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## The Longitudinal Relation Between Peer Violent Victimization and Delinquency: Results From a National Representative Sample of U.S. Adolescents

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### Abstract

Using a nationally representative sample of adolescents from the United States aged 12 to 17 years (Wave 1,  $n = 3,614$ ; Wave 2,  $n = 2,511$ ), this study examined (a) demographic and descriptive information about peer violent victimization (PVV); and (b) the longitudinal relation between a history of PVV and delinquency. Results indicated that 12.4% of adolescents reported lifetime exposure to PVV, and many of these adolescents with a previous history of PVV also reported exposure to other forms of interpersonal violence, with witnessing community/school violence being the most commonly endorsed exposure category. Males, older adolescents, African American adolescents, and adolescents from low-income households were significantly more likely to endorse PVV. Regardless of the victim's gender, the majority of the perpetrators were male. After controlling for exposure to other forms of interpersonal violence and a history of delinquency, PVV was related to subsequent delinquency. Implications for policy, practice, and future research are discussed.

### Keywords

bullying; youth violence; community violence

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Peer relations play a large role in a child and adolescent's social development (Asher & Parker, 1989). Although interactions can be socially rewarding, peer relations can also be a significant source of problems. Peer victimization, especially peer violent victimization (PVV), has been identified as an extremely stressful interpersonal experience that contributes to the development of negative outcomes and psychopathology among youth and

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young adults (Alsaker & Olweus, 1992; Olweus, 1993). Peer victimization is typically defined as “the receipt of any act of aggression from similar-age peers” (Card & Hodges, 2008). PVV, a severe form of peer victimization, includes behaviors such as being threatened or attacked with a weapon and being physically attacked with the intent to harm or kill (e.g., Begle et al., 2011; Nofziger, 2009). Previous research has shown that PVV is a relatively common occurrence in the lives of adolescents, warranting further empirical examination. For example, a survey completed in 2004 found that 22 out of every 1,000 students (aged 12-18 years ) reported being a victim of a violent crime from a schoolmate (U.S. Department of Education, 2007).

## Demographic and Descriptive Characteristics of PVV

Previous research has examined demographic characteristics associated with PVV. Studies have consistently shown that males are more likely than females to be the victims and perpetrators of PVV (Nofziger, 2009; Turner, Finkelhor, Hamby, Shattuck, & Ormrod, 2011; U.S. Department of Education, 2007). In addition, an inverse relation between socioeconomic status (SES) and peer victimization is consistently reported, in that youth raised in lower SES households were more likely to experience peer victimization (Khoury-Kassabri, Benbenishty, Astor, & Zeira, 2004; Nofziger, 2009; Veenstra et al., 2005).

Developmental differences in PVV have shown mixed results. For example, Turner et al. (2011) found that middle and high school–age adolescents were more likely than elementary school age children to experience PVV. However, data from the U.S. Department of Education (2007) indicated that middle school–age students were more likely than high school–age students to experience PVV. Regarding racial/ethnic differences, the majority of studies have found that PVV is most common among African American youth (Nofziger, 2009; U.S. Department of Education, 2007). However, other research has found that White and Hispanic youth are more likely than African American youth to experience PVV (Spriggs, Iannotti, Nansel, & Haynie, 2007). Further research is warranted to address these inconsistent findings.

## Location of PVV incidents

There is a large body of research suggesting that peer victimization occurs primarily at school; however, this could be due to a methodological artifact in that most of these studies rely on reports from school personnel, peer nominations, or behavioral observations conducted at school and thus focus on school-related events (e.g., Dodge & Coie, 1987; Newcomb, Bukowski, & Pattee, 1993; Olweus, 1993). There are few studies examining PVV events in other contexts. For example, Boulton and Underwood (1992) found that 25.4% of students reported being victimized on their way to or from school. In addition, 20% of students reported being victimized “in the streets” and 12% reported being victimized “in other places,” such as nearby parks and playing fields. A more recent study conducted by Turner et al. (2011) using a large and nationally representative sample of children and adolescents found that, although 58.5% of incidences occurred at school, 41.5% of incidences occurred somewhere else, such as at home. Thus, a narrow focus on

PVV that occurs on school grounds means that researchers are missing a substantial portion of the total incidents of PVV.

