisted of standard care, as provided by the SBHC.

After randomization and intervention implementation, all randomized participants in both experimental conditions, were assessed. Student participants were then assessed two additional times, 6 months after the intervention, and 12 months after the intervention. In brief, both Cohorts of student participants were

assessed at four waves. Students were compensated for completing assessments, receiving $7 for completing the screening assessment, and $15 for completing each of the baseline, post-intervention, 6-month follow-up, and 12-month follow-up assessments.

Materials

Demographic and background characteristics. Demographic information and background characteristics were collected using a 17-item measure. Information assessed included age, sex, ethnicity, religious involvement, family size and constellation, highest level of parental education, parent employment status, and household income sources.

American Community Survey. The 2012-2016 American Community Survey (ACS) 5-year estimates was used to collect neighborhood-level covariates, including education and population density (U.S. Census Bureau, 2017a; U.S. Census Bureau, 2017b). The ACS is a yearly nationwide survey that samples roughly three million people from the United States of America. Information such as age, race, income, home value, veteran status, education level, and housing occupation is collected. Using a representative sample, estimates of tract, city, county, state, or country variables are created. For this study, neighborhood education level and population density were used. Education was operationally defined as the percentage of residents in a census tract with at least a Bachelor's degree. Population density was operationally defined as the number of occupied housing units in a census tract per 1,000 people. Participant addresses were

geocoded to determine which census tract they lived in, and neighborhood-level education and population density for the census tracts were used.

Community violence exposure. The Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995) was used to assess students' community violence exposure during the past year. The CREV is a 29-item 5-point scale (1 = no, never to 5 = every day). The full measure assesses four factors of violence exposure: (a) media, (b) reports by other people, (c) direct witnessing of violence, and (d) direct experience of violence. Participants respond to each type of violence by responding how often they have been exposed to it. For this study, only the reports by other people, direct witnessing of violence, and direct experience of violence factors were assessed. Example questions include, "How many times have you been told a stranger was beaten?" "How many times have you seen someone you know being robbed or mugged?" and "How many times have you been shot or stabbed?" Total scores for these items range from 25-125, with higher scores indicating more exposure to violence. The CREV has demonstrated good construct validity, test-retest reliability (r = .75) and internal consistency (α = .78; Cooley et al., 1995). The full measure used in this study may be found in Appendix A.

Collective efficacy. Two 5-item scales, created by Sampson and colleagues (1997), were used to measure collective efficacy. Informal social control was measured using five items, rated on a 4-point scale (4 = very likely, 1 = very unlikely). Example questions include "If someone were spray-painting graffiti on a local building, how likely is it that your neighbors would do

something about it?" and "If a child was showing disrespect to an adult, how likely is it that your neighborhood would scold that child?" Respondents were asked how likely it was that members of their community would intervene in each of the situations. Social cohesion was measured using five items, rated on a 4-point scale (4 = strongly agree, 1 = strongly disagree). Example questions include "this is a close-knit neighborhood," and "people in this neighborhood do not share the same values." Respondents were asked to answer how much they agreed with each statements' description of neighborhoods or neighborhood relationships. Sampson et al. (1997) found that these constructs were highly correlated (r = .80), so the item scores were averaged to create a collective efficacy score. Higher scores indicate higher levels collective efficacy. The aggregate-level reliability of this measure was high (α = .88). Levels of internal consistency for this measure were acceptable (α=.79). Additionally, Sampson (1997) found evidence of construct validity for this measure. For this study, mean scores for the full scale and mean subscale scores was calculated. The full measure used in this study may be found in Appendix A.

Analytic Strategy

Cross-Lagged Panel Model. This study used a cross-lagged panel analysis to examine the association between collective efficacy and community violence exposure over time. The cross-lagged panel model (CLPM) is a type of structural equation modeling (SEM; Selig & Little, 2012). CLPM is used to examine the influence of two or more variables on each other over time (Hamaker, Kuiper, & Grasman, 2015). The longitudinal and cross-lagged design

of CLPM allows for the testing of reciprocal effects between variables, the determination of causally dominant variables, and the examination of construct stability over time (Hamaker et al., 2015; Kearney, 2017). CLPM has three major objectives: (1) to determine whether two or more variables have a significant effect on one another, (2) to determine whether one variable is causally dominant, and (3) to determine whether one variable has a positive or negative effect on the other variable(s) (Hamaker et al., 2015). All six hypotheses were tested using CLPM, using all four waves. Data was analyzed using Mplus version 8 (Muthen & Muthen, 1998-2017). Model fit was assessed using multiple fit indices (e.g., chi-square, root mean square error of approximation [RMSEA], comparative fit index [CFI], standardized root mean square residual [SRMR]). Unstandardized regression coefficients, standardized regression coefficients, and 95% confidence intervals were reported.

Multiple models were estimated, using total collective efficacy, or one of the collective efficacy subscales, and community violence exposure. Reduced models, consisting of two waves of data, were estimated to determine model fit and existence of significant pathways. Demographic covariates were included in the reduced models. Models controlled for demographic variables (e.g., gender, age) and participation in the intervention. After estimating reduced models, covariates that significantly predicted Time 1 collective efficacy (or one of its subscales) or community violence exposure were used in the full model. Full models, utilizing four waves of data, were estimated (see Figure 1). For each collective efficacy variable, total or subscale, full models were estimated, starting

with a model with all free parameters, and parameters were fixed in successive models until a model was estimated with all fixed parameters. Full models were compared on Akaike Information Criterion (AIC) scores to determine the best model. The model with the lowest AIC was interpreted.

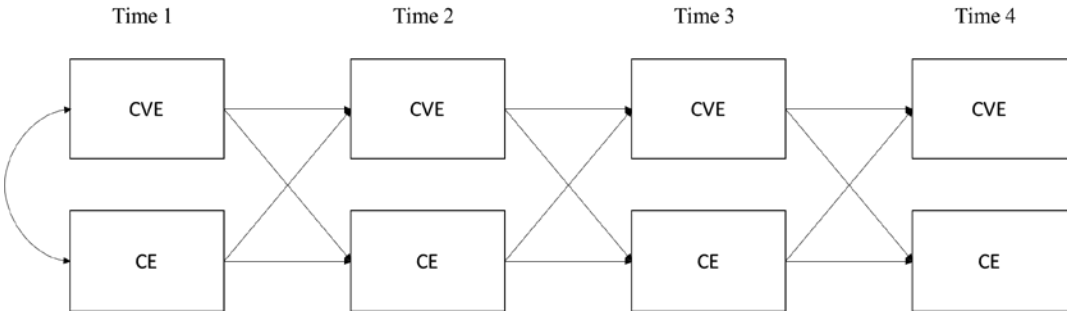

Figure 1. Full cross-lagged model. CVE = community violence exposure; CE = collective efficacy

Missing Data. To account for missing data across waves, models were estimated using Full Information Maximum Likelihood (FIML) estimation. FIML estimation methods account for missing data and missing data patterns by utilizing all available data. Maximum likelihood estimates were produced using available data from all cases. Using FIML to account for missing data has been examined compared to other missing data techniques, like listwise deletion, pairwise deletion, and multiple imputation methods. Compared to listwise deletion, pairwise deletion, and pattern imputation methods, FIML was superior, providing unbiased estimates in a more efficient manner (Enders & Bandalos, 2001). Additionally, FIML was found superior to multiple imputation, as it correctly estimated standard errors (Larsen, 2011).

Bootstrapping. Bootstrapping methods were used to account for non-normal distributions. Bootstrapping methods, similar to non-parametric statistical methods, do not make assumptions about the distribution of variables (Ong, 2014). Bootstrapping is a resampling with replacement method that assumes that the sample is representative of the population. These methods approximate a sample distribution by resampling from the sample distribution many times (Ong, 2014; Singh & Xie, n.d.). For these analyses, 5000 samples were used (Ong, 2014).

Results

Data consisted of four waves of collective efficacy and community violence exposure, collected at 6-month intervals: baseline or pre-intervention, post-intervention, 6 months post-intervention, and 12 months post-intervention. Basic descriptive statistics for individual covariates and outcomes of interest are detailed in Tables 1 and 2. Full correlation tables for collective efficacy, social cohesion, and informal social control models may be found in Appendix B.

Table 1

Basic Categorical Individual Difference Characteristics

Characteristic	*n*	%
Gender		
Male	272	45.1
Female	331	54.9
Condition		
A-CWS	267	44.3
Standard Care	275	45.6
Not randomly assigned	61	10.1

Table 2

Descriptive Statistics of Continuous Variables

Variable	*n*	*Mean*	*SD*
Age	603	14.51	.58
Education (% of residents in census tract with at least Bachelor's degree)	574	6.32	1.63
Population Density (per 1,000)	574	370.85	69.92

Collective Efficacy W1	602	2.49	.51
Collective Efficacy W2	473	2.36	.51
Collective Efficacy W3	402	2.31	.47
Collective Efficacy W4	356	2.36	.50
Social Cohesion W1	602	2.48	.50
Social Cohesion W2	472	2.43	.44
Social Cohesion W3	402	2.43	.41
Social Cohesion W4	356	2.45	.42
Informal Social Control W1	601	2.49	.71
Informal Social Control W2	473	2.30	.75
Informal Social Control W3	402	2.20	.68
Informal Social Control W4	356	2.27	.76
Community Violence Exposure W1	603	26.56	16.56
Community Violence Exposure W2	473	22.90	18.97
Community Violence Exposure W3	402	21.28	18.71
Community Violence Exposure W4	356	20.66	18.25

The sample was comprised entirely of African American adolescents between the ages of 13 and 16 years old (M = 14.51; SD = .58). Slightly more than half of the sample was female (54.9%). Comparing Wave 1 and Wave 4 collective efficacy and community violence exposure scores, collective efficacy scores were relatively consistent across time, with a slight decrease in collective efficacy over time (5.2%). Community violence exposure showed a slightly

larger decrease over time (22.2%). Social cohesion evidenced a slight decrease over time (1.2%), as did informal social control (8.8%).

Data Assumptions

Data were examined to determine whether they were normally distributed. Items were examined using a plotted histogram, a Q-Q plot depicting the observed values against the expected values, and the skewness and kurtosis of each variable. Continuous covariates (i.e., age, population density, and education) generally were normally distributed. Both age and education had skewness and kurtosis values between +.6 and -.6. Population density evidenced a kurtosis value of 1.47. For the community violence exposure variables (Waves 1-4), examination of histograms and Q-Q plots revealed that data generally were normally distributed, also. Histograms indicated that the community violence exposure variables evidenced a slight positive skew, but skewness values for all community violence exposure variables were below .80. Kurtosis values all fell between -.20 and .07. Examination of the collective efficacy variables, including the social cohesion and informal social control variables, revealed that they generally were normally distributed, as well. Histograms and Q-Q plots suggested a normal distribution, and collective efficacy variables had skewness and kurtosis values between +.4 and -.4. Skewness and kurtosis values for informal social control variables fell between +.7 and -.7. For the social cohesion variables, skewness values were all between +.2 and -.2, but kurtosis values were higher, with the highest kurtosis value being 1.75. While most of the variables were normally distributed and had skewness and kurtosis values that fell between

+1 and -1, to account for the variables which had values outside of the accepted range, and to protect against other potential violations of assumptions, bootstrapping was employed to calculate standard errors and confidence intervals.

Hypothesis I

Hypothesis I posited a reciprocal association between collective efficacy and community violence exposure, in which collective efficacy influenced community violence exposure, and community violence exposure influenced collective efficacy. Hypothesis I stated that collective efficacy would influence community violence exposure at later waves, and that community violence exposure would influence collective efficacy at later waves. Both of these relations were hypothesized to be negative, in that higher collective efficacy would be associated with lower community violence exposure, and higher community violence exposure would be associated with lower collective efficacy. A reduced cross-lagged panel model (two waves of data) was used to determine covariate relations with collective efficacy and community violence exposure. Then, full models (four waves of data) were estimated, using significant covariates, to test Hypothesis I.

Reduced model. To determine which covariates to include in the full, 4-wave models including collective efficacy and community violence exposure, a reduced, 2-wave model was tested with covariates. Waves 1 and 2 were used to test for these covariate relations. Given the number of known values in this model (covariances) was 10, and the number of parameters to be estimated was 10, the reduced, 2-wave model was just-identified. The just-identified model was

unable to calculate fit statistics, as an over-identified model is needed. Model fit statistics were provided in the full models. Three covariates significantly predicted collective efficacy or community violence exposure (see Table 3, Figures 2 and 3). Age significantly predicted community violence exposure at Wave 1 (b = 4.69, SE = 1.24, $p < .001$; β = .17, SE = .05, $p < .001$), and intervention condition significantly predicted community violence exposure at Wave 2 (b = 3.44, SE = 1.60, p = .032; β = .18, SE = .09, p = .034). Census tract-level education significantly predicted collective efficacy at Wave 1 (b = -.04, SE = .02. p = .01; β = -.13, SE = .05, p = .008). These three covariates were included in the full models.

