Published in final edited form as:

J Interpers Violence. 2014 January ; 29(2): 299–319. doi:10.1177/0886260513505150.

Victimization Experiences and Adolescent Substance Use: Does the Type and Degree of Victimization Matter?

Gillian M. Pinchevsky¹, Abigail A. Fagan², and Emily M. Wright³

¹University of Nevada, Las Vegas, NV, USA

²University of Florida, Gainesville, FL, USA

³University of Nebraska–Omaha, NE, USA

Abstract

Evidence indicates an association between victimization and adolescent substance use, but the exact nature of this relationship remains unclear. Some research focuses solely on the consequences of experiencing indirect victimization (e.g., witnessing violence), others examine direct victimization (e.g., being personally victimized), and still others combine both forms of victimization without assessing the relative impact of each on substance use. Furthermore, many of these studies only assess these relationships in the short-term using cross-sectional data. This study uses data from the Project on Human Development in Chicago Neighborhoods (PHDCN) to explore the impact of experiencing *only* indirect victimization, *only* direct victimization, *both* forms of victimization, and *no* victimization on substance use at two time points during adolescence. We find that of those adolescents who are victimized, the majority experience indirect victimization only, followed by experiencing both forms of victimization, and experiencing direct victimization only. Each of the victimization experiences were associated with increased contemporaneous substance use, with the strongest effects for those experiencing multiple forms of violence. For all victims, however, the impact on substance use declined over time.

Keywords

victimization; substance use; adolescents; community violence

The exposure of children and adolescents to community violence has been identified as a “national crisis” that must be better understood and more effectively addressed (The United States Department of Justice, 2012). Children experience high rates of violent victimization, with national studies estimating that above 60% of youth are exposed to violence annually (Finkelhor, Ormrod, & Turner, 2009a; Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009). Teenagers are especially likely to be victims of violent crimes, and their chances of

© The Author(s) 2013

Corresponding Author: Gillian M. Pinchevsky, Department of Criminal Justice, University of Nevada, Las Vegas, 4505 South Maryland Parkway, Box 455009, Las Vegas, NV 89154, USA. gillian.pinchevsky@unlv.edu.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

experiencing and witnessing violence in their communities is particularly high (Finkelhor, Turner, Ormrod, & Hamby, 2009). The consequences of such exposure include short- and long-term negative effects on academic performance, mental health, aggressive and violent behaviors, and substance use (Cusworth Walker, Maxson, & Maxfield, 2007; Finkelhor, Ormrod, & Turner, 2009b; Jonson-Reid, 1998; Lynch, 2003; Macmillan, 2001; Schwab-Stone et al., 1995).

Adolescent substance use is also a public health concern. A 2011 national survey found that approximately 19% of 12th-grade students reported smoking cigarettes in the last month, 40% reported drinking alcohol in the last month, and 36% used marijuana in the past year (Johnston, O'Malley, Bachman, & Schulenberg, 2012). Substance use has been associated with increased aggression, violence, problems in school, drug dependence, and health problems, in adolescence and beyond (e.g., Dukarm, Byrd, Auinger, & Weitzman, 1996; Hingson, Heeren, & Winter, 2006; Lynskey & Hall, 2000; Mrug & Windle, 2009; Valois & Mckeown, 1995).

Although there is some evidence that indirect (e.g., witnessing violence or hearing about violence happening to others) and direct (e.g., personally experiencing violence) exposure to violence in the community increase substance use (Fagan, 2003; Kilpatrick et al., 2000; Schwab-Stone et al., 1995; Sullivan, Kung, & Farrell, 2004; Turanovic & Pratt, 2013), such research is relatively scant. Most research examining the detrimental effects of victimization has focused on mental health problems and/or violent behaviors, and far fewer studies have examined its impact on adolescent substance use (Buka, Stichick, Birdthistle, & Earls, 2001; Sullivan et al., 2004). The current article seeks to fill this gap by assessing the effects of exposure to violence in the community¹ on tobacco, alcohol, and marijuana (TAM) use. Specifically, we assess the relative effects of different victimization experiences (experiencing *only* indirect victimization, *only* direct victimization, *both* victimization experiences, and *no* victimization) on adolescent TAM use at two time points.

The Victimization/Substance Use Relationship

Scholars have noted a consistent and robust relationship between victimization and offending during adolescence (Fagan & Mazerolle, 2011; Jennings, Piquero, & Reingle, 2012; Sampson & Lauritsen, 1990), with various explanations put forth to account for this association. Our study is guided by General Strain Theory (GST), which posits that stressful experiences, particularly victimization, are likely to foster the development of antisocial behaviors (Agnew, 2006). Violent encounters may result not only in physical pain or injury but also intense negative emotions such as anger, fear, and anxiety. These stressful experiences and emotions place victims at an increased risk for engaging in delinquency. According to GST, victims may engage in deviant and/or criminal coping strategies intended to alleviate or reduce the strain and/or the emotions stemming from it.

¹Compared with the literature pertaining to exposure to violence in the home (e.g., intimate partner violence or child abuse), far less research has focused on exposure to community violence. This article and the following review of the literature therefore concentrates on the consequences of indirect and direct victimization experienced in the community, not the home.

While victims may respond to victimization with aggression and violence (e.g., fighting back against those who assaulted them), GST would also predict increased drug use among victims. Victims may resort to drinking, smoking, or using other drugs to counteract the stress of being victimized, witnessing victimization, or anticipating future violent experiences (Agnew, 2002; Kaufman, 2009; Taylor & Kliewer, 2006). Taylor and Kliewer (2006) term this type of reaction “avoidant coping,” whereby victims may use drugs to relieve the negative emotions produced by the traumatic event(s), particularly when other responses, such as attacking the source of stress directly, are not available. Victimization could also affect one’s emotional regulation and impair self-restraint, which in turn can increase the likelihood of drug use (Sullivan, Farrell, Kliewer, Vulin-Reynolds, & Valois, 2007).