### **PVV and other forms of interpersonal violence**

Previous research has shown that adolescents who experience PVV are more likely to have also experienced other forms of interpersonal violence. For example, in their study of 169 maltreated and 98 nonmaltreated children attending a summer day camp, Shields and Cicchetti (2001) found that children who were maltreated by their caregivers were more likely to report exposure to peer victimization. Another study found that adolescents who had experienced peer victimization were significantly more likely to report experiencing dating violence and sexual harassment (Espelage & Holt, 2007).

### **Victimization and Delinquency**

There is a wealth of data demonstrating that exposure to interpersonal violence (e.g., physical abuse/assault by caregivers and other adults, sexual assault, witnessing domestic violence, and witnessing community/school violence) is related to an increased likelihood of engaging in delinquent behaviors in adolescence. For example, Eitle and Turner (2002) found that in a sample of young adults, after controlling for other negative life events, relationships with deviant peers, and prior delinquency, a history of hearing about others' victimization, recent personal traumatic experiences, and witnessing community violence were positively related to criminal behavior. Begle et al. (2011) found that victimization (measured as a composite of physical abuse/assault, witnessed community/school violence, and witnessed domestic violence for males and sexual assault for females) was positively related to subsequent delinquency in a large sample of adolescents. PVV has also been shown to increase the likelihood of engaging in delinquent behaviors, including physical fights and carrying a weapon (Cullen, Unnever, Hartman, Turner, & Agnew, 2008; Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003). However, one limitation to previous research on PVV is a failure to take into consideration and statistically control for the effects of other forms of interpersonal violence. By not controlling for other forms of interpersonal violence, researchers are unable to account for the unique variance associated with PVV in the prediction of delinquency.

### **General Strain Theory**

One of the prevailing theories to explain the relation between victimization and delinquency is general strain theory (GST; Agnew, 1992), and this theory has garnered significant empirical support within recent years (e.g., Cullen et al., 2008; Hay & Evans, 2006). According to GST, stressors contribute to delinquent outcomes as an adolescent tries to cope with negative experiences (Agnew, 1992, 2001). When adolescents are presented with these adverse experiences, they may experience an increase in negative affective states and a decrease in positive coping strategies, which may then lead to an increase in delinquency (Agnew, 1992). Furthermore, stressors may reduce the perceived cost of delinquent behaviors, limit the adolescent's options for appropriate coping strategies, and model inappropriate coping strategies. PVV, in particular, is a stressor that is expected to produce higher rates of delinquency because it often occurs away from adult supervision. Adults are

then more unlikely to be available to prevent immediate retaliation or help the adolescent appropriately cope with the stressor (Hay & Evans, 2006). Thus, GST provides a plausible explanation for the causal relationships found between PVV and subsequent delinquent behaviors in previous research (Hay & Evans, 2006; Manasse & Ganem, 2009; Ostrowsky & Messner, 2005).

## The Present Research and Hypotheses

The purpose of the present study was twofold. First, using a nationally representative sample of adolescents, we examined the prevalence and incident characteristics of PVV. Regarding demographic differences, it was hypothesized that being male, older, African American, and from a low-income household would be associated with increased risk for PVV. In addition, it was hypothesized that males would be more likely than females to perpetrate PVV. Although most PVV incidents would occur on school grounds, a significant minority would occur in other settings, such as in the adolescent's home and neighborhood. Finally, it was hypothesized that adolescents with a history of PVV would also have experienced other forms of interpersonal violence.

The second study aim was to examine the relation between PVV and delinquency. Although prior research has highlighted the positive relation between victimization and delinquency, these two literatures are largely separate. Thus, we examined the relation between PVV and delinquency after controlling for exposure to other forms of interpersonal violence and a prior history of delinquency and hypothesized that PVV would remain a significant predictor.

## Method

### Participants

The National Survey of Adolescents-Replication (NSA-R) is a longitudinal, nationally representative study of adolescents, aged 12 to 17 years, designed to assess the prevalence, risk factors, and mental health outcomes of exposure to potentially traumatic events. The NSA-R sample consists of a national household probability sample and an oversample of urban-dwelling youth. The results reflect weighting of sample data on the basis of age, gender, and race estimates for the adolescent population of the United States in 2005. For frequency information, percentages are derived from weighted data and total numbers from unweighted data. For detailed descriptions of sampling and methodological procedures, refer to McCauley et al. (2010).

