



Examining the Role of Supportive Family Connection in Violence Exposure Among Male Youth in Urban Environments

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Abstract

Family connection has demonstrated protective effects on violence perpetration, victimization, and witnessing in the general U.S. adolescent population. However, several studies examining the impact of family connection on violence exposure in adolescents living in low-resource urban environments have failed to demonstrate similar protective effects. We interviewed male youth in low-resource neighborhoods in Philadelphia recruited through household random sampling. Adjusted logistic regression was used to test whether a supportive relationship with an adult family member was inversely associated with violence involvement and violence witnessing. In 283 youth participants aged 10 to 24 years, 33% reported high violence involvement, 30% reported high violence witnessing, and 17% reported both. Youth who identified at least one supportive adult family member were significantly less likely to report violence involvement (odds ratio [OR] = 0.35; 95% confidence interval [CI] = [0.18, 0.69]) and violence witnessing (OR = 0.46; 95% CI = [0.24, 0.88]). Youth with two supportive parents, and those with supportive mothers only, also demonstrated significant inverse associations with violence involvement. Supportive parental relationships were inversely but not significantly related to witnessing violence. The findings suggest that supportive parental relationships may not prevent youth in low-resource neighborhoods from witnessing violence but may help prevent direct violence involvement. Next studies should be designed such that the mechanisms that confer protection can be identified, and should identify opportunities to bolster family connection that may reduce adolescent violence involvement among youth in low-resource urban environments.

Keywords

violence; adolescent; urban; family relations

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Introduction

Although violence exposure is pervasive among all U.S. adolescents, with 36.9% of 14- to 17-year-olds reporting witnessing violence and 32.3% reporting being assaulted in the past year (Finkelhor, Turner, Shattuck, & Hamby, 2015), the prevalence of exposure to severe forms of violence among youth in urban environments is even higher. In a sample of 13- to 17-year-old urban youth, 19% reported seeing someone shot or stabbed, 16.4% being jumped, and 12.7% having a weapon pulled on them in the past year (Hardaway, McLoyd, & Wood, 2012). In a sample of Philadelphia youth, 97% reported lifetime community violence exposure, with 54% reporting direct victimization, 40% reporting being beaten up, and 5% being shot or stabbed (McDonald, Deatrack, Kassam-Adams, & Richmond, 2011), far exceeding the prevalence of violence involvement in the general adolescent population (Centers for Disease Control and Prevention, n.d.). Identifying factors that may protect youth in these contexts is critically important.

Supportive family connection is central to positive youth development and helps youth thrive across a variety of contexts (Fergus & Zimmerman, 2005; Lerner, Lerner, von Eye, Bowers, & Lewin-Bizan, 2011). Parent– family connectedness has been shown to be inversely associated with violence involvement and violence perpetration (Henrich, Brookmeyer, & Shahar, 2005; Resnick et al., 1997) across the general population of U.S. adolescents. However, research examining associations between family connection and violence exposure in low-resource urban environments demonstrates that families often struggle to protect youth in the context of high levels of community violence and more limited access to safe spaces to spend time (Gorman-Smith & Tolan, 1998; Houlberg, Henry, & Morris, 2012; Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukos, 1999). However, other research suggests a potential relationship between family functioning and exposure to community violence (Gorman-Smith, Henry, & Tolan, 2004). Studies differ on measurement of family relationships and functioning based on youth or parent report, as well as on measures of violence exposure, with many studies jointly examining indirect violence witnessing and direct violence involvement. Understanding the potential protective impact of family connection on both indirect violence witnessing and direct violence involvement may identify new opportunities to leverage family relationships to reduce violence exposure in low-resource urban environments. This study examined associations between supportive family connections, violence involvement, and witnessing violence among male youth aged 10 to 24 years in Philadelphia.

