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To cite this article: Zina T. McGee, Kyle Logan, Joseph Samuel & Tandeka Nunn | (2017) A multivariate analysis of gun violence among urban youth: The impact of direct victimization, indirect victimization, and victimization among peers, Cogent Social Sciences, 3:1, 1328772, DOI: 10.1080/23311886.2017.1328772

To link to this article: https://doi.org/10.1080/23311886.2017.1328772

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Published online: 13 May 2017.

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A multivariate analysis of gun violence among urban youth: The impact of direct victimization, indirect victimization, and victimization among peers

Zina T. McGee*, Kyle Logan1, Joseph Samuel1 and Tandeka Nunn1

Abstract: Research suggests that many adolescents involved in violence as victims become offenders themselves as they are exposed to increased levels of indirect victimization, direct victimization, and peer victimization. While there is a connection between witnessing events, the actual attack with guns, and peer violence, all of which have an effect on delinquent behavior, less is known about whether this relationship differs by age and gender. Survey instruments (e.g. questionnaires) completed by 500 lower socioeconomic African American youth between the ages of 12 and 18 in the state of Virginia were gathered to explain youth delinquency, namely committing a crime with a gun, as an effect of exposure to violence and peer victimization. A hierarchical regression analysis shows that direct exposure as a measure of victimization is the greatest predictor of offending while correlations between victimization and delinquency are all statistically significant. Significant interactions indicate a moderating effect of age, i.e. age has a different impact on behavior of higher and lower risk of peer victimization groups, further suggesting that an increase in age increases the positive effect of peer victimization on gun related delinquency. These understandings of distinct risk factors among urban Black adolescents can be used to explain delinquent outcomes and anti-social behavior. Future studies examining the interrelationship between exposure and violence as a victim and repeated exposure to violence as an offender should address the extent to which these variables differ by age and gender as prevention strategies continue to be implemented.

ABOUT THE AUTHORS
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PUBLIC INTEREST STATEMENT
Violent victimization among urban youth remains a significant problem. The findings of this research suggest that youth can be victimized in a variety of ways including associating with other peers who have been victims of violent crimes themselves. It is therefore important for educators and policymakers alike to incorporate an understanding of the impact of peer victimization that may vary by age and gender in their efforts to prevent subsequent victimization and enhance intervention efforts.
1. Background
Recent studies have demonstrated that 25% of inner-city youth across America are exposed to violence in their lifetime while a substantial proportion have experienced violence in their neighborhoods or communities (Zimmerman & Pogarsky, 2011). Scholars including Ozbay and Ozcan (2007) have argued that exposure to violence has detrimental effects on urban youth such as stress, psychological dysfunction and negative behavioral outcomes. Additionally, Kling, Ludwig, and Katz (2005), in a study of neighborhood context among a group of youth, found when controlling for at-risk neighborhood characteristics, offending for overall crimes decreased as the neighborhood risk factor attenuated. When gender differences were explored among youth who had a history of offending, it was also found that the safer environment resulted in an inverse relationship as youths’ offending habits decreased for both boys and girls (Kling et al., 2005). Moreover, Richards et al. (2004) have shown that exposure to violence is positively associated with delinquency and is strongly related to more behavioral difficulties. Hence, it can be argued that the overall effects of youths’ exposure to crime is significant when examining their involvement in delinquency.

A review of the literature investigating exposure to levels of violence and children’s outcomes indicates that youth who have a history of domestic and community maltreatment are more than four times likely to be arrested as a juvenile (Christoffel, 1983; Ozbay & Ozcan, 2007). Regarding gender, Ozbay and Ozcan (2007) examined violent girls who had experienced violence such as physical abuse, and found that it was associated with increased levels of aggression and recidivism. Likewise, witnessing violence among young boys had a relationship with antisocial behavior when examining youth populations within communities. Hence, in many instances, type of victimization, whether indirect or direct, can affect children and adolescents as they experience negative developmental outcomes.

Research has also shown that children between 10 and 12 years of age remain the most vulnerable with regard to victimization (Hashima & Finkelhor, 1999), while more than one third of investigative violent crimes experienced by 12 to 15 years old victims take place at school. Additionally, another one fourth of crimes occur in their neighborhoods (Duncan, 1996; Whitaker & Bastian, 1991). Moreover, Green and Pomeroy (2007) poignantly state that the victimization experience is considered one of the most shocking and disturbing experiences that a youth can have while in the developmental stage. While violent victimization is defined as causing someone to be treated unfairly or made to feel as if he or she is in a bad position (e.g. threatened by a gun or shot at with a knife) (Aceves & Cookston, 2006; Beauvais, Chavez, Oetting, & Deffenbacher, 1996; Kilpatrick, Saunders & Smith, 2003; Menard, 2002; Shaffer & Ruback, 2002; Singer, 1986), studies have shown that nearly 80% of school-aged youths have experienced peer victimization in their lifetimes while an estimated 10% to 15% have experienced chronic victimization (Juvenen & Graham, 2001; Ulmer, 2014). Approximately 830,000 incidents of peer victimization were reported nationally in 2010 (Roberts, Zhang, Truman, & Snyder, 2012; Ulmer, 2014), and peer victimization occurs more frequently in adolescence than during any other developmental stage (Eisenberg & Aalsma, 2005; Rosen, Beron, & Underwood, 2012; Ulmer, 2014).