The weighted sample of 3,614 participants included 50.0% ( $n = 1,806$ ) males and 50.0% ( $n = 1,808$ ) females between the ages of 12 to 17 years ( $M = 14.50$ ,  $SD = 1.71$ ). Regarding race, 65.0% of the participants were White ( $n = 2,356$ ), 16.0% were African American ( $n = 557$ ), 11.0% were Hispanic ( $n = 409$ ), 3.0% ( $n = 99$ ) were Asian/Pacific Islander, 2.0% ( $n = 86$ ) were Native American, and 3.0% ( $n = 117$ ) did not report racial/ethnic information. Of these adolescents, 2,511 (69.5%) completed the follow-up assessment at Wave 2 (mean length of time between Wave 1 and Wave 2 = 15.29 months,  $SD = 4.58$  months). The uncompleted Wave 2 assessments were due to telephone problems such as technical

problems or nonworking phone numbers (29.0%), inability to reach the participant (i.e., phone line always busy, no answer, parent or adolescent never available; 24.0%), adolescent refusal during Wave 2 recontact (17.0%), wrong telephone number (12.0%), ineligibility (9.0%), or only partial completion of the interview (9.0%). To examine attrition of the sample over time, effect sizes were calculated to compare participants who completed versus those who did not complete the Wave 2 assessment. Effect sizes were small (Cohen, 1988) for all victimization and behavior variables (range of  $d = 0.04$  to  $0.21$ ); thus indicating minimal differences between completers and noncompleters on all study variables.

## Measures

The NSA-R utilized a highly structured telephone interview to obtain information on demographic characteristics, adolescents' experiences with interpersonal violence, and delinquency. The interview included behaviorally specific questions to increase accuracy of responses. Specific wording of questions and details of this methodology are available in past publications (Kilpatrick et al., 2000, 2003). The interpersonal violence variables and delinquency variables were analyzed dichotomously (endorsed vs. not endorsed). In the present study, delinquency data were analyzed from both waves, whereas data for all other variables were analyzed at Wave 1 only.

**Demographics**—Standard biographical variables were assessed including gender, age, racial/ethnic status, and household income (as assessed at Wave 1, 3 age categories, possible ages are 12 to 13, 14 to 15, and 16 to 17 years).

**Delinquency**—Delinquency was assessed with a modified version of the scale developed by Elliot, Huizinga, and Ageton (1985) for the National Youth Survey and included the adolescent's involvement in the following behaviors: (a) physically attacking someone else; (b) selling drugs such as pills, marijuana, cocaine, crack, methamphetamine, ecstasy, LSD, or heroin; (c) breaking into a house, apartment, or trailer to steal something; (d) stealing or attempting to steal a motor vehicle such as a car, truck, or motorcycle; (e) using force to get money or things from people; (f) attacking someone with a weapon like a gun or a knife; (g) attacking someone with the idea of seriously hurting or killing the person; (h) being arrested; and/or being sent to jail or juvenile detention. The items demonstrated moderate internal consistency (Wave 1  $\alpha = 0.50$ ; Wave 2  $\alpha = 0.56$ ).

**PVV**—PVV ( $\alpha = 0.80$ ) involved those incidents in which an adolescent was physically attacked or threatened by a similar age peer and included being (a) attacked with a gun, knife, or some other weapon; (b) physically attacked without a weapon; (c) threatened with a gun or knife; (d) beat up, attacked, or hit with something like a stick, club, or bottle; and/or (e) beat up with fists. Adolescents who reported PVV were asked additional questions about the characteristics of the PVV (including location, fear during the event, and reporting of the event) and characteristics of the perpetrators of the assault (including if the perpetrator was previously known to the victim, gender of the perpetrator, and the victim's relationship with the perpetrator). Participants were asked to provide information on a maximum of three separate experiences.