Table 3

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Covariates in Reduced Collective Efficacy Model

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.173	.045	3.836	0.000	[.083, .262]
Gender	.078	.087	.893	.372	[-.094, .244]
Population Density	-.008	.044	-.188	.851	[-.094, .080]
Education	.066	.046	1.435	.151	[-.024, .155]
CE1 ON:					
Age	-.009	.043	-.211	.833	[-.093, .076]
Gender	.144	.089	1.623	.105	[-.029, .314]
Population Density	-.060	.041	-1.447	.148	[-.141, .022]

Education	-.128	.048	-2.670	.008	[-.222, -.034]
CV2 ON:					
Condition	.180	.085	2.125	.034	[.013, .346]
CE2 ON:					
Condition	.102	.087	1.177	.239	[-.067, .274]

Note. CV = community violence exposure; CE = collective efficacy

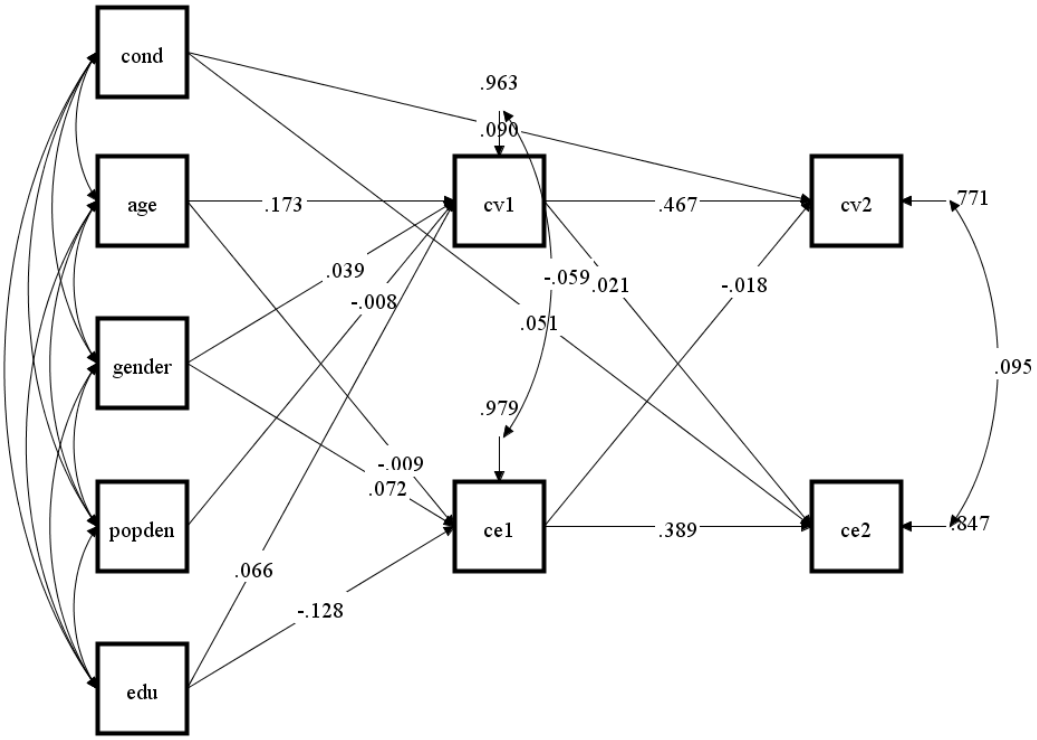

Figure 2. Reduced model testing covariates with standardized coefficients; cv = community violence exposure; ce = collective efficacy; cond = condition; popden = population density; edu = education

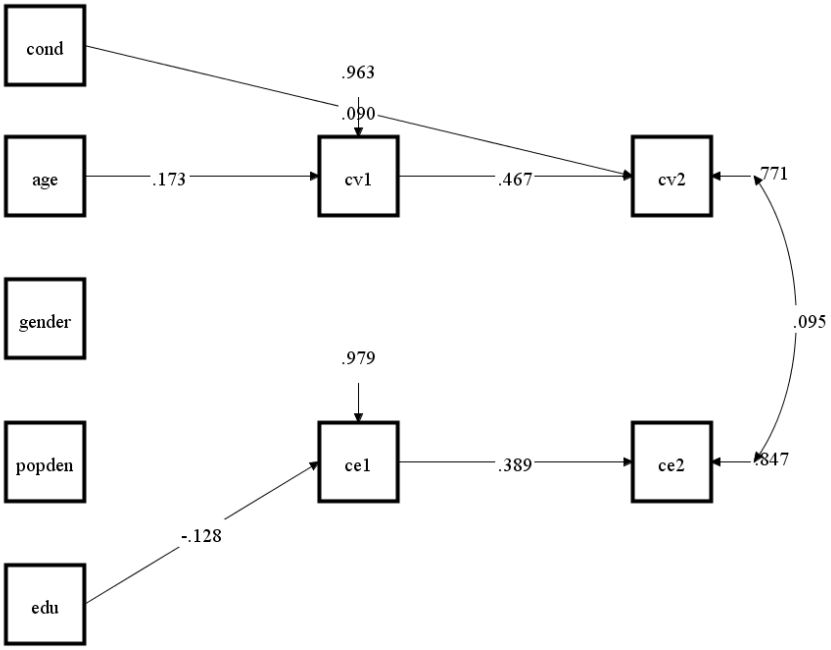

Figure 3. Reduced model testing covariates with standardized coefficients for significant parameters; cv = community violence exposure; ce = collective efficacy; cond = condition; popden = population density; edu = education

Full Models. Six full models were estimated, using community violence exposure and collective efficacy at Waves 1-4. All models were estimated using FIML and bootstrapping (5000 draws). Different models were estimated to determine which model had the best fit to the data, based on AIC values. The models were estimated, starting with a model of free parameters, and fixing parameters to equality across time in successive models, until a model with all fixed parameters were estimated. The model with the lowest AIC was interpreted (see Table 4). The six models estimated were:

- Model 1 – all free parameters
- Model 2 – autoregressive community violence paths fixed
- Model 3 – all autoregressive paths fixed as equal over time

- Model 4 – all autoregressive paths fixed as equal over time and cross-lagged community violence to collective efficacy paths fixed as equal over time
- Model 5 – all autoregressive and cross-lagged paths fixed as equal over time
- Model 6 – all autoregressive, cross-lagged, and correlation paths fixed as equal over time

Model 5, with all autoregressive and cross-lagged paths fixed as equal over time, had the lowest AIC, and was interpreted.

Table 4

Model Fit Statistics for Full Collective Efficacy Models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
AIC	16333.70	16331.51	16336.00	16332.136	16329.71	16331.44
χ^2	142.63	144.44	152.93	153.07	154.64	162.38
df	33	35	37	39	41	44
χ^2/df	4.32	4.13	4.13	3.92	3.77	3.69

Model 5, with all autoregressive and cross-lagged paths fixed to equality over time, was deemed to have the best fit of the six collective efficacy models. Four model fit statistics, based on recommendations by Kline (2016) were estimated, to determine whether the model was an adequate fit: chi-square test of model fit, Root Mean Square of Approximation (RMSEA), Comparative Fit Index

(CFI), and Standardized Root Mean Square Residual (SRMR). The model chi-square tests whether the data covariance matrix is equal to the model covariance matrix. Using the chi-square test of model fit, non-significant results suggest a good model fit. The RMSEA is a badness-of-fit indicator, where results closer to zero indicate a better fit (Kline, 2016). Generally speaking, RMSEA values less than or equal to .05 indicate good fit (Browne & Cudeck, 1993); however, little empirical support for this threshold has been shown (Chen, Curran, Bollen, & Paxton, 2008). Others have suggested values under .10 indicate adequate fit (MacCallum, Browne, & Sugawara, 1996), while others still have suggested an upper limit of .07 for adequate fit (Steiger, 2007). The CFI is an incremental fit index that compares the performance of the researcher's model to that of a null model (Kline, 2016). Values closer to 1.0 indicate better model fit. The SRMR is a badness-of-fit measure of the mean absolute correlation residual (Kline, 2016), with values closer to zero indicating better fit. Values greater than .10 indicate poor model fit (Kline, 2016). Model fit for the full collective efficacy model, with autoregressive and cross-lagged paths fixed to equality over time, were adequate. Model chi-square was significant ($\chi^2 = 154.64$, $df = 41$, $p < .001$) indicating poor model fit; however, this fit statistic is affected by sample size, and large samples often result in significant chi-square statistics (Bentler & Bonnet, 1980). Other values indicated an adequate fit, RMSEA = .073, 90% CI [.061, .086]; CFI = .841; SRMR = .078.

No significant cross-lagged associations existed between collective efficacy and community violence exposure (see Table 5, Figures 4 and 5).

Several significant associations existed between covariates and primary variables. Age significantly predicted community violence exposure at Wave 1 (b = 4.76, SE = 1.23, p < .001). Census tract-level education significantly predicted collective efficacy at Wave 1 (b = -.03, SE = .02, p = .021). Given that the best model fixed autoregressive and cross-lagged parameters, the association between community violence and itself over time was fixed to equality, and community violence exposure at a prior wave predicted community violence exposure at later waves (b = .51, SE = .03, p < .001). Collective efficacy also predicted itself over time (b = .46, SE = .03, p < .001). In addition to significant autoregressive paths, there were two significant associations between collective efficacy and community violence exposure at the same wave. There was a significant association between community violence exposure at Wave 2 and collective efficacy at Wave 2 (b = .75, SE = .36, p = .038), and a significant association between community violence exposure and collective efficacy at Wave 3 (b = .75, SE = .34, p = .030).

Table 5

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Full Collective Efficacy Model 5

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.18	.05	3.93	0.000	[.087, .263]
CE1 ON:					
Education	-.11	.05	-2.27	0.023	[-.198, -.015]
CV2 ON:					
Condition	.16	.09	1.90	0.057	[-.007, .330]

CV1	.43	.03	12.93	0.000	[.367, .497]
CE1	-.01	.03	-.26	0.792	[-.058, .044]
CE2 ON:					
CE1	.45	.03	13.86	0.000	[.382, .510]
CV1	-.03	.02	-1.25	0.212	[-.075, .017]
CV3 ON:					
CV2	.50	.03	14.81	0.000	[.436, .568]
CE2	-.01	.03	-.26	0.793	[-.059, .045]
CE3 ON:					
CE2	.51	.04	13.25	0.000	[.434, .577]
CV2	-.04	.03	-1.25	0.213	[-.096, .021]
CV4 ON:					
CV3	.51	.04	13.25	0.000	[.433, .584]
CE3	-.01	.03	-.26	0.793	[-.054, .042]
CE4 ON:					
CE3	.46	.04	11.36	0.000	[.380, .537]
CV3	-.04	.03	-1.24	0.215	[-.113, .021]
CV1 WITH:					
CE1	-.06	.05	-1.18	0.239	[-.146, .037]
CV2 WITH:					
CE2	.10	.05	2.08	0.038	[.004, .189]
CV3 WITH:					
CE3	.11	.05	2.15	0.032	[.010, .215]
CV4 WITH:					
CE4	.05	.06	.74	0.458	[-.077, .169]

Note. CV = community violence exposure; CE = collective efficacy

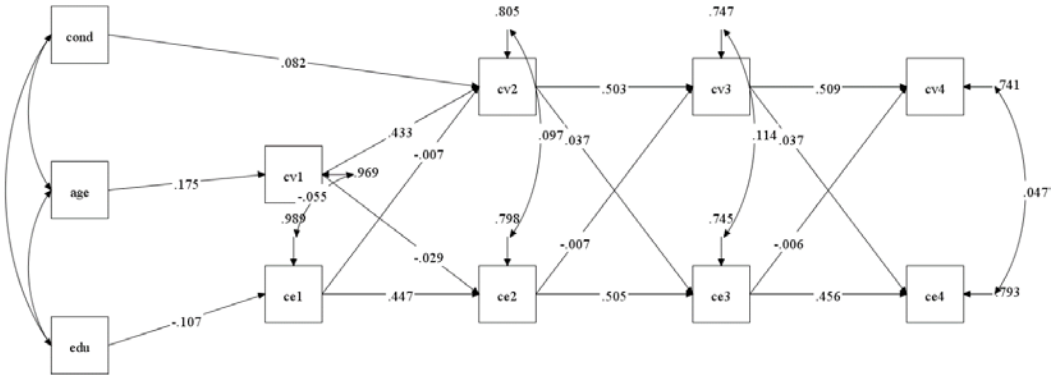

Figure 4. Full collective efficacy model, with all autoregressive and cross-lagged paths fixed as equal over time, with standardized coefficients. cv = community violence exposure; ce = collective efficacy

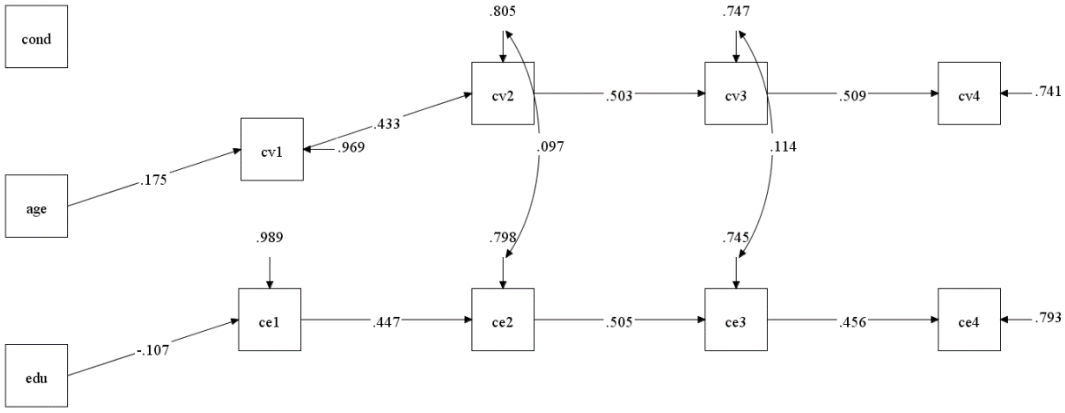

Figure 5. Full collective efficacy model, with all autoregressive and cross-lagged paths fixed as equal over time, with significant paths and standardized coefficients. cv = community violence exposure; ce = collective efficacy

Hypothesis II

Hypothesis II suggested a reciprocal relation between social cohesion (a subscale of collective efficacy) and community violence exposure, in which social cohesion influenced community violence exposure at a later wave, and community violence exposure influenced social cohesion at a later wave. As with collective efficacy, both of these relations were hypothesized to be negative, such

that higher social cohesion would be associated with lower community violence exposure, and higher community violence exposure would be associated with lower social cohesion. A reduced cross-lagged panel model (two waves of data) was used to determine covariate relations with social cohesion and community violence exposure. Then, full models (four waves of data) were estimated, using significant covariates, to test hypothesis II.