While past studies on youth violence in America have focused on victimization among youth and teenagers and the correlation between violent offending and victimization (Lauritsen, Sampson, & Laub, 1991), less is known about gun violence and victimization specifically and the extent to which they may differ across gender and age levels. As adolescent victimization and violent offending continue to confront our society (Cuevas, Finkelhor, Turner, & Ormrod, 2007; English, Widom, & Brandford, 2001), delinquency, as an adjustment outcome, has often been the response to victimization experience and has predicted greater victimization to occur (Loeber, Kalb, & Huizinga, 2001). Gun related delinquency can significantly impact youth in specific urban communities (McGee,
and studies have shown that younger adolescents and males are more likely to report direct victimization, while older youth and females are more likely to report indirect victimization as witnesses. As a result, McGee (2014) found that males exhibited external symptomatology such as violent delinquency while females exhibited internal symptomatology including anxiety and depression.

As gun related violence and victimization continue to affect juveniles in numerous contexts, studies have shown that guns were utilized in one-fourth of crimes against juveniles (McGee & Baker, 2002), and that the third leading cause of death among 10–14 year old children involves injuries by firearms. Each year, approximately 4,000 American children, 18 and younger, die in a shooting (Christoffel, 1983; Duncan, 1996). In 2014, out of 6,022 crimes reported, 82% involved urban teenagers who were shot or exposed to guns (Violence Policy Center, 2014).

Regarding exposure to violence, youth are the main witnesses to crime in urban communities (Duncan, 1996), while peer and indirect victimization have shown greater prevalence among youth between the ages of 12 and 18. The presence of a gun, which once caused fear of either getting attacked or witnessing someone getting attacked, has become commonplace for many urban youth who have become so desensitized to the violence that they do not expect to live past a certain age in their communities. Regarding victimization, urban African American adolescents are the most vulnerable as crime statistics indicate that African Americans residing within inner cities are exposed to more criminal and violent acts than their suburban counterparts (Anderson, Dyson, & Grandison, 1998; Evans, 2004). Even more disturbing is that a disproportionate number of serious crimes committed by African Americans against African Americans occur among these youth, some as young as 10 years old (Harrell, 2007; James, 2010; Kilpatrick et al. 2003; Valdez, Kaplan, & Curtis, 2007). For African Americans who reside within inner-cities, the everyday occurrence of violence and crime forces many youth to contend with a myriad of negative repercussions (James, 2010) as African American children who reside within these communities often become part of the criminal element that threatens their very existence from repeated exposure to violence (Center for Disease Control & Prevention, 2004; Lord & Mahoney, 2007; Myers & Thompson-Sanders, 2000).

Hence, findings of the current study are based on the results of extensive research to estimate the degree of violent victimization among inner-city youth. Many children and adolescents from impoverished backgrounds have social, academic, and family experiences that not only affect their development but can also encourage delinquent or criminal behavior. Thus, this research presents an extension of previous work (see McGee & Baker, 2002) on discussion of the effects of violence on adjustment outcome, and provides information on the impact of inner-city violence on behavior problems among inner-city youth using expanded measures of direct victimization, indirect victimization, and peer victimization. Emphasis is placed on the need for increased intervention in the lives of youth at risk of community and school violence. The primary aim of this study is to examine whether type of self-reported exposure to violence (direct, indirect and peer) has a differential effect on adjustment outcome as measured through gun crimes. Few studies have investigated whether the well-established relationship between adjustment outcome and youths’ self-reported exposure to violence extends to variations in gender and age level, and includes gun crimes specifically as a measure of adjustment. In addition, the relationship between exposure and violence and psychosocial functioning, and whether this relationship is moderated by gender and age, is not well understood. Thus, the study addresses the following hypotheses based on survey data collected from 500 African-American youth:

• Socio-demographic factors have an effect on gun crimes among youth as a measure of adjustment outcome.
• Exposure to violence, as measured by direct, indirect, and peer victimization, will have an effect on gun crimes among youth as a measure of adjustment outcome.
• There will be a moderating effect of gender and age on exposure to violence, as measured by direct, indirect, and peer victimization with regard to gun crimes as an adjustment outcome.

