6-3-2013

The effects of exposure to violence and victimization across life domains on adolescent substance us

Emily M. Wright
University of Nebraska at Omaha, emwright@unomaha.edu

Abigail A. Fagan
Florida State University

Gillian M. Pinchevsky
University of Nevada, Las Vegas

Recommended Citation

wright, E.M., Fagan, A.A., & Pinchevsky, G.M. (2013, June 3). The effects of exposure to violence and victimization across life domains on adolescent substance use. Child Abuse & Neglect, 27(11), 899-909. https://doi.org/10.1016/j.chiabu.2013.04.010

The effects of exposure to violence and victimization across life domains on adolescent substance use

Emily M. Wright[a,*], Abigail A. Fagan[b], Gillian M. Pinchevsky[c]

[a] *School of Criminology and Criminal Justice, University of Nebraska at Omaha, 6001 Dodge Street, 218 CPACS, Omaha, NE 68182-0149, USA*

[b] *Department of Sociology and Criminology & Law, University of Florida, 3219 Turlington Hall, P.O. Box 117330,, Gainesville, FL 32611-7330, USA*

[c] *Department of Criminal Justice, University of Nevada, Las Vegas, Nevada 89154, USA*

Abstract

This study uses longitudinal data from the Project on Human Development in Chicago Neighborhoods (PHDCN) to examine the effects of exposure to school violence, child abuse, and parental intimate partner violence (IPV) on youths' subsequent alcohol and marijuana use. We also examine the cumulative effects of being exposed to violence across these domains. Longitudinal data were obtained from 1,655 adolescents and their primary caregivers participating in the PHDCN. The effects of adolescents' exposure to various forms of violence across different life domains were examined relative to adolescents' frequency of alcohol and marijuana use three years later. Multivariate statistical models were employed to control for a range of child, parent, and family risk factors. Expo- sure to violence in a one-year period increased the frequency of substance use three years later, though the specific relationships between victimization and use varied for alcohol and marijuana use. Community violence and child abuse, but not school violence or expo- sure to IPV, were predictive of future marijuana use. None of the independent measures of exposure to violence significantly predicted future alcohol use. Finally, the accumulation of exposure to violence across life domains was detrimental to both future alcohol and marijuana use. The findings support prior research indicating that exposure to multiple forms of violence, across multiple domains of life, negatively impacts adolescent outcomes, including substance use. The findings also suggest that the context in which exposure to violence occurs should be considered in future research, since the more domains in which youth are exposed to violence, the fewer "safe havens" they have available. Finally, a better understanding of the types of violence youth encounter and the contexts in which these experiences occur can help inform intervention efforts aimed at reducing victimization and its negative consequences.

Keywords: Victimization; Exposure to violence; Poly-victimization; Substance use; Alcohol use; Marijuana use; Adolescents

* This work was supported by grant R01DA30387-01 from the National Institute of Drug Abuse. The National Institute of Drug Abuse bears no responsibility for the conclusions presented here.

* Corresponding author.

Introduction

Traditionally, research on victimization and exposure to violence has focused on discrete, single forms of violence (e.g., child abuse), which typically occur or are treated as occurring in one context or life domain (e.g., the home, see Margolin et al., 2009). However, Finkelhor, Ormond, and Turner (2009), Finkelhor, Turner, Ormond, Hamby, and Kracke (2009), Finkelhor, Ormrod, and Turner (2007a, 2007b) and Finkelhor, Ormrod, Turner, and Hamby (2005) have recently drawn considerable attention to the occurrence of multiple victimizations, or polyvictimization, among children and adolescents. There has also been increased attention given to the overlap and cumulative effects of exposure to violence and victimization (e.g., Hahm, Lee, Ozonoff, & Van Wert, 2010; Margolin, Vickerman, Oliver, & Gordis, 2010; Mrug, Loosier, & Windle, 2008), whereby combinations or the accumulation of exposure to violence result in more frequent or severe problematic outcomes. However, the majority of research on polyvictimization and the cumulative effects of exposure to violence focuses on mental health or adjustment outcomes among youth (Finkelhor et al., 2007a; Finkelhor, Turner, et al., 2009; Margolin et al., 2010), and virtually no research on these aspects of victimization has been devoted to alcohol and drug use outcomes specifically (Although there have been studies assessing the effect of victimization on substance use (e.g., Begle et al., 2011; Hamburger, Leeb, & Swahn, 2008), we are unaware of studies which assess the effect of polyvictimization on substance use, or which examine the effects of exposure to violence in separate life domains on substance use.). This is an unfortunate limitation, as rates of substance use nationwide are particularly high during the teenage years (Johnston, O'Malley, Bachman, & Schulenberg, 2011). For instance, in 2010, 41% of 12th grade students participating in the Monitoring the Future study reported drinking in the past month and 35% reported using marijuana in the last year (Johnston et al., 2011).

Further, limited attention has been devoted to examining the setting in which exposure to violence occurs, even though rates of victimization and exposure to violence appear to vary across life domains (e.g., Finkelhor, Turner, et al., 2009; Lila, Herrero, & Gracia, 2008; Margolin et al., 2010; Mrug et al., 2008). Few research endeavors have assessed violence occurring across different life domains (e.g., families, schools, neighborhoods), and even when multiple domains are considered, the majority of studies have combined separate types of violence that could occur within the same or similar context (e.g., school and neighborhood violence combined as *community exposure*, or child abuse and exposure to parental violence combined as *home violence*; e.g., Begle et al., 2011; Hamburger et al., 2008; Margolin et al., 2009). The current study attempts to build on and add to previous victimization research in two primary ways. First, we examine exposure to four types of violence occurring in three separate life domains (the school, community, and at home, with the latter including two discrete measures of child abuse and exposure to IPV). Second, we examine the independent and cumulative

effects of each form of violence exposure on youths' subsequent alcohol and marijuana use.

The unique and cumulative effects of exposure to violence across contexts

Exposure to violence and victimization are common experiences for youth in America. In fact, over 60% of youth report being exposed to some form of violence each year (Finkelhor, Turner, et al., 2009). Exposure to violence and victimization has been linked to a variety of different negative outcomes among youth, including mental health problems and trauma symptomology (e.g., Finkelhor et al., 2007a, 2007b; Moylan et al., 2010), as well as delinquency and violence (Margolin et al., 2010; Mrug et al., 2008; O'Keefe, 1997; Spilsbury et al., 2007). The results are fairly consistent across outcomes, with most studies finding that various forms of violence exposure, including child abuse (e.g., Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008; Widom, 1989), exposure to parental violence (e.g., Holt, Buckley, & Whelan, 2008; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003), school violence (e.g., Eisenbraun, 2007), and community or neighborhood violence (e.g., Buka, Stichick, Birdthistle, & Earls, 2001; Lynch, 2003) are linked to negative outcomes among children and adolescents.