**Physical abuse**—Physical abuse ( $\alpha = 0.72$ ) assessed severe physical punishment by a parent or caregiver, including being (a) spanked or slapped so hard that it caused bad bruises, cuts, or welts; (b) thrown across the room or against a wall, floor, car, or against other hard surfaces and the adolescent was hurt pretty badly; (c) beaten up, hit with a fist, or kicked hard; and/or (d) grabbed around the neck and choked.

**Sexual assault**—Sexual assault ( $\alpha = 0.99$ ) included (a) forced anal, vaginal, and/or oral sex; (b) forced digital penetration and/or foreign object penetration; (c) forced touching of genitalia at least once in the youth's lifetime; and/or (d) any of the aforementioned events when the adolescent was voluntarily or involuntarily incapacitated by drugs and/or alcohol.

**Witnessing domestic violence**—Witnessing domestic violence ( $\alpha = 0.63$ ) included witnessing his/her parents: (a) push, shove, or slap the other; (b) punch or hit the other one with their fist or kick them hard; (c) choke the other; (d) beat up the other so that they were hurt pretty bad, (e) hit the other with an object like a bat, pan, or lamp and they were hurt pretty bad; and/or (f) threaten the other with a gun, knife, or other weapon.

**Witnessing community/school violence**—Witnessing community/school violence ( $\alpha = 0.67$ ) included seeing someone in their school, neighborhood, or community: (a) shoot someone else with a gun; (b) cut or stab someone else with a knife; (c) molested, sexually assaulted, or raped; (d) mugged or robbed; and/or (e) beaten up, hit, punched, or kicked such that they were hurt badly enough that they needed medical attention.

**Adult physical assault**—Adult physical assault ( $\alpha = 0.80$ ) involved those incidents in which an adolescent was physically attacked or threatened by a non-caregiver adult and included being: (a) attacked with a gun, knife, or some other weapon; (b) physically attacked without a weapon; (c) threatened with a gun or knife; (d) beaten up, attacked, or hit with something like a stick, club, or bottle; and/or (e) beaten up with fists.

## Procedure

Data collection procedures were approved by the University Institutional Review Board and were similar to those used in the original 1995 NSA (Kilpatrick et al., 2000). Participants were selected using a multistage, regionally stratified, random-digit dial procedure. Structured telephone interviews took an average of 43 min and were administered in English by trained interviewers employed by abtShulman, Ronca, and Bucuvalas, Inc., an experienced national survey research firm. A computer-assisted telephone interview system prompted interviewers with each question consecutively on a computer screen, and supervisors conducted random checks of data entry accuracy and interviewers' adherence to assessment procedures. Parental consent and adolescent assent were obtained prior to the interview. Wave 1 data were collected in 2005 and Wave 2 between 2007 and 2008. The mean number of months between data collection time points was 15.44 months ( $SD = 4.60$ ).

## Results

### Statistical Analyses

Initial analyses were conducted to examine the demographic and descriptive characteristics of PVV for the 3,614 participants completing Wave 1. Second, multivariate logistic regression analyses examined the longitudinal relation between PVV (Wave 1 PVV) and subsequent delinquency (Wave 2 delinquency) after controlling for the effects of a history of the other interpersonal violence variables and a history of engaging in delinquent behaviors. These analyses included the 2,560 participants who completed both Wave 1 and Wave 2. The multivariate regression analyses were conducted using SUDAAN software (version 10.0) to account for complex survey design, sampling, and weighting of data.

### Frequency of PVV, Other Forms of Interpersonal Violence, and Delinquency

At Wave 1, 12.4% ( $n = 449$ ) of the adolescents reported experiencing PVV at least once in their lifetime. Of the adolescents who reported experiencing PVV, 56.3% ( $n = 253$ ) reported a history of delinquency, 32.5% ( $n = 146$ ) physical abuse, 17.4% ( $n = 78$ ) sexual assault, 18.0% ( $n = 81$ ) witnessing domestic violence, 74.4% ( $n = 334$ ) witnessing community/school violence, and 11.1% ( $n = 50$ ) adult violent victimization. Regarding exposure to multiple forms of victimization, 16.5% ( $n = 74$ ) only experienced PVV and no other forms of interpersonal violence, 38.8% ( $n = 174$ ) PVV and one other form of interpersonal violence, 25.2% ( $n = 113$ ) PVV and two other forms of interpersonal violence, 10.9% ( $n = 49$ ) PVV and three other forms of interpersonal violence, 6.2% ( $n = 28$ ) PVV and four other forms of interpersonal violence, and 1.1% ( $n = 5$ ) PVV and five other forms of interpersonal violence.