Reduced Model. To determine which covariates to include in the full models of social cohesion and community violence exposure, a reduced, 2-wave model was tested. Waves 1 and 2 were used to test for significant covariate relations. As in the collective efficacy reduced model, the social cohesion reduced model was just-identified, so model fit statistics weren't reported. Three covariates significantly predicted Wave 1 or Wave 2 social cohesion or community violence exposure (see Table 6, Figures 6 and 7). Age significantly predicted community violence exposure at Wave 1 (b = 4.69, SE = 1.22, p < .001; β = .17, SE = .04, p < .001), and intervention condition significantly predicted community violence exposure at Wave 2 (b = 3.53, SE = 1.60, p = .027; β = .19, SE = .09, p = .028). Education level significantly predicted social cohesion at Wave 1 (b = -.04, SE = .02, p = .015; β = -.12, SE = .05, p = .013). These three covariates were included in the full social cohesion and community violence exposure models.

Table 6

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Covariates in Reduced Social Cohesion Model

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.17	.04	3.91	0.000	[.089, .262]
Gender	.08	.09	.89	0.372	[-.094, .244]
Population Density	-.01	.04	-.19	0.850	[-.093, .080]
Education	.07	.05	1.44	0.151	[-.024, .155]
SC1 ON:					
Age	-.004	.04	-.09	0.931	[-.091, .082]
Gender	.02	.09	.26	0.793	[-.150, .194]
Population Density	-.04	.04	-.87	0.382	[-.121, .049]
Education	-.12	.05	-2.49	0.013	[-.215, - .025]
CV2 ON:					
Condition	.19	.09	2.20	0.028	[.019, .351]
SC2 ON:					
Condition	.07	.09	.78	0.434	[-.104, .250]

Note. CV = community violence exposure; SC = social cohesion

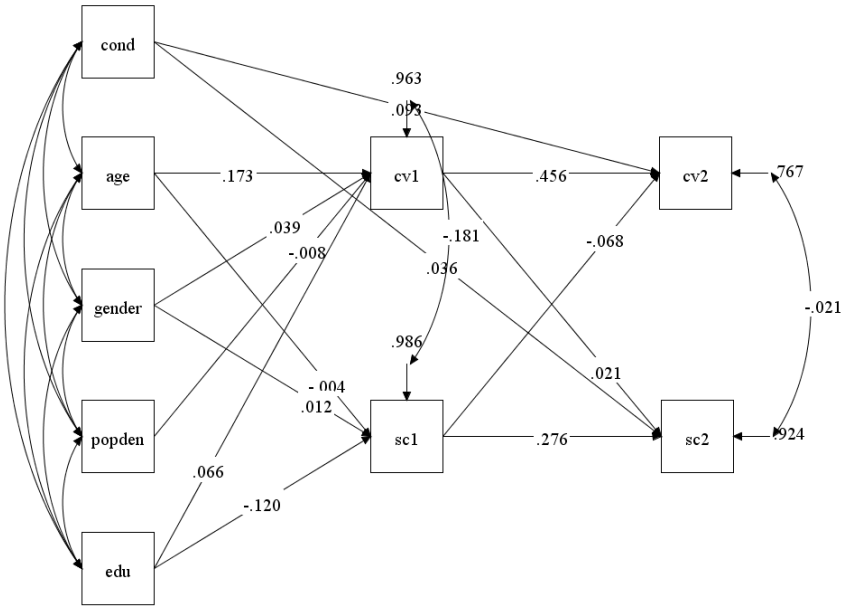

Figure 6. Reduced model testing covariates with standardized coefficients; cv = community violence exposure; sc = social cohesion; cond = condition; popden = population density; edu = education

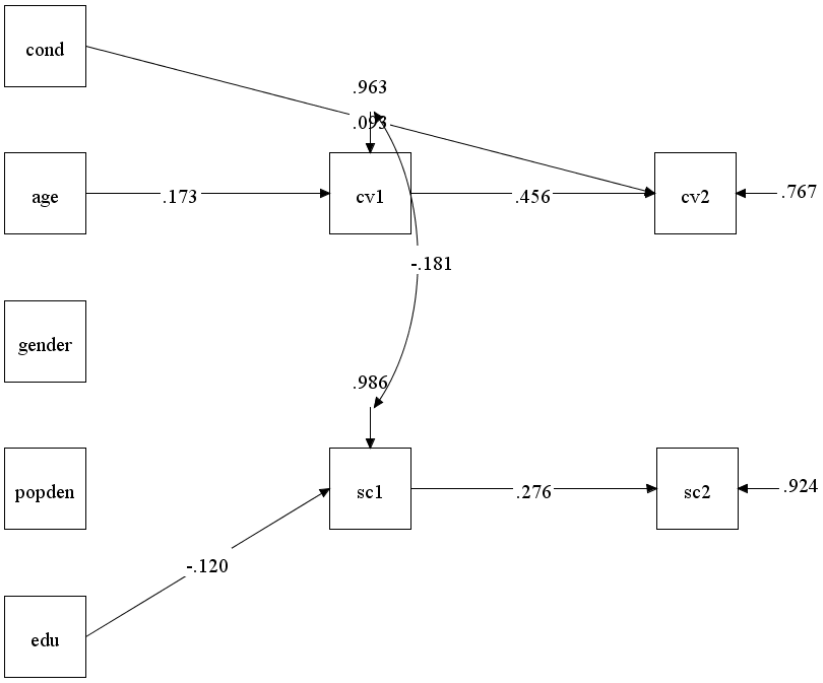

Figure 7. Reduced model testing covariates with standardized coefficients for significant parameters; cv = community violence exposure; sc = social cohesion; cond = condition; popden = population density; edu = education

Full models. Six full models were estimated, using social cohesion and community violence exposure at Waves 1-4, to test Hypothesis II. All models were estimated using FIML and bootstrapping (5000 draws). The first model was estimated with all free parameters. Subsequent models were estimated fixing parameters to equality over time, as described below, until a model with all fixed parameters was estimated. The model with the lowest AIC was interpreted (see table 7). The six models estimated were:

- Model 1 – all free parameters
- Model 2 – autoregressive community violence paths fixed
- Model 3 – all autoregressive paths fixed as equal over time
- Model 4 – all autoregressive paths fixed as equal over time and cross-lagged community violence to social cohesion paths fixed as equal over time
- Model 5 – all autoregressive and cross-lagged paths fixed as equal over time
- Model 6 – all autoregressive, cross-lagged, and correlation paths fixed as equal over time

Model 2, with the autoregressive community violence exposure paths fixed as equal over time, had the lowest AIC, and was interpreted.

Table 7

Model Fit Statistics for Full Social Cohesion Models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
AIC	16113.16	16110.39	16114.38	16112.61	16111.85	16116.90
χ^2	142.81	144.05	152.04	154.26	157.51	168.55
df	33	35	37	39	41	44
χ^2/df	4.33	4.12	4.11	3.96	3.84	3.83

Model 2, with the autoregressive community violence exposure paths fixed to equality over time, was deemed to have the best fit of the six models estimated. The model's chi-square test of model fit was significant (χ^2 = 144.05,

df = 35, $p < .001$), suggesting a bad model fit; however, as with the collective efficacy full model, this model had a large sample size, and the chi-square statistic is vulnerable to large sample sizes. Other fit statistics suggest an adequate model fit (RMSEA = .078, 90% CI [.065, .091]; CFI = .816; SRMR = .070). The CFI value was low, but still suggested that this model was an 81% better fit than the null model.

No significant cross-lagged associations were found between social cohesion and community violence exposure (see Table 8, Figures 8 and 9). Several covariates had significant associations with primary variables. Age significantly predicted community violence exposure at Wave 1 (b = 4.76, SE = 1.22, $p < .001$). Census tract-level education significantly predicted social cohesion at Wave 1 (b = -.03, SE = .01, p = .038). Condition significantly predicted community violence at Wave 2 (b = 3.41, SE = 1.59, p = .032). All autoregressive community violence exposure and social cohesion pathways were significant. Additionally, the association between community violence exposure at Wave 1 and social cohesion at Wave 1 was significant (b = -1.40, SE = .35, $p < .001$).

Table 8

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Full Social Cohesion Model 2

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.18	.04	3.94	0.000	[.086, .262]

SC1 ON:					
Education	-.10	.05	-2.12	0.034	[-.188, -.005]
CV2 ON:					
Condition	.182	.085	2.13	0.033	[.013, .345]
CV1	.43	.03	12.65	0.000	[.359, .491]
SC1	-.08	.05	-1.70	0.090	[-.190, .013]
SC2 ON:					
SC1	.28	.05	6.08	0.000	[.186, .366]
CV1	.02	.05	.43	0.664	[-.073, .112]
CV3 ON:					
CV2	.50	.03	14.62	0.000	[.433, .567]
SC2	-.04	.05	-.94	0.347	[-.133, .048]
SC3 ON:					
SC2	.36	.05	7.95	0.000	[.270, .451]
CV2	-.09	.05	-1.85	0.064	[-.177, .010]
CV4 ON:					
CV3	.51	.04	12.93	0.000	[.429, .582]
SC3	.02	.05	.40	0.691	[-.069, .108]
SC4 ON:					
SC3	.41	.06	7.19	0.000	[.290, .513]
CV3	-.02	.06	-.45	0.656	[-.135, .081]
CV1 WITH:					
SC1	-.18	.04	-4.197	0.000	[-.264, -.095]
CV2 WITH:					
SC2	-.02	.05	-.48	0.633	[-.108, .066]
CV3 WITH:					
SC3	-.01	.05	-.17	0.865	[-.103, .085]
CV4 WITH:					
SC4	-.04	.06	-.76	0.450	[-.154, .067]

Note. CV = community violence exposure; SC = social cohesion

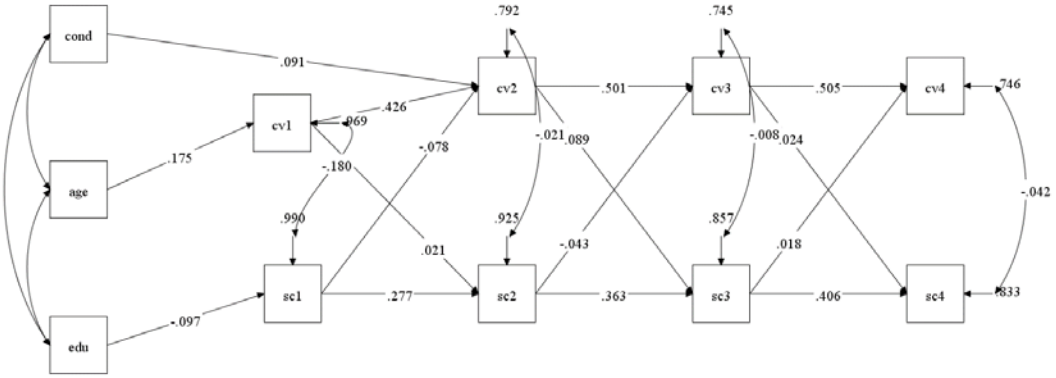

Figure 8. Full social cohesion model, with autoregressive community violence exposure paths fixed as equal over time, with standardized coefficients. cv = community violence exposure; sc = social cohesion

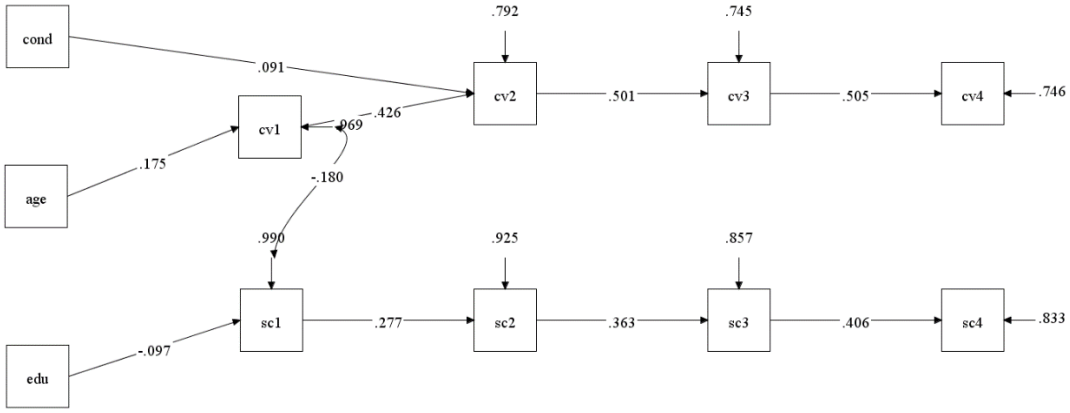

Figure 9. Full social cohesion model, with autoregressive community violence exposure paths fixed as equal over time, with significant paths and standardized coefficients. cv = community violence exposure; sc = social cohesion

Hypothesis III

Hypothesis III posited a reciprocal relation between informal social control (a subscale of collective efficacy) and community violence exposure. According to the hypothesized relations, informal social control influenced community violence exposure at later waves, while community violence exposure

influenced informal social control at later waves. As with collective efficacy and social cohesion, negative associations were hypothesized, such that higher informal social control would be associated with lower community violence exposure, and higher community violence exposure would be associated with lower informal social control. A reduced, 2-wave cross-lagged panel model was estimated to determine covariate associations with informal social control and community violence exposure. Following the estimation of the reduced model, full models, using four waves of data, were estimated to test hypothesis III.

