8-2018

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Recommended Citation

Burnside, Amanda N.; Gaylord-Harden, Noni K.; So, Suzanna; and Voisin, Dexter R.. A Latent Class Analysis of Community Violence Exposure and Peer Delinquency in African American Adolescents. Children and Youth Services Review, 91, : 27, 2018. Retrieved from Loyola eCommons, Psychology: Faculty Publications and Other Works, http://dx.doi.org/10.1016/j.childyouth.2018.06.014

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1. Introduction

African American adolescents living in economically disadvantaged urban communities are disproportionately exposed to community violence (ECV) (e.g., Zimmerman & Messner, 2013). However, recent person-centered analytic investigations of ECV indicate considerable variability in such exposure for this population (Copeland-Linder, Lambert, & Ialongo, 2010; Gaylord-Harden, Zakaryan, Bernard & Pekoc, 2015). The identification of variability in ECV violence in youth is consistent with recent sociological research with adults demonstrating that violence in urban communities is concentrated in a small social network of individuals linked by delinquent activity (Papachristos, Wildeman, & Roberto, 2014). This suggests that the variability in peer networks may help to disambiguate the variability in ECV among adolescents. The examination of profiles may provide critical information on the peer networks of youth with low levels of exposure, as well as which adolescents may be particularly vulnerable for high levels of exposure based on the composition of their peer networks (Copeland-Linder et al., 2010). Thus, the purpose of the current study was to utilize latent profile analysis (LPA) with African American adolescents to identify profiles of ECV and delinquent peer affiliation. Understanding how the variability in ECV is associated with the variability in delinquent peer affiliation may help to identify profiles of youth who are vulnerable to high levels of ECV. In addition, the current study sought to determine how profile membership predicts aggression and delinquency, as well as future orientation and self-esteem. By examining aggression and delinquency as outcomes of profile membership, the current study can identify critical levels of risk in ECV and delinquent peer affiliation and provide information about when to intervene. In addition, examining future orientation and self-esteem as

outcomes of profile membership may yield information about malleable processes that can be targeted to maximize violence intervention efficacy/effectiveness.

1.1 Exposure to community violence in African American adolescents

Exposure to community violence has been defined in several ways. Violence taking place outside the home among persons who may know or not know each other (Krug, Mercy, Dahlberg, & Zwi, 2002). Deliberate acts intended to cause physical harm against a person or persons in the community (Cooley-Strickland et al., 2009). Frequent and continual exposure to random violence, involving guns and drugs in the community and includes witnessing, knowing victims of such acts and being victimized (Overstreet, 2000). Such violence is of an interpersonal nature, committed in public areas, and by individuals who are not intimately related to the individual (Kennedy & Ceballo, 2014). Adolescents may witness violence occurring in their communities and/or they may be a victim of violent acts in the community (Fowler et al., 2009). African American adolescents in low-income, urban communities are exposed to disproportionately higher levels of ECV than youth from other ethnic and socioeconomic groups (Zimmerman & Messner, 2013). Between 45 and 96% of African American youth have witnessed violence in their community, ranging from assault to murder (Gaylord-Harden, Cunningham & Zelencik, 2011; Self-Brown et al., 2006) and estimates ranging from 16% - 37% report violent victimization (Farrell & Bruce, 1997; Spano & Bolland, 2013). Exposure is often repeated and ongoing, with 75% of African American youth witnessing four or more violent events during adolescence (Miller et al., 1999).

1.2 Gender differences in exposures to community violence.

Males and females report exposure to the same forms of community violence (Malik, Sorenson, & Aneshensel, 1997). However, with the exception of sexual assault, males experience higher levels of ECV, including both direct victimization and witnessing (Boyd et al., 2003; Chen & Astor, 2009; Springer & Padgett, 2000; Voisin, Bird, Hardesty & Shi, 2010). One in four African

American males report victimization (e.g., beaten or shot at), compared to 12% of African American females (Chen, 2009), often more than once during adolescence (Gaylord-Harden et al., 2011). Further, gender socialization theories suggest that boys are more likely than girls to externalize their problems (Nolen-Hoeksema & Girgus, 1994). Indeed, male adolescents report more self-protective (e.g., carrying a weapon) and aggressive behaviors in response to ECV, while females report more internalizing symptoms (Reese et al., 2001; Self-Brown et al., 2006; Voisin et al., 2010).

1.3 Variability in exposures to community violence in African American youth

The research reviewed above utilizes variable-based analyses to understand rates of ECV during adolescence. However, a burgeoning body of research employs person-centered analysis with African American adolescents to provide insight into patterns of variability within data and identify distinct profiles of participants based on ECV. For example, a profile analysis of African American adolescents showed that the profile with the highest level of ECV was comprised of only 5% of the participants, while the low exposure profile comprised 77% of the sample (Copeland-Linder, Lambert, & Ialongo, 2010). A recent cluster analysis with African American male adolescents found that the cluster with the highest level of ECV and aggressive behavior only characterized 8% of the sample, whereas the cluster with low levels of ECV and aggressive behavior characterized 62% of the youth (Gaylord-Harden et al., 2015). Still, a latent profile analysis of ECV in African American adolescents in low-income, urban communities demonstrated that 27% of the participants were exposed to high levels of community violence (Gaylord-Harden, Dickson & Pierre, 2016). While these findings provide valuable insight into the variability of ECV in African American youth, these findings also suggest that research is warranted to identify factors that may be associated with the variability in ECV to determine who is most likely to be exposed to high levels of violence and who should be targeted for intervention efforts.