Although the majority of studies guided by GST have examined the effects of victimization on outcomes other than substance use, there is evidence of a significant association between exposure to violence in the community and increased alcohol and/or other drug use by teenagers (Browning & Erickson, 2009; Kilpatrick et al., 2003; Kliewer & Murrelle, 2007; Kliewer et al., 2006; Taylor & Kliewer, 2006; Zinzow et al., 2009). Much of this research has been based on cross-sectional data, however, which is problematic given evidence of bi-directional relationships between the two constructs (Mrug & Windle, 2009; Ousey, Wilcox, & Fisher, 2011). Nonetheless, some longitudinal studies have demonstrated that exposure to violence outside of the home increases alcohol and other drug use among adolescents (Fagan, 2003; Farrell & Sullivan, 2004; Kaufman, 2009; Sullivan et al., 2004; Turanovic & Pratt, 2013). Our study seeks to build on this research by examining the immediate impact of exposure to violence on substance use, and the degree to which this relationship persists 2.5 years later.

What Types of Victimization Matter Most?

We also seek to generate new insights into the victimization/substance use relationship by exploring whether or not different types of victimization have unique effects on adolescent substance use. While GST (Agnew, 2006) considers both direct and indirect (or “vicarious”) forms of victimization to be significant stressors that can result in deviant coping mechanisms, Agnew has hypothesized that direct victimization may be more detrimental, as it can have physical and emotional consequences, is more proximal to the individual, may be more likely to be seen as unjust, and may be perceived to be of greater magnitude compared with indirect victimization. However, GST also acknowledges that indirect victimization can result in negative adaptations, especially if such events occur routinely and/or to significant others. In fact, some research suggests that, compared with direct victimization, indirect victimization is more frequently experienced by adolescents, and correspondingly, may be more likely to be anticipated in the future (Gorman-Smith, Henry, & Tolan, 2004; Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003). The National Survey of Children’s Exposure to Violence (NatSCEV), for example, found that among youth aged 14 to 17, 42% had witnessed an assault in their community, whereas 27% had been directly victimized by a physical assault (Finkelhor, Turner, Ormrod, & Hamby, 2009).

The operationalization of victimization has not been consistent throughout the extant research. Some studies have solely examined indirect victimization (Kliewer et al., 2006; Kliewer & Murrelle, 2007), others have focused only on direct victimization (Brady, Tschann, Pasch, Flores, & Ozer, 2009; Simantov, Schoen, & Klein, 2000), and some have combined indirect and direct victimization into a single measure of victimization (Buka et al., 2001; Thompson, Sims, Kingree, & Windle, 2008). The few studies that have examined both forms of victimization typically assess the impact of each independently (Albus, Weist, & Perez-Smith, 2004; Berenson, Wiemann, & McCombs, 2001; O'Donnell, Schwab-Stone, & Mueeed, 2002; Taylor & Kliewer, 2006; Vermeiren, Schwab-Stone, Deboutte, Leckman, & Ruchkin, 2003) and have rarely assessed the unique or relative effects of each of these different victimization experiences (but see Acosta, Albus, Reynolds, Spriggs, & Weist, 2001; Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009; Sullivan et al., 2007). Despite Agnew's (2002) suggestion that different victimization experiences should be controlled for simultaneously in statistical analyses to prevent overestimating the effects of one form of victimization, empirical studies have largely failed to do so.

Available evidence on the effects of different victimization experiences is scant, and the results to date have been mixed (Aisenberg & Herrenkohl, 2008). Some studies have shown that witnessing violence, but not directly experiencing it, is linked to increased alcohol and other drug use (Albus et al., 2004), while others have found that direct but not indirect victimization is related to alcohol use (Taylor & Kliewer, 2006), and still others have reported that both forms of victimization are related to increased alcohol and other drug use (Berenson et al., 2001; Vermeiren et al., 2003; Zinzow et al., 2009). More empirical research, especially that which relies on longitudinal data, is needed to help clarify what types of victimization are most likely to result in substance use.

GST posits that the cumulative effect of experiencing multiple forms of victimization is most detrimental, particularly if these experiences occur within a relatively short period of time (Agnew, 1992). That is, individuals may be able to effectively cope with one or two stressful experiences, but the accumulation of strain is more difficult to overcome. Research indicates that adolescents are at risk of experiencing repeat or *multiple* victimizations (Finkelhor, Ormrod, Turner, & Hamby, 2005; Saunders, 2003). For example, one national study showed that 71% of the sample of children and youth had experienced at least one type of victimization in the past year, and of those children, 69% had experienced more than one type of victimization (Finkelhor, Ormrod, & Turner, 2007). Repeat victimization may be particularly detrimental for adolescents, given that they are developmentally less skilled at effectively coping with stress (Agnew, 2006). Moreover, empirical research has shown that polyvictimization and the cumulative effects of exposure to violence can lead to mental health problems and maladjustment among adolescents (e.g., Finkelhor et al., 2007; Finkelhor et al., 2009a; Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009; Margolin, Vickerman, Oliver, & Gordis, 2010).

Given the scarcity of data, and the fact that some prior work has been based on cross-sectional data, there is a clear need for further investigation of how different victimization experiences affect future drug use. To increase our understanding of the relationship between victimization and substance use, we examine the effects of experiencing *only*

indirect victimization, *only* direct victimization, *both* types of victimization, and *no* victimization on tobacco, alcohol, marijuana (TAM) use during adolescence. Furthermore, we investigate these relationships at two points in time, using prospective data from an ethnically diverse sample of youth spanning the full range of adolescence.