Reduced Model. To determine significant covariate association with community violence exposure and informal social control, a reduced, 2-wave model of informal social control and community violence exposure was estimated. As in previous reduced models, this model was just-identified, and did not provide model fit statistics. Four covariates had significant associations with community violence exposure or collective efficacy (see Table 9, Figures 10 and 11). Age was significantly associated with community violence exposure at Wave 1 (b = 4.69, SE = 1.24, $p < .001$; β = .17, SE = .05, $p < .001$), and condition was significantly associated with community violence exposure at Wave 2 (b = 3.38, SE = 1.61, p = .035; β = .18, SE = .09, p = .037). Two variables were significantly associated with informal social control at Wave 1: gender (b = .13, SE = .06, p = .041; β = .18, SE = .09, p = .040) and education (b = -.04, SE = .02, p = .048; β = -.06, SE = .03, p = .048). These four covariates were included in full models estimating the association between informal social control and community violence exposure.

Table 9

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Covariates in Reduced Informal Social Control Model

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.17	.05	3.84	0.000	[.083, .262]
Gender	.08	.09	.89	0.372	[-.094, .244]
Population Density	-.01	.04	-.19	0.851	[-.094, .080]
Education	.07	.05	1.44	0.151	[-.024, .155]
ISC1 ON:					
Age	-.01	.04	-.33	0.743	[-.094, .069]
Gender	.18	.09	2.05	0.040	[.004, .352]
Population Density	-.06	.04	-1.42	0.156	[-.140, .022]
Education	-.10	.05	-2.02	0.043	[-.190, -.004]
CV2 ON:					
Condition	.18	.09	2.09	0.037	[.011, .343]
ISC2 ON:					
Condition	.11	.09	1.27	0.205	[-.056, .284]

Note: CV = community violence exposure; ISC = informal social control

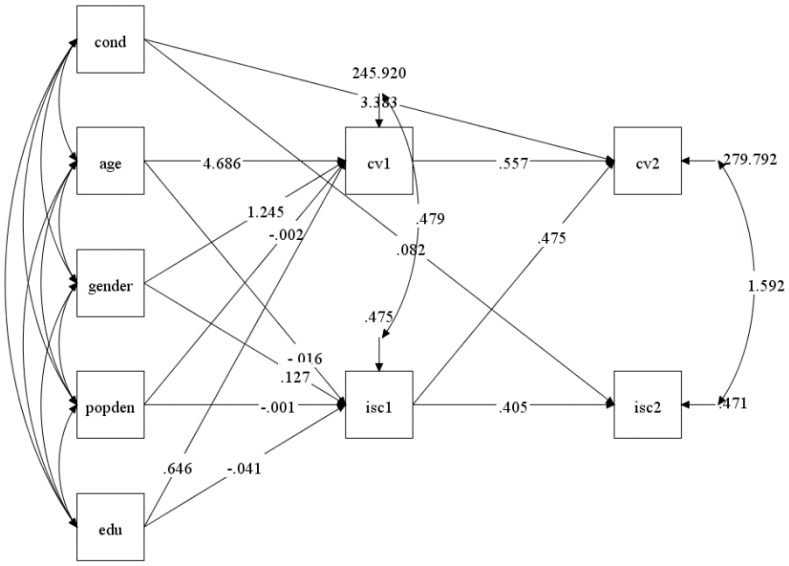

Figure 10. Reduced model testing covariates with standardized coefficients; cv = community violence exposure; isc = informal social control; cond = condition; popden = population density; edu = education

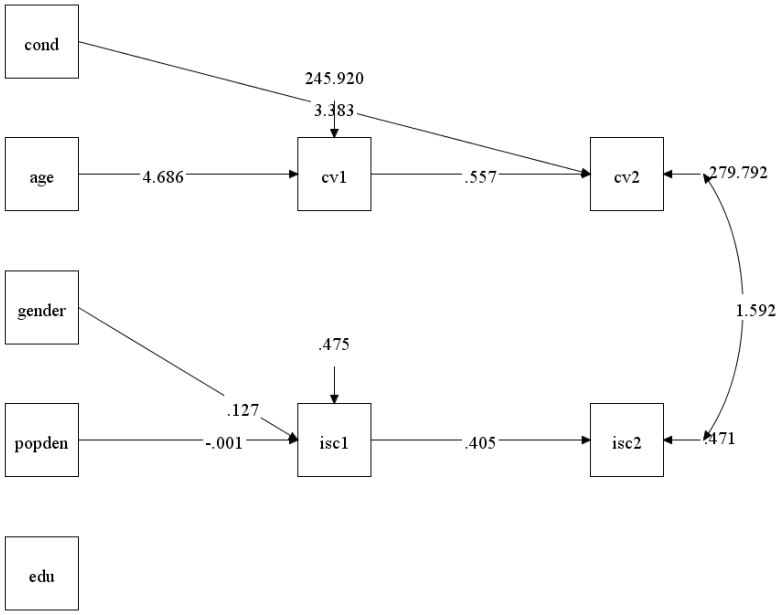

Figure 11. Reduced model testing covariates with standardized coefficients for significant parameters; cv = community violence exposure; sc = social cohesion; cond = condition; popden = population density; edu = education

Full models. Six full models were estimated, using informal social control and community violence exposure at Waves 1-4, to test Hypothesis III. All models were estimated using FIML and bootstrapping (5000 draws). The first model was estimated with all free parameters. Subsequent models were estimated fixing parameters to equality over time, as described below, until a model with all fixed parameters was estimated. The model with the lowest AIC was interpreted (see table 10). The six models estimated were:

- Model 1 – all free parameters
- Model 2 – autoregressive community violence paths fixed
- Model 3 – all autoregressive paths fixed as equal over time
- Model 4 – all autoregressive paths fixed as equal over time and cross-lagged community violence to informal social control paths fixed as equal over time
- Model 5 – all autoregressive and cross-lagged paths fixed as equal over time
- Model 6 – all autoregressive, cross-lagged, and correlation paths fixed as equal over time

Model 6, with all parameters fixed as equal over time, had the lowest AIC, and was interpreted.

Table 10

Model Fit Statistics for Full Informal Social Control Models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
AIC	17649.45	17647.27	17648.05	17644.97	17641.23	17638.36

χ^2	148.65	150.46	155.25	156.17	156.43	159.56
df	40	42	44	46	48	51
χ^2/df	3.72	3.58	3.53	3.39	3.26	3.13

Model 6, with all parameters fixed to equality over time, was determined to have the best fit of the six informal social control models tested. The chi-square test of model fit yielded a significant statistic ($\chi^2 = 159.56$, $df = 51$, $p < .001$), identifying this model as a bad fit. However, as with the other full models, this may be attributable to sample size. Other model fit statistics suggest that this model is an adequate fit to the data (RMSEA = .064, 90% CI [.053, .076]; CFI = .838; SRMR = .069).

No significant cross-lagged associations existed between informal social control and community violence exposure (see Table 11, Figures 12 and 13). One covariate had a significant association with the primary variables. Age was significantly associated with community violence exposure at Wave 1 ($b = 4.80$, $SE = 1.24$, $p < .001$). Gender was associated with informal social control, but significance levels were not less than .05 ($b = .12$, $SE = .06$, $p = .051$). Education ($b = -.04$, $SE = .02$, $p = .063$) and condition ($b = 3.01$, $SE = 1.60$, $p = .060$) were no longer significant at the $\alpha = .05$ level. All autoregressive pathways, fixed to equality for both community violence exposure and informal social control, were significant (see Table 11). Additionally, within-wave associations between community violence exposure and informal social control, fixed to equality across waves, were significant ($b = 1.10$, $SE = .30$, $p < .001$).

Table 11

Estimated Standardized Parameters, Standard Errors, Test Results, and 95% Confidence Interval for Full Informal Social Control Model 6

	Estimate	*SE*	*Estimate/SE*	*Two-Tailed P-Value*	*95% Confidence Interval*
CV1 ON:					
Age	.18	.05	3.94	0.000	[.086, .264]
ISC1 ON:					
Gender	.17	.09	1.96	0.050	[-.003, .343]
Education	-.09	.05	-1.90	0.058	[-.181, .001]
CV2 ON:					
Condition	.16	.09	1.88	0.061	[-.011, .328]
CV1	.44	.03	12.96	0.000	[.369, .499]
ISC1	.01	.02	.51	0.607	[-.036, .059]
ISC2 ON:					
ISC1	.41	.03	13.54	0.000	[.347, .467]
CV1	-.03	.02	-1.25	0.212	[-.076, .015]
CV3 ON:					
CV2	.50	.03	14.76	0.000	[.434, .569]
ISC2	.01	.03	.51	0.608	[-.038, .064]
ISC3 ON:					
ISC2	.47	.04	12.98	0.000	[.403, .547]
CV2	-.04	.03	-1.25	0.210	[-.095, .018]
CV4 ON:					
CV3	.51	.04	13.13	0.000	[.430, .581]
ISC3	.01	.02	.51	0.610	[-.035, .060]
ISC4 ON:					
ISC3	.42	.04	11.23	0.000	[.346, .488]
CV3	-.04	.03	-1.25	0.210	[-.089, .017]
CV1 WITH:					

ISC1	.10	.03	3.75	0.000	[.047, .152]
CV2 WITH:					
ISC2	.10	.03	3.66	0.000	[.045, .147]
CV3 WITH:					
ISC3	.11	.03	3.61	0.000	[.052, .174]
CV4 WITH:					
ISC4	.10	.03	3.69	0.000	[.050, .159]

Note. CV = community violence exposure; ISC = informal social control

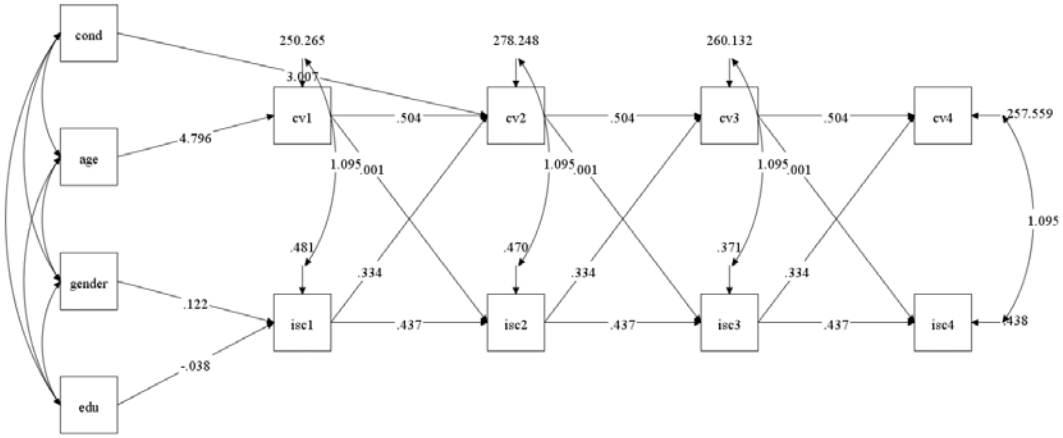

Figure 12. Full informal social control model, with all paths fixed as equal over time, with standardized coefficients. cv = community violence exposure; isc = informal social control

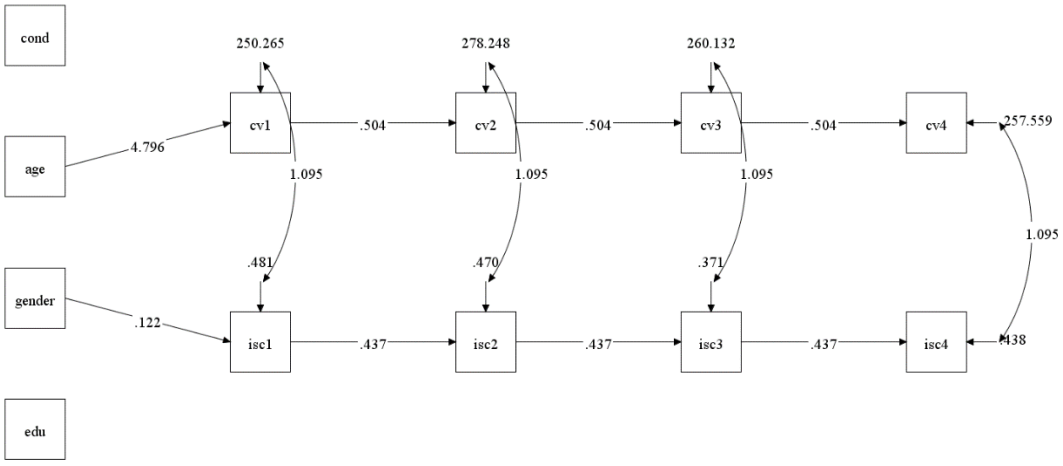

Figure 13. Full informal social control model, with all paths fixed as equal over time, with significant paths and standardized coefficients. cv = community violence exposure; isc = informal social control

Discussion

The present study sought to examine the reciprocal relation between community violence exposure and collective efficacy in a sample of low-resourced, urban African American adolescents, using four waves of data spanning two years. Additionally, the associations between community violence exposure and the two subscales of collective efficacy (i.e., social cohesion and informal social control) were explored. Negative associations were hypothesized between these variables. Results indicated no significant cross-lagged relations between community violence exposure and collective efficacy (or one of its subscales).