1.4 Peer Delinquency and variability in exposures to community violence

Recent sociological research demonstrates that the overwhelming majority of fatal and non-fatal shootings in large cities occur in a single and small social network (Papachristos, Braga, & Hureau, 2012; Papachristos et al., 2014). By linking arrest records of men, the researchers found that men exposed to high rates of gun violence are part of a small, concentrated network of individuals connected to one another through their co-engagement in criminal activity. Thus, ECV was heavily linked to the distribution of delinquent behavior in an individual's peer network. While these studies were with adult men, the findings suggest that peer network composition may help to understand the variability in ECV during adolescence.

Decades of research suggest that peer relationships become more important during adolescence (Brown & Larson, 2009; LaGreca & Prinstein, 1999), and peer network composition is an important area of research on adolescent peer relationships (e.g., De Kemp, Scholte, Overbeek, & Engels, 2006). Early research demonstrated a strong association between affiliation with delinquent peers and community violence exposure (Fagan, Piper & Cheng, 1987; Jensen & Brownfield, 1986; Sampson & Lauritsen, 1990). However, more recent research is unclear, as some research shows that peer networks are not a risk factor for ECV (Halliday-Boykins & Graham, 2001), while other research demonstrates that delinquent peer affiliation predicts subsequent ECV (Lambert et al., 2005; Salzinger et al. 2006). However, this research is variable-centered, and given the heterogeneity in the peer networks of African American adolescents (McGill, Way & Hughes, 2012; Way & Chen, 2000), the use of person-centered analyses may provide a stronger understanding of how delinquent peer affiliation relates to the variability in ECV. Consistent with the differential association theory (Sutherland, 1947), which states that adolescents' peer networks expose them to both delinquent and non-delinquent peers, research with a national dataset demonstrated considerable variability in the proportion of delinquent peers in adolescent networks (Haynie, 2002). What is unknown is how these findings generalize to youth who live in

communities with disproportionately greater opportunities for exposure to community violence. Utilizing person-centered analysis to examine the profiles of ECV and delinquent peer affiliation will provide information on how variability in delinquent peer affiliation helps to understand the variability in ECV, as well as provide more clarity to the literature on the association between delinquent peer affiliation and ECV.

1.5 Psychosocial Outcomes of exposures to community violence and peer delinquency

In addition to identifying profiles of ECV and delinquent peer affiliation, examining profile differences on various psychosocial outcomes can advance the literature in this area and inform intervention efforts. ECV is associated with numerous psychosocial outcomes during adolescence, but it is most consistently and strongly associated with aggressive and delinquent behaviors during this developmental period (Fowler et al., 2009). Adolescents who report higher levels of witnessing violence show significantly more delinquent and aggressive behaviors (Bingenheimer, Brennan, & Earls, 2005; Patchin et al, 2006). Further, the relationship between ECV and delinquent and aggressive behaviors exists even when controlling for prior externalizing behaviors (Lynch, 2003). Externalizing behaviors may serve to perpetuate and exacerbate ECV. Specifically, youth who are engaging in more externalizing behaviors are at-risk for increased ECV, which subsequently could lead to the engagement in more delinquent or aggressive behaviors (Lynch, 2003).

Additionally, delinquent peer affiliation is associated with more aggressive behavior and delinquent behavior (Brook, Brook, Rubenstone, Zhang & Saar, 2011; Farrell, Thompson, & Mehari, 2017; Reynolds & Crea, 2015). In fact, involvement with delinquent peers during adolescence predicts more aggressive behaviors over time, and youth who leave delinquent peer networks during adolescence show declines in aggressive behavior (Lacourse, Nagin, Tremblay, Vitaro, & Claes, 2003). According to differential association theory (Sutherland, 1947), youth learn

to engage in delinquent behavior through their relationship with delinquent peers, especially when those peers provide positive reinforcement for delinquent behavior (Dishion & Tipsord, 2011).

The associations of ECV and delinquent peer affiliation to aggressive and delinquent behaviors may occur in conjunction with associations of ECV and delinquent peer affiliation to youth's perceptions of themselves, the world, and their pathways to their future (Garbarino, 2001). Future orientation and self-esteem are two positive and motivational constructs related to how one views the world and develops a vision about possibilities (Huitt, 2009; Nurmi, 1991). Future orientation provides the underpinnings for setting one's goals and plans for the future (Stoddard, Zimmerman, & Bauermeister, 2011), and self-esteem generally refers to how individuals value or feel about themselves (Huitt, 2009).

Due to the uncontrollable nature of ECV, adolescents who grow up in violent environments may experience more hopelessness about the future, and as a result, they may be less concerned with the long-term consequences of risky or aggressive behavior (Stoddard et al., 2011). However, if youth think about themselves in a positive future state, they may be motivated to pursue their future goals by desisting from associating with delinquent peers and engagement in delinquent and aggressive behaviors (Knox et al., 1998). Indeed, higher levels of future orientation are associated with lower levels of aggression and delinquency (Chen & Vazsonyi, 2013; So, Voisin, Burnside & Gaylord-Harden, 2016). In fact higher levels of future orientation predict decreases in violent behaviors in African American adolescents, whereas lower levels of future orientation increased violent behavior over time (Stoddard et al., 2011). Similar findings have been noted for self-esteem and its association to delinquent behaviors during adolescence (Jackman & MacPhee, 2017). Thus, it may be important to include constructs such as future orientation and self-esteem as outcomes, as they may be malleable components to the process of successfully navigating environments with high violence (McCabe & Barnett, 2000).