Methods

Sample

This study utilized data from the Project on Human Development in Chicago Neighborhoods (PHDCN), a longitudinal project designed to examine prosocial and antisocial behavioral adaptations of children and adolescents (Earls, Brooks-Gunn, Raudenbush, & Sampson, 2002). To sample respondents from the entire city of Chicago, the PHDCN research staff first identified 343 neighborhood clusters (NCs), derived from all 847 census tracts in Chicago. These NCs were then stratified by seven categories of racial/ethnic and socioeconomic diversity. Eighty neighborhoods were subsequently selected via stratified probability sampling, and participants within these NCs were asked to participate in the Longitudinal Cohort Study (LCS). Only households with families with at least one child in one of seven age cohorts (ages 0, 3, 6, 9, 12, 15, and 18) were eligible for inclusion. The final sample included 6,228 participants from the seven cohorts (75% of the eligible population) who participated along with their primary caregivers in in-home interviews (Earls et al., 2002). Given our focus on adolescent victimization and substance use, the current study relies on data collected from three cohorts of youth (those in Cohorts 9, 12, and 15 at Wave 1, and who were approximately 14 years old at Wave 2). The final analysis sample included 1,696 youth and their caregivers at Wave 2 and 1,377 at Wave 3² from 79 Chicago neighborhoods.³

Measures

Dependent variable—Analyses focus on past month TAM use, reported by youth on items derived from the National Household Survey on Drug Abuse (1991) and measured separately at Waves 2 and 3. Both dependent variables are based on a count of the number of substances (tobacco, alcohol, or marijuana) the respondent reported using in the past month, ranging from 0 to 3. Assessing *Wave 2 TAM use* allowed us to examine whether victimization was associated with contemporaneous substance use, while predicting *Wave 3 TAM use* allowed for the examination of effects over time.

Independent variables—At Wave 2, adolescents reported whether or not they were subject to a range of victimization experiences in the past year. A respondent was considered to have experienced any indirect victimization if he/she saw someone: chased, attacked with a weapon, shot, shot at, threatened at least once in the past year, or hit two or more times⁴ in the past year.⁵ Comparable items were used to create a measure of experiencing any direct victimization with respondents reporting if they had personally experienced any of the same

²A total of, 208 cases at Wave 2 and 249 cases at Wave 3 were excluded due to list-wise deletion of missing variables in the multivariate models. In checking the representativeness of our final samples compared with our target samples ($n = 1,904$ at Wave 2; $n = 1,626$ at Wave 3), we found no significant differences for any of the variables included in these analyses.

³One of the 80 neighborhood clusters dropped out once analyses were restricted to adolescents in Cohorts 9, 12, and 15.

events in the past year. Four dummy variables were created from these measures to reflect four distinct and mutually exclusive types of victimization: only indirect victimization, only direct victimization, both victimization types, and *no victimization*. Individuals who were not victimized served as the reference category for the other three victimization experiences.

Control variables—To avoid misspecifying the relationship between victimization and substance use, multiple control variables were included in the analyses to account for other possible predictors of adolescent substance use (Hawkins, Catalano, & Miller, 1992). Adolescent self-reports at Wave 1 were used to assess age, gender, and race/ethnicity. *Age* was measured as the youth's age in years. *Male* was a dichotomous variable that reflects the youth's gender. Race/ethnicity was measured by three dichotomous variables, *Hispanic*, *African American*, and *Other race*. Caucasians (non-Hispanic Whites) served as the reference category. *Household salary*, a caregiver-reported measure from Waves 1 and 2, indicated the total household income earned in the past year, and was based on an 11-point scale (1 = *less than \$5,000*; 11 = *more than \$90,000*).

We also accounted for other family, peer, and individual risk factors. Prior research has found that higher levels of parental monitoring may impact adolescent substance use and/or condition the relationship between exposure to violence and substance use (e.g., Chassin, Pillow, Curran, Molina, & Barrera, 1993; Kliewer et al., 2006; Kosterman, Hawkins, Guo, Catalano, & Abbott, 2000; Sullivan et al., 2004). To control for the possible relationship between parental practices and adolescent substance use, we included a measure of *parent monitoring*, measured at Wave 2. This variable was the sum of three dichotomous items asking caregivers if they set rules regarding children's whereabouts on weekday and weekend nights; higher scores indicate greater parental monitoring. Because extant research has suggested that peer delinquency is one of the strongest predictors of adolescent substance use (Elliott, Huizinga, & Ageton, 1985; Windle et al., 2009), we controlled for *peer substance use*, which was measured at Wave 2 and based on adolescent reports of the number of their friends who used marijuana, alcohol, and tobacco in the past year. Based on a 4-point scale (1 = *none of them*; 4 = *all of them*), these items were standardized and summed ($\alpha = .85$), with higher scores reflecting greater peer substance use.

Perceptions regarding the availability and harmfulness of drugs are also predictors of adolescent substance use (Beyers, Toumbourou, Catalano, Arthur, & Hawkins, 2004; Cleveland, Feinberg, Bontempo, & Greenberg, 2008; Gibbons et al., 2004). At Wave 2, children's *perceived substance use harm* was assessed using seven items ($\alpha = .75$) from the National Household Survey on Drug Abuse (1991). Using a 4-point Likert-type scale, youth reported "how much people would hurt themselves" if they used varying amounts of tobacco, alcohol, and marijuana. Items from these seven items were standardized and summed, with greater scores representing more perceived harm. *Perceived availability of*

⁴Over half of the sample (54%) had seen someone hit at least once in the past year, and including this item with the other five types of victimization increased the overall prevalence of any indirect victimization to 67%. To focus on somewhat less normative experiences, we restricted the measure to those who had seen someone hit two or more times in the past year. All other items in the indirect and direct victimization measures were based on having been victimized one or more times.

⁵Given our focus on exposure to community violence, we did not include measures of victimization experienced within the home setting (e.g., child maltreatment or exposure to intimate partner violence) in these analyses.

substances represents respondents' Wave 2 perceptions of how easily they could obtain cigarettes, alcohol, and marijuana ($\alpha = .87$) using a 4-point scale (1 = *probably impossible*; 4 = *very easy*). Finally, because prior behaviors are strong predictors of future behaviors, and because the early initiation of substance use may be associated with future problematic behaviors (Hawkins et al., 1992; Windle et al., 2009), we included two dichotomous measures of past year substance use in our analyses: *Wave 1 TAM use* (included only in analyses predicting past month TAM use at Wave 2) and *Wave 2 TAM use* (included only in analyses predicting past month TAM use at Wave 3) reflect whether or not the respondent reported any use of tobacco, alcohol, or marijuana in the past year (at Waves 1 and 2, respectively).