None of the three hypotheses were supported. The hypothesis that community violence exposure and collective efficacy would be negatively and reciprocally associated (i.e., Hypothesis I) was not supported. No significant cross-lagged associations existed between community violence exposure and collective efficacy. After accounting for the influence of age and intervention condition on community violence exposure, education (i.e., percentage of individuals in the participant's census tract with at least a bachelor's degree) on collective efficacy, only the community violence and collective efficacy autoregressive paths were significant. That is, prior-wave community violence exposure predicted subsequent community violence exposure, but not subsequent collective efficacy, and vice versa. Two within-wave associations between community violence exposure and collective efficacy suggested a positive

relation, in which higher community violence exposure was associated with higher collective efficacy.

Hypothesis II, which posited a negative and reciprocal association between social cohesion and community violence exposure, was not supported. After accounting for the influence of age, education, and intervention condition, no significant cross-lagged associations existed; only autoregressive paths between waves were significant. One significant within-wave path was present, which indicated a negative relation between community violence exposure and social cohesion. Hypothesis III, which posited a negative and reciprocal association between informal social control and community violence exposure, also was not supported. After controlling for age, gender, education, and intervention condition, the only significant between-wave associations were autoregressive associations. Positive within-wave associations existed between community violence exposure and informal social control at each wave.

Contrary to the study's hypotheses, these findings did not provide support for the reciprocal associations between community violence and collective efficacy posited in CET. Many studies have found evidence to support, at least partly, these reciprocal assumptions. A number of studies have provided support for the influence of collective efficacy on community violence (Ahern et al., 2013; Mazerolle et al., 2010; Sampson, 2012; Sampson & Raudenbush, 1999; Sampson et al., 1997; Sampson et al., 1998; Sampson & Wikström, 2008; Sutherland et al., 2013). These studies, and others, support the negative association between collective efficacy and community violence, such that

neighborhoods with higher collective efficacy have lower levels of community violence or violent crime. In these studies, collective efficacy seems to be a protective factor for communities. The presence of collective efficacy in a community leads to, or is associated with, a decrease in violence within the community. In the present study, there is not enough evidence to suggest that these relations exist; indeed, the few within-wave associations that were significant were often contrary to the findings prevalent in many collective efficacy studies. A positive association between collective efficacy and community violence exposure was found within-wave. This positive association would suggest that adolescents with higher perceptions of their neighborhood's collective efficacy are exposure to more community violence than those with lower collective efficacy perceptions.

The disparate findings of the informal social control/community violence exposure and social cohesion/community violence exposure models may account for these contrasting associations between collective efficacy and community violence exposure. A positive association between informal social control and community violence exposure suggested that adolescents with higher perceptions of their neighborhood's level of informal social control were exposed to more violence, or vice versa. Negative associations between social cohesion and community violence exposure suggested that adolescents with lower perceptions of the social cohesion within their neighborhood were exposed to greater community violence. While the correlational findings on social cohesion and

community violence exposure support CET, those of informal social control do not.

Others have reported disparate findings regarding the relations between community violence and collective efficacy, or one of its subscales. Armstrong and colleagues (2015), found evidence to suggest that informal social control, social cohesion, and collective efficacy influenced community violence individually; however, when included in a model together, only social cohesion significantly predicted community violence. These findings seem to suggest that the subscales of collective efficacy may not coalesce into a single coherent construct; rather, they may act separately to influence community violence. The findings of the present study support this assertion. While the significant findings presented here are correlational and limited, they suggest that informal social control and social cohesion may influence community violence exposure differently, and that using collective efficacy, rather than its subscales, may mask unique relations.

Possible Explanations

Several explanations may account for the lack of evidence found in this study to support CET. First, it may be that adolescents experience significant amounts of community violence outside of their communities. Using a self-report of community violence exposure, participants recalled their experience of community violence, occurring both in their neighborhood and at their school. Richards and colleagues (2015) reported that African American children and adolescents are exposed to, on average, one violent incident per day. Of these

incidents, 51% are in public (i.e., in their neighborhood, in their building or on their block, in a park, at someone else's home, or outside their neighborhood) and 21% occurred at school. These youth reported that 17% of their exposure to community violence occurred in their neighborhood. Following the assumptions of CET, these types of exposure to community violence would be influenced by the neighborhood's collective efficacy. However, 4% of the violent incidents adolescents were exposed to took place outside of their neighborhood. While collective efficacy may influence community violence within neighborhood boundaries, one's exposure to community violence outside of their neighborhood would not be affected by that same collective efficacy; rather, it would be influenced by the collective efficacy of the neighborhood in the individual enters (Sampson, 2012).

When considering the effects of collective efficacy, Sampson (2008) characterizes two potential effects: situational and enduring effects. Situational effects refer to the influence of collective efficacy in a given neighborhood. A situational collective efficacy would inhibit crime in that neighborhood, regardless of where an individual may live within that neighborhood. Enduring effects refer to the influence of collective efficacy on the behaviors of neighborhood residents when they are not in the neighborhood. An enduring collective efficacy would influence youth both inside and outside of their own community (Sampson, 2008). The extant research supporting collective efficacy evidences a situational, rather than enduring, effect of collective efficacy on violence (Sampson, 2018). That is, collective efficacy will influence a

neighborhood's violent crime, but collective efficacy will not inhibit individuals' behavior outside of the confines of the neighborhood. Thus, whatever protection collective efficacy may provide to youth ends when they leave the neighborhood.

Several contextual issues have increased the likelihood that low-resourced, urban African American youth, like those in the present study, will be exposed to community violence outside of their neighborhood. Over a 10-year period in Chicago, more than 100 schools were either closed or completely re-staffed (i.e., all school staff fired, entirely new staff hired). These school closings or re-staffings have disproportionately affected African American communities, particularly low-resourced communities (Vevea, Lutton, & Karp, 2012). In 2013 alone, the Chicago Public School District (CPS) closed 49 schools, and 88% of the students affected by these and earlier school closings were African American (Lee, 2013). In Englewood, Chicago, a neighborhood where 95% of its residents are African American (MetroPulse, 2015), CPS is planning to close or phase-out all four of the neighborhood's high schools (Simon, 2018). These school closures force students, predominantly African American students, to attend new schools away from their neighborhoods. As schools continue to close in predominantly low-resourced, African American neighborhoods, more youth will be forced to cross neighborhood boundaries on a regular basis. It is likely the percentage of violent incidents youth in these areas are exposed to outside of their neighborhood will increase, and the influence of the home neighborhood's collective efficacy will be reduced further.

The closing of schools and subsequent transfer of students to schools outside of their neighborhood boundaries exposes youth to more community violence as they cross gang boundaries to reach their new schools. The ever-changing nature of gangs, especially in Chicago, make leaving the relative safety of a home neighborhood to attend school a dangerous endeavor. In the 1960s, gangs "expanded as multi-neighborhood race-based alliances of local sets" (Hagedorn, 2013, p. 2). These gangs were often tightly controlled by leaders, usually from prison, with a goal to control violence in prison and on the streets (Hagedorn). Large alliances of gangs were created, and while infighting did occur, strict boundaries were drawn and gang leaders controlled violence against others. However, according to Hagedorn, the decisions by Chicago officials to tear down large housing projects and disperse residents across the city made gang boundaries much more fluid and associations between gangs more volatile. This, associated with significant in-fighting during the 1990s, "shattered the hierarchical structure of Chicago gangs and discredited their leadership" (Hagedorn, 2013, p. 3). The gangs present in Chicago are now composed of small cliques, often holding only weak ties to other gangs. Gang violence is much more spontaneous and far-reaching, as boundaries shrink often to blocks, or do not exist at all (Hagedorn). Youth crossing into new territories to attend school must now deal with crossing into rival gang territory, where they may be viewed as part of a gang despite their actual association, and spillover violence from ongoing feuds (Hagedorn). In these situations, the benefits of an adolescent's neighborhood collective efficacy are lost.

Another explanation for lack of evidence to support CET may be that adolescents view neighborhoods differently than adults. Many of the studies providing evidence for the association between collective efficacy and community violence used data from the PHDCN. While the PHDCN is an exhaustive longitudinal data set, the surveys of collective efficacy in these studies measure collective efficacy perceptions of primary caregivers (i.e., parents/guardians of study youth) or young adults in the community. Young adults seem to be differentiated from adolescents in this study (Earls & Buka, 1997), with the overall focus of collective efficacy on aggregating many young adult or primary caregiver collective efficacy ratings per neighborhood. Thus, relatively few studies have utilized adolescent perceptions of collective efficacy.

The questions used to assess collective efficacy may require a different level of neighborhood awareness than many adolescents are able to provide. Questions regarding social cohesion ask participants to state whether they agree or disagree with global statements of cohesion within their neighborhood. This type of question first requires the participant to identify the borders of their neighborhood, then to assess the relationships of the individuals within those boundaries. Given that many adolescents have to leave their neighborhood to attend school, the amount of time adolescents have in their own neighborhoods is limited. While in their neighborhood, the amount of time low-resourced, urban African American adolescents spend in the community may further be limited by community violence or fear of community violence, as youth may be targets of violence outside of their home (Thomas et al., 2012). In addition, the questions

assessing informal social control require that youth often know how adults would react in situations. Not only must youth define their neighborhood, they must then ask themselves how the adults in their neighborhood would react in a given situation. This adult-centric measure may inhibit adolescents' ability to accurately assess their neighborhoods' collective efficacy.

A third potential explanation for the lack of evidence to support CET may be the changing community or neighborhood responses in relation to violence. CET posits a negative association between collective efficacy and community violence; that is, community violence should decrease the trust and cohesion neighborhood residents have, and decrease residents' community involvement (Sampson, 2012). This response highlights private-minded reactions to community violence (e.g., fear, helplessness, avoidance; Schneider & Schneider, 1977). However, other responses to community violence and crime exist. Schneider and Schneider (1977) characterized these alternative responses as public-minded, or empowering responses. Durkheim (1947) posited that crime itself may empower citizens to engage in collective action to thwart violations of norms.

Recent national incidences have legitimized this public-minded response to violence. Several violent incidents, many of which involve police encounters with African American individuals, incited protests in neighborhoods across the country. In 2012, Trayvon Martin, a 17-year old African American male, was killed by George Zimmerman, a neighborhood watch captain (Simon, 2017). Martin was walking to his father's fiancée's home in Florida. Zimmerman

spotted him, reported to the police that a suspicious person was in the neighborhood, and was told by police to stop following Martin. Zimmerman confronted Martin, and an altercation between the two led to Zimmerman discharging his firearm and killing Martin. Zimmerman was acquitted of second degree murder charges on the grounds of self-defense (Simon, 2017). This incident led to nationwide protests against the acquittal and violence against unarmed individuals, in which protesters often donned hoodies and chanted, " I am Trayvon Martin." In the summer of 2014, Eric Garner, an African American male, was arrested outside of a store for selling cigarettes (Simon, 2017). When confronted by police, Garner put his hands in the air and asked officers not to shoot. One officer placed him in a chokehold, pulled him to the ground, and rolled him onto his stomach as others attempted to restrain him. During the incident, Garner was heard to repeatedly say, "I can't breathe! I can't breathe!" He suffered a heart attack and died on the way to the hospital. The officer who placed Garner in the chokehold was never indicted. This incident sparked national protests against police brutality (Simon, 2017). Shortly after these two incidents, Tamir Rice, a 12-year-old African American boy, was shot and killed by police (Dewan & Oppel Jr., 2015). Rice was playing at a local park with an airsoft gun when a call to 911 was made. In the call, it was reported that there was a person, probably a juvenile, waving a gun, which was probably fake. Officers were dispatched to the scene, and within seconds of showing up to the scene, Rice had been shot (Dewan & Oppel Jr., 2015). He died shortly after.

Several high-profile incidents followed. Again in the summer of 2014, Michael Brown, an unarmed African American teenager, was shot and killed by Officer Darren Wilson (Simon, 2017). Brown, walking down the middle of the street, was stopped by Wilson. Wilson ordered him to walk on the sidewalk, and an altercation ensued. Varying accounts were given, with some suggesting that Brown attacked Wilson and attempted to take his gun, and others stating that Brown had his hands in the air to surrender (Simon, 2017). The situation ended with Wilson firing his weapon 12 times and killing Brown. Wilson was not indicted for the incident, which again led to nationwide protests. A police officer shot and killed Walter Scott, an African American male, during a traffic stop. Cell phone footage showed the man running away from the officer, and the officer firing at Scott (Simon, 2017). Freddie Gray, an African American male, was arrested on a weapons charge. He was transported in a police van. During the transport, Gray somehow suffered a fatal spinal cord injury and died. The officers involved in his arrest and transport were acquitted. Sandra Bland, an African American female, was stopped for failing to signal a turn (Simon, 2017). During the stop, Bland was pulled from her car and arrested for allegedly assaulting an officer. While detained at the county jail, she was found dead in her cell in an apparent suicide (Simon, 2017). Protests highlighted police brutality, unlawful arrest, and the suspicious circumstances of her death. Numerous other individuals were involved in similar incidents over the next few years, including Alton Sterling, Keith Lamont Scott, Laquan McDonald, Sam DuBose, Philando Castile, Terence Crutcher (Lee & Park, 2017), and others, inciting protest after protest

against police brutality and the unnecessary deaths of African American individuals.