### Demographic Characteristics of PVV

$\chi^2$  analyses were conducted to determine the relation between PVV and gender, age, race/ethnicity, and household income. Results indicated that males (16.0%,  $n = 289$ ) were significantly more likely than females (8.8%,  $n = 160$ ) to report PVV,  $\chi^2 = 42.48, p < .001$ . Older adolescents were significantly more likely than younger adolescents to report PVV,  $\chi^2 = 35.90, p < .001$  (12- to 13-year-olds, 7.8%,  $n = 83$ ; 14- to 15-year-olds, 12.7%,  $n = 162$ ; 16- to 17-year-olds, 16.0%,  $n = 204$ ). Significant racial/ethnic differences were seen in adolescents' experiences with PVV,  $\chi^2 = 16.97, p = .001$  (African American 15.9%,  $n = 86$ ; White 11.8%,  $n = 305$ , Hispanic 5.9%,  $n = 11$ ; Other race 15.7%,  $n = 43$ ). Significant household income differences were also seen in adolescents' experiences with PVV,  $\chi^2 = 14.56, p < .01$  (>US\$20,000 16.1%,  $n = 74$ ; US\$20,000 to US\$50,000 14.2%,  $n = 151$ ; >US\$50,000 10.6%,  $n = 194$ ). African American adolescents were significantly more likely to be raised in households with an annual income less than US\$20,000,  $\chi^2 = 347.78, p < .01$  (African American 31.4%,  $n = 170$ ; White 8.3%,  $n = 216$ ; Hispanic 18.3%,  $n = 34$ ; Other race 13.1%,  $n = 36$ ), but there was not a significant difference in rates of PVV among African American adolescents based on household income  $\chi^2 = 1.80, p > .05$  (>US\$20,000 16.5%,  $n = 28$ ; US\$20,000 to US\$50,000 18.5%,  $n = 36$ ; >US\$50,000 12.9%,  $n = 17$ ).

## Descriptive Characteristics of PVV

Of the 449 adolescents with a history of PVV, 62.6% reported about one experience, 36.1% reported about two experiences, and 1.3% reported about three experiences of PVV, resulting in a combined total of 614 reported experiences of PVV. Regarding the location of the event, a total of 29.2% of the incidents occurred at school, 24.6% in the adolescent's neighborhood, 21.0% in the adolescent's home, 10.9% in the community, 0.3% at daycare, 13.2% somewhere else, and 0.8% were unsure or refused to answer. Adolescents reported that they were fearful that they may be seriously injured during 44.8% of the events. Finally, a total of 16.3% of the incidents were reported to the police or child protective services. For 84.5% of the incidents, the perpetrator was not a stranger. Overall, 83.4% of the perpetrators were male. Male victims were more likely to have a male perpetrator (95.2% of the perpetrators were male) compared to female victims (58.1% of perpetrators were male).

## Bivariate Associations Between Victimization and Delinquency

Table 1 displays the correlations among each of the interpersonal violence variables and delinquency. All of the variables were correlated with one another in expected directions. In addition, all of the interpersonal violence variables (physical abuse/assault by caregivers or other adults, sexual assault, witnessing domestic violence between caregivers, witnessing community and school violence, and PVV) were significantly and positively related to Wave 1 and Wave 2 delinquency.