Statistical Analyses

Hierarchical modeling techniques (Hierarchical Linear Modeling [HLM], see Raudenbush & Bryk, 2002) were used to control for potential neighborhood influences on youth outcomes given that youth were clustered in 79 neighborhoods. These models adjust for the correlated error that exists between individuals living within the same neighborhoods. All predictors were group-mean centered and fixed to remove between-neighborhood variation that could be related to adolescent substance use, as well as to aide in the interpretation of coefficients. Outcomes were analyzed using Poisson models that corrected for overdispersion.

The analyses proceeded in a stepwise fashion. First, analysis of variance (ANOVA) and post hoc Tukey's Multiple Comparison Tests were conducted to assess the relative effects of the victimization types, by comparing the mean levels of Wave 2 and Wave 3 TAM use across the four victimization types. Next, we estimated the unique impact of each victimization type on TAM use while controlling only for the other victimization types. Finally, we re-estimated those relationships in a multivariate model that included all control variables.

Results

As shown in Table 1, the sample was on average 14 years old at Wave 2, 50% male, and was ethnically diverse, with 49% of youth reporting their race/ ethnicity as Hispanic, 33% as African American, 14% as Caucasian (non-Hispanic White), and 4% as another race or ethnicity. Approximately 36% of the sample experienced *only* indirect victimization, 3% experienced *only* direct victimization, 26% experienced both indirect and direct victimization, and 35% of the sample had never been victimized (see Table 1).

At Wave 2, the mean of past month TAM use was .30. Approximately 82% of adolescents reported no past month TAM use at Wave 2, while 9% reported using one substance, 6% used two substances, and 3% used all three substances (results not shown).⁶ At Wave 3, the mean TAM use was .54. Similar to Wave 2, the majority of adolescents did not use any substances at Wave 3 (68%). Sixteen percent of youth reported using one substance, 10% reported using two of the three substances, and 6% reported using all three substances (results not shown).⁷

⁶At Wave 2, roughly 11% of the sample used cigarettes in the past month, 12% used alcohol, and 7% used marijuana (results not shown).

The results of the ANOVA analyses shown in Table 2 provide mean comparisons for Waves 1 and 3 TAM use across the four victimization types. Youth who were not victimized had significantly lower TAM use at both waves compared with those youth who experienced indirect victimization only or who experienced indirect and direct victimization. Those who experienced only indirect victimization and who experienced only direct victimization had lower Wave 2 and Wave 3 TAM use compared with those youth who experienced both forms of victimization. Across the two waves, youth who had never been victimized reported the lowest TAM use, while those who had experienced both forms of victimization reported the most TAM use.

The multivariate models predicting the unique impact of each victimization type on Wave 2 and Wave 3 TAM use are reported in Table 3.⁸ Compared with adolescents who did not experience any victimization, those who experienced indirect victimization only, direct victimization only, and both victimization types reported significantly more wave two past month TAM use (Model 1). As relevant control variables were added to the model, the influence of all three victimization types declined, yet continued to exert independent, positive, and significant effects on TAM use (Model 2; event rate ratio [ERR] for indirect victimization only = 1.60; ERR for direct victimization only = 2.33; and ERR for experiencing both types of victimization = 2.30, results not shown).

Models 3 and 4 assessed the effects of each victimization type on Wave 3 TAM use (2.5 years later). When no control variables were included, experiencing only indirect victimization and experiencing both victimization types were each significantly related to future TAM use (Model 3). However, once demographic and other risk factors were added, the effects of each of the victimization types were rendered nonsignificant (Model 4).

In addition to the victimization effects, at both time points, older adolescents, youth with more substance using peers, those who perceived drugs to be more readily available, and youth with prior TAM use reported more TAM use than youth who were younger, had fewer substance using peers, believed drugs were less available, and did not previously use any substances. Adolescents who perceived substances to be more harmful reported less TAM use than those who had more lax opinions on the harmfulness of substance use.

Discussion and Conclusion

This article sought to extend previous victimization research and tests of GST by examining the effects of different types of exposure to community violence—indirect and direct victimization—on substance use, and the degree to which these types of victimization were

⁷At Wave 3, roughly 18% of the sample used cigarettes in the past month, 25% used alcohol, and 11% used marijuana (results not shown).

⁸The main focus of this study was to assess the overall impact of *any* victimization experiences, but it is also informative to understand the extent to which the *number of* victimization experiences impacts adolescent substance use. To explore the second issue, analyses were conducted using victimization measures that represented the number (count) of experiences each respondent reported for each victimization type (i.e., direct victimization, indirect victimization and both types) on Wave 2 and Wave 3 TAM use. The results were not substantially different from those reported here (which were based on the dichotomous variables). In addition, analyses including two measures of negative emotions (anger and depression) postulated by strain theory to impact substance use were conducted. These negative emotions did not significantly predict Wave 2 or Wave 3 TAM use, and did not substantially impact the effects of other measures included in the model. These variables were thus excluded from the final models presented here.

associated with TAM use at two time points during adolescence: one closer in proximity to the victimization experiences and another 2.5 years later. Prior work has largely neglected to examine the impact of exposure to community violence on adolescent substance use or to analyze the unique effects of direct and indirect exposure to violence on substance use. We chose to focus on these relationships because adolescents are commonly exposed to community violence as witnesses or direct victims (Finkelhor et al., 2009a; Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009; The United States Department of Justice, 2012), and they engage in alcohol and other drug use at relatively high rates (Johnston et al., 2012).

Overall, and consistent with some previous research, this study found that exposure to violence was significantly and positively associated with adolescent TAM use in the short term (e.g., Browning & Erickson, 2009; Kilpatrick et al., 2003; Kliewer & Murrelle, 2007; Kliewer et al., 2006; Zinzow et al., 2009). These results are also consistent with the predictions of GST, which posits that victimization is a stressful event particularly likely to generate intense, negative emotions that must be alleviated, possibly through deviant coping strategies including substance use (Agnew, 2006).