Recent evidence also indicates that multiple victimizations are common for youth, and that youth who are exposed to violence in one context or setting (e.g., school, neighborhood, family) are likely to experience exposure in other settings as well (Finkelhor et al., 2007a; Mrug et al., 2008; O'Keefe, 1997). Further, there is evidence that the cumulative effects of exposure to violence and victimization may be more detrimental to youth compared to experiencing any one type of violence exposure alone (e.g., Finkelhor et al., 2005, 2007a; Moylan et al., 2010; Mrug & Windle, 2010). For instance, Mrug et al. (2008) found that the cumulative effects of exposure to violence within youths' schools, homes, and neighborhoods linearly impacted their anxiety, depression, aggressive fantasies, delinquency, and aggression. Scholars have suggested that when victimization occurs in multiple contexts of children's lives, the numbers of "safe havens" to which they can retreat and turn to for help, relief, or coping are reduced (Holt et al., 2008; Margolin et al., 2009; Mrug et al., 2008). Thus, youth who have few places to go to in order to avoid exposure to violence and victimization may be the most at risk for developing problems. Finkelhor et al. (2007b) have also suggested that children may be resilient up to a "threshold," but when they experience violence over time, or across multiple contexts in life, the accumulation of victimization may become too burdensome to overcome and may ultimately lead to adjustment, internalizing, or externalizing problems.

Despite these findings, the majority of research assessing exposure to violence and polyvicitmization has neglected to examine the effects of multiple types of victimization or exposure to violence experienced across multiple settings or life domains. Further, those studies which have examined the context in which exposure to violence occurs (e.g., Margolin et al., 2009, 2010; Mrug et al., 2008)

largely have not separated the distinct forms of violence that could occur in the same context. For instance, while child abuse and parental IPV both occur in the home and are highly likely to co-occur, there is some evidence that they elicit unique effects (Herrenkohl et al., 2008), and though exposure to school violence and neighborhood violence are also related, they may impact youth outcomes differently (O'Keefe, 1997). Neglecting such overlap or treating these forms of violence as one and the same may mask potentially unique effects of discrete forms of exposure on different types of outcomes.

To demonstrate, Mrug et al. (2008) examined the cumulative effects of exposure to violence at school, in the neighborhood, and at home, on mental health outcomes, delinquency, and overt aggression among youth. Their measure of home victimization did not separately identify child abuse versus exposure to parental IPV, and they found that exposure to violence at home was associated with internalizing (i.e., anxiety and depression) and externalizing (i.e., delinquency and aggression) problems. Margolin et al. (2009), on the other hand, examined separate indicators of expo- sure to parental IPV and child abuse and found that child abuse was predictive of youth problem behaviors three years later, while exposure to parental IPV was not. Similarly, Margolin et al. (2009) measured community violence as violence experienced in the youth's neighborhoods *and* schools, and reported that exposure to this violence increased subsequent problem behaviors, while Mrug et al. (2008) examined exposure to violence at school and in the neighborhood separately and found that exposure to violence at school was related to more internalizing outcomes (e.g., anxiety, depression, and aggressive fantasies) than exposure to violence in the neighborhood (which affected having aggressive fantasies only). To our knowledge, O'Keefe (1997) has conducted the only study to date to examine the separate effects of community violence, school violence, child physical abuse, and parental IPV on youth problem behaviors. Although O'Keefe (1997) did not examine substance use as an outcome, as we do in the current study, she did find that child abuse, parental IPV, and school violence increased a broadly defined measure of externalizing behaviors among males and females, but that exposure to community violence was not related to outcomes for females.

The impact of exposure to violence and victimization on substance use

The findings reported above indicate that exposure to violence occurring in different life domains may have unique effects on youth problematic outcomes, but the extent to which this is true for substance use as an outcome is uncertain, as there has been far less attention to this issue. There is some evidence that exposure to violence of any type increases substance use (e.g., Begle et al., 2011; Fagan, 2003; Hamburger et al., 2008; Schwab-Stone et al., 1995), how- ever, only a few studies have examined the effects of exposure to different forms of violence or violence occurring in different life domains. Specifically, Zinzow et al. (2009) examined the effects of experiencing physical and

sexual victimization, witnessing community violence, and witnessing IPV on alcohol and drug abuse and Kilpatrick, Acierno, Saunders, Resnick, Best, and Schnurr (2000) examined the effects of physical assault, sexual assault, and witnessing violence in the community on alcohol and marijuana abuse/dependency. Although these studies have added to the literature in showing the independent effects of discrete forms of violence, neither investigation examined the combined effects of such experiences on substance use or utilized all four discrete forms of exposure to victimization that are examined here.

There is theoretical justification that exposure to violence and victimization may lead to increased substance use, particularly if such substances are being used as coping mechanisms among victimized youth, and especially if youth experience multiple types of victimization. General Strain Theory (GST; Agnew, 2001, 2006) and other stress response theories (Foster & Brooks-Gunn, 2009) stipulate that exposure to violence and victimization may be stressors that are particularly likely to foster the development of antisocial behaviors and substance use. Victimization may arouse negative emotions such as anger, fear and anxiety, which can lead youth to use deviant coping mechanisms, including drug or alcohol use, in order to alleviate such feelings. Further, violence exposure across multiple contexts may be perceived as especially high in magnitude and more severe, and thus may have a greater influence on criminal coping behaviors than experiencing an isolated victimization event (Agnew, 2006). In addition, victimization may be particularly problematic for adolescents, given that they are at high risk for such events (Agnew, 2001, 2002) and may lack positive coping skills. It may also be that exposure to violence and victimization negatively impacts emotional regulation and impairs youths' self-restraint, which in turn increases the likelihood of drug use (Sullivan, Farrell, Kliewer, Vulin-Reynolds, & Valois, 2007).

It follows that the accumulation of exposure to violence may directly increase substance use among youth, as well as indirectly increase it by limiting the number of "safe havens" to which youth can go for relief and coping (Margolin et al., 2009; Mrug et al., 2008). For instance, youth who are exposed to violence in their school may be able to seek help, support, or condolence for such experiences from their parents. However, parents who are violent toward each other may not be as physically or emotionally available to provide support to the child because they are dealing with victimization themselves (Holt et al., 2008), and youth who are abused by their parents may not want to turn to them for help. Further, when violence outside the home erupts, residents are more likely to withdraw from the community and keep to themselves (Wilson & Kelling, 1982). Thus, children who are exposed to violence in multiple domains of life may have fewer options (e.g., parents, neighbors) to which to turn for help or support.