## PVV and Delinquency

Multivariate logistic regression analyses were conducted to determine the relation between PVV and delinquency. Age, gender, race/ethnicity, and household income were entered at Step 1 because these variables were significantly related to PVV. At Steps 2 and 3, history of experiencing other types of interpersonal violence (Wave 1 physical abuse/assault by caregivers and other adults, sexual assault, witnessing domestic violence between caregivers, and witnessing community/school violence) and Wave 1 delinquency were entered as control variables. Finally, at Step 4, a history of experiencing PVV was entered (Wave 1 PVV). Using variables that were found to be statistically significant as control variables, a separate multivariate logistic regression model was conducted to obtain a final model. The results of the final model, outlined in Table 2, indicated that a history of PVV significantly and positively predicted Wave 2 delinquency. After controlling for the other variables, an adolescent with a history of PVV was almost twice as likely to engage in delinquent behaviors than an adolescent who had never experienced PVV ( $OR = 1.92, p < .001, 95\% CI [1.33, 2.78]$ ). In addition, household income, gender, a history of delinquency, physical abuse, and witnessing community/school violence were all significant predictors of Wave 2 delinquency. Specifically, compared to adolescents from higher income households, adolescents from low-income households were significantly more likely to report subsequent delinquency ( $OR = 1.81; 95\% CI [1.18, 2.77]$ ). Males were significantly more likely than females to report subsequent delinquency ( $OR = 1.49; 95\% CI [1.09, 2.05]$ ). Adolescents with a history of delinquency, as compared to adolescents without a history of delinquency, were significantly more likely to report subsequent delinquency ( $OR = 5.18; 95\% CI [3.68, 7.29]$ ). Finally, those adolescents reporting a history of physical abuse and/or



witnessing community/school violence history were significantly more likely to report subsequent delinquency ( $OR = 1.54$ ; 95% CI [1.04, 2.28];  $OR = 2.17$ ; 95% CI [1.56, 3.01], respectively).

## Discussion

The purpose of the present study was twofold. First, using a nationally representative sample of adolescents, demographic and descriptive information about PVV were examined. The results were consistent with study hypotheses and prior research. PVV was a relatively common occurrence in the lives of adolescents and results indicated that approximately 12.4% of the population of U.S. adolescents experience PVV. Many adolescents with a history of PVV also had a history of exposure to other forms of interpersonal violence, with witnessing community/school violence the most commonly reported event. Consistent with previous research, significant gender, age, racial/ethnic, and household income differences were seen in the rates of PVV. Many of the incidents occurred at school. However, incidents were also reported at other locations, such as the adolescent's neighborhood, home, and community. A majority of the adolescents reported that they were not fearful that they may be seriously injured during the PVV and a large majority of incidents were not reported to the police or child protective services. Most adolescents indicated that the perpetrator was not a stranger. Regardless of the victim's gender, the majority of the perpetrators were male.

The second objective of the current study was to examine the longitudinal relation between a history of PVV and delinquency. Results of the study supported GST, which states that significant negative experiences (such as PVV) may lead to an increase in delinquency (Agnew, 1992). After controlling for the impact of a previous history of experiencing other forms of interpersonal violence and a history of delinquency, PVV accounted for unique variance in the prediction of subsequent delinquency.

### PVV and Delinquency: Implications for Policy and Practice

Perhaps one of the most important findings from the current study is that above and beyond the impact of a previous history of experiencing other forms of interpersonal violence and a history of delinquency, an adolescent who had experienced PVV was almost twice as likely to engage in subsequent delinquency. This is an important finding to take into consideration in the development of theories, policies, and interventions. According to Hay and Evans (2006), programs that reduce violent victimization among adolescents could have a significant impact on delinquency rates. These programs could decrease both the initial incidence of PVV as well as the subsequent delinquency. In the treatment of PVV, delinquent behavior is a potential factor to address (or conversely, to assess for a history of PVV in youth who are in treatment for delinquent behaviors).

Many of the prevention and intervention programs designed to target PVV are conducted within the schools (e.g., Olweus, 1991). Although the school is one possible setting for such interventions, many of the PVV incidents did not occur on school grounds. Teachers and other school personnel may then be unaware of the occurrence of PVV. Broader ecological preventive interventions encompassing multiple systems (such as the school, home, and

community) that specifically target symptoms of PVV and the prevention of delinquent behavior are recommended.

### **PVV and Gender**

Significant gender differences were seen in the frequency of experiencing PVV, with males more likely than females to experience PVV. Results of the current study also indicated that males were more likely to be victimized by other males whereas females were equally as likely to be victimized by either a male or female. As one explanation for these gender differences, Crick and Grotpeter (1995) stated that when youth aggress against their peers, they tend to do so in ways that damage the goals that are valued by their respective gender peer groups. Specifically, males are more likely to value instrumentality and physical dominance. Thus, males are more likely to engage in overt forms of aggression (such as kicking, hitting, and pushing), which then threatens or damages these core values. In contrast, females value social status and friendships; engaging in relational forms of aggression (such as gossiping and ostracizing from the friendship group) serves as a means of threatening or damaging these values. In the current study, males were more likely to be victimized by males, and thus more likely to experience overt forms of aggression (of which PVV is a severe form). Conversely, females were equally as likely to be victimized by either a male or female, and thus equally likely to experience overt or relational forms of aggression.