2. Research design and method

The analyses reported are based on responses to self-administered questionnaires completed by 500 youth between the ages of 12 and 18 in the state of Virginia. Census tract data were utilized to obtain a stratified sample selected from various schools, churches, and community organizations that service youth specifically in the Hampton Roads area of Virginia. In each instance, students who participated in the youth organizations attended inner-city schools that had encountered gun-related violence (as victims, perpetrators, or bystanders) out of school. Additionally, all participants lived in areas that were characterized by moderate to high violence in the Hampton Roads area of Virginia, as illustrated by police statistics. Parental income, educational, and occupational status served as measures of the adolescents’ socioeconomic background. Participants were recruited through community organizations and events, including health fairs, and by surveying neighborhoods through flyers and door-to-door visits. Eligible respondents (i.e. those who lived in areas that were characterized by moderate to high violence) were then scheduled for survey completion, conducted at various sites including churches, schools, and community organizations. Trained research assistants collected the consent and assent forms, and 20–30 youth at a time were surveyed in small group formats during group sessions. Surveys lasted approximately 90 min, and participants received $10 for data collection as an incentive and to minimize barriers to participation. We encountered no problems with refusals to participate, and received the appropriate Institutional Review Board permission to execute the study. It should be noted, however, that the stratified sample is not generalizable given the specific method of recruitment and eligibility requirements.

2.1. Measures

Participants completed portions of the Survey of Children's Exposure to Community and School Violence (see McGee & Baker, 2002) which measures level of exposure to violence and victimization in the home, at school, and in the community. Respondents were asked how often had they seen or experienced certain events at the beginning of the school year, including reactions such as “threatened with a gun,” “shot at with a gun,” “seen others attacked with a gun,” “seen others threatened with a gun,” “seen a dead body,” and “been to parties where guns were fired.” Items were scored by domain (community, family and school) to measure both direct and indirect exposure to violence with higher scores indicating increased exposure to violence. Higher scores indicate greater association with peers who have been victimized or exposure to violence as either victims or witnesses. Finally, gun related delinquency as an adjustment outcome was measured by self-report responses to a six item violent crime index. For this research, the variables measuring participation in gun crimes is used as a measure of adjustment outcome or violent delinquency. In cases of missing data, mean substitution scores were utilized for analyses. Overall, twelve cases from the full sample yielded missing data from respondents refusing to answer with five missing data points for those cases.

3. Analysis and findings

Descriptive data on the socio-demographic and family background characteristics of the student sample suggest that, representative of inner-city students nationally, the sample was 90% Black and fewer respondents were White, Hispanic, Asian, Native American and Other. Most students were 15 and the modal grade level was 9th. Fifty-five percent of the students were male. The common living arrangement included mother only (51%), followed by both parents (35%). Sixteen percent of the students were employed.

Table 1 presents the zero order bivariate correlations between measures: direct victimization, indirect victimization, peer victimization, and gun crime related delinquency. As expected, being threatened with a gun, shot at with a gun, knowing peers who have been threatened with a gun, knowing peers who have been shot at with a gun, witnessing a shooting, and frequenting parties where guns have been fired are all positively related to gun crimes among the respondents. The
### Table 1. Zero order correlations between direct victimization, indirect victimization, peer victimization and gun related delinquent behavior among urban youth

| Variables                              | 1       | 2       | 3       | 4       | 5       | 6       | 7       |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| 1. Committed a crime with a gun        | 0.289*  | 0.404*  | 0.206*  | 0.235*  | 0.271*  | 0.185*  |
| 2. Threatened with a gun               | 0.662*  | 0.511*  | 0.484*  | 0.381*  | 0.237*  |
| 3. Shot at with a gun                  | 0.368*  | 0.402*  | 0.400*  | 0.233*  |
| 4. Kids threatened with a gun          | 0.342*  | 0.223*  | 0.256*  |
| 5. Kids shot at with a gun             |         |         | 0.345*  | 0.267*  |
| 6. Has seen someone shot               |         |         |         | 0.266*  |
| 7. Has been to parties where shots were fired |         |         |         |         |

*The relationship is statistically significant at the 0.01 level.