Given that some literature suggests that the cumulative impact of exposure to violence and victimization can have long-lasting effects (Finkelhor et al., 2007b; Margolin et al., 2009, 2010), as well as arguments that the relationship between victimization and substance use may be due to a reverse temporal ordering in which alcohol and other drug use precedes victimization (Begle et al., 2011;

Mrug & Windle, 2009), there is also a need to examine the longitudinal relationship between cumulative exposure to violence and substance use. This study seeks to increase our understanding of these issues by examining the unique and cumulative effects of exposure to violence at school, violence in the community, parental IPV, and child physical abuse on youths' alcohol and marijuana use three years later.

Methods

Sample

The sample for this study was comprised of adolescents in the city of Chicago who participated in the Project on Human Development in Chicago Neighborhoods (PHDCN; Earls, Brooks-Gunn, Raudenbush, & Sampson, 2002) (See the Project on Human Development in Chicago Neighborhoods website (http://www.icpsr.umich.edu/icpsrweb/PHDCN/) for study design details.). To be eligible for the longitudinal portion of the PHDCN, families had to reside in one of 80 neighborhood clusters (derived from census tracks in Chicago) identified by PHDCN investigators and have at least one child in one of seven age cohorts (ages 0, 3, 6, 9, 12, 15, 18) at the initial wave of data collection. Data were collected in three waves, approximately 3 years apart: wave one was collected in 1994–1997, wave two in 1997–2000, and wave three in 2000–2002. The current study examines youth in cohorts 9, 12, and 15 (n = 2,344 at wave 1, ages 7–16; n = 1,987 at wave 2, response rate of 84.8%, ages 9–19; n = 1,747 at wave three, response rate of 74.5% from wave one, ages 11–22). Because we were interested in assessing the longitudinal impact of exposure to victimization, we measured victimization data at wave two and substance use at wave three. Due to missing data (n = 92) on variables of interest, our final analysis sample consisted of 1,655 youth from cohorts 9–15. Compared to the full sample of youth in cohorts 9–15 participating at wave one, our final analysis sample had a slightly higher average household salary ($p < .05$). No significant differences existed for any of the substance use outcomes or main independent variables.

Measures

Dependent variable. Youth substance use was assessed at wave three using items derived from the National Household Survey on Drug Abuse (1991). *Frequency of alcohol use* and *frequency of marijuana use* both represent the number of days (on a nine-point ordinal scale ranging from 0 to 200 or more days) in the past year that youth reported consuming alcohol or using marijuana, respectively.

Independent variables. At wave two, adolescents were asked a series of questions about their exposure to violence pertaining to the type of violence experienced and where it occurred using the "My Exposure to Violence" survey developed for the PHDCN (Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998). To measure school violence and community violence, we relied on responses to 14 items that

assessed whether respondents were chased, hit, attacked with a weapon, shot, shot at, threatened, or sexually assaulted at least once in the past year (i.e., seven items assessing whether the respondent had been personally victimized), as well as whether they saw someone chased, hit, attacked with a weapon, shot, shot at, threatened, or killed at least once in the past year (i.e., seven items asking about witnessing violence; alpha = .76). For each item, respondents were asked to report where the violence occurred, including "in school," "in your neighborhood," and "outside your neighborhood." Items were dichotomized (1 = yes, 0 = no) and summed to reflect *school violence* and *community violence* (Community violence includes exposures to violence and victimization that occurred either in the youth's neighborhood or outside of their neighborhood.); each measure could range from 0 to 14 exposures to violence.

We also assessed respondents' exposure to violence in their homes, specifically their exposure to severe child abuse and severe intimate partner violence between their parental caregivers. At wave two, primary caregivers self-reported the physical disciplinary tactics they used against their child in the past year, as well as the aggressive acts that they and their romantic partner engaged in against each other in the past year. *Child abuse* measures were drawn from the Conflict Tactics Scale series (e.g., the CTS1, see Straus, 1979; the CTSPC, see Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) and reflected whether the primary caregiver: kicked/bit/hit their child with a fist, hit them with another object, beat their child up, or burned their child in the previous year. Each of the four items was coded as "1" if the respondent answered affirmatively and "0" otherwise; these were summed to indicate the count of severe child abuse, and could thus range from 0 to 4 (An alpha reliability was not examined for this scale, given the relatively few number of items included, as well as the use of binary response categories, which often limits the variability and covariance of scale items (DeVellis, 2012).). *Exposure to intimate partner violence* (IPV) was also based on items from the Conflict Tactics Scale (Straus, 1979) and reflected primary caregivers' and their partners' use of violence toward each other, including: kicking/biting/hitting with their fist, hitting with another object, beating up, choking/strangling, threatening with a knife or gun, or using a knife or gun (alpha = .84). Answers to each item were coded as "1" if the violence occurred and "0" if the violence did not occur. The items were then summed, for a total possible range of 0–12.

Finally, the *cumulative exposure* measure reflected the types of violence youth were exposed to: school violence, com- munity violence, child abuse, or exposure to IPV. This measure could range from 0 to 4. Dichotomous measures of *any school violence*, *any community violence*, *any child abuse*, and *any exposure to IPV* were created for descriptive purposes, as were measures of the number of distinct forms of exposure to violence (ETV) that youth experienced: *one type ETV*, *two types ETV*, *three types ETV*, and *four types ETV.*

Control variables. The analyses control for possible risk factors from a variety of contexts (i.e., individual, peer, family) associated with adolescent substance use (Hawkins, Catalano, & Miller, 1992). Unless otherwise noted, all control variables

were measured at wave one. Youth self-reports were used to assess age, gender, race/ethnicity, prior victimization, and prior drug use. *Age* was measured as the youth's age in years. *Male* was a dichotomous variable. Race/ethnicity was measured by three dichotomous variables, *Hispanic*, *African American*, and *Other race/ethnicity*, with *Caucasians* (non-Hispanic Whites) serving as the reference category. *Prior victimization* was measured as a dichotomous variable reflecting whether the respondent reported having ever been exposed to any violence (e.g., "have any of your family members been hurt by violent act?"; "have any of your family members been killed by a violent act?"; "have you ever seen or been present when someone was attacked with a knife?"), child abuse, or IPV at wave one. *Prior alcohol use* and *prior marijuana use* were assessed at wave two and reflect whether or not the youth reported consuming any alcohol or using any marijuana, respectively, in the year prior. Responses from adolescents' primary caregivers were used to measure household salary and parental problem drinking or drug use. *Household salary* was based on an 11-point scale (1 = less than $5,000; 11 = more than $90,000) and indicated the total household income earned in the past year at either wave one or wave two. *Parent problem drug use* was a dichotomous variable indicating that either biological parent of the child had problems with "health, family, job or police" due to drinking or drug use.