Regardless of the victim's gender, the results also indicated that the majority of the perpetrators of PVV were male. It appears as though if a female is to be physically violent against a peer, she is more likely to be violent against another female. However, males are likely to be violent against both males and females. This is consistent with the results of Boulton and Underwood's (1992) study of bullying behaviors in preadolescents, in which most males were bullied by other males, whereas females were likely to be bullied by children of either sex. It is possible that opposite gender PVV events were reports of dating violence or precursors to dating violence, which is consistent with Espelage and Holt (2007)'s work indicating that adolescents who had experienced peer victimization were significantly more likely to report experiencing dating violence. Further research is needed to examine the separate and co-occurring influences of PVV and dating violence in order to inform prevention and intervention efforts.

### **PVV and Household Income Level**

Consistent with previous research, results of the study indicated significant household income level differences in the rates of PVV. Specifically, adolescents raised in low-income households were more likely to experience PVV, as compared with adolescents raised in higher income households. Youth raised in low-income households likely live in disadvantaged neighborhoods that include powerful risk factors for interpersonal violence, such as high rates of poverty, high rates of crime, and lack of opportunities for education and employment (Khoury-Kassabri et al., 2004). Furthermore, consistent with GST, the cumulative stressors of high rates of poverty, high rates of crime, lack of opportunities for education and employment, and experiencing PVV likely contribute to delinquent behavior outcomes (Agnew, 1992, 2001).

### **PVV and Race/Ethnicity**

Also consistent with previous research, results of the study indicated significant racial/ethnic differences in the rates of PVV. Specifically, African American adolescents were more likely to experience PVV, as compared with adolescents of other racial/ethnic groups. African American adolescents were also significantly more likely than adolescents of other racial/ethnic backgrounds to be raised in a lower income household. Despite that finding, there was not a significant difference in rates of PVV among African American adolescents based on household income. African American adolescents raised in lower, middle, and higher income households were equally as likely to experience PVV. This suggests that the relation between race/ethnicity, household income, and violence is more complex than it is often portrayed (Taylor, Esbensen, Peterson, & Freng, 2007). To further understand the relation between PVV, race/ethnicity, and household income, it is important for future research to examine the longitudinal and concurrent relation between PVV and household and community risk and protective factors, such as to rates of poverty, rates of crime, educational resources, employment resources, and discrimination.

### **Polyvictimization**

In addition to experiencing PVV, many of the adolescents also reported exposure to other forms of interpersonal violence. In the present study, over 80% of the PVV victims indicated that they experienced at least one other form of interpersonal violence, with the most common additional form being witnessing community/school violence. In addition, over 18% of the PVV victims were exposed to at least four different types of interpersonal violence and met the criteria of polyvictimization (defined as exposure to at least four different types of interpersonal violence; Finkelhor, Ormrod, & Turner, 2007).

In more recent years, researchers have paid increasing attention to the interconnections between different forms of interpersonal violence and the psychological outcomes of youth who experience multiple forms of interpersonal violence (Appel & Holden, 1998; Finkelhor et al., 2007; Turner, Finkelhor, & Ormrod, 2010). Especially for youth who report polyvictimization that includes PVV, the cross-context victimization may represent more of a prevalent and pervasive life condition rather than a set of distinct events. Consistent with GST, cumulative stressors across multiple contexts could produce deficits in social and personal resources that would normally help to moderate the negative effects of victimization (Turner et al., 2010). Therefore, it is important for future research to examine the longitudinal and concurrent relation between polyvictimization that includes PVV and psychological outcomes, such as delinquency.