The effect of victimization on substance use was not maintained 2.5 years later, however. While two of the victimization types (experiencing indirect victimization only and reporting both types of victimization) did predict increased TAM use at Wave 3, these relationships were not statistically significant when Wave 2 TAM use and other control variables were added to the models. Many prior studies assessing the victimization/substance use relationship have relied on cross-sectional analyses and thus have not been able to assess longer-term effects of exposure to violence. A few studies have reported that victimization increases subsequent substance use over time (Fagan, 2003; Farrell & Sullivan, 2004; Kaufman, 2009; Sullivan et al., 2004; Turanovic & Pratt, 2013), though some have not (Kaufman, 2009; Thompson et al., 2008). General strain theory is somewhat unclear regarding the time frame within which stressful experiences are likely to have their greatest impact, but it does suggest that the impact of these experiences is especially detrimental in close proximity to its occurrence and dissipates over time (Agnew, 1992, 2001). Our results are supportive of this recency effect and suggest that victimization has a more immediate impact on increasing substance use, but as time lapses, other factors (e.g., peer influences or individual attitudes or opportunities) become more important in determining one's use of TAM. These findings also suggest that recency of victimization should be taken into account in empirical research (Agnew, 1992, 2001).

In addition to providing a prospective report of the victimization/substance use relationship, the current investigation contributed to the victimization literature by assessing whether different victimization experiences independently impacted substance use. While strain theory would argue that any form of victimization could lead to deviant coping strategies (Agnew, 2006), the theory also posits that being a victim of direct victimization may have more serious negative effects. This type of victimization is thought to have greater physical and emotional consequences and is "closer" to the individual, which increases its magnitude in comparison with vicarious or indirect victimizations. Nonetheless, because indirect victimization is more commonly experienced than direct victimization, it might be just as consequential for adolescents, especially if they witness victimizations routinely or if these

attacks happen to significant others (e.g., family, close friends). GST also suggests that the accumulation of several stressful events within a relatively short period of time is particularly harmful (Agnew, 1992).

The results of this study generally support these postulations. According to bivariate analyses, the average level of reported TAM use at both time points significantly differed according to the type of victimization experienced. Those who had not experienced any victimization had the lowest TAM use, followed by those who experienced direct victimization only and those who experienced indirect victimization only. Adolescents who experienced both types of victimization had the highest TAM use. These findings also support research indicating that polyvictimization leads to the most mal-adaptive outcomes for youth (e.g., Finkelhor et al., 2007; Finkelhor et al., 2009a; Finkelhor, Turner, Ormrod, Hamby, & Kracke, 2009; Margolin et al., 2010). Nonetheless, in multivariate models, all three victimization types were significantly related to past month TAM use measured at Wave 2, suggesting that adolescents may use substances to counteract the stress and negative emotions produced by traumatic events of different types and all levels (Agnew, 2002; Kaufman, 2009; Taylor & Kliewer, 2006).

A somewhat unexpected finding in our study was that only a relatively small proportion of our sample (3%) experienced direct victimization only. The majority of respondents who experienced direct victimization also experienced indirect victimization, although the reverse was not true. While the results indicated that those experiencing only direct victimization were significantly more likely to report substance use compared with those not victimized (at Wave 2 but not Wave 3), additional research is needed to further explore the unique impact of this form of violence on substance use. Given the limited research in this area, additional studies with even larger sample sizes may be needed to identify the characteristics of youth who only experience direct victimization, and to compare the impact of this form of violence with other types of violence exposure.

Given that exposure to violence, especially multiple exposures, did increase adolescent substance use in the short-term, the findings have relevance for policy and practice. Individuals working with youth in school and community agencies must be aware of the high rates of exposure to violence and TAM use among adolescents. Furthermore, they should understand that substance use may be used as a coping mechanism to deal with the pains of victimization, especially among adolescents lacking prosocial coping skills. Youth who have disclosed experiencing any type of victimization should be targeted for counseling and other social support programs to counterbalance the negative impact of these victimizations. These services may be particularly needed in areas known to have higher rates of violence and victimization, such as urban, socially and economically disadvantaged neighborhoods (Sampson & Groves, 1989; Sampson & Raudenbush, 1999; Sampson, Raudenbush, & Earls, 1997). Because even young children are likely to be exposed to violence, and given the immediate negative consequences stemming from victimization, prevention measures that educate children about how to recognize and cope with negative emotions should be implemented as early as possible in the life course.

Although the current investigation has addressed a gap in the literature, there are some limitations to the study. First, data were collected in one city—Chicago—and one time-period—the 1990s—which limits the generalizability of the results. In addition, the PHDCN was designed to study adolescents nested within neighborhoods. We did not examine neighborhood effects in this article, but it is possible that neighborhood characteristics may influence these relationships and additional research should examine such effects. Despite these limitations, our study provides a foundation for examining the relative effects of different victimization experiences on substance use, and exploring whether these relationships persist over time.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: 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.

Biography

Gillian M. Pinchevsky is an assistant professor in the Department of Criminal Justice at the University of Nevada, Las Vegas. Her research interests include victimization, intimate partner violence, and the criminal justice response to violence and victimization.

Abigail A. Fagan is an associate professor in the Department of Sociology, Criminology, and Law at the University of Florida. Her research focuses on the etiology and prevention of juvenile delinquency and substance use, with an emphasis on examining the ways in which scientific advances can be successfully translated into effective crime and delinquency prevention practices. Her research includes particular attention to the effects of family processes (e.g., parents practices and sibling relationships), victimization experiences, and community influences on juvenile offending.

Emily M. Wright is an assistant professor in the School of Criminology and Criminal Justice at the University of Nebraska at Omaha. Her research examines intimate partner violence and exposure to violence in neighborhood context. Her research has appeared in journals such as *Social Problems*, *Justice Quarterly*, and *Child Abuse and Neglect*.