Analysis

The current study relies on data from 1,655 youth living within 79 Chicago neighborhoods (One neighborhood cluster dropped out once analyses were restricted to adolescents in the three cohorts.). Neighborhood characteristics such as economic disadvantage can influence youth behaviors such as delinquency and drug use (Elliott et al., 1996; Sampson, Raudenbush, & Earls, 1997), so it is advantageous to adjust for those effects when examining the impact of exposure to violence on youth drug use. Hierarchical modeling techniques (Hierarchical Linear Modeling [HLM], see Raudenbush & Bryk, 2002) were used to account for potential neighborhood influences on outcomes by adjusting for the correlated error that exists between individuals who live within the same neighborhoods. All individual-level predictors were group-mean centered (We used group-mean centering to restrict explanation of individual-level variables to within neighborhood differences as opposed to across neighborhood differences. However, we also conducted analyses using grand-mean centering, which reflect variables' "average" effects across all neighborhoods. A few variables which approached significance ($p < .10$) in the group-mean centered results achieved statistical significance ($p < .05$) in these analyses, but the overall substantive results were unchanged.) and fixed to reduce between-neighborhood variation, as well as to ease the interpretation of coefficients. The dependent variables were analyzed using fixed-effect Poisson models in HLM that corrected for over-dispersion.

We first examined the bivariate relationships between each type of exposure to violence and substance use, the interrelationships between forms of violence, and the distribution of violence exposure across various demographic groups. Next, we

examined the effects of all separate exposure to violence measures (school, community, child abuse, exposure to IPV) on the frequency of alcohol and marijuana use, controlling for other relevant correlates. Due to multicollinearity (Tolerance values dipped below 0.40 (Allison, 1999) when cumulative exposure and school exposure, community exposure, child abuse, and exposure to IPV were included in the same model.) between the separate measures of exposure to violence and cumulative violence exposure, we repeated these analyses using only the cumulative exposure to violence measure.

Results

Table 1 presents the descriptive statistics for our sample. The sample was approximately 14 years old at wave two and ethnically diverse (e.g., 46% of youth were Hispanic, 35% African-American, and 16% Caucasian). Approximately 30% of youth were exposed to at least one form of violence in the past year. Further, youth were most likely to be exposed to violence within their community (45%) and school (33%); violence occurring in the home was less prevalent, with 11% experiencing child abuse and 8% exposed to IPV. Finally, the majority of youth were exposed to one or two types of violence (30% and 25%, respectively); only a very small percentage (0.4%) of youth was exposed to all four forms of violence.

We examined bivariate correlations to determine the overlap of various forms of exposure to violence. The bivariate correlations in Table 2 show that school violence, community violence, and cumulative exposure to violence were moderately (r = .26, r = .37, and r = .28, all at $p \leq .01$) related to subsequent alcohol use among youth, while school violence (r = .22, $p \leq .01$), community violence (r = .37, $p \leq .01$), child abuse (r = .10, $p \leq .01$), and cumulative exposure to violence (r = .28, $p \leq .01$) were significantly, though somewhat modestly, related to future marijuana use. Further, exposure to community and school violence were highly correlated (r = .43, $p \leq .01$), while child abuse was somewhat related to exposure to violence in the community (r = .07, $p \leq .01$), and to exposure to parental IPV (r = .13, $p \leq .01$).

Examining violence exposure among demographic groups, the results in Table 2 show that exposure to violence outside of the home (in the school and community) increased with age, but child abuse and IPV exposure did not. Further, older youth were also more likely to be exposed to one, two, and three types of violence as opposed to younger youth. Males were more likely to be exposed to violence in all domains except parental violence and were more likely than females to be exposed to all four types of violence. African Americans were exposed to more violence in all settings relative to Caucasians, while Hispanics were less likely to be exposed to violence and victimization of all types relative to Caucasians. Additionally, exposure to multiple (two or three) forms of violence was significantly related to prior victimization, prior alcohol use, and prior marijuana use. Additional analyses by age, race, and gender are provided in Appendices A and B.

Table 3 depicts the results of the multivariate analyses. Because each of the four distinct forms of exposure to violence – school, community, child abuse, and exposure to IPV – are simultaneously modeled (see Models 1 and 3), these

Table 1
Sample means and standard deviations.[a]

	Mean/percentage	SD	Min–Max
Outcomes			
Frequency of alcohol use	1.17	1.82	0–8
Frequency of marijuana use	.74	1.85	0–8
Exposure to violence			
School violence	.62	1.11	0–9
Any school violence	33%	.47	0–1
Community violence	1.26	1.94	0–12
Any community violence	45%	.50	0–1
Child abuse	.13	.40	0–3
Any child abuse	11%	.31	0–1
Exposure to IPV	.20	.96	0–12
Any exposure to IPV	08%	.27	0–1
Cumulative exposure	.96	.94	0–4
One type ETV	30%	.46	0–1
Two types ETV	25%	.43	0–1
Three types ETV	05%	.22	0–1
Four types ETV	.4%	.06	0–1
Control variables			
Age[b]	13.94	2.50	9.11–19.89
Male	49%	.50	0–1
Hispanic	46%	.50	0–1
African American	35%	.48	0–1
Other race/ethnicity	04%	.19	0–1
Caucasian	16%	.36	0–1
Prior victimization	93%	.26	0–1
Prior alcohol use	22%	.42	0–1
Prior marijuana use	10%	.30	0–1
Household salary	4.76	2.50	1–11
Parent problem drug use	16%	.37	0–1

[a] Based on 1,655 youth.
[b] Reflects youth age at wave two.

analyses examine the unique contribution of each type of exposure to violence. We found that when controlling for exposure to school violence, community violence, child abuse, exposure to IPV, and other relevant factors, none of these separate exposure to violence measures were significantly related to more frequent subsequent alcohol use (Model 1). Cumulative exposure to violence, however, maintained its significant effect on the frequency of future alcohol use, even after controlling for other predictors (Model 2, event rate ratio [ERR] = 1.15, results not shown). Further, the model fit statistic for Models 1 and 2 in Table 3 suggest that the cumulative exposure measure was more relevant to the prediction of alcohol use among youth compared to the model with each of the separate forms (x^2 = 228.31 for Model 2 and x^2 = 216.99 for Model 1) (The model fit statistics for the multivariate models should be interpreted with caution given the nonlinear outcomes examined (Raudenbush & Bryk, 2002).). Regarding other predictors of alcohol use, results from Models 1 and 2 indicate that older youth, males, those having used alcohol previously, and those coming from households of higher income consumed more alcohol three years later. African Americans consumed less alcohol than Caucasians when only cumulative exposure to violence was considered (Model 2).