In addition to these high-profile examples, community action occurs on a regular basis in Chicago in reaction to community violence. While these actions often do not receive national attention, they demonstrate the potential public-minded responses that can and do occur following community violence. Several examples may help to detail these public-minded responses. In 2015, following a shooting in South Chicago in which a man opened fire on three women, Tamar Manasseh formed a community group called "Mothers Against Senseless Killings" (Cholke, 2015). Manasseh gathered other neighborhood women to sit in folding chairs near the site of the killing, to act as a deterrence to retaliatory and other violent acts. In the 5 weeks following the shooting, no other shootings took place in the areas where the group patrolled (Bloom & Sabella, 2016). Another group, led by Lunden Gregory, held weekly anti-violence gatherings (McGhee, 2014). After moving from the city to avoid the violence, Gregory moved back to do something about the violence. Gregory gathered with others from the community on a violent street corner, to hold hands, create a giant "MLK Peace Chain," and bring peace to that neighborhood (McGhee, 2014). After a shooting at a park in north Chicago, residents united to reclaim the park as a peaceful gathering place (Bloom & Sabella, 2016). Many residents gathered to play on the playground, create art, and cook and eat together in a space previously victimized by violence. These and many other examples support the idea that violent crime can stimulate collective community action.

In the age of social media, and with the attention many of these protests receive, it is possible that responses to community violence will become more public-minded, and less private-minded. Social media may serve as a medium to choreograph collective action and unite large swaths of people around a common identity (Gerbaudo, 2012). Social media, and technological advances associated with cell phones and other devices, enhance the ability to document actions, disseminate information, and gather individuals. The national protests that occurred in response to events of police brutality were aided by the dissemination of information in prior protests, and the web of activism developed over time. These improvements in social media and technology may influence aspects of CET as more people become aware of public-minded responses to local, national, and international events. Availability of information and means to coalesce around shared identities and goals may prompt more public-minded responses and less private-minded responses.

In summary, three potential explanations may account for the lack of evidence to support CET. First, given changes in school boundaries and time spent by youth outside of their neighborhood, youth may experience community violence outside of their neighborhood on a regular basis. The self-report measure used did not specify the location of violence exposure, and only violence occurring within one's neighborhood would influence or be influenced by collective efficacy. Second, adolescents may view neighborhoods and collective efficacy different from adults. The collective efficacy scale may not accurately measure adolescents' perceptions of neighborhood collective efficacy, because it

was normed for adults. Third, CET may not accurately capture the influence of community violence on collective efficacy. CET, and the associated collective efficacy measures, were normed twenty years ago, and current political, cultural, and technological changes may influence theoretical associations. CET posits that neighborhood residents act in private-minded ways to violence; however, many people act in public-minded ways when faced with violence. These public-minded reactions to community violence would increase, rather than decrease, collective efficacy.

Limitations

There were several limitations to the present study. First, both community violence exposure and collective efficacy were measured using self-report assessments. For community violence exposure, participants were asked to recall exposure to specific types of violence they have heard about, witnessed, or experienced over the past year. While the CREV has established reliability and validity, it is possible that measurement error occurred in that participants were unable to accurately recall their exposure to community violence over that time period. This self-report measure also did not differentiate between violence that occurred within one's neighborhood, and violence that occurred outside of one's neighborhood. As collective efficacy has reported situational effects, a more conscribed measure of community violence exposure may have been useful. For collective efficacy, the measures used are often used to assess adults' perceptions of collective efficacy. While some studies have used these collective efficacy measures with youth, these studies are quite rare (Smith, Osgood, Caldwell,

Hynes, & Perkins, 2013). For those studies that have assessed adolescent perceptions of collective efficacy, obstacles related to accurate assessment have been encountered. Johnson et al. (2011) assessed both parent and child perceptions of collective efficacy using parent-child dyads. However, collective efficacy was measured less reliably in adolescents, compared to measurements of parent perceptions of collective efficacy. The association between parent and youth perceptions of collective efficacy was not significant (Johnson et al., 2011). Another study, acknowledging a lack of youth-based measurement tools for collective efficacy, created their own collective efficacy measure, specific to an after-school program (Smith et al., 2013).

Second, the generalizability of these findings, or lack of findings, may not be generalizable to larger, more diverse populations. This study incorporated African American adolescents from a large Midwestern city in the United States of America. These results may not be consistent using samples of adolescents from other ethnic or geographic areas. The use of only adolescents from one geographic area increase the likelihood that location-specific contextual issues, like those discussed above, will influence outcomes. Additionally, the data was collected during years of significant increases in violence and levels of media coverage for collective action. The collective action incidents have been covered previously. During the years of data collection, the city of Chicago experienced large increases in shootings and homicides. In 2015, There were 480 homicides in Chicago, the most since 1997 (Ansari, 2017). In 2016, there were 762 homicides, an increase of 59%, eclipsing that of 2015 (Ansari, 2017). Chicago

saw a decrease in homicides during 2017, with 650 homicides recorded (Park, 2018). The number of homicides in the city during these years were the most since the 1990s, and this drastic increase in violence may influence the generalizability of this study's findings.

Third, this study used collective efficacy at an individual level, rather than at a neighborhood level. Sampson et al. (1997) originally used a sample of 8,782 residents, and created 343 neighborhood clusters (i.e., ecologically and geographically meaningful units combining contiguous and homogeneous census tracts). Each neighborhood cluster had, on average, 25 people surveyed. Collective efficacy estimates for the neighborhood cluster were aggregated from these individual surveys to create the neighborhood-level variable. The present study had 604 participants, far fewer than Sampson et al. (1997). With 77 community areas within the Chicago city limits, the present study averaged about seven people per community area. However, recruitment was completed at neighborhood schools on the south and west sides of the city, at schools with predominantly African American student populations. As such, some community areas had more than enough participants to create a neighborhood aggregate collective efficacy, but most had far too few (i.e., less than five), and many community areas did not have any participants residing in them. Using the neighborhood clusters created by Sampson et al. (1997), most neighborhood clusters would have only one or two participants, while many would not have any. This necessitated the use of collective efficacy as an individual-level, rather than neighborhood-level, variable. Collective efficacy as an individual variable is

subject to issues of bias and measurement error, whereas an aggregate variable would be able to account for some of this error and bias by incorporating multiple ratings.

Future Directions

The association between collective efficacy and community violence, from the viewpoint of adolescents, is an understudied area of research. Based on the findings from the present study and others, future studies may shed light on collective efficacy from an adolescent viewpoint, the longitudinal associations between collective efficacy as a neighborhood-level variable and community violence, and the differential associations between community violence and the subscales of collective efficacy. Future studies using collective efficacy perceptions of adolescents may benefit from qualitative research to understand what collective efficacy looks like to adolescents, and how to measure collective efficacy with adolescents. Qualitative interviews with youth from diverse backgrounds, including focus groups with adolescents, may elucidate the collective efficacy construct from an adolescent point-of-view and help researchers to develop effective measures to gauge collective efficacy perceptions. Future studies may also benefit from using larger sample sizes of adolescents. Larger sample sizes allow for the use of collective efficacy as a neighborhood-level factor, rather than an individual-factor. An aggregate variable of collective efficacy across multiple participants may provide a balanced estimate of collective efficacy for the neighborhood as a whole. Lastly, future research utilizing the subscales of collective efficacy (i.e., social cohesion,

informal social control), in addition to the unified construct of collective efficacy, may help to understand the discordant findings between the subscales and collective efficacy in the present study and others (Armstrong et al., 2015). These future studies may help to understand both private-minded and public-minded responses to community violence, and influence CET.

In sum, the present study did not find evidence to support the reciprocal relations between collective efficacy and community violence exposure posited in CET. Using a sample of low-resourced, urban African American adolescents, no significant cross-lagged associations were found between community violence exposure and collective efficacy, or one of the subscales of collective efficacy. Several significant within-wave associations were found between community violence exposure and collective efficacy, wherein community violence exposure and collective efficacy were positively related, suggesting higher levels of community violence exposure were associated with higher collective efficacy. Also, within-wave community violence exposure and informal social control were positively related, suggesting higher levels of community violence exposure were associated with higher informal social control. Lastly, community violence exposure and social cohesion were negatively related, suggesting higher levels of community violence exposure were associated with lower social cohesion. However, these within-wave results were not consistent across waves. These within-wave associations, which were not evident in cross-lagged associations, may be due to the influence of other variables on both collective efficacy and

community violence exposure, or other temporal or contextual influences on the factors.

The lack of evidence to support CET and the discordant collective efficacy subscale findings suggest the need for greater understanding of collective efficacy as it relates to adolescents, and a consideration of CET in light of contextual and temporal issues. Increased access to information, heightened transparency due to the prevalence of cell phone cameras and other recording devices, and social media platforms have increased individuals' ability to be aware of the need for collective action and find others willing to act. If recent events are predictive of future behavior, it is likely that collective action in light of violent acts will become the norm, rather than the exception. If public-minded responses to community violence, like protests or other community activities, become commonplace, some of the underlying relations in CET may need to be adapted. Community violence, rather than hindering a neighborhood's collective efficacy, may facilitate its development.

References

Ahern, J., Cerda, M., Lippman, S. A., Tardiff, K. J., Vlahov, D., & Galea, S. (2013). Navigating non-positivity in neighbourhoods studies: An analysis of collective efficacy and violence. *Journal of Epidemiology and Community Health, 67*(2), 159-165.

Aisenberg, E. & Herrenkohl, T. (2008). Community violence in context: Risk and resilience in children and families. *Journal of Interpersonal Violence,* 23(3), 296-315.

Allen, J. J. & Anderson, C. A. (2017). Aggression and violence: Definitions and distinctions. In P. Sturmey (Ed.), *The wiley handbook of violence and aggression* (pp. 1-14). Hoboken, NJ: Wiley,

Anderson, C. A. & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, *53*, 27-51.

Ansari, A. (2017). *Chicago's 762 homicides in 2016 is highest in 19 years.* Retrieved from https://www.cnn.com/2017/01/01/us/chicago-murders-2016/index.html

Armstrong, T. A., Katz, C. M., & Schnebly, S. M. (2015). The relationship between citizen perceptions of collective efficacy and neighborhood violent crime. *Crime & Delinquency, 61*(1), 121-142.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*(3), 75-78.

Barroso, C. S., Peters, R. J., Kelder, S., Conroy, J., Murray, N., & Orpinas, P. (2008). Youth exposure to community violence: Association with aggression, victimization, and risk behaviors. *Journal of Aggression, Maltreatment & Trauma, 17*(2), 141-155.

Baskin, D. & Sommers, I. (2013). Exposure to community violence and trajectories of violent offending. *Youth Violence and Juvenile Justice, 12*(4), 367-385.

Bennett, M. D. & Joe, S. (2015). Exposure to community violence, suicidality, and psychological distress among African American and Latino youths: Findings from the CDC Youth Violence Survey. *Journal of Human Behavior in the Social Environment, 25*(8), 775-789.

Bentler, P. M. & Bonnet, D. C. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588-606.

Berger, P. L. & Neuhaus, R. J. (1977). *To empower people: The role of mediating structures in public policy.* Washington, DC: American Enterprise Institute for Public Policy Research.

Bloom, M. & Sabella, J. (2016). *Chicagoans actually DO protest violence in their communities all the time.* Retrieved from https://www.dnainfo.com/chicago/20151201/downtown/chicagoans-actually-do-protest-violence-their-communities-all-time/

Boyd, R. C., Cooley, M. R., Lambert, S. F., & Ialongo, N. S. (2003). First-grade child risk behaviors for community violence exposure in middle school. *Journal of Community Psychology, 31*(3), 297-314.

Bradshaw, C. P., Rodgers, C. R. R., Ghandour, L. A., & Garbarino, J. (2009). Social-cognitive mediators of the association between community violence exposure and aggressive behavior. *School Psychology Quarterly, 24*(3), 199-210.

Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.

Bureau of Justice Statistics. (2013). *Homicide in the U.S. know to law enforcement, 2011.* Retrieved from http://www.bjs.gov

Bureau of Justice Statistics. (2016). *Criminal victimization, 2015.* Retrieved from http://bjs.gov

Bursik, R. J. (1999). The informal control of crime through neighborhood networks. *Sociological Focus, 32*(1), 85-97.

Calvete, E. & Orue, I. (2011). The impact of violence exposure on aggressive behavior through social information processing in adolescents. *American Journal of Orthopsychiatry, 81*(1), 38-50.

Centers for Disease Control and Prevention. (2014a). *Leading causes of death by age group, Black males – United States, 2014.* Retrieved from https://www.cdc.gov/men/lcod/

Centers for Disease Control and Prevention. (2014b). *Leading causes of death by age group, Black females – United States, 2014.* Retrieved from https://www.cdc.gov/women/lcod/index.htm

Centers for Disease Control and Prevention. (2014c). *Youth Risk Behavior Surveillance – United States, 2013.* Retrieved from http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf

Chavis, D. M. & Lie, K. (2015). *What is community anyway?* Retrieved from https://ssir.org/articles/entry/what_is_community_anyway

Chavis, D. M. & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. *American Journal of Community Psychology, 18*(1), 55-81.

Chen, F., Curran, P. J., Bollen, K. A., & Paxton, P. (2008). An empirical evaluation of the use of fixed cutoff points in RMSEA test statistic in structural equation models. *Sociological Methods of Research, 36*, 462-494.

Chen, P., Voisin, D. R., & Jacobson, K. C. (2016). Community violence exposure and adolescent delinquency: Examining a spectrum of promotive factors. *Youth & Society, 48*(1), 33-57.

Chipuer, H. M. & Pretty, G. M. H. (1999). A review of the sense of community index: Current uses, factor structure reliability, and further development. *Journal of Community Psychology, 27*(6), 643-658.

Cohen, E. M. (2000). Suicidal ideation among adolescents in relation to recalled exposure to violence. *Current Psychology, 19*(1), 45-56.

Dewan, S. & Oppel Jr., R. A. (2015). *In Tamir Rice case, many errors by Cleveland police, then a fatal one.* Retrieved from https://www.nytimes.com/2015/01/23/us/in-tamir-rice-shooting-in-cleveland-many-errors-by-police-then-a-fatal-one.html

Durkheim, E. (1947). *The division of labor in society* (G. Simpson, Trans.). Glencoe, IL: Free Press.