Method

Participants

We used all control subjects from the Space-Time Adolescent Risk Study (STARS), a population-based case-control study of daily activities and assault, to examine the association between supportive family connection and violence exposure (including both direct violence involvement and indirect violence witnessing). The STARS recruited 10- to 24-year-old youth treated at two Emergency Departments in Philadelphia for gun- and other weapons-related assault injuries as cases. Age- and race-matched controls were recruited using random digit dialing from residences in the 12 zip codes accounting for the homes of

case subjects (Waksberg, 1978). Based on standard formulae (Daves, 2006), the response rate for controls (52.8%) was comparable with representative, random-sample surveys conducted concurrently and was high enough to suggest enrollment of a reasonably representative sample of youth from low-resource neighborhoods in Philadelphia (Baruch & Holtom, 2008; Groves, 2006). Females were excluded from the study due to low prevalence of female gunshot injury victims at the study centers, a finding consistent with national trends (Nance, Branas, Stafford, Richmond, & Schwab, 2003). Other design considerations have been described previously (Basta, Richmond, & Wiebe, 2010; Wiebe et al., 2016). The study was approved by the Institutional Review Boards of the University of Pennsylvania and The Children's Hospital of Philadelphia.

Data Source

All subjects underwent a structured in-person interview about family and peer connection, violence exposure, school performance, and substance use with a trained research coordinator.

Measuring connection—Youth were asked to characterize the nature of relationships with family members who they viewed as having an important role in their lives. All subjects created a “family tree” genogram to characterize relationships with family members from a pre-specified and participant generated constellation of adjectives such as physical fighting, verbal fighting, not good, good, supportive, and bullying (see the appendix). The constellation of terms reported by youth clustered into three relationship types, defined as supportive, unsupportive, and mixed supportive/unsupportive, with the third category containing both supportive (e.g., “there for me”) and unsupportive (e.g., “screams at me a lot”) features. “Presence of supportive adult familial connection” was defined as having a supportive relationship with 1 adult relative.

Measuring violence exposure—Youth reported on violence involvement (including direct victimization and/or perpetration; seven items adapted from Youth Risk Behavior Survey) and witnessing violence (10 items adapted from Things I Have Seen and Heard scale) (see the appendix; Centers for Disease Control and Prevention, n.d.; Richters & Martinez, 1990). Violence involvement was examined globally due to challenges in accurately classifying violence involvement such as, “Have you ever been in a fistfight?” as victimization versus perpetration without further contextual information. Additional sample violence involvement items included, “Have you ever been jumped?” and “Have you ever carried a gun, knife or club?” and witnessing violence items included, “I’ve seen someone get beat up” and “I’ve seen someone get shot.”

Data Analysis

Descriptive statistics included mean, median, range, and standard deviation for continuous variables and proportions for binary variables. We dichotomized violence involvement and witnessing summary scores at the Jenks natural breakpoint, thus classifying each subject as having either a low or high level of exposure to these forms of violence. We used these two variables as the outcomes in separate logistic regression models to estimate how violence involvement and witnessing related to having any supportive adult familial connection. After

running crude models initially, to account for potential confounding by individual and neighborhood contextual factors, we calculated adjusted odds ratios (ORs) controlling for individual variables based on self-report (age, grades in school, history of expulsion from school, and ever using tobacco, alcohol, or marijuana) and neighborhood variables based on Census data (median household income, per capita unemployment, per capita completing at least some college, per capita ages 15 to 24, per capita Black, per capita Hispanic) (U.S. Census, n.d.), vacant properties (from the University of Pennsylvania Cartographic Modeling Lab neighborhood information system), and narcotics arrests (Philadelphia police data). Due to the broad age range of the study sample, we examined potential effect modification by allowing the association between family connection and violence outcomes to vary by age. There was no evidence of effect modification by age, thus interaction terms were not included in the final models. Separate crude and adjusted logistic regressions examined the association between supportive connections with one or more parents, as well as the association between the nature of relationships with mothers and fathers, and violence exposure. We applied conventional diagnostics including tests of goodness of fit and tested all models for collinearity, wherein variance inflation factors were <2 in all instances. Data were analyzed using STATA Version 12.0.