The pattern of results for the frequency of marijuana use was somewhat different. Model 3 in Table 3 shows that exposure to community violence ($p \leq .01$, ERR = 1.12) and child abuse ($p \leq .05$, ERR = 1.29) were significantly related to more frequent marijuana use among youth three years later. Exposure to school violence and parental violence were unrelated to subsequent marijuana use among youth. Similar to the findings for alcohol use, Model 4 demonstrates that the number of life

domains in which youth were exposed to violence was strongly related to subsequent marijuana use ($p \leq .01$, ERR = 1.54). Again, the model fit statistic for the model incorporating cumulative exposure ($x^2 = 169.22$) suggested that this measure is more relevant to the prediction of subsequent marijuana use than the four separate forms of exposure to violence (Model 3, $x^2 = 145.99$). Similar to the multivariate results for alcohol consumption, older youth, males, and those having used marijuana previously reported more frequent marijuana use, regardless of the exposure to violence measures included in the models. Higher household salary also predicted increased marijuana use, but only when violence measures were separated out (Model 3).

Discussion

The current study adds to the literature on exposure to violence by examining multiple forms of violence in separate life domains, and the accumulation of this violence, on subsequent substance use among youth. Overall, the results indicated that a high percentage of youth in this sample were exposed to at least one form of violence, and many experienced more than one form of violence. Further, youth were somewhat more likely to be exposed to violence outside of their homes than within their households, while older youth and males were also more likely to be exposed to multiple forms of violence as opposed to younger youth and females. African Americans had the highest exposure to violence, while Hispanics had the lowest exposure (Relative to evidence on violence exposure among Caucasians and African Americans, less is known about Hispanic's exposure to violence. We are hesitant to draw many conclusions from our bivariate analyses regarding Hispanic's low exposure to violence, but we speculate that perhaps their culture and family ties effectively shield them from exposure to violence (Portes & Rumbaut, 2001; Wright & Benson, 2010).) Alternatively, Hispanics in our sample may have neglected to report all of the violence they were exposed to, in part because of cultural differences in the meaning of "violence" or "abuse" (Holtzworth-Munroe, Smutzler, & Bates, 1997; Korbin, Coulton, Lindstrom-Ufuti, & Spilsbury, 2000).).

We also found that although some forms of violence were related to each other (e.g., community and school violence), their effects on substance use differed. Largely consistent with previous research that has reported a relationship between exposure to violence among youth and various mental health problems (e.g., Finkelhor et al., 2007a; Finkelhor, Turner, et al., 2009), we found that exposure to violence and victimization significantly increased substance use three years later. Further, it appears that exposure to violence, particularly community violence and child abuse, may be more detrimental in leading to youth's subsequent marijuana use compared to their alcohol use. The effects of exposure to community violence

Table 2
Correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Frequency of alcohol use	–																			
2. Frequency of marijuana use	.54**	–																		
3. School violence	.26**	.22**	–																	
4. Community violence	.37**	.37**	.43**	–																
5. Child abuse	.01	.10**	.04	.07**	–															
6. Exposure to IPV	−.002	.04	.03	−.00	.13**	–														
7. Cumulative exposure	.28**	.28**	.61**	.58**	.40**	.26**	–													
8. One type ETV	.01	−.02	−.17**	.04	−.01	−.00	.01	–												
9. Two types ETV	.26**	.21**	.55**	.45**	.06**	.03	.62**	−.39**	–											
10. Three types ETV	.06*	.13**	.22**	.20**	.40**	.24**	.51**	−.16**	−.14**	–										
11. Four types ETV	.01	.03	.11**	.01	.23**	.23**	.21**	−.04	−.04	−.02	–									
12. Age	.51**	.31**	.31**	.40**	.02	−.04	.42**	.14**	.29**	.11**	.01	–								
13. Male	.08**	.09**	.07**	.13**	.06*	.02	.09**	−.03	.08**	.02	.05*	−.03	–							
14. Hispanic	−.03	−.08**	−.05*	−.07**	−.08**	−.05*	−.11**	−.01	−.05*	−.06**	−.03	−.02	.02	–						
15. African American	−.06*	.06*	.09**	.13**	.14**	.10**	.20**	.03	.10**	.11**	.06*	.01	−.03	−.69**						

Table 3
Fixed effect Poisson models of wave 3 frequency of substance use.

	Frequency of alcohol use				Frequency of marijuana use			
	Model 1		Model 2		Model 3		Model 4	
	b	SE	*b*	SE	*b*	SE	*b*	SE
Intercept	−.33**	.06	−.30**	.06	−.78**	.10	−.81**	.09
School violence	.04	.02	–	–	.03	.05	–	–
Community violence	.04	.02	–	–	.12**	.03	–	–
Child abuse	−.02	.08	–	–	.26*	.13	–	–
Exposure to IPV	.03	.03	–	–	.10	.06	–	–
Cumulative exposure	–	–	.14**	.03	–	–	.43**	.08
Age	.27**	.02	.27**	.01	.20**	.03	.19**	.03
Male	.22**	.07	.24**	.07	.36**	.12	.36**	.11
Hispanic[a]	−.00	.14	−.05	.13	−.10	.27	−.22	.22
African American[a]	−.23	.16	−.29*	.15	.12	.33	−.05	.27
Other race/ethnicity[a]	−.18	.31	−.33	.27	.26	.41	.12	.33
Prior victimization	.28	.21	.23	.20	.35	.33	.23	.29
Prior alcohol use	.60**	.08	.58**	.08	–	–	–	–
Prior marijuana use	–	–	–	–	.93**	.16	1.04**	.13
Household salary	.06**	.01	.04**	.01	.06*	.03	.03	.03
Parent problem drug use	−.03	.11	.01	.11	.11	.17	.13	.15
x^2	216.99		228.31		145.99		169.22	

[a] Compared to Caucasian.
* $p \leq .05$.
** $p \leq .01$.

and child abuse were significantly related to the frequency of marijuana use, but none of the separate forms of violence exposure (e.g., school, community, child abuse, or parental violence) were significantly related to future alcohol use. Finally, our findings suggest that the accumulation of exposure to violence and victimization across life domains is detrimental to later substance use among youth, increasing the frequency of both alcohol and marijuana use, and is likely more problematic than any one specific form of violence, consistent with prior research (Margolin et al., 2010; Mrug et al., 2008).