1.6 The Current Study

Undoubtedly, variable-centered approaches have been useful for understanding and describing the associations among study variables (Laursen & Hoff, 2006), and several studies demonstrate an association between affiliation with delinquent peers and ECV (e.g. Lambert et al., 2005). Yet, variable-based analyses inherently assume that the sample population is homogeneous (Laursen & Hoff, 2006), while more recent research reveals variability in African American adolescents' ECV (e.g. Copeland-Linder et al., 2010; Gaylord-Harden et al., 2015). Sociological research suggests that the composition of African American adolescents' peer networks may be related to variability in ECV. The use of LPA could help determine whether there may be certain profiles of individuals who share particular attributes that may explain some of the differences in both positive and negative outcomes and may serve as important targets for intervention.

The current study was guided by two overarching aims. The first aim was to utilize LPA to group adolescents into profiles of ECV and affiliation with delinquent peers. Consistent with prior research, it was hypothesized that at least two profiles would be represented by the data—a profile high on both ECV and peer delinquency and a profile low on both ECV and peer delinquency. However, no additional predictions were made regarding the exact number of profiles. Consistent with prior research, it was also expected that the low profile would contain the largest number of participants, while the high profile would contain the fewest number of participants. Our second aim was to examine differences in profile membership on the following outcomes: youth delinquency, aggression, future orientation, and self-esteem, while considering gender as a moderator. Given the paucity of research in this area, this aim was exploratory.

2. Methods

2.1 Participants

Data for the current study were derived from a larger study examining ECV and HIV risk in African American adolescents in high school. There were a total of 638 participants in the larger study, and 618 of these participants (54.7% female; mean age = 15.8, SD = 1.41) had complete data on the variables of interest in the current study. Participants were recruited from low-income African American communities, where the average yearly median incomes ranged from $24,049 to $35,946, with the city average being $43,628. A total of 75.3% of the participants were receiving public assistance. Participants who were included in the current analyses did not differ significantly from excluded participants on gender (p = .39) or age (p = .61). Means, standard deviations, and bivariate correlations among study variables are presented in Table 1.

2.2 Procedure

A university Institutional Review Board approved the study. With permission from principals and executive directors, youth were recruited from high schools, community youth programs, a youth church group, and 4 public venues frequented by youth (e.g., parks, fast food outlets and movie theaters). The majority of participants were recruited in school and community programs (88%), and the rest in churches (9%) and public venues (4%). Youth recruited from schools, community programs, and churches that returned signed consent forms were assented and enrolled in the study. Youth recruited in public venues were only asked to participate if a parent was present to provide consent. Trained research assistants supervised all participants completing the self-administered survey to minimize interruptions and to maintain an environment of confidentially. Those recruited from schools, community programs, and churches were administrated the survey in those respective locations. The few individuals who were recruited in public venues (e.g., parks and fast food venues) were administered the questionnaires in quiet spaces at or near those venues.

2.3 Measures

2.3.1. Demographics. Information was collected on a variety of demographic variables, including: age, sex, race, and grade level.

2.3.2. Exposure to Community Violence. This was assessed by utilizing a subset of items derived from the Exposure to Violence Probe (Stein, Walker, Hazen, & Forde, 1997; Voisin, 2002). Seven items measured the frequency of witnessing or being the victim of community violence. Items were rated on a seven-point scale for how frequently they had occurred ever in their life ("0 times" to "more than 6 times"), and a composite score for ECV was calculated by summing up the 7 items. Cronbach's alpha for the current sample was acceptable ($\alpha = .87$).

2.3.3. Peer Delinquency. Delinquent behaviors of peers were measured using an adapted version of a negative peer behaviors scale (Fleming, Catalano, Haggerty, & Abbott, 2010). Twelve items asked the youth about their ten closest friends and the number who engage in delinquent behaviors on a five-point scale ranging from "none" to "most." Behaviors assessed include substance use (e.g. "How many of your ten closest friends drink alcohol?"), school behaviors (e.g. "How many of your ten closest friends skip school or class?"), and violence-related behaviors ("How many of your ten closest friends carry guns?"). A total score for peer delinquency ($\alpha = .91$) was created by summing the response for all 12 items, with higher scores indicating higher rates of delinquency. Due to positive skewness of the composite scores, logarithmic transformations were used in analyses.

2.3.4. Youth Delinquency. Delinquent behaviors of the youth participants were measured with an adapted version of a crime and delinquency measure (Chen, Voisin, & Jacobson, 2013). Ten items inquired about the frequency of illegal, norm-violating, and aggressive behaviors in the last 12 months (e.g. "Hurt someone badly enough for them to need bandages or a doctor"). Responses were rated on a six-point scale from 0 times to 12 or more times, and a composite delinquent behaviors score was calculated by summing the responses for all 10 items. Cronbach's alpha for the

current dataset was acceptable (α = .90). Due to positive skewness of the composite scores, logarithmic transformations were used in analyses.

2.3.5. Future Orientation. A modified version of a scale (Whitaker, Miller, & Clark, 2000) with items derived from Coopersmith's Self-Esteem Scale (Coopersmith, 1967) was used to assess future orientation. Items from the modified scale have been adapted and used in prior research (Robbins & Byran, 2004, α = .73). Ten items assessed perceptions of perceived control (e.g. "I have little control over the things that happen to me"), positive future outlook (e.g. "What happens to my future mostly depends on me"), and hopelessness (e.g. "Sometimes I feel there is nothing to look forward to in the future") within the last 6 months on a three-point scale from "not true," to "very true or often true". A composite score (α = .65) was calculated by using the mean of the 10 items. Due to skewness of the composite score, a logarithmic transformation was used in analyses.