Cooley, R. R., Turner, S. M., & Beidel, D. C. (1995). Assessing community violence: The children's report of exposure to violence. *Journal of the American Academy of Child & Adolescent Psychiatry, 34*(2), 201-208.

Cooley-Quille, M., Boyd, R. C., Frantz, E., & Walsh, J. (2001). Emotional and behavioral impact of exposure to community violence in inner-city adolescents. *Journal of Clinical Child & Adolescent Psychology, 30*(2), 199-206.

Copeland-Linder, N., Lambert, S. F., Chen, Y., & Ialongo, N. S. (2011). Contextual stress and health risk behaviors among African American adolescents. *Journal of Youth and Adolescence, 40*(2), 158-173.

Crouch, J. L., Hanson, R. F., Saunders, B. E., Kilpatrick, D. G., & Resnick, H. S. (2000). Income, race/ethnicity, and exposure to violence in youth: Results from the national survey of adolescents. *Journal of Community Psychology, 28*(6), 625-641.

Duncan, T. E., Duncan, S. C., Okut, H., Strycker, L. A., & Hix-Small, H. (2003). A multilevel contextual model of neighborhood collective efficacy. *American Journal of Community Psychology, 32*(3/4), 245-252.

Earls, F. & Buka, S. L. (1997). *Project on human development in Chicago neighborhoods.* Retrieved from https://www.ncjrs.gov/pdffiles1/Digitization/163495NCJRS.pdf

Enders, C. K. & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling, 8*(3), 430-457.

Finkelhor, D., Turner, H., Ormrod, R., Hamby, S., & Kracke, K. (2009). *Children's exposure to violence: A comprehensive national survey.* Retrieved from https://www.ncjrs.gov/pdffiles1/ojjdp/227744.pdf

Finkelhor, D., Turner, H., Shattuck, A., Hamby, S., & Kracke, K. (2015). *Children's exposure to violence, crime, and abuse: An update.* Retrieved from https://www.ojjdp.gov/pubs/248547.pdf

Fowler, P. J., Tompsett, C. J., Braciszewski, J. M., Jacques-Tiura, A. J., & Baltes, B. B. (2009). Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology, 21*, 227-259.

Gaylord-Harden, N. K., Cunningham, J. A., & Zelencik, B. (2011). Effects of exposure to community violence on internalizing symptoms: Does desensitization to violence occur in African American youth? *Journal of Abnormal Child Psychology, 39*(5), 711-719.

Gaylord-Harden, Dickson, D., & Pierre, C. (2015). Profiles of community violence exposure among African American youth: An examination of

desensitization to violence using latent class analysis. *Journal of Interpersonal Violence, 31*(11), 2077-2101.

Gerbaudo, P. (2012). *Tweets and the streets: Social media and contemporary activism.* New York, NY: St. Martin's Press LLC.

Gibbs, J. T. (1997). African-American suicide: A cultural paradox. *Suicide and Life-Threatening Behavior, 27*(1), 68-79.

Goldston, D. B., Molock, S. D., Whitbeck, L. B., Murakami, J. L., Zayas, L. H., & Hall, G. C. N. (2008). Cultural considerations in adolescent suicide prevention and psychosocial treatment. *American Psychologist, 63*(1), 14-31.

Gorman-Smith, D., Henry, D. B., & Tolan, P. H. (2004). Exposure to community violence and violence perpetration: The protective effects of family functioning. *Journal of Clinical Child and Adolescent Psychology, 33*(3), 439-449.

Gorman-Smith, D. & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology, 10,* 101-116.

Gusfield, J. R. (1975). *The community: A critical response.* New York: Harper Colophon.

Hagedorn, J. M. (2013). *Safely passing through the history and territory of Chicago street gangs.* Retrieved from https://www.ctunet.com/pdf/Safely-Passing-Through-History-and-Territory-of-Chicago-Gangs.pdf

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods, 20*(1), 102-116.

Heller, K. (1989). The return to community. *American Journal of Community Psychology, 17*(1), 1-15.

Hilarski, C. (2006). Exploring predictive factors for substance use in African American and Hispanic youth using an ecological approach. *Journal of Social Service Research, 32*(1), 65-86.

Hipp, J. R. & Wickes, R. (2016). Violence in urban neighborhoods: A longitudinal study of collective efficacy and violent crime. *Journal of Quantitative Criminology*, 1-26.

Hipp, J. R. & Wo, J. C. (2015). Collective efficacy and crime. In J. Wright (Ed.), *International encyclopedia of the social & behavioral sciences, 2nd edition, volume 4* (pp. 169-173).

Jason, L. A., Stevens, E., & Ram, D. (2015). Development of a three-factor psychological sense of community scale. *Journal of Community Psychology, 43*, 973-985.

Jason, L. A., Stevens, E., Ram, D., Miller, S. A., Beasley, C. R., & Gleason, K. (2016). Theories in the field of community psychology. *Global Journal of Community Psychology Practice, 7*(2), 1-27.

Johnson, S. R., Finigan, N. M., Bradshaw, C. P., Haynie, D. L., & Cheng, T. L. (2011). Examining the link between neighborhood context and parental messages to their adolescent children about violence. *Journal of Adolescent Health, 49*(1), 58-63.

Kearney, M. W. (2017). Cross-lagged panel analysis. In M. R. Allen (Ed.), *The SAGE encyclopedia of communication research methods* (pp. 313-314). Thousand Oaks, CA: SAGE Publications, Inc.

Kennedy, A. C., Bybee, D., Sullivan, C. M., & Greeson, M. (2009). The effects of community and family violence exposure on anxiety trajectories during middle childhood: The role of family social support as a moderator. *Journal of Clinical Child and Adolescent Psychology, 38*(3), 365-379.

Kennedy, A. C., Bybee, D., Sullivan, C. M., & Greeson, M. (2010). The impact of family and community violence on children's depression trajectories: Examining the interactions of violence exposure, family social support, and gender. *Journal of Family Psychology, 24*(2), 197-207.

Kennedy, T. M. & Ceballo, R. (2016). Emotionally numb: Desensitization to community violence exposure among urban youth. *Developmental Psychology, 52*(5), 778-789.

Kline, R. B. (2016). *Principles and practice of structural equation modeling.* New York, NY: The Guilford Press.

Kornhauser, R. (1978). *Social sources of delinquency.* Chicago, IL: University of Chicago Press.

Lambert, S. F., Bettencourt, A. F., Bradshaw, C. P., & Ialongo, N. S. (2013). Early predictors of urban adolescents community violence exposure. *Journal of Aggression, Maltreatment, & Trauma, 22,* 26-44.

Lambert, S. F., Bradshaw, C. P., Cammack, N. L., & Ialongo, N. S. (2011). Examining the developmental process of risk for exposure to community

violence among urban youth. *Journal of Prevention & Intervention in the Community, 39*(2), 98-113.

Lambert, S. F., Copeland-Linder, N., & Ialongo, N. S. (2008). Longitudinal associations between community violence exposure and suicidality. *Journal of Adolescent Health, 43*(4), 380-386.

Lambert, S. F., Ialongo, N. S., Boyd, R. C., & Cooley, M. R. (2005). Risk factors for community violence exposure in adolescence. *American Journal of Community Psychology, 36*(1/2), 29-48.

Larsen, R. (2011). Missing data imputation versus full information maximum likelihood with second-level dependencies. *Structural Equation Modeling: A Multidisciplinary Journal, 18*(4), 649-662.

Lee, J. C. & Park, H. (2017). *In 15 high-profile cases involving deaths of Blacks, one officer faces prison time.* Retrieved from https://www.nytimes.com/interactive/2017/05/17/us/black-deaths-police.html

Lee, T. (2013). *Amid mass school closings, a slow death for some Chicago schools.* Retrieved from http://www.msnbc.com/msnbc/dont-call-it-school-choice

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*(2), 130-149.

Mazerolle, L., Wickes, R., & McBroom, J. (2010). Community variations in violence: The role of social ties and collective efficacy in comparative context. *Journal of Research in Crime and Delinquency, 47*(1), 3-30.

McDonald, C. C., Deatrick, J. A., Kassam-Adams, N., & Richmond, T. S. (2011). Community violence exposure and positive youth development in urban youth. *Journal of Community Health, 36*(6), 925-932.

McGhee, J. (2014). *MLK peace chain founder seeks thousands to hold hands against violence.* Retrieved from http://www.dnainfo.com/chicago/20140520/woodlawn/mlk-peace-chain-founder-seeks-thousands-hold-hands-against-violence/

McLaughlin, K. A., Hilt, L. M., & Nolen-Hoeksema, S. (2007). Racial/ethnic differences in internalizing and externalizing symptoms in adolescents. *Journal of Abnormal Child Psychology, 35*(5), 801-816.

McMahon, S. D., Felix, E. D., Halpert, J. A., & Petropoulos, L. A. N. (2009). Community violence exposure and aggression among urban adolescents: Testing a cognitive mediator model. *Journal of Community Psychology, 37*(7), 895-910.

McMillan, D. W. & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14*, 6-23.

MetroPulse. (2015). *Community Data Snapshot Englewood*. Retrieved from http://www.cmap.illinois.gov/documents/10180/126764/Englewood.pdf

Mohammad, E. T., Shapiro, E. R., Wainwright, L. D., & Carter, A. S. (2015). Impacts of family and community violence exposure on child coping and mental health. *Journal of Abnormal Child Psychology, 43*(2), 2013-215.

Morenoff, J. D., Sampson, R. J., & Raudenbush, S. W. (2001). Neighborhood inequality, collective efficacy, and the spatial dynamics of urban violence. *Criminology, 39*(3), 517-558.

Muthen, L. K. & Muthen, B. O. (1998-2017). *Mplus user's guide* (8th ed.). Los Angeles, CA: Muthen & Muthen.

Nickerson, A. B. & Slater, E. D. (2009). School and community violence and victimization as predictors of adolescent suicidal behavior. *School Psychology Review, 38*(2), 218-232.

Ong, D. C. (2014). *A primer to bootstrapping; and an overview of doBootstrap.* Retrieved from https://web.stanford.edu/class/psych252/tutorials/doBootstrapPrimer.pdf

Osofsky, J. D. (1995). The effects of exposure to violence on young children. *American Psychologist, 50*, 782-788.

Patillo, M. (1998). Sweet mothers and gangbangers: Managing crime in a black middle-class neighborhood. *Social Forces, 76*(3), 747-774.

Park, M. (2018). *Chicago police count fewer murders in 2017, but still 650 people were killed.* Retrieved from https://www.cnn.com/2018/01/01/us/chicago-murders-2017-statistics/index.html

Perkins, D. D., Florin, P., Rich, R. C., Wandersman, A., & Chavis, D. M. (1990). Participation and the social and physical environment of residential

blocks: Crime and community context. *American Journal of Community Psychology, 18*(1), 83-115.

Pinchevsky, G. M., Wright, E. M., & Fagan, A. A. (2013). Gender differences in the effects of exposure to violence on adolescent substance use. *Violence and Victims, 28*(1), 122-144.

Putnam, R. D. (2000). Bowling alone: America's declining social capital. In *Culture and politics* (pp. 223-234). Palgrave Macmillan US.

Reiss, A. J. (1986). Why are communities important in understanding crime? *Crime and Justice, 8*, 1-33.

Richards, M. H., Romero, E., Zakaryan, A., Carey, D., Deane, K., Quimby, D., … & Burns, M. (2015). Assessing urban African American youths' exposure to community violence through a daily sampling method. *Psychology of Violence, 5*(3), 275-284.

Richters, J. E. & Martinez, P. (1990). *Things I Have Seen and Heard: A structured interview for assessing youth children's violence exposure.* Unpublished manuscript, National Institute of Mental Health, Rockville, MD.

Richters, J. E. & Saltzman, W. (1990). *Survey of exposure to community violence: Self-report version.* Unpublished manuscript.

Robinson, W. L., Case, M. H., Whipple, C. R., Gooden, A. S., Lopez-Tamayo, R., Lambert, S. F., & Jason, L. A. (2016). Culturally-grounded stress reduction and suicide prevention for African American adolescents. *Practice Innovations, 1*(2), 117-128.

Robinson, W. L., Droege, J. R., Case, M. H., & Jason, L. A. (2015). Reducing stress and preventing anxiety in African American adolescents: A culturally-grounded approach. *Global Journal of Community Psychology Practice, 6*(2).

Robinson, W. L., Droege, J. R., Hipwell, A., Stepp, S., & Keenan, K. (2016). Brief report: Suicidal ideation in adolescent girls: Impact of race. *Journal of Adolescence, 53,* 16-20.

Robinson, W. L., Paxton, K. C., & Jonen, L. P. (2011). Pathways to aggression and violence among African American adolescent males: The influence of normative beliefs, neighborhood, and depressive symptomatology. *Journal of Prevention & Intervention in the Community, 39*(2), 132-148.

Salzinger, S., Ng-Mak, D. S., Feldman, R. S., Kam, C., & Rosario, M. (2006). Exposure to community violence: Processes that increase the risk for inner-city middle school children. *Journal of Early Adolescence, 26*(2), 232-266.

Sampson, R. J. (2008). Collective efficacy theory: Lessons learned and directions for future inquiry. In F. T. Cullen & J. P. Wright (Eds.), *Taking stock: The status of criminological theory: Advances in criminological theory Volume 15* (pp. 149-167). New Brunswick, NJ: Transaction Publishers.

Sampson, R. J. (2012). *Great American city: Chicago and the enduring neighborhood effect.* Chicago, IL: University of Chicago Press.