A commonly cited reason for why adolescents use substances is a desire to relieve stress and temporarily forget about their problems (Harrison, Fulkerson, & Beebe, 1997; Simantov, Schoen, & Klein, 2000). Although we could not examine the reasons why youth engaged in alcohol and marijuana use in this study, the current findings and those of prior research suggest that exposure to violence may be a strong catalyst for prompting victims to engage in avoidant coping mechanisms as a means of counteracting the stress and negative emotions produced by traumatic events (Agnew, 2002; Kaufman, 2010; Taylor & Kliewer, 2006). This may be especially true of marijuana use, as our results suggested that more exposure to violence measures were significantly related to this outcome as opposed to alcohol use. Perhaps marijuana provides more of an "escape" than does alcohol; this is speculative, however, and should be examined in future research.

Our results also underscore the need to examine different forms of victimization and violence exposure separately when possible. Given that youth were differentially exposed to various types of violence across different contexts, and that some forms of violence exerted unique effects on substance use, it seems important that future research attempt to better differentiate the forms of violence to which youth are exposed. Our study utilized a large, ethnically diverse and methodologically strong longitudinal dataset to examine the unique effects of

exposure to community violence, school violence, child abuse, and IPV separately on alcohol and marijuana use. Further, our rigorous analyses controlled for a variety of covariates for both victimization and drug use and suggest that exposure to school violence, community violence, child abuse, and parental IPV operate independently and uniquely to substance use, particularly marijuana use. As such, these different victimization experiences should be examined separately when possible.

Finally, our results contribute to the understanding of how cumulative exposure to violence across different life domains can influence youths and adolescents. We found that the accumulation of exposure to violence increased both long-term alcohol and marijuana use. It may be that exposure to violence and victimization in multiple domains is particularly detrimental because it means that youth have fewer "safe havens" to go to that are free of violence. Growing up without such social supports and safe places may jeopardize normal attachments to others (Holt et al., 2008), erode resiliency among youth over time (Finkelhor et al., 2007b), and further contribute to negative coping mechanisms such as drug use. Further, General Strain Theory would suggest that the impact of multiple victimizations may be felt more strongly by youth, may be perceived as particularly high in magnitude, and may thus be more likely to result in negative coping mechanisms, including substance use (Agnew, 2006). Similarly, it is also possible that there is a threshold of exposure to violence that is particularly detrimental if exceeded, and the more contexts in which youth experience violence, the more likely they will be to suffer negative outcomes (Finkelhor et al., 2007b).

Several policy implications arise from the results presented here. First, school personnel, criminal justice responders, counselors, and others who work with children and adolescents should understand that youth are often exposed to various forms of violence and often in multiple contexts. Second, those working with youth should understand that exposure to violence and victimization can lead to long-term problems among youth, including drug use. Interventions should ensure that victims receive assistance to help them cope with the traumas they have experienced and focus on increasing their positive coping skills and deceasing their likelihood of using negative coping skills (e.g., alcohol and sub- stance use) when dealing with exposure to violence and victimization or with the negative emotions caused by such exposure. Research has suggested that in general, behavioral coping skills can reduce the likelihood of substance use, and cognitive coping skills may act as a buffer in protecting adolescents who have been victimized from engaging in substance use as a stress response (Brady, Tschann, Pasch, Flores, & Ozer, 2009). The need for evidence-based interventions which incorporate treatment for victimization along with the prevention of high risk behaviors, such as substance use (e.g., Seeking Safety, Najavitz, 2002; Trauma Systems Therapy, Saxe, Ellis, & Kaplow, 2009) is also supported by our findings.

Finally, because youth of all ages and backgrounds are exposed to various forms of violence across multiple settings, interventions should be directed to youth early

in life to help them avoid violent situations and/or to bolster their coping skills prior to the development of negative outcomes. For example, universal and preventive interventions can be delivered during elementary and middle school to all students. Effective school-based prevention programs – such as Promoting Alternative Thinking Strategies (PATHS; Greenberg, Kusche, & Mihalic, 1999) and Life Skills Training (Botvin, Griffin, & Nichols, 2006) – can be used to enhance behavioral and emotional competence of all students by providing them with skills to cope with stress and anxiety and to recognize and respond appropriately to negative emotions. It is also important for communities to adopt strategies that will reduce youth perpetration of violence, which should, in turn, decrease the likelihood that adolescents will be victimized and/or witness victimization.

Although we believe the results reported here are important to the broader literature on exposure to violence and adolescent substance use, our study nonetheless has some limitations. First, the generalizability of this study is somewhat limited because data were only collected in Chicago at one time period (the 1990s). Further, the sample we used here had a slightly higher household income than youth in the original PHDCN, and it is unclear if the findings would apply to youth at lower income levels. The analyses relied on self-reports of IPV and child abuse from caregivers and the results may not be representative of families in which victimization is severe enough to warrant attention from the criminal justice system. Parents may have underreported their violence to provide more socially desirable answers, or due to fear of formal interventions. It is also possible that abuse may have been intervened upon, and this may have mitigated the effect of specific forms of victimization, such as exposure to child abuse, IPV, or school violence, on youths' substance use. In addition, we cannot ensure that all children whose parents reported IPV actually witnessed or knew about the events, and therefore our measure may have under-estimated the effects of exposure to IPV if some adolescents coded as victims were actually unaware of their caregivers' violence.

Further, our measure of cumulative victimization did not reflect the actual number of victimizations experienced across all settings (Finkelhor et al., 2007a), since we were only interested in examining the number of different domains in which youth were exposed. Nevertheless, the frequency of victimization experiences is an important indicator of violence exposure and should be considered in future research endeavors. Our measures also reflect "counts" that indicated higher varieties of victimization rather than true frequencies (e.g., how many times a child was hit by their parent), but youth who are victimized chronically (see Finkelhor et al., 2007a) – multiple times using the same type of violence (e.g., hitting) rather than by a variety of acts (e.g., burned, hit, beat up) – could be most at risk for developing problem outcomes. Future research should examine frequency or chronicity versus variety in victimization among youth and adolescents. Finally, the PHDCN was designed to explore the development of adolescents nested within neighborhoods. We did not examine neighborhood influences here because the longitudinal individual-level relationships we explored

have been overlooked by much prior research. However, additional research is needed to examine the degree to which neighborhood characteristics may be important. Geocoding may be considered in future research to obtain both school and community characteristics as well.

Despite these limitations, our study addresses an important issue in the literature and provides a strong foundation for future research regarding the interrelationships between different forms of violence exposure, the accumulation of exposure to violence, and adolescent substance use. Exposure to multiple forms of violence and across multiple domains of life negatively impacts adolescent outcomes, including both alcohol and marijuana use, and suggests that the context in which exposure to violence occurs should be an important consideration of future research endeavors.