2.3.6. Self-Esteem. Youth self-esteem was measured with Rosenberg's Self-Esteem Scale, (Rosenberg, 1965; Robins et al., 2001) which contains 10 items that assess global self-worth by measuring both positive and negative feelings about the self. All items are answered using a four-point scale ranging from strongly agree to strongly disagree, and a composite self-esteem score (α = .84) was calculated by summing the responses for all 10 items.

2.3.7. Aggression. Fighting behaviors as assessed with the fighting subscale of the Illinois Bully Scale (Espelage & Holt, 2001) were used as a proxy for aggression. The scale contains 18 items that inquire about the frequency of engaging and being a victim of aggressive behaviors in the last 30 days (e.g. "I upset other students for the fun of it.") on a five-point scale (never, 1 or 2 times, 3 or 4 times, 5 or 6 times, and 7 or more times). A composite aggression score (α = .78) was calculated by summing the responses for the 5 items on the fighting subscale.

3. Results

3.1. Analysis Procedure and Calculation

Latent profile Analysis (LPA) was used to determine profiles of peer delinquency and ECV among the participants. Four LPA models with an increasing number of profiles were estimated for each variable of interest using Mplus Version 7.11 (Muthen & Muthen, 2013). Several fit statistics were used to determine the number of latent profiles that best fit the data including the Akaike Information Criterion (AIC; Akaike, 1987), Bayesian Information Criterion (BIC; Schwartz, 1978), Adjusted BIC (ABIC; Sclove, 1987), entropy (Ramaswamy, DeSarbo, Reibstein, Robinson, 1993), the Vuong-Lo-Mendell-Rubin likelihood ratio test (LMR LR; Lo, Mendell, & Rubin, 2001), and the adjusted Vuong-Lo-Mendell-Rubin likelihood ratio test (LMRA; Lo, Mendell, & Rubin, 2001). In the case of the AIC, BIC, and ABIC, lower observed values indicate better model fit. Additionally, entropy is a measure of model fit with values closer to 1.00 suggesting better model fit. Finally, a non-significant *p* value for the LMR LR and LMRA tests indicate that the model with the (*K*-1)-profile model is preferred to the model with *K* profiles. See Table 2 for a summary of fit statistics.

3.2. Model Selection

Using the previously described information criteria, a 3-profile model was selected. The fit statistics provided conflicting information, as the LMR LR and the LMRA tests pointed to a 3-profile model, but the AIC, BIC, and ABIC pointed to a model with more than 5 profiles. However, research suggests that the LRM LR is the best discriminator of profiles in LPA models (Nylund, Asparouhov, & Muthen, 2007). When the number of latent profiles was increased from three to four profiles, the LMR LR and LMRA were not statistically significant (p = .413 and p = .416, respectively), thus the addition of a fourth profile did not significantly improve the fit of the model. Therefore, the 3-profile model was retained: low ECV and peer delinquency (n=408), moderate ECV and peer substance use/aggression (n=165) and high ECV and peer delinquency (n=64). In addition to empirical measures for profile determination, the 3-profile solution was chosen as the final model for reasons of ease of profile interpretability and theoretical considerations (Figure 1).

The largest profile of youth, the low ECV and peer delinquency profile (61.0% female; mean age = 15.64, *SD* = 1.43), reported low rates of ECV and affiliation with delinquent peers. The moderate ECV and peer substance use/aggression profile (44.8% female; mean age = 16.21, *SD* = 1.31) reported moderately high rates of ECV and moderately high levels of peer substance use and fighting, but low levels of weapon use among peers. The final profile, the high ECV and peer delinquency profile (35.9% female; mean age = 16.16, *SD* = 1.36) reported high rates of ECV and affiliation with delinquent peers. Overall these findings suggest that the majority of youth in this sample were exposed to lower rates of ECV and that lower variability were correlated with being younger, female and less affiliation with delinquent peers. Youth reporting moderate levels of ECV were distinguished from low and high level ECV groups by substance use and aggressive behaviors. Youth reporting the highest levels of ECV (the smallest group) were characterized by being male, slightly older and belonging to higher peer delinquency networks.

To test for differences in relative risk among the latent profiles as a function of age and gender, multinomial logistic regression analyses were conducted by regressing the unordered categorical latent variable (i.e., profile membership) on both age and gender. The profile assignment is used as the dependent variable in a multinomial logistic regression analysis. To allow for assessment of change in risk, the regression coefficients were converted to relative risk ratios by exponentiating the linear coefficients computed in the multinomial logistic regression analyses. Age was significantly associated with an increased risk of being a member of the moderate profile (OR = 1.339, $p < .001$) and the high profile (OR = 1.304, $p = .006$) relative to the low profile. In addition, gender was significantly associated with an increased risk of being a member of the moderate (OR = 1.950, $p < .001$) and high (OR = 2.827, $p < .001$) profiles relative to the low profile such that females were more likely to be in the low profile than the other two profiles.

3.3. Profile Membership Differences on Delinquency and Aggression

A multivariate analysis of covariance (MANCOVA) was conducted to test for profile differences. The independent variables were profile membership and gender, and the dependent variables were delinquent behavior and aggressive behavior, with age as the covariate. Gender was included as a predictor to examine its moderating effects. Results revealed that, when controlling for age, there was a significant multivariate effect of profile membership with Wilks' lambda = .844, F (4, 1192) = 26.363, p < .001, partial $\square^2$ = .081. Univariate tests showed differences in delinquency, F (2, 597) = 37.32, p <.001, partial $\square^2$ = .111. Post hoc comparisons demonstrated that youth in the low profile demonstrated significantly lower levels of delinquency than youth in the moderate (MD = -2.422, p < .001) and high (MD =-5.89, p < .001) profiles and youth in the moderate profile demonstrated significantly lower levels than youth in the high profile (MD = 3.47, p < .001). Univariate tests also showed differences in aggression, F (2, 597 = 31.90, p < .001, partial $\square^2$ = .097). Youth in the low profile demonstrated significantly lower levels of aggression than youth in the moderate (MD = 2.24, p < .001) and high (MD = 3.35, p < .001) profiles.