### **Limitations and Future Research**

Study findings should be considered in the context of limitations. First, although a significant relation was found between a history of PVV and later delinquency after controlling for the influence of a history of other types of interpersonal violence, a significant number of participants failed to complete Wave 2 of the study. It is important to note that a significant relation was found between a history of PVV and subsequent delinquency despite the attrition of study participants. This relation may have been stronger had all participants been retained across both time points. Future studies should better

document possible causes of missingness to improve data analysis, and studies with better retention of participants are necessary to confirm these conclusions.

Second, delinquency and a history of interpersonal violence were assessed retrospectively via self-report. Self-reports provide for the victim's perspective, which previous researchers have argued is the most important, given that the victims are likely most aware of, and impacted by, the victimization experiences (Card & Hodges, 2008). However, self-reports have limitations, such as the responses may have been biased by inaccurate recall or underreporting. Future studies should also incorporate multiple methods, such as teacher and parent reports.

Third, although random digit dialing facilitates collection of representative data, participants without landline telephones may have been excluded in the present study. This concern is lessened by U.S. Census Bureau reports that 91% of families with adolescents in the age range of interest had landline telephones in 2005, indicating that this sample is representative of the majority of adolescents across the United States (Keeter, Miller, Kohout, Groves, & Presser, 2000).

Fourth, this study focused primarily on the effect of PVV and did not address other forms of peer victimization, such as nonviolent overt victimization, relational victimization, or cyber victimization (Tokunaga, 2010). Future studies would benefit from examining the possible relations among these different types of peer victimization, especially after taking into account the effect of other types of interpersonal violence exposure.

Finally, previous research has highlighted the importance of adolescents' relationships with deviant peers in the development of delinquency (e.g., Agnew, 1991, Nofziger & Kurtz, 2005; Pardini, Loeber, & Stouthamer-Loeber, 2005). In addition to controlling for the impact of other interpersonal violence experiences, future research should consider the moderating role of adolescents' relationships with delinquent peers when examining the relation between PVV and delinquency.

Despite these limitations, the present study indicated that PVV poses a significant risk to adolescents. Even after controlling for exposure to other types of interpersonal violence and history of delinquent behavior, PVV was a significant predictor of subsequent delinquency. This highlights the importance of targeting PVV specifically as one means of reducing risk of engaging in delinquent behaviors. Ecological interventions that integrate symptoms of PVV with the prevention of delinquent behaviors are recommended.

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**Table 1**  
**Correlations Among Study Variables (Wave 1,  $n = 3,614$ ; Wave 2,  $n = 2,511$ )**

	1	2	3	4	5	6	7	8
1. PVV	—							
2. Physical abuse	0.23**	—						
3. Sexual assault	0.13**	0.24**	—					
4. Wit. domestic violence	0.12**	0.30**	0.13**	—				
5. Wit. community violence	0.27**	0.24**	0.15**	0.17**	—			
6. Adult physical assault	0.14**	0.30**	0.14**	0.20**	0.13**	—		
7. Wave 1 delinquency	0.31**	0.25**	0.11**	0.15**	0.31**	0.15**	—	
8. Wave 2 delinquency	0.23**	0.17**	0.08**	0.05*	0.21**	0.12**	0.35**	—

Note.

\*  $p < .01$ .

\*\*  $p < .001$ .

PVV = peer violent victimization.



**Table 2**  
**Final Logistic Regression Analysis Predicting Delinquency ( $n = 2,511$ )**

Predictor variable	OR	95% CI	<i>p</i> -value
Income			
<US\$20,000	1.81	1.18-2.77	<0.05
US\$20,000-US\$50,000	1.23	0.87-1.73	
>US\$50,000	1.00	—	
Age			
12-13	1.00	—	0.11
14-15	1.04	0.72-1.54	
16-17	0.73	0.49-1.10	
Gender			
Female	1.00	—	<0.05
Male	1.49	1.09-2.05	
Wave 1 delinquency			
No	1.00	—	<0.001
Yes	5.18	3.68-7.29	
Physical abuse			
No	1.00	—	<0.05
Yes	1.54	1.04-2.28	
Witnessing community violence			
No	1.00	—	<0.001
Yes	2.17	1.56-3.01	
Adult physical assault			
No	1.00	—	0.19
Yes	1.53	0.81-2.90	
PVV			
No	1.00	—	<0.001
Yes	1.92	1.33-2.78	

Note. PVV = peer violent victimization.