Results

A total of 283 subjects were included in this analysis. Mean participant age was 18 years old; 44% were aged 16 to 19 years. All participants were male and 98% were African American. Almost all youth under 18 (99%) and slightly less than half of youth 18 and above (44%) were enrolled in school, and 72% were involved in clubs or sports. Ninety-six percent of youth reported a lifetime history of at least one type of violence involvement, and 98% reported a lifetime history of at least one type of violence witnessing. Thirty-three percent of youth reported high violence involvement (defined as summary scale score >3 ; maximum = 7), 30% reported high violence witnessing (defined as summary scale score >6 ; maximum = 10), and 17% reported both (Table 1). Two thirds (68%) of youth identified at least one supportive adult family member, with the most commonly identified relationships including mothers (60%), fathers (27%), and maternal grandmothers (15%) (Figure 1).

The presence of supportive adult familial connection was inversely associated with violence exposure in adjusted analyses (Table 2). Youth who reported at least one supportive adult family member (parent, grandparent, or other adult family member) were significantly less likely to report high levels of violence involvement (OR = 0.35; 95% confidence interval [CI] = [0.18, 0.69]) and violence witnessing (OR = 0.46; 95% CI = [0.24, 0.88]), compared with youth who did not identify any supportive family members. A similar pattern emerged when specifically examining the association between supportive parents (mothers and fathers only) and violence involvement. Compared with youth who did not identify either parent as supportive, those who identified both parents as supportive (OR = 0.33; 95% CI = [0.12, 0.90]), and those who identified supportive mothers only (OR = 0.24, 95% CI = [0.10, 0.54]) were significantly less likely to report violence involvement. Although the ORs of associations between supportive parents and violence witnessing were all less than 1, these results did not reach statistical significance.

Youth characterizations of the nature of maternal and paternal relationships were also associated with varying violence exposure (Table 2). Compared with youth who identified an unsupportive maternal relationship, those with a supportive relationship were significantly less likely to report violence involvement (OR = 0.22; 95% CI = [0.06, 0.84]). A low OR suggested that having a supportive paternal relationship may be associated with a lower likelihood of violence involvement (OR = 0.66, 95% CI = [0.09, 5.14]), but this estimate was imprecise and not significant given that such a relationship was less common (24%). There was no clear evidence that having a mixed relationship with a parent (part supportive, part unsupportive) was associated either positively or inversely with violence involvement or witnessing violence.

Discussion

In a sample of male adolescents living in neighborhoods plagued by high levels of community violence, supportive family connection was inversely associated with violence involvement and, to a lesser extent, witnessing violence. Levels of violence exposure were high in the study sample, consistent with prior research on youth residing in urban areas (Gorman-Smith et al., 2004; McDonald et al., 2011). The presence of any supportive adult family member, defined by youth characterizations, was associated with significantly lower odds of both violence involvement and violence witnessing. Having two supportive parents was also inversely associated with violence involvement. Although several ORs for the associations between supportive parents and witnessing violence were considerably less than one, this study did not find a significant direct association between parental relationships and witnessing violence.

Our findings of a supportive adult family member being associated with lower odds of violence involvement differ from those of several prior studies, which have failed to demonstrate significant associations between family connection and violence exposure in our most underserved communities. Differences may be due to prior studies examining both indirectly witnessing violence and directly experiencing violence as a composite outcome (Gorman-Smith & Tolan, 1998; Houlberg et al., 2012; Miller et al., 1999), which could mask the inverse association between family connection and direct violence involvement identified in this sample. Also, most existing studies focus on functioning in the immediate family, whereas the current study included a broader examination of “family members who play an important role in your life.” Finally, the current study examined youth perceptions of the nature of relationships, whereas prior studies have focused on multidimensional relationships characteristics, parenting practices, involvement, and monitoring. Similar to prior studies, we failed to detect associations between parental (maternal and paternal) relationships and witnessing high levels of violence. However, in broadening out to examine the role of any supportive adult family members, we did identify an inverse association with violence witnessing, compared with youth with no supportive family. This association may be due to the fact that those without any supportive family connection are at particularly high risk of witnessing violence, which is in keeping with Gorman-Smith’s study, wherein youth from struggling families reported significantly higher violence exposure (Gorman-Smith et al., 2004). The current study thus extends previous findings by demonstrating

inverse associations between youths' perceptions of relationships with adult family members and violence involvement and, to a lesser extent, witnessing violence.