Results also revealed that, when controlling for age, there was a significant multivariate effect of gender, Wilks' lambda = .983, F (2, 596) = 5.18, p = .006, partial $\square^2$ = .017. Univariate tests showed gender differences in delinquency, F (1, 597) = 10.13, p = .002, partial $\square^2$ = .017. Post hoc comparisons demonstrated that girls reported significantly lower levels of delinquency than boys (MD = -1.81, p = .002). There were no gender differences in aggression, F (1, 597) = .185, p = .668). In sum, overall findings showed that levels of delinquency significantly varied into low moderate and high groups. In addition, youth who were younger and female reported lower levels of delinquency.

3.4. Profile Membership Differences on Self-Esteem and Future Orientation

A multivariate analysis of covariance (MANCOVA) was conducted to test for profile differences. The independent variables were profile membership and gender, and the dependent variables were self-esteem and future orientation, with age as the covariate. Gender was included as a

predictor to examine its moderating effects. When controlling for age, there was a significant multivariate effect of profile membership with Wilks' lambda = .962, F (4, 1166) = 5.66, p < .001, partial η^2 = .019. Univariate tests showed differences in self-esteem, F (2, 584) = 4.23, p = .014, partial η^2 = .014. Post hoc tests revealed that youth in the low profile had significantly higher levels of self-esteem than youth in the high profile (MD = 3.08, p = .013). Univariate tests also showed significant differences in future orientation, F (2, 584) = 10.61, p < .001, partial η^2 = .035. Post hoc tests revealed that youth in the low profile had significantly higher levels of future orientation than youth in the moderate (MD = .110, p = .005) and high profiles (MD = .203, p < .001). There was no significant multivariate effect of gender (Wilks' lambda = .996, F 2, 583) = 1.03, p = .357. Overall these findings showed distinct variations between youth reporting low and high levels of self-esteem. In addition, future orientation varied into three distinct groups of low, moderate and high and that gender was not a significant factor distinguishing these groups.

4. Discussion

The purpose of the current study was to employ latent profile analysis to identify the variability in ECV and delinquent peer affiliation of African American youth. The first aim was to utilize LPA to group adolescents into profiles of ECV and affiliation with delinquent peers. The results revealed variability in the experience of both ECV and affiliation with delinquent peers in African American adolescents. Consistent with predictions, a low ECV and peer delinquency profile and a high ECV and peer delinquency profile emerged from the data. In addition, a moderate profile also emerged with moderately high rates of ECV and moderately high levels of peer substance use and fighting. Interestingly, the moderate group was low on levels weapon use among peers, but moderately high on witnessing gun-related incidents. Perhaps having peers who engage in aggressive behavior is associated with a risk of seeing weapons outside of the peer network. Also, consistent with predictions, the majority of participants were classified in the low profile.

The second aim was to examine how profile membership was related to the following outcomes: youth delinquency, aggression, future orientation, and self-esteem. Specifically, youth in the low profile demonstrated significantly lower levels of delinquency than youth in the moderate and high profiles and youth in the moderate profile demonstrated lower levels of delinquency than youth in the high profile. Aggression also differed by profile membership with youth in the low profile also demonstrating significantly less aggressive behavior than youth in the moderate and high profiles. There was also an effect of gender with boys demonstrating higher levels of delinquency. Regarding positive youth outcomes, results revealed that youth in the low profile demonstrating significantly higher levels of future orientation than youth in the moderate and high profiles and higher levels of self-esteem than youth in the high profile.

The current study expanded on previous literature by using person-based analyses to determine rates of peer delinquency and ECV in a population of African American youth. The findings of the current study demonstrate that peer network composition may help to explain the variability in violence exposure, such that youth with fewer friends engaged in delinquent behaviors are less likely to be exposed to community violence. Prior research has demonstrated that youth are significantly influenced by their peers, and levels of peer delinquency are a strong predictor of levels of ECV (e.g. Schreck & Fisher, 2004). While prior research with adolescents supports the differential association theory and suggests that the majority of adolescents have peer networks with both delinquent and non-delinquent peers (Haynie et al., 2002), the current study suggests that when examining peer network composition in conjunction with ECV, the networks tend to match the level of ECV that the youth is experiencing. Consistent with previous literature, youth who reported low levels of ECV also reported low levels of peer delinquency. The current study also examined membership in ECV/peer delinquency profiles as a predictor of delinquency and aggression. Results show that the self-reported delinquency of both girls and boys seem to be highly affected by the

levels of delinquency experienced by their peers. This suggests that youth who themselves engage in high levels of delinquency are also likely to be associating with delinquent friends, which is consistent with social network research highlighting the influence of delinquent peers on engagement in violence and violence victimization (e.g. Papachristos et al., 2012).

The current study also examined the differences in positive outcomes such as self-esteem and future orientation as a function of profile membership. Youth with low levels of exposure to community violence and delinquent peer affiliation showed the highest levels of positive future orientation. These person-centered findings are consistent with variable-centered findings showing that future orientation is a protective factor against exposure to community violence and that high levels of future orientation are associated with fewer delinquent behaviors in youth (So, Gaylord-Harden, Voisin & Scott, in press).While the direction of these findings cannot be determined from the analyses in the current study, these findings may suggest that youth who observe their peers engaging in low levels of delinquency may be more hopeful for their future and therefore they may be better able to have a positive outlook toward their future. Conversely, the findings may suggest that youth who are more focused on a positive future for themselves are more likely to surround themselves with peers who do not engage in behaviors that would disrupt their ability to meet their future goals. Given this, youth who possess higher levels of orientation for the future may be purposely associating with youth who engage in less peer delinquency given their own lower levels of delinquency coupled with their ability to perceive a positive future for themselves.