References

- Acosta OM, Albus KE, Reynolds MW, Spriggs D, Weist MD. Assessing the status of research on violence-related problems among youth. *Journal of Clinical Child and Adolescent Psychology*. 2001; 30:152–160.
- Agnew R. Foundation for a general strain theory of crime and delinquency. *Criminology*. 1992; 30:47–88.
- Agnew R. 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 & Delinquency*. 2001; 38:319–361.
- Agnew R. Experienced, vicarious, and anticipated strain: An exploratory study on physical victimization and delinquency. *Justice Quarterly*. 2002; 19:603–632.

- Agnew, R. Pressured into crime: An overview of general strain theory. Roxbury Publishing Company; Cary, NC: 2006.
- Aisenberg E, Herrenkohl TI. Community violence in context: Risk and resilience in children and families. *Journal of Interpersonal Violence*. 2008; 23:296–315. [PubMed: 18245570]
- Albus KE, Weist MD, Perez-Smith AM. Associations between youth risk behavior and exposure to violence: Implications for the provision of mental health services in urban schools. *Behavior Modification*. 2004; 28:548–564. [PubMed: 15186515]
- Berenson AB, Wiemann CM, McCombs S. Exposure to violence and associated health-risk behaviors among adolescent girls. *Archives of Pediatric and Adolescent Medicine*. 2001; 155:1238–1242.
- Beyers JM, Toumbourou JW, Catalano RF, Arthur MW, Hawkins JD. A cross-national comparison of risk and protective factors for adolescent substance use: The United States and Australia. *Journal of Adolescent Health*. 2004; 35:3–16. [PubMed: 15193569]
- Brady SS, Tschann JM, Pasch LA, Flores E, Ozer EJ. Cognitive coping moderates the association between violent victimization by peers and substance use among adolescents. *Journal of Pediatric Psychology*. 2009; 34:304–310. [PubMed: 18669579]
- Browning S, Erickson P. Neighborhood disadvantage, alcohol use, and violent victimization. *Youth Violence and Juvenile Justice*. 2009; 7:331–349.
- Buka SL, Stichick TL, Birdthistle I, Earls F. Youth exposure to violence: Prevalence, risk and consequences. *American Journal of Orthopsychiatry*. 2001; 71:298–310. [PubMed: 11495332]
- Chassin L, Pillow DR, Curran PJ, Molina BSG, Barrera M Jr. Relation of parental alcoholism to early adolescent substance use: A test of three mediating mechanisms. *Journal of Abnormal Psychology*. 1993; 102:3–19. [PubMed: 8436697]
- Cleveland MJ, Feinberg ME, Bontempo DE, Greenberg MT. The role of risk and protective factors in substance use across adolescence. *Journal of Adolescent Health*. 2008; 43:157–164. [PubMed: 18639789]
- Cusworth Walker S, Maxson C, Maxfield MG. Parenting as a moderator of minority, adolescent victimization and violent behavior in high-risk neighborhoods. *Violence and Victims*. 2007; 22:304–317. [PubMed: 17619636]
- Dukarm CP, Byrd RS, Auinger P, Weitzman M. Illicit substance use, gender, and the risk of violent behavior among adolescents. *Archives of Pediatric and Adolescent Medicine*. 1996; 150:797–801.
- Earls, FJ.; Brooks-Gunn, J.; Raudenbush, SW.; Sampson, RJ. Project on human development in Chicago Neighborhoods (PHDCN): Wave 1, 1994–1997. Inter-university Consortium for Political and Social Research; Ann Arbor, MI: 2002.
- Elliott, DS.; Huizinga, D.; Ageton, SS. Explaining delinquency and drug use. Sage; Beverly Hills, CA: 1985.
- Fagan AA. The short- and long-term effects of adolescent victimization experienced within the family and community. *Violence and Victims*. 2003; 18:445–458. [PubMed: 14582865]
- Fagan AA, Mazerolle P. Repeat offending and repeat victimization: Assessing similarities and differences in psychosocial risk factors. *Crime & Delinquency*. 2011; 57:732–755.
- Farrell AD, Sullivan TN. Impact of witnessing violence on growth curves for problem behaviors among early adolescents in urban and rural settings. *Journal of Community Psychology*. 2004; 32:505–525.
- Finkelhor D, Ormrod RK, Turner HA. Polyvictimization: A neglected component in child victimization. *Child Abuse & Neglect*. 2007; 31:7–26. [PubMed: 17224181]
- Finkelhor D, Ormrod RK, Turner HA. The developmental epidemiology of childhood victimization. *Journal of Interpersonal Violence*. 2009a; 24:711–731. [PubMed: 18467689]
- Finkelhor D, Ormrod RK, Turner HA. Lifetime assessment of polyvictimization in a national sample of children and youth. *Child Abuse & Neglect*. 2009b; 33:403–411. [PubMed: 19589596]
- Finkelhor D, Ormrod RK, Turner HA, Hamby SL. Measuring poly-victimization using the Juvenile Victimization Questionnaire. *Child Abuse & Neglect*. 2005; 29:1297–1312. [PubMed: 16274741]
- Finkelhor D, Turner HA, Ormrod RK, Hamby S. Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics*. 2009; 124:1411–1423. [PubMed: 19805459]