Appendix A. Prevalence of victimization by victimization type and demographic characteristics (percentages)

	School	No school	Community	No community	Child abuse	No child abuse	IPV exposure	No IPV exposure	More than 1 victimization	≤1 victimization
Age		**		**		*ns*		*ns*		**
Cohort 9	11.50	88.53	13.26	86.74	11.59	88.41	9.13	90.87	10.89	89.11
Cohort 12	41.31	58.69	58.21	41.79	9.70	90.30	6.79	93.21	35.95	64.05
Cohort 15	51.03	48.97	69.55	30.45	11.94	88.06	6.81	93.19	47.86	52.14
Gender		**		*		*		*ns*		**
Male	37.70	62.30	47.87	52.13	12.97	87.03	7.78	92.22	35.01	64.99
Female	29.95	71.05	42.47	57.53	9.11	90.89	7.55	92.45	25.23	74.77
Race		**		**		**		**		**
AA	40.23	59.77	52.99	47.01	18.45	81.55	12.31	87.69	39.88	60.12
Hispanic	30.15	69.85	42.22	57.78	7.61	92.39	6.00	94.00	26.38	73.62
Caucasian	26.75	73.25	37.45	62.55	4.57	95.43	4.29	95.71	18.52	81.48
Other	34.48	65.52	41.38	58.62	11.67	88.33	0.00	100.00	29.31	70.69

* $p \leq .05$.
** $p \leq .01$.

Appendix B. Prevalence of alcohol and marijuana use by demographic characteristics (percentages)

	Alcohol		No alcohol	Marijuana		No marijuana
Age		**			**	
Cohort 9	12.93		87.07	4.59		91.41
Cohort 12	46.62		53.38	22.78		77.22
Cohort 15	75.00		25.00	33.47		66.53
Gender		*ns*			*	
Male	43.67		56.33	21.71		78.29
Female	42.15		57.85	17.15		82.85
Race		**			*	
African American	36.57		63.43	21.20		78.80
Hispanic	43.58		56.42	16.44		83.56
Caucasian	57.81		42.19	24.61		75.39
Other	31.75		68.25	17.46		82.54

* $p \leq .05$.
** $p \leq .01$.

References

Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, *38*, 319–361.

Agnew, R. (2002). Experienced, vicarious, and anticipated strain: An exploratory study on physical victimization and delinquency. *Justice*

Quarterly, *19*, 603–632.
Agnew, R. (2006). *Pressured into crime: An overview of general strain theory*. Cary, NC: Roxbury Publishing Company.
Allison, P. D. (1999). *Multiple regression: A primer*. Thousand Oaks, CA: Pine Forge Press, Sage.
Begle, A. M., Hanson, R. F., Danielson, C. K., McCart, M. R., Ruggiero, K. J., Amstadter, A. B., Resnick, H. S., Saunders, B. E., & Kilpatrick, D. G. (2011). Longitudinal pathways of victimization, substance use, and delinquency: Findings from the National Survey of Adolescents. *Addictive Behaviors*, *36*, 682–689.
Botvin, G. J., Griffin, K. W., & Nichols, T. D. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, *7*, 403–408.
Brady, S. S., Tschann, J. M., Pasch, L. A., Flores, E., & Ozer, E. J. (2009). Cognitive coping moderates the association between violent victimization by peers and substance use among adolescents. *Journal of Pediatric Psychology*, *34*, 304–310.
Buka, S. L., Stichick, T. L., Birdthistle, I., & Earls, F. (2001). Youth exposure to violence: Prevalence, risk and consequences. *American Journal of Orthopsychiatry*, *71*, 298–310.
DeVellis, R. F. (2012). *Scale development: Theory and applications*. Thousand Oaks, CA: Sage.
Earls, F. J., Brooks-Gunn, J., Raudenbush, S. W., & Sampson, R. J. (2002). *Project on Human Development in Chicago Neighborhoods (PHDCN): Wave 1, 1994–1997 from Ann Arbor, MI: Inter-university Consortium for Political and Social Research, Grant 93-IJ-CX-K005*.
Eisenbraun, K. D. (2007). Violence in schools: Prevalence, prediction, and prevention. *Aggression and Violent Behavior*, *12*, 459–469.
Elliott, D. S., Wilson, W. J., Huizinga, D., Sampson, R. J., Elliott, A., & Rankin, B. (1996). The effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency*, *33*, 389–426.
Fagan, A. A. (2003). The short- and long-term effects of adolescent violent victimization experienced within the family and community. *Violence and Victims*, *18*, 445–459.
Finkelhor, D., Ormond, R., & Turner, H. A. (2009). Lifetime assessment of poly-victimization in a national sample of children and youth. *Child Abuse & Neglect*, *33*, 403–411.
Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007a). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect*, *31*, 7–26.
Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007b). Polyvictimization and trauma in a national longitudinal cohort. *Development and Psychopathology*, *19*, 149–166.
Finkelhor, D., Ormrod, R. K., Turner, H. A., & Hamby, S. L. (2005). Measuring

poly-victimization using the Juvenile Victimization Questionnaire. *Child Abuse & Neglect*, *29*, 1297–1312.

Finkelhor, D., Turner, H. A., Ormond, R., Hamby, S., & Kracke, K. (2009). *Children's exposure to violence: A comprehensive national survey.* Washington, DC: U.S. Department of Justice.

Foster, H., & Brooks-Gunn, J. (2009). Toward a stress process model of children's exposure to physical family and community violence. *Clinical Child and Family Psychology Review*, *12*, 71–94.

Greenberg, M. T., Kusche, C., & Mihalic, S. (1999). Promoting Alternative Thinking Strategies (PATHS). In D. S. Elliott (Ed.), *Blueprints for violence prevention* (Vol. Book 10). Boulder, CO: Center for the Study and Prevention of Violence.

Hahm, H. C., Lee, Y., Ozonoff, A., & Van Wert, M. J. (2010). The impact of multiple types of child maltreatment on subsequent risk behaviors among women during the transition from adolescence to young adulthood. *Journal of Youth and Adolescence*, *39*, 528–540.

Hamburger, M. E., Leeb, R. T., & Swahn, M. H. (2008). Childhood maltreatment and early alcohol use among high-risk adolescents. *Journal of Studies on Alcohol and Drugs*, *69*, 291–295.

Harrison, P. A., Fulkerson, J. A., & Beebe, T. J. (1997). Multiple substance use among adolescent physical and sexual abuse victims. *Child Abuse & Neglect*, *21*, 529–539.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, *112*, 64–105.

Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Moylan, C. A. (2008). Intersection of child abuse and children's exposure to domestic violence. *Trauma, Violence, and Abuse*, *9*, 84–99.

Holt, S., Buckley, H., & Whelan, S. (2008). The impact of exposure to domestic violence on children and young people: A review of the literature. *Child Abuse & Neglect*, *32*, 797–810.