5. Limitations

First, findings from this study were based on a purposive sample of low-income African American youth and the generalizability of the findings may not extend to other populations of youth or African Americans from other socioeconomic backgrounds. Additionally, all measures in the current study were self-report measures, which increases the likelihood of shared method

variance. In addition, the psychometric properties of the future orientation measure while acceptable was low and we were not able to asses violence perpetration which would need to be explored in future studies along with the other variables assessed in this study. Future studies should incorporate other methods of data collection, such as parent report and discipline records. Similarly, asking adolescents to report on their peers' delinquent behaviors increases the likelihood of "influence of assumed similarity," in which adolescents project their self-perceptions of delinquent behavior onto their perceptions of their friends' delinquent behavior (Jussim & Osgood, 1989). This phenomenon may inflate the associations between self-behavior and peer behavior. Future research in this area would be strengthened by also including peers' self-reports of behavior, similar to Haynie (2002). All data were cross sectional. Thus, no causal inferences can be made based on the current data, and the possibility of bidirectional relationships between profile membership and outcomes should be acknowledged. As such, future research should include prospective longitudinal studies to further examine the ways that ECV and peer affiliation profiles are related to psychosocial outcomes over time in African American youth.

In light of the limitations, the current study has several notable strengths. In addition to employing a large purposive sample, the current study expands upon the existing literature by utilizing person-based analyses to examine the natural profiles of African American adolescents' association with delinquent peers and exposure to community violence. Few studies have examined how these constructs are related to both future orientation and self-esteem, but these two areas may be crucial targets for intervention. Moreover, instead of using a composite of externalizing behaviors, the current study examined aggression and delinquency separately, given that research supports the distinction of these two outcomes (e.g. Cheong & Raudenbush, 2000). Additionally, the current study included both males and females, as it is important to determine whether these associations are different between genders.

6. Implications and Future Directions

African American youth residing in low income communities are commonly compared to White peers with regards behavioral and developmental outcomes. When such comparisons are made it is not surprising that several disparities emerge, especially when structural disadvantage is not considered. This study used a variable-centered approach to highlight significant factors that are associated with variations in the levels of ECV among African American youth. Major findings showed that while ECV is prevalent in many low-income communities (Zimmerman & Messner, 2013), it will be important for future research to tease apart the influence of ECV and peer delinquency to determine how these various factors affect treatment outcomes. Our findings also suggest that even though youth may reside in similar ecological or neighborhood niches, that variation in ECV varies depending on friend networks and the norms of delinquency within those networks. Suggesting that youth interventionists might also seek to assess or intervene in the networks of youth or link them to bridging networks where more positive norms may exist. Unsurprisingly, these varying levels of peer delinquency and ECV are linked to maladaptive behaviors. Although not assessed in this study, increasing parental monitoring or programs that provide increased monitoring functions to youth in low resourced communities (e.g., mentoring, after school and recreational programs) may ameliorate the negative consequences of co-occurring ECV and youth delinquency. Fortunately, these varying levels of peer delinquency and ECV are also linked to factors that are amenable to change, such as future orientation and self-esteem. While delinquent peers may promote the normalization of aggressive behaviors (Salzinger et al., 2002), it is possible that programmatic efforts that promote future orientation and positive self-esteem might be able to counter the effects of ECV and peer delinquency. For instance, African American parents in low income communities indicate that introducing their children to different living possibilities and life conditions by visiting areas of their city outside of their community was one effective strategy

they used to promote future orientation (Voisin et al., 2016). Intervention efforts should build on these positive strategies identified by parents to enhance the wellbeing of youth faced with violence exposure in their community.

7. Conclusions

The results of the current study reveal variability in the experience of both ECV and affiliation with delinquent peers in African American adolescents. Although a low, moderate, and high class of youth emerged within the sample, consistent with previous person-based analyses, the majority of participants were classified in the low profile. This study also expanded on previous research by identifying factors that may be associated with the variability in ECV as well as ways in which violence exposure and experiences with delinquent peers differentially relate to youth behavior. Knowledge and a better understanding of the differing experiences and individual risk profiles experienced by youth will provide a better framework through which to identify and intervene with youth at increased risk for experiencing maladaptive outcomes.

References

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*(3), 317-332.

Bingenheimer, J. B., Brennan, R. T., & Earls, F. J. (2005). Firearm violence exposure and serious violent behavior. *Science*, *308*(5726), 1323-1326.

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.

Brook, D. W., Brook, J. S., Rubenstone, E., Zhang, C., & Saar, N. S. (2011). Developmental associations between externalizing behaviors, peer delinquency, drug use, perceived neighborhood crime, and violent behavior in urban communities. *Aggressive Behavior, 37*(4), 349-361.

Chen, J. K., & Astor, R. A. (2009). The perpetration of school violence in Taiwan: An analysis of gender, grade level and school type. *School Psychology International*, *30*(6), 568-584.

Chen, P., & Vazsonyi, A. T. (2013). Future orientation, school contexts, and problem behaviors: A multilevel study. *Journal of Youth and Adolescence, 42*(1), 67-81.

Chen, P., Voisin, D. R., & Jacobson, K. C. (2013). Community violence exposure and adolescent delinquency: Examining a spectrum of promotive factors. *Youth & Society*, *48*(1), 33-57.