Sampson, R. J. (2018). Sampson, Robert J: Collective efficacy theory. In F. T. Cullen & P. Wilcox (Eds.), *Encyclopedia of criminological theory* (pp. 802-805). Thousand Oaks, CA: SAGE Publications, Inc.

Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: Testing social-disorganization theory. *The American Journal of Sociology, 94*(4), 774-802.

Sampson, R. J., Morenoff, J. D., & Raudenbush, S. (2005). Social anatomy of racial and ethnic disparities in violence. *American Journal of Public Health, 95*(2), 224-232.

Sampson, R. J. & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology, 105*(3), 603-651.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918-924.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1998). Reducing violence through neighborhood collective efficacy. *Alternatives to Incarceration, 4*(4), 18-19.

Sampson, R. J. & Wikström, P. O. (2008). The social order of violence in Chicago and Stockholm neighborhoods: A comparative inquiry. *Order, Conflict, and Violence*, 97-119.

Schneider, A. & Schneider, P. (1977). *Private and public-minded citizen responses to a neighborhood-based crime prevention strategy*. Eugene, OR: Institute for Policy Analysis.

Schwab-Stone, M., Koposov, R., Vermeiren, R., & Ruchkin, V. (2013). Cross-cultural findings on community violence exposure and internalizing psychopathology: Comparing adolescents in the United States, Russia, and Belgium. *Child Psychiatry and Human Development, 44*(4), 516-524.

Selig, J. P. & Little, T. D. (2012). Autoregressive and cross-lagged panel analysis for longitudinal data. In B. Laursen, T. D. Little, & N. A. Card (Eds.), *Handbook of developmental research methods* (pp. 265-278). New York, NY: The Guildford Press.

Senn, T. E., Walsh, J. L., & Carey, M. P. (2016). Mediators of the relation between community violence and sexual risk behavior among adults attending a public sexually transmitted infection clinic. *Archives of Sexual Behavior, 45*(5), 1069-1082.

Simon, D. (2017). *Trayvon Martin's death sparked a movement that lives on five years later.* Retrieved from https://www.cnn.com/2017/02/26/us/trayvon-martin-death-anniversary/index.html

Simon, M. D. (2018). *Chicago school officials postpone closure plans following backlash.* Retrieved from https://www.nbcnews.com/news/nbcblk/chicago-school-officials-postpone-closure-plans-following-backlash-n847336

Shaw, C. & McKay, H. D. (1942). *Juvenile delinquency and urban areas.* Chicago, IL: University of Chicago Press.

Sheidow, A. J., Gorman-Smith, D., Tolan, P. H., & Henry, D. B. (2001). Family and community characteristics: Risk factors for violence exposure in inner-city youth. *Journal of Community Psychology, 3*, 345-360.

Skogan, W. G. (1990). *Disorder and decline: Crime and the spiral of decay in American neighborhoods.* University of California Press.

Smith, E. P., Osgood, D. W., Caldwell, L., Hynes, K., & Perkins, D. F. (2013). Measuring collective efficacy among children in community-based afterschool programs: Exploring pathways toward prevention and positive youth development. *American Journal of Community Psychology, 52*, 27-40.

Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation modeling. *Personality and Individual Differences, 42*(5), 893-898.

Stevens, E. B., Jason, L. A., & Ferrari, J. R. (2011). Measurement performance of the Sense of Community Index in substance abuse recovery communal housing. *Australian Community Psychologist, 23*, 135-147.

Sutherland, A., Brunton-Smith, I., & Jackson, J. (2013). Collective efficacy, deprivation and violence in London. *British Journal of Criminology, 53*(6), 1050-1074.

Sweatt, L., Harding, C. G., Knight-Lynn, L., Rasheed, S., & Carter, P. (2002). Talking about the silent fear: Adolescents' experiences of violence in an urban high-rise community. *Adolescence, 37*(145), 109-120.

Sweeney, C. K., Goldner, J., & Richards, M. H. (2011). Exposure to community violence and daily feeling states among urban African American youth. *Journal of Prevention & Intervention in the Community, 39*(2), 114-131.

Thomas, A., Caldwell, C. H., Jagers, R. J., & Flay, B. R. (2016). It's in my hood: Understanding African American boys' perception of safety in their neighborhoods. *Journal of Community Psychology*, *44*(3), 311-326.

Thomas, A. J., Carey, D., Prewitt, K. R., Romero, E., Richards, M., & Velsor-Friedrich, B. (2012). African-American youth and exposure to community violence: Supporting change from the inside. *Journal for Social Action in Counseling and Psychology*, *4*(1), 54-68.

Trickett, P. K., Duran, L., & Horn, J. L. (2003). Community violence as it affects child development: Issues of definition. *Clinical Child and Family Psychology Review*, *6*(4), 223-236.

Truman, J. L. & Morgan, R. E. (2016). *Criminal Victimization, 2015.* Retrieved from http://www.bjs.gov/content/pub/pdf/cv15.pdf

U.S. Census Bureau. (2017). *Educational attainment, 2012-2016 American Community Survey 5-year estimates.* Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1501&prodType=table

U.S. Census Bureau. (2017). *Selected housing characteristics, 2012-2016 American Community Survey 5-year estimates.* Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_DP04&prodType=table

Vermeiren, R., Ruchkin, V., Leckman, P. E., Deboutte, D., & Schwab-Stone, M. (2002). Exposure to violence and suicide risk in adolescents: A community study. *Journal of Abnormal Child Psychology, 30*(5), 529-537.

Vevea, B., Lutton, L., & Karp, S. (2013). *The history of school closings in Chicago 2002-12.* Retrieved from https://www.wbez.org/shows/wbez-news/the-history-of-school-closings-in-chicago-200212/cdfc0755-27b9-48de-b5be-bce992124048

Voisin, D. R., Patel, S., Hong, J. S., Takahashi, L., & Gaylord-Harden, N. (2016). Behavioral health correlates of exposure to community violence among African-American adolescents in Chicago. *Children and Youth Services Review, 69,* 97-105.

Voisin, D. R., Tan, K., Tack, A. C., Wade, D., & DiClemente, R. (2012). Examining parental monitoring as a pathway from community violence exposure to drug use, risky sex, and recidivism among detained youth. *Journal of Social Service Research, 38*(5), 699-711.

Whyte, W. F. (1943). *Street corner society: The social structure of an Italian slum.* Chicago, IL: Univerisy of Chicago Press.

Wilson, J. Q. & Kelling, G. L. (1982). Broken windows. *The Atlantic Monthly,* 29-38.

Wilson, W. J. (1996). *When work disappears: The world of the new urban poor.* New York, NY: Knopf.

Wilson, W. J. (1998). *When work disappears: New implications for race and urban poverty in the global economy.* Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.527.8093&rep=rep1&type=pdf

Wright, E. M., Fagan, A. A., & Pinchevsky, G. M. (2013). The effects of exposure to violence and victimization across life domains on adolescent substance use. *Child Abuse & Neglect, 37*(11), 899-909.

Zimbardo, P. (1969). Diary of a vandalized car. *Time Magazine.* Retrieved from http://content.time.com/time/magazine/article/0,9171,900702,00.html

Zimmerman, G. M. & Messner, S. F. (2013). Individual, family background, and contextual explanations of racial and ethnic disparities in youths' exposure to violence. *American Journal of Public Health, 103*(3), 435-442.

Appendix A

Measures

Children's Report of Exposure to Violence

The next questions ask about VIOLENCE that may have happened at school or in your neighborhood during the past year. Please fill in the bubble that is most true for you.

These questions ask about violence against a stranger:

	Never	One time	A few times	Many times	Every day
1. How many times have you been told a stranger was beaten up?	O	O	O	O	O
2. How many times have you seen a stranger being beaten up?	O	O	O	O	O
3. How many times have you been told a stranger was chased or threatened?	O	O	O	O	O
4. How many times have you seen a stranger being chased or threatened?	O	O	O	O	O
5. How many times have you been told a stranger was robbed or mugged?	O	O	O	O	O
6. How many times have you seen a stranger being robbed or mugged?	O	O	O	O	O
7. How many times have you been told a stranger was shot or stabbed?	O	O	O	O	O
8. How many times have you seen a stranger being shot or stabbed?	O	O	O	O	O
9. How many times have you been told a stranger was killed?	O	O	O	O	O
10. How many times have you seen a stranger being killed?	O	O	O	O	O

The next questions ask about violence <u>against anyone you know</u>. Please <u>fill in the bubble</u> that is most true for you.

	Never	One time	A few times	Many times	Every day
11. How many times have you been told somebody you know was beaten up?	O	O	O	O	O
12. How many times have you seen somebody you know being beaten up?	O	O	O	O	O
13. How many times have you been told somebody you know was chased or threatened?	O	O	O	O	O
14. How many times have you seen somebody you know being chased or threatened?	O	O	O	O	O
15. How many times have you been told somebody you know was robbed or mugged?	O	O	O	O	O
16. How many times have you seen somebody you know being robbed or mugged?	O	O	O	O	O
17. How many times have you been told somebody you know was shot or stabbed?	O	O	O	O	O
18. How many times have you seen somebody you know being shot or stabbed?	O	O	O	O	O
19. How many times have you been told somebody you know was killed?	O	O	O	O	O
20. How many times have you seen somebody you know being killed?	O	O	O	O	O
21. How many times have you been beaten up?	O	O	O	O	O
22. How many times have you been chased or threatened?	O	O	O	O	O

23. How many times have you been robbed or mugged?	O	O	O	O	O
24. How many times have you been shot or stabbed?	O	O	O	O	O
25. How many times have you heard gunshots?	O	O	O	O	O

Neighborhood Collective Efficacy Scale

Now I'm going to read some statements about things that people in your neighborhood may or may not do. For each of these statements, please tell me whether you strongly disagree, disagree, agree or strongly agree. Please fill in the bubble that is most true for

	Strongly Disagree	Disagree	Agree	Strongly agree
1. This is a close-knit neighborhood.	O	O	O	O
2. People around here are willing to help their neighbors.	O	O	O	O
3. People in this neighborhood generally don't get along with each other.	O	O	O	O
4. People in this neighborhood do not share the same values.	O	O	O	O
5. People in this neighborhood can be trusted.	O	O	O	O

For each of the following, please tell me if it is very likely, likely, unlikely or very unlikely that people in your neighborhood would act in the following manner.

	Very unlikely	Unlikely	Likely	Very likely
6. If a group of neighborhood children were skipping school and hanging out on a street corner, how likely is it that your neighbors would do something about it?	O	O	O	O
7. If someone were spray-painting graffiti on a local building, how likely is it that your neighbors would do something about it?	O	O	O	O
8. If a child was showing disrespect to an adult, how likely is it that people in your neighborhood would scold that child?	O	O	O	O
9. If there was a fight in front of your house and someone was being	O	O	O	O

beaten or threatened, how likely is it that your neighbors would break it up?				
10. Suppose that because of budget cuts the fire station closest to your home was going to be closed down by the city. How likely it is that neighborhood residents would organize to try to do something to keep the fire station open?	O	O	O	O

Appendix B

Table 12

Correlations for Collective Efficacy Model Variables

	1	2	3	4	5	6	7	8	9	10	11
1. CV1	-										
2. CV2	.469	-									
3. CV3	.489	.497	-								
4. CV4	.364	.441	.490	-							
5. CE1	-.064	-.045	-.068	.016	-						
6. CE2	-.008	.070	.041	.074	.390	-					
7. CE3	-.055	-.046	.064	.029	.388	.473	-				
8. CE4	-.060	-.007	-.022	.022	.316	.445	.533	-			
9. Cond	.013	.089	.069	.041	.049	.071	.073	.067	-		
10. Age	.176	.031	.096	.041	-.016	-.051	-.014	-.043	.031	-	
11. Edu	.081	-.002	.065	.031	-.110	-.018	.066	.044	.034	.065	-

Note. CV = community violence exposure; CE = collective efficacy; Cond = condition; Edu = education

Table 13

Correlations for Social Cohesion Model Variables

	1	2	3	4	5	6	7	8	9	10	11
1. CV1	-										
2. CV2	.469	-									
3. CV3	.488	.497	-								
4. CV4	.364	.442	.491	-							
5. SC1	-.185	-.147	-.162	-.095	-						
6. SC2	-.032	-.047	-.065	-.001	.275	-					
7. SC3	-.100	-.121	-.082	-.035	.365	.366	-				
8. SC4	-.099	-.090	-.059	-.062	.283	.326	.405	-			
9. Cond	.013	.089	.068	.042	.066	.055	.060	.057	-		
10. Age	.176	.031	.095	.043	-.009	-.056	-.035	-.040	.031	-	
11. Edu	.081	-.001	.064	.031	-.110	-.036	.028	.011	.034	.065	-

Note. CV = community violence exposure; SC = social cohesion; Cond = condition; Edu = education

Table 14

Correlations for Informal Social Control Model Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. CV1	-											
2. CV2	.470	-										
3. CV3	.488	.496	-									
4. CV4	.361	.439	.488	-								
5. ISC1	.038	.038	.020	.094	-							
6. ISC2	.008	.127	.093	.102	.376	-						
7. ISC3	-.016	.004	.131	.059	.330	.430	-					
8. ISC4	-.027	.038	-.003	.063	.323	.414	.481	-				
9. Cond	.013	.089	.068	.039	.022	.063	.066	.055	-			
10. Age	.176	.030	.095	.038	-.018	-.037	.000	-.037	.031	-		
11. Gen	.033	.068	.010	.032	.088	.038	.168	.040	-.033	-.048	-	
12. Edu	.081	-.001	.065	.031	-.079	-.005	.073	.047	.034	.065	.040	-

Note. CV = community violence exposure; ISC = informal social control; Cond = condition; Gen = gender; Edu = education