### Table 2. Hierarchical multiple regression analysis predicting adolescent gun related delinquency from specific direct victimization, indirect victimization and peer victimization score

| Step/predictor                  | β       | R²     |
|---------------------------------|---------|--------|
| **Model 1**                     |         |        |
| Demographic variables           |         | 0.062  |
| Age                             | 0.212** |        |
| Sex                             | −0.482* |        |
| **Model 2**                     |         | 0.565  |
| Demographic variables           |         |        |
| Age                             | 0.048   |        |
| Sex                             | −0.096* |        |
| Exposure to violence            |         |        |
| Peer victimization              | 0.318** |        |
| Direct victimization            | 0.384** |        |
| Indirect victimization          | 0.173*  |        |
| **Model 3**                     |         | 0.610  |
| Demographic variables           |         |        |
| Age                             | 0.100   |        |
| Sex                             | −0.005  |        |
| Exposure to violence            |         |        |
| Peer victimization              | 0.956*  |        |
| Direct victimization            | 0.254   |        |
| Indirect victimization          | 0.284   |        |
| Interaction terms               |         |        |
| Age × peer victimization        | 1.373** |        |
| Age × direct victimization      | 0.632   |        |
| Age × indirect victimization    | 0.042   |        |
| Sex × peer victimization        | 0.116   |        |
| Sex × direct victimization      | 0.090   |        |
| Sex × direct victimization      | 0.017   |        |

*The relationship is statistically significant at the 0.01 level.
**The relationship is statistically significant at the 0.001 level.
highest correlations involve those measuring direct victimization and gun crime commission compared to indirect victimization and victimization by peers. These findings suggest the importance of making a conceptual distinction between types of victimization and operationalizing them with distinct measures. They also suggest the need and direction for increasing the quality and strength (validity) of measures of victimization and adjustment outcome among youth exposed to violence.

To examine the importance of exposure to violence and victimization for gun-related delinquency, hierarchical multiple regressions were used. Age and gender were entered first, followed by indicators of exposure to violence and victimization. In the third step, interaction terms were entered. Consistent with previous research on gender and age differences and problem behavior, results in Table 2 show that females are less likely to exhibit problem behaviors measured through gun-related crimes. Younger adolescents are also less likely to exhibit these behaviors. When entered in the next steps, both demographic factors and exposure to violence measures add a significant amount to the explained variance in gun-related crimes, although in this model gender is more likely to significantly explain gun related delinquency compared to age. Exposure to violence measures are substantial predictors of gun related delinquency, with direct victimization being the best predictor of gun related delinquency. In addition, peer and indirect victimization significantly predicted the degree of gun related delinquency.

In sum, in addition to age and gender, exposure to violence and victimization assessed in the present study explained a significant amount of variance in adolescent problem behavior. Regarding gun related crimes among urban youth, the most important factors are peer victimization and direct victimization, while direct victimization is the best predictor.

The next set of analyses involved the possible moderating role of age and gender. In this instance, peer victimization is the best predictor of problem behavior among adolescents. The significant main effect indicates that this factor plays an independent (additive) role in adolescents' adjustment. The significant interactions indicate a moderating effect of age, i.e. age has a different impact on behavior of higher and lower risk of peer victimization groups, further suggesting that an increase in age increases the positive effect of peer victimization on gun related delinquency.

4. Discussion and conclusion
The research investigated the relationship between exposure and violence and problem behavior in a representative sample of African-American youth. The study found that direct victimization, as a measure of exposure to violence, was the best predictor of problem behavior as measured by gun related delinquency. Findings of this research study suggest a linkage between victimization and development among African American youth exposed to danger. They also indicate the need for further exploration of additional measures of victimization and development to examine the strength of these associations. Regarding gender and age, the study's results indicate the importance of continued examination of community and school based preventions focusing on the specific needs of students exposed to danger. For males and older adolescents, there is a stronger influence on the development of externalizing problem behaviors such gun related delinquency, further indicating the need to explore violence prevention programs across multiple domains. While gender and age differences in rates of juvenile offending cut across all racial and ethnic groups, these differences have not been fully explained. Findings such as those presented here must therefore be understood within the context of these facts regarding behavioral differences between males and females and younger and older youth.

Given the existence of violent conduct as a forerunner to start of weapon carrying, investigators must use additional longitudinal data to discover the chronological sequencing among these important danger issues. The test for upcoming investigation will be to intensify our comprehension of the interaction of these interrelated wonders over the lifespan and to assimilate our results into key deterrents to weapon related wound and death, and weapon carrying by metropolitan marginal adolescents.
There is a need then to examine youths’ involvements and discernments of violence in the general population. Additionally, the use of an open-ended assessment tool based on the adolescents’ lived experiences of violent events and a longitudinal design would help to elucidate estimates relating to developmental processes. Finally, violent victimization remains a warning sign for future violent offending among adolescents, and since the youth examined in this study are at higher risk than others for violent victimization, procedures and agendas aimed at preventing victimization may be most effective if they are concentrated on these groups. While instruments utilized in this study were comprised of a series of questions relating personal experiences regarding violent events and adjustment outcomes, future research should continue to explore the linkage between these factors as contributing to studies addressing youth violence with the African-American youth population.

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