Cheong, Y. F., & Raudenbush, S. W. (2000). Measurement and structural models for children's problem behaviors. *Psychological Methods*, *5*, 477-495.

Cooley-Strickland, M., Quille, T. J., Griffin, R. S., Stuart, E. A., Bradshaw, C. P., & Furr-Holden, D. (2009). Community violence and youth: Affect, behavior, substance use, and academics. *Clinical Child and Family Psychology Review*, *12*(2), 127-156.

Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco: Miller Freeman Publications.

Copeland-Linder, N., Lambert, S. F., & Ialongo, N. H. (2010). Community violence, protective factors and adolescent mental health: A profile analysis. *Journal of Clinical Child and Adolescent Psychology, 39*, 176-186.

De Kemp, R. A., Scholte, R. H., Overbeek, G., & Engels, R. C. (2006). Early adolescent delinquency: The role of parents and best friends. *Criminal Justice and Behavior*, *33*(4), 488-510.

Dishion, T. J., & Tipsord, J. M. (2011). Peer contagion in child and adolescent social and emotional development. *Annual Review of Psychology, 62*, 189-214.

Elkington, K. S., Bauermeister, J. A., & Zimmerman, M. A. (2011). Do parents and peers matter? A prospective socio-ecological examination of substance use and sexual risk among African American youth. *Journal of Adolescence*, *34*(5), 1035-1047

Espelage, D. L. & Holt, M. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse, 2*, 123–142.

Fagan, J., Piper, E. S., & Cheng, Y. (1987). Contributions of victimization to delinquency in inner cities. *Journal of Criminal Law and Criminology, 78*, 586–613.

Farrell, A. D., & Bruce, S. E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. *Journal of Clinical Child Psychology*, *26*, 2-14.

Farrell, A. D., Thompson, E. L., & Mehari, K. R. (2017). Dimensions of peer influences and their relationship to adolescents' aggression, other problem behaviors and prosocial behavior. *Journal of Youth and Adolescence, 46*(6), 1351-1369.

Fehon, D. C., Grilo, C. M., & Lipschitz, D. S. (2001). Correlates of community violence exposure in hospitalized adolescents. *Comprehensive Psychiatry*, *42*(4), 283-290.

Fleming, C. B., Catalano, R. F., Haggerty, K. P., & Abbott, R. D. (2010). Relationships between level and change in family, school, and peer factors during two periods of adolescence and problem behavior at age 19. *Journal of Youth and Adolescence*, *39*(6), 670-682.

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*(1), 227-259.

Gaylord-Harden, N. K., Dickson, D., & Pierre, C. (2016). 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.

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, N. K., Zakaryan, A., Bernard, D. L. & Pekoc, S. (2015). Community-level victimization and aggressive behavior in African American male adolescents: A profile analysis. *Journal of Community Psychology, 43*(4), 502-519.

Halliday-Boykins, C. A., & Graham, S. (2001). At both ends of the gun: Testing the relationship between community violence exposure and youth violent behavior. *Journal of Abnormal Child Psychology, 29*(5), 383-402.

Haynie, D. L. (2002). Friendship networks and delinquency: The relative nature of peer delinquency. *Journal of Quantitative Criminology*, *18*(2), 99-134.

Haynie, D. L., & Osgood, D. W. (2005). Reconsidering peers and delinquency: How do peers matter? *Social Forces*, *84*(2), 1109-1130.

Huitt, W. (2009). Self-concept and self-esteem. *Educational Psychology Interactive*. Valdosta, GA: Valdosta State University.

Jackman, D. M., & MacPhee, D. (2017). Self-esteem and future orientation predict adolescents' risk engagement. *The Journal of Early Adolescence, 37*(3), 339-366.

Jensen, G. F., & Brownfield, D. (1986). Gender, lifestyles and victimization: Beyond routine activity. *Violence and Victims, 1*, 85–99.

Jussim, L., and Osgood, D. W. (1989). Influence and similarity among friends: An integrated model applied to incarcerated adolescents. *Social Psychology Quarterly, 52*(2), 98–112.

Kennedy, T. M., & Ceballo, R. (2014). Who, what, when, and where? Toward a dimensional conceptualization of community violence exposure. *Review of General Psychology*, *18*(2), 69-81.

Knox, M., Funk, J., Elliot, R., & Bush, E. G. (1998). Adolescents' possible selves and their relationship to global self-esteem. *Sex Roles*, *39*(1-2), 61-80.

Krug, E. G., Mercy, J. A., Dahlberg, L. L., & Zwi, A. B. (2002). The world report on violence and health. *The Lancet, 360*(9339), 1083-1088.

Lacourse, E., Nagin, D., Tremblay, R. E., Vitaro, F., & Claes, M. (2003). Developmental trajectories of boys' delinquent group membership and facilitation of violent behaviors during adolescence. *Development and Psychopathology, 15*(1), 183-197.

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.

Laursen, B. P., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly*, *52*(3), 377-389.

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, *88*(3), 767-778.

Lynch, M. (2003). Consequences of children's exposure to community violence. *Clinical Child and Family Psychology Review*, *6*(4), 265-274.

Malik, S., Sorenson, S. B., & Aneshensel, C. S. (1997). Community and dating violence among adolescents: Perpetration and victimization. *Journal of Adolescent Health*, *21*(5), 291-302.

McCabe, K., & Barnett, D. (2000). First comes work, then comes marriage: Future orientation among African American young adolescents. *Family Relations*, *49*(1), 63-70.

McGill, R. K., Way, N., & Hughes, D. (2012). Intra-and interracial best friendships during middle school: Links to social and emotional well-being. *Journal of Research on Adolescence*, *22*(4), 722-738.