There are several study limitations. It uses cross-sectional data from which it is impossible to discern temporal relationships between supportive adult relationships and violence exposure, or to draw causal inference. As relationships are inherently dynamic, youth characterizations during a single study visit might not accurately capture levels of family support. Potentially due to a small number of supportive paternal relationships ($n = 69$) and mixed relationships ($n = 46$), the study lacked sufficient power to draw conclusions on fathers alone, or on the impact of mixed relationships. All violence exposure data were self-reported, which can be susceptible to recall or reporting bias. We were also unable to discern the type of involvement (victimization vs. perpetration) based on the current measures. There may be additional unmeasured confounding at the individual, family, or neighborhood level. However, based on the magnitude of effects shown here, a confounder would likely have to be very strong to negate the observed associations. Finally, our study was conducted in low-resource neighborhoods in Philadelphia and may not be generalizable to other locations.

This study extends our knowledge into the possibility that a supportive family connection may function to protect youth from experiencing or witnessing violence and is responsive to the need to identify strengths-based strategies to safeguard African American youth in urban environments. Even in the context of high levels of community violence, in neighborhoods with few safe places in which youth can spend time, the prevalence of supportive family connection is high, and youth with supportive parents and other adult family members are significantly less likely to be exposed to violence. Further research using larger samples should investigate the impact of supportive fathers and explore effects of mixed supportive/unsupportive relationships to better understand their impacts on violence exposure. Understanding nuanced relationship characteristics and identifying protective mechanisms will allow for leveraging family relationships in evidence-based prevention programs that safeguard youth.

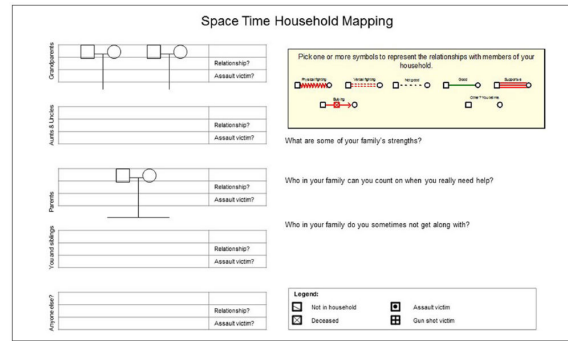
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Appendix



Defining Outcome Measures.

| Violence Involvement | Witnessing Violence |
|--|--|
| The violence involvement summary score included seven binary items, which were given equal weight. | The witnessing violence summary score included 10 binary items, which were given equal weight. |
| Have you ever been jumped? | I've heard gunshots. |
| Have you ever been in a fistfight? | I've seen someone get arrested. |
| Have you ever been in a fight at school? | I've seen someone get beat up. |
| | I've seen someone get stabbed. |
| Have you ever been in a fight that you had to go to the hospital for? | I've seen someone get shot. |
| | I've seen a gun in my home. |
| Have you ever been shot? | I've seen gangs in my neighborhood. |
| Have you ever been part of a gang? | I've seen someone pull a gun on somebody. |
| Have you ever carried a gun, knife, or club? | I've seen someone holding a gun. |
| | I've seen someone in my home get shot or stabbed. |

Biographies

Alison J. Culyba, MD MPH, is an Adolescent Medicine Advanced Research fellow at The Children's Hospital of Philadelphia and epidemiology PhD candidate at the University of Pennsylvania with expertise in strengths-based approaches to youth violence prevention. Her research focuses on the role of individual, family, and neighborhood-level promotive factors in reducing violence involvement among youth in urban environments.