- Finkelhor, D.; Turner, HA.; Ormrod, RK.; Hamby, S.; Kracke, K. Children's exposure to violence: A comprehensive national survey. US Department of Justice; Washington, DC: 2009.
- Fowler PJ, Tompsett CJ, Braciszewski JM, Jacques-Tiura AJ, Baltes BB. Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology*. 2009; 21:227–259. [PubMed: 19144232]
- Gibbons FX, Gerrard M, Vande Lune LS, Ashby Wills T, Brody G, Conger RD. Context and cognitions: Environmental risk, social influence, and adolescent substance use. *Personality and Social Psychology Bulletin*. 2004; 30:1048–1061. [PubMed: 15257788]
- Gorman-Smith D, Henry DB, Tolan PH. Exposure to community violence and violence perpetration: The protective effects of family functioning. *Journal of Clinical Child and Adolescent Psychology*. 2004; 33:439–449. [PubMed: 15271602]
- Hawkins JD, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*. 1992; 112:64–105. [PubMed: 1529040]
- Hingson RW, Heeren T, Winter MR. Age at drinking onset and alcohol dependence: Age at onset, duration, and severity. *Archives of Pediatric and Adolescent Medicine*. 2006; 160:739–746.
- Jennings WG, Piquero AR, Reingle JM. On the overlap between victimization and offending: A review of the literature. *Aggression and Violent Behavior*. 2012; 17:16–26.
- Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Demographic subgroup trends for various licit and illicit drugs, 1975–2011 (Monitoring the Future Occasional Paper No. 77). Institute for Social Research; Ann Arbor, MI: 2012.
- Jonson-Reid M. Youth violence and exposure to violence in childhood: An ecological review. *Aggression and Violent Behavior*. 1998; 3:159–179.
- Kaufman JM. Gendered responses to serious strain: The argument for a general strain theory of deviance. *Justice Quarterly*. 2009; 26:410–444. [PubMed: 20625472]
- Kilpatrick D, Acierno R, Saunders B, Resnick H, Best CL, Schnurr PP. Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology*. 2000; 68:19–30. [PubMed: 10710837]
- Kilpatrick D, Ruggiero KJ, Acierno R, Saunders B, Resnick H, Best CL. Violence and risk of PTSD, major depression, substance abuse/dependence and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology*. 2003; 71:692–700. [PubMed: 12924674]
- Kliewer W, Murrelle L. Risk and protective factors for adolescent substance use: Findings from a study in selected Central American countries. *Journal of Adolescent Health*. 2007; 40:448–455. [PubMed: 17448403]
- Kliewer W, Murrelle L, Prom E, Ramirez M, Obando P, Sandi L, Karenkeris M. Violence exposure and drug use in Central American youth: Family cohesion and parental monitoring as protective factors. *Journal of Research on Adolescence*. 2006; 16:455–478.
- Kosterman R, Hawkins JD, Guo J, Catalano RF, Abbott RD. The dynamics of alcohol and marijuana initiation: Patterns and predictors of first use in adolescence. *American Journal of Public Health*. 2000; 90:360–366. [PubMed: 10705852]
- Lynch M. Consequences of children's exposure to community violence. *Clinical Child and Family Psychology Review*. 2003; 6:265–274. [PubMed: 14719638]
- Lynskey M, Hall W. The effects of adolescent cannabis use on educational attainment: A review. *Addiction*. 2000; 95:1621–1630. [PubMed: 11219366]
- Macmillan R. Violence and the life course: The consequences of victimization for personal and social development. *American Review of Sociology*. 2001; 27:1–22.
- Margolin G, Vickerman KA, Oliver PH, Gordis EB. Violence exposure in multiple interpersonal domains: Cumulative and differential effects. *Journal of Adolescent Health*. 2010; 47:198–205. [PubMed: 20638013]
- Mrug S, Windle M. Initiation of alcohol use in early adolescence: Links with exposure to community violence across time. *Addictive Behaviors*. 2009; 34:779–781. [PubMed: 19442452]
- National Household Survey on Drug Abuse. National household survey on drug abuse: Population estimates. National Institute on Drug Abuse; Rockville, MD: 1991.

- O'Donnell DA, Schwab-Stone M, Mueyee AZ. Multidimensional resilience in urban children exposed to community violence. *Child Development*. 2002; 73:1265–1282. [PubMed: 12146747]
- Ousey GC, Wilcox P, Fisher BS. Something old, something new: Revisiting competing hypotheses of the victimization-offending relationship among adolescents. *Journal of Quantitative Criminology*. 2011; 27:53–84.
- Raudenbush, SW.; Bryk, AS. Hierarchical linear models: Applications and data analysis methods. 2nd ed.. Vol. 1. Sage; Thousand Oaks, CA: 2002.
- Sampson RJ, Groves WB. Community structure and crime: Testing social-disorganization theory. *American Journal of Sociology*. 1989; 94:774–802.
- Sampson RJ, Lauritsen JL. Deviant lifestyles, proximity to crime, and the offender-victim link in personal violence. *Journal of Research in Crime & Delinquency*. 1990; 27:110–139.
- Sampson RJ, Raudenbush SW. Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology*. 1999; 105:603–651.
- Sampson RJ, Raudenbush SW, Earls F. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*. 1997; 277:918–924. [PubMed: 9252316]
- Saunders BE. Understanding children exposed to violence: Toward an integration of overlapping fields. *Journal of Interpersonal Violence*. 2003; 18:356–376.
- Schwab-Stone M, Ayers T, Kaspro W, Voyce C, Barone C, Shriver T, Weissberg R. No safe haven: A study of violence exposure in an urban community. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1995; 34:1343–1352. [PubMed: 7592272]
- Simantov E, Schoen C, Klein JD. Health-compromising behaviors: Why do adolescents smoke or drink?: Identifying underlying risk and protective factors. *Archives of Pediatric and Adolescent Medicine*. 2000; 154:1025–1033.
- Stein BD, Jaycox LH, Kataoka S, Rhodes HJ, Vestal KD. Prevalence of child and adolescent exposure to community violence. *Clinical Child and Family Psychology Review*. 2003; 6:247–264. [PubMed: 14719637]
- Sullivan TN, Farrell AD, Kliever W, Vulin-Reynolds M, Valois RF. Exposure to violence in early adolescence: The impact of self-restraint, witnessing violence, and victimization on aggression and drug use. *Journal of Early Adolescence*. 2007; 27:296–323.
- Sullivan TN, Kung EM, Farrell AD. Relation between witnessing violence and drug use initiation among rural adolescents: Parental monitoring and family support as protective factors. *Journal of Clinical Child and Adolescent Psychology*. 2004; 33:488–498. [PubMed: 15271606]
- Taylor KW, Kliever W. Violence exposure and early adolescent alcohol use: An exploratory study of family risk and protective factors. *Journal of Child and Family Studies*. 2006; 15:207–221.
- Thompson MP, Sims L, Kingree JB, Windle M. Longitudinal associations between problem alcohol use and violent victimization in a national sample of adolescents. *Journal of Adolescent Health*. 2008; 42:21–27. [PubMed: 18155026]
- Turanovic JJ, Pratt TC. The consequences of maladaptive coping: Integrating general strain and self-control theories to specify a causal pathway between victimization and offending. *Journal of Quantitative Criminology*. 2013; 29:321–345.
- The United States Department of Justice. “Defending Childhood” initiative. 2012. Retrieved from <http://www.justice.gov/defendingchildhood/about-initiative.html>
- Valois RF, McKeown RE. Correlates of aggressive and violent behaviors among public high school adolescents. *Journal of Adolescent Health*. 1995; 16:26–34. [PubMed: 7742333]
- Vermeiren R, Schwab-Stone M, Deboutte D, Leckman PE, Ruchkin V. Violence exposure and substance use in adolescents: Findings from three countries. *Pediatrics*. 2003; 111:535–540. [PubMed: 12612233]
- Windle M, Spear LP, Fuligni AJ, Angold A, Brown JD, Pine D, Dahl RE. Transitions into underage and problem drinking: Summary of developmental processes and mechanisms: Ages 10–15. *Alcohol Research & Health*. 2009; 32:30–40. [PubMed: 23104445]
- Zinzow HM, Ruggiero KJ, Hanson R, Smith D, Saunders BE, Kilpatrick D. Witnessed community and parental violence in relation to substance use and delinquency in a national sample of adolescents. *Journal of Traumatic Stress*. 2009; 22:525–533. [PubMed: 19885872]