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

Miller, L. S., Wasserman, G. A., Neugebauer, R., Gorman-Smith, D., & Kamboukos, D. (1999). Witnessed community violence and antisocial behavior in high-risk, urban boys. *Journal of Clinical Child Psychology*, *28*(1), 2-11.

Muthén, L. K., & Muthén, B. O. (2013). Mplus 7.11. *Los Angeles, CA: Muthén & Muthén.*

Nolen-Hoeksema, S., & Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychological bulletin*, *115*(3), 424-433.

Nurmi, J. E. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review*, *11*(1), 1-59.

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, *14*(4), 535-569.

Overstreet, S. (2000). Exposure to community violence: Defining the problem and understanding the consequences. *Journal of Child and Family Studies, 9*(1), 7-25.

Papachristos, A. V., Braga, A. A., & Hureau, D. M. (2012). Social networks and the risk of gunshot injury. *Journal of Urban Health*, *89*(6), 992-1003.

Papachristos, A. V., Wildeman, C., & Roberto, E. (2014). Tragic, but not random: The social contagion of nonfatal gunshot injuries. *Social Science & Medicine*, *125,* 139-150.

Patchin, J. W., Huebner, B. M., McCluskey, J. D., Varano, S. P., & Bynum, T. S. (2006). Exposure to community violence and childhood delinquency. *Crime & Delinquency*, *52*(2), 307-332.

Ramaswamy, V., DeSarbo, W. S., Reibstein, D. J., & Robinson, W. T. (1993). An empirical pooling approach for estimating marketing mix elasticities with PIMS data. *Marketing Science*, *12*(1), 103-124.

Reese, L. R. E., Vera, E. M., Thompson, K., & Reyes, R. (2001). A qualitative investigation of perceptions of violence risk factors in low-income African American children. *Journal of Clinical Child Psychology*, *30*(2), 161-171.

Reynolds, A. D., & Crea, T. M. (2015). Peer influence processes for youth delinquency and depression. *Journal of Adolescence, 43*, 83-95.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, *27*(2), 151-161.

Robbins, R. N., & Bryan, A. (2004). Relationships between future orientation, impulsive sensation seeking, and risk behavior among adjudicated adolescents. *Journal of Adolescent Research*, *19*(4), 428-445.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Salzinger, S., Feldman, R. S., Stockhammer, T., & Hood, J. (2002). An ecological framework for understanding risk for exposure to community violence and the effects of exposure on children and adolescents. *Aggression and Violent Behavior*, *7*(5), 423-451.

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., & Lauritsen, J. L. (1990). Deviant lifestyles, proximity to crime, and the offender victim link in personal violence. *Journal of Research in Crime and Delinquency, 27*, 110–139

Schreck, C. J., Fisher, B. S., & Miller, J. M. (2004). The social context of violent victimization: A study of the delinquent peer effect. *Justice Quarterly*, *21*(1), 23-47.

Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika*, *52*(3), 333-343.

Self-Brown, S. R., LeBlanc, M., Kelley, M. L., Hanson, R., Laslie, K., & Wingate, A. (2006). Effects of community violence exposure and parental mental health on the internalizing problems of urban adolescents. *Violence and Victims*, *21*(2), 183-198.

So, S., Voisin, D. R., Burnside, A., & Gaylord-Harden, N. K. (2016). Future orientation and health related factors among African American adolescents. *Children and Youth Services Review, 61*, 15-21.

So, S., Gaylord-Harden, N. K., Voisin, D. R., & Scott, D. (in press). Future orientation as a protective factor for African American adolescents exposed to community violence. *Youth & Society*.

Spano, R., & Bolland, J. (2013). Disentangling the effects of violent victimization, violent behavior, and gun carrying for minority inner-city youth living in extreme poverty. *Crime & Delinquency*, *59*(2), 191-213.

Springer, C., & Padgett, D. K. (2000). Gender differences in young adolescents' exposure to Violence and rates of PTSD symptomatology. *American Journal of Orthopsychiatry*, *70*, 370-379.

Stein, M. B., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial posttraumatic

Stress disorder: findings from a community survey. *American Journal of Psychiatry*, *154*(8), 1114-1119.

Stoddard, S.A., Zimmerman, M. A., & Bauermeister, J. A. (2011). Thinking about the future as a way to succeed in the present: A longitudinal study of future orientation and violent behaviors among African American youth. *American Journal of Community Psychology*, *48*, 238-246.

Sutherland, E.H. (1947), Principles of Criminology, Fourth edition, Chicago: J.B. Lippincott.

Voisin, D. R. (2002). Family ecology and HIV sexual risk behaviors among African American and Puerto Rican adolescent males. *American Journal of Orthopsychiatry*, *72*(2), 294-302.

Voisin, D., Berringer, K., Takahashi, L., Kuhnen, . J., & Burr, S. (2016). No safe havens: Protective parenting strategies for African American youth living in violent communities. *Violence and Victims, 31(3),* 523-536.

Voisin, D., Bird, J., Hardesty, M., & Shi Shiu, C. (2010). African American youth living and coping with exposure to community violence. *Journal of Interpersonal Violence*, *26*(12), 2483-2498.

Way, N., & Chen, L. (2000). Close and general friendships among African American, Latino, and Asian American adolescents from low-income families. *Journal of Adolescent Research*, *15*(2), 274-301.

Whitaker, D. J., Miller, K. S., & Clark, L. F. (2000). Reconceptualizing adolescent sexual behavior: beyond did they or didn't they? *Family Planning Perspectives*, *32*(3), 111-117.

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.