Kenneth R. Ginsburg, MD MEd, is professor of pediatrics at The Children's Hospital of Philadelphia and the Perelman School of Medicine at the University of Pennsylvania and medical director for Covenant House, Pennsylvania, a care system that serves homeless, street, and marginalized youth in Philadelphia. His research, teaching, and advocacy efforts focus on building on the strength of teenagers by fostering their internal resilience.

Joel A. Fein, MD MPH, is professor of pediatrics and emergency medicine at The Children's Hospital of Philadelphia and the Perelman School of Medicine at the University of Pennsylvania and co-director of the Violence Prevention Initiative at The Children's Hospital of Philadelphia. His areas of interest include violence prevention and pain management in children and adolescents.

Charles C. Branas, PhD, is professor of epidemiology in the Department of Biostatistics and Epidemiology at the Perelman School of Medicine at the University of Pennsylvania and Director of the Penn Injury Science Center and the Urban Health Lab at the University of Pennsylvania. His research focuses on violence prevention and emergency care, with emphasis on the role of place-based change in improving population health.

Therese S. Richmond, PhD CRNP, is the Andrea B. Laporte endowed professor of nursing and associate dean for research and innovation at the University of Pennsylvania, School of Nursing. Her research interests focus on injury and violence, with emphasis on improving outcomes after injury and addressing the interaction between physical injury and post-injury psychological consequences.

Elizabeth Miller, MD PhD, is professor of pediatrics at the University of Pittsburgh School of Medicine and chief, Division of Adolescent and Young Adult Medicine at the Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center. Her research focuses on the impact and prevention of gender-based violence, with an emphasis on underserved youth populations including pregnant and parenting teens, foster, homeless, and gang-affiliated youth.

Douglas J. Wiebe, PhD, is associate professor of epidemiology in the Department of Biostatistics and Epidemiology at the Perelman School of Medicine at the University of Pennsylvania and President of the Society for the Advancement of Violence and Injury Research. His research interests include environmental risk factors for injury, alcohol use and alcohol availability, the methodologic challenges of exposure measurement, and the impact of daily routines on health-related behavior.

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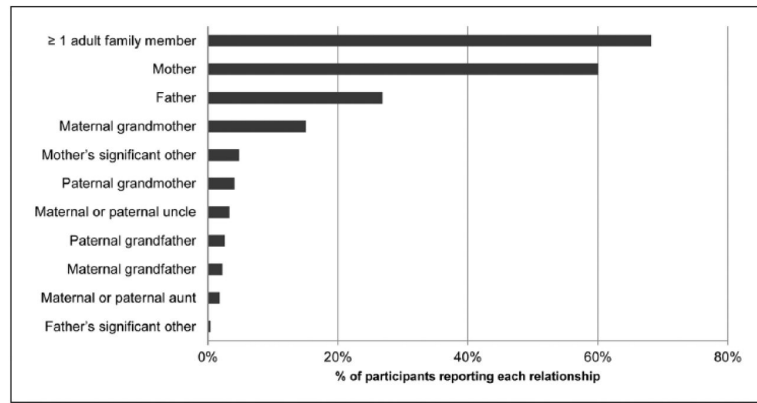


Figure 1. Important supportive family relationships identified by participants.

Table 1

Characteristics of 283 Adolescent Male Participants.