Table 1

Sample Means and Standard Deviations.

	<i>M</i>	<i>SD</i>	Minimum-Maximum
Outcomes			
Count of past month TAM use, Wave 2	0.30	0.72	0-3
Count of past month TAM use, Wave 3	0.54	0.91	0-3
Exposure to violence variables			
Experienced indirect victimization only	0.36	0.48	0-1
Experienced direct victimization only	0.03	0.18	0-1
Experienced both victimization types	0.26	0.44	0-1
Experienced no victimization	0.35	0.48	0-1
Control variables			
Age	13.95	2.44	9.11-19.89
Male	0.50	0.50	0-1
Hispanic	0.49	0.50	0-1
African American	0.33	0.47	0-1
Caucasian (reference)	0.14	0.35	0-1
Other race/ethnicity	0.04	0.19	0-1
Household salary	4.77	2.53	1-11
Parent monitoring	2.86	0.46	0-3
Peer substance use	-0.01	0.99	-0.86-2.99
Perceived substance use harm	0.00	0.99	-4.47-1.52
Perceived availability of substances	-0.00	1.00	-1.35-1.60
Past year TAM use, Wave 1	0.18	0.38	0-1
Past year TAM use, Wave 2	0.29	0.45	0-1
<i>N</i>	1,696		

Notes: TAM = tobacco, alcohol, and marijuana.

Table 2

Mean Comparisons for Victimization Types and TAM Use.

	Wave 2, TAM use	Wave 3, TAM use
No victimization	0.08 ^{a b}	0.28 ^{a b}
Indirect victimization only	0.31 ^{b c}	0.58 ^{b c}
Direct victimization only	0.26 ^b	0.38 ^b
Both victimization types	0.64 ^{a c d}	0.88 ^{a c d}

Note. Multiple comparisons made using Tukey's Multiple Comparison Test. TAM = tobacco, alcohol, and marijuana.

^a Significantly different from *indirect victimization only*.

^b Significantly different from *both victimization types*.

^c Significantly different from *no victimization*.

^d Significantly different from *direct victimization only*.

Table 3

Fixed Effect Poisson Models Depicting the Influence of Degrees and Types of Victimization on Past Month TAM Use.

	<u>Past Month TAM Use, Wave 2</u>		<u>Past Month TAM Use, Wave 3</u>	
	<u>b (SE)</u>	<u>b (SE)</u>	<u>b (SE)</u>	<u>b (SE)</u>
	Model 1	Model 2^a	Model 3	Model 4^b
Intercept	-1.47 ** (.08)	-2.12 ** (.12)	-0.72 ** (.05)	-0.99 ** (.07)
Exposure to violence variables				
Indirect victimization only	1.45 ** (.14)	0.47 ** (.15)	0.78 ** (.11)	0.09 (.11)
Direct victimization only	1.13 ** (.35)	0.84 ** (.26)	0.26 (.39)	-0.23 (.37)
Both victimization types	2.12 ** (.14)	0.83 ** (.16)	1.13 ** (.11)	0.20 (.11)
Control variables				
Age	—	0.17 ** (.03)	—	0.14 ** (.02)
Male	—	-0.01 (.10)	—	0.29 ** (.07)
Hispanic ^c	—	0.25 (.21)	—	-0.14 (.16)
African American ^c	—	-0.18 (.20)	—	-0.35 (.18)
Other race/ethnicity ^c	—	0.04 (.30)	—	-0.41 (.22)
Household salary	—	-0.01 (.02)	—	0.01 (.01)
Parent monitoring	—	0.04 (.06)	—	0.02 (.05)
Peer substance use	—	0.50 ** (.07)	—	0.16 ** (.04)
Perceived substance use harm	—	-0.24 ** (.04)	—	-0.16 ** (.04)
Perceived availability of substances	—	0.19 ** (.06)	—	0.14 ** (.05)
Wave one TAM use	—	0.63 ** (.13)	—	—
Wave two TAM use	—	—	—	0.58 ** (.11)
χ^2	159.67	269.01	117.72	138.92

Note. Models correct for overdispersion; all variables were fixed. Standard Errors in Parentheses. TAM = tobacco, alcohol, and marijuana.

**p* .05.

^a Analyses based on 1,696 adolescents.

^b Analyses based on 1,377 adolescents.

^c Reference category is "Caucasian."

**
p .01.