Holtzworth-Munroe, A., Smutzler, N., & Bates, L. (1997). A brief review of the research on husband violence. Part III: Sociodemographic factors, relationship factors, and differing consequences of husband and wife violence. *Aggression and Violent Behavior*, *2*, 285–307.

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2011). *Monitoring the Future national survey results on drug use, 1975–2010. Volume I: Secondary school students, 2010*. Bethesda, MD: National Institute on Drug Abuse.

Kaufman, J. M. (2010). Gendered responses to serious strain: The argument

for a General Strain Theory of deviance. *Justice Quarterly*, *26*, 410–444.

Kilpatrick, D., Acierno, R., Saunders, B., Resnick, H., Best, C. L., & Schnurr, P. P. (2000). Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology*, *68*, 19–30.

Korbin, J. E., Coulton, C. J., Lindstrom-Ufuti, H., & Spilsbury, J. C. (2000). Neighborhood views on the definition and etiology of child maltreatment. *Child Abuse & Neglect*, *24*, 1509–1527.

Lila, M., Herrero, J., & Gracia, E. (2008). Multiple victimization of Spanish adolescents: A multi-level analysis. *Adolescence*, *43*, 333–350. Lynch, M. J. (2003). Consequences of children's exposure to community violence. *Clinical Child and Family Psychology Review*, *6*, 265–274.

Margolin, G., Vickerman, K. A., Oliver, P. H., & Gordis, E. B. (2010). Violence exposure in multiple interpersonal domains: Cumulative and differential effects. *Journal of Adolescent Health*, *47*, 198–205.

Margolin, G., Vickerman, K. A., Ramos, M. C., Duman Serrano, S., Gordis, E. B., Iturralde, E., Oliver, P. H., & Spies, L. A. (2009). Youth exposed to violence: Stability co-occurrence, and context. *Clinical Child and Family Psychology Review*, *12*, 39–54.

Moylan, C. A., Herrenkohl, T. I., Sousa, C., Tajima, E. A., Herrenkohl, R. C., & Russo, M. J. (2010). The effects of child abuse and exposure to domestic violence on adolescent internalizing and externalizing behavior problems. *Journal of Family Violence*, *25*, 53–63.

Mrug, S., Loosier, P. S., & Windle, M. (2008). Violence exposure across multiple contexts: Individual and joint effects on adjustment. *American Journal of Orthopsychiatry*, *78*, 70–84.

Mrug, S., & Windle, M. (2009). Initiation of alcohol use in early adolescence: Links with exposure to community violence across time. *Addictive Behaviors*, *34*, 779–781.

Mrug, S., & Windle, M. (2010). Prospective effects of violence exposure across multiple contexts on early adolescents' internalizing and externalizing problems. *Journal of Child Psychology and Psychiatry*, *51*, 953–961.

Najavitz, L. M. (2002). *Seeking safety: A treatment manual for PTSD and substance abuse.* New York, NY: Guilford.

National Household Survey on Drug Abuse. (1991). *National Household Survey on Drug Abuse: Population estimates*. Rockville, MD: National Institute on Drug Abuse.

O'Keefe, M. (1997). Adolescents' exposure to community and school violence: Prevalence and behavioral correlates. *Journal of Adolescent Health*, *20*, 368–376.

Portes, A., & Rumbaut, R. G. (2001). *Legacies: The story of the immigrant second generation*. Berkeley: University of California Press, Russell Sage Foundation.

Raudenbush, S. W., & Bryk, A. S. (2002). (2nd ed., pp.). *Hierarchical linear models: Applications and data analysis methods* (Vol. 1) Thousand Oaks, CA: Sage.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, *277*(5328), 918–924.

Saxe, G. N., Ellis, B. H., & Kaplow, J. B. (2009). *Collaborative treatment of traumatized children and teens: The Trauma Systems Approach*. New York, NY: Guilford Press.

Schwab-Stone, M., Ayers, T., Kasprow, W., Voyce, C., Barone, C., Shriver, T., & Weissberg, R. (1995). No safe haven: A study of violence exposure in an urban community. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 1343–1352.

Selner-O'Hagan, M. B., Kindlon, D. J., Buka, S. L., Raudenbush, S. W., & Earls, F. J. (1998). Assessing exposure to violence in urban youth. *Journal of Child Psychology and Psychiatry*, *39*, 215–224.

Simantov, E., Schoen, C., & Klein, J. D. (2000). Health-compromising behaviors: Why do adolescents smoke or drink?: Identifying underlying risk and protective factors. *Archives of Pediatric & Adolescent Medicine*, *154*, 1025–1033.

Spilsbury, J. C., Belliston, L., Drotar, D., Drinkard, A., Kretschmar, J., Creeden, R., Flannery, D. J., & Friedman, S. (2007). Clinically significant trauma symptoms and behavioral problems in a community-based sample of children exposed to domestic violence. *Journal of Family Violence*, *22*, 487–499.

Straus, M. A. (1979). Measuring intra family conflict and violence: The Conflict Tactics Scale. *Journal of Marriage and the Family*, *41*, 75–88.

Straus, M. A., Hamby, S., Finkelhor, D., Moore, D. W., & Runyan, D. (1998). Identification of child maltreatment with the Parent–Child Conflict Tactics Scales: Development and psychometric data for a national sample of American parents. *Child Abuse & Neglect*, *22*, 249–270.

Sullivan, T. N., Farrell, A. D., Kliewer, W., Vulin-Reynolds, M., & Valois, R. F. (2007). Exposure to violence in early adolescence: The impact of self-restraint, witnessing violence, and victimization on aggression and drug use. *The Journal of Early Adolescence*, *27*, 296–323.

Taylor, K. W., & Kliewer, W. (2006). Violence exposure and early adolescent alcohol use: An exploratory study of family risk and protective factors. *Journal of Child and Family Studies*, *15*, 207–221.

Widom, C. S. (1989). The cycle of violence. *Science*, *244*, 160–166.

Wilson, J. Q., & Kelling, G. (1982). The police and neighborhood safety: Broken windows. *Atlantic*, *127*, 29–38.

Wolfe, D. A., Crooks, C. V., Lee, V., McIntyre-Smith, A., & Jaffe, P. G. (2003). The effects of children's exposure to domestic violence: A meta-analysis and critique. *Clinical Child and Family Psychology Review*, *6*, 171–187.

Wright, E. M., & Benson, M. L. (2010). Immigration and intimate partner violence: Exploring the immigrant paradox. *Social Problems*, *57*, 480–503.

Zinzow, H. M., Ruggiero, K. J., Resnick, H., Hanson, R., Smith, D., Saunders, B., & Kilpatrick, D. (2009). Prevalence and mental health correlates of witnessed parental and community violence in a national sample of adolescents. *Journal of Child Psychology and Psychiatry*, *50*, 441–450.