| | <i>M (SD) or %</i> |
|---|------------------------------|
| Demographics | |
| Age (years) | 17.8 (3.48) |
| Race | |
| African American | 98.0% |
| Caucasian | 1.1% |
| Native American | 0.4% |
| School/activities | |
| Currently enrolled in school | |
| <18 years old | 99.1% |
| 18 years old | 44.3% |
| Grade As/Bs | 39.2% |
| Ever skipped school | 41.4% |
| Ever suspended or expelled | 68.9% |
| Involved in clubs or sports | 71.8% |
| Violence Exposure | |
| Violence involvement summary score (range = 0-7) | 2.98 (1.36) |
| Witnessing violence summary score (range = 0-10) | 5.08 (2.37) |
| Risk involvement | |
| Ever change walking path based on safety | 62.9% |
| Always wear a seatbelt | 23.3% |
| Ever smoked cigarettes | 41.7% |
| Ever used alcohol | 64.0% |
| Ever used marijuana | 44.2% |
| Neighborhood characteristics | |
| | Median (Interquartile range) |
| Percent African American ^a | 95.2% (55.8-98.0) |
| Percent adults with at least some college education ^a | 18.8% (14.7-23.4) |
| Percent unemployed ^{a,b} | 7.5% (5.6-10.7) |
| Median household income ^a | US\$25,192 (20,663-30,174) |
| Median vacant properties per square mile ^c | 425.5 (184.8-788.1) |

^a Measured at census tract based on participant home address from 2010 Census data.

^b Defined based on ages 16 and greater.

^c Obtained from the University of Pennsylvania Cartographic Modeling Lab 2010 neighborhood information system database.

Table 2
Crude and Adjusted Odds Ratios of Supportive Family Connection, Violence Involvement, and Witnessing Violence.

| Supportive Family Member | Violence Involvement | | Witnessing Violence | |
|--|----------------------|--------------------------------------|----------------------|--------------------------------------|
| | Crude OR [95% CI] | Adjusted OR [†] [95% CI] | Crude OR [95% CI] | Adjusted OR [†] [95% CI] |
| Any supportive adult family member (<i>n</i> = 193) | 0.38 [0.23, 0.65]** | 0.35 [0.18, 0.69]** | 0.49 [0.29, 0.83]** | 0.46 [0.24, 0.88]* |
| Supportive parents | | | | |
| No supportive parents (<i>n</i> = 85) | Reference | — | Reference | — |
| Supportive mother only (<i>n</i> = 104) | 0.27 [0.14, 0.50]** | 0.24 [0.10, 0.54]** | 0.50 [0.27, 0.92]* | 0.73 [0.34, 1.54] |
| Supportive father only (<i>n</i> = 17) | 0.79 [0.28, 2.24] | 0.83 [0.20, 2.83] | 0.42 [0.13, 1.39] | 0.21 [0.04, 1.18] |
| Supportive mother and father (<i>n</i> = 52) | 0.21 [0.09, 0.48]** | 0.33 [0.12, 0.90]* | 0.37 [0.17, 0.81]* | 0.53 [0.20, 1.42] |
| Relationship with mother | | | | |
| Unsupportive (<i>n</i> = 13) | Reference | — | Reference | — |
| Supportive (<i>n</i> = 156) | 0.17 [0.05, 0.57]** | 0.22 [0.06, 0.84]* | 0.53 [0.16, 1.73] | 0.95 [0.25, 3.60] |
| Mixed supportive/unsupportive (<i>n</i> = 31) | 0.45 [0.12, 1.70] | 0.83 [0.18, 3.83] | 1.16 [0.31, 4.35] | 2.05 [0.45, 9.43] |
| Relationship with father | | | | |
| Unsupportive (<i>n</i> = 7) | Reference | — | Reference | — |
| Supportive (<i>n</i> = 69) | 0.47 [0.10, 2.31] | 0.66 [0.09, 5.14] | 1.67 [0.19, 14.94] | 0.85 [0.07, 10.00] |
| Mixed supportive/unsupportive (<i>n</i> = 15) | 2.00 [0.32, 12.33] | 1.21 [0.11, 13.44] | 6.86 [0.66, 71.72] | 4.09 [0.27, 61.22] |

Note. OR = odds ratio; CI = confidence interval.

[†] Adjusted for individual-level variables (age, grades in school, history of expulsion from school, history of juvenile probation, history of ever smoking cigarettes, history of ever drinking alcohol, and history of ever using marijuana), and neighborhood-level variables (median household income, per capita unemployment, per capita completing at least some college, per capita Black, per capita Hispanic, vacant properties per square mile, annual narcotics arrests).

* *p* < .05.

** *p* < .01.