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Does Parental Monitoring Moderate the Impact of Community Violence Exposure on Probation Youth's Substance Use and Sexual Risk Behavior?

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Abstract

The present study examined whether parental monitoring buffers the negative effects of community violence exposure on probation youth's substance use and sexual risk behaviors. Among a sample of 347 Chicago youth on probation, ages 13–17 years, parental monitoring did not moderate the relationship between community violence exposure and probation youth's sexual risk and substance use. However, parental monitoring was independently associated with less engagement in sexual risk and substance use, and community violence exposure was independently associated with more risk behavior among probation youth. The present study contributes to the growing literature on the impact of community violence exposure and parenting on adjudicated youth risk.

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Compliance with Ethical Standards

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All procedures were approved by the Office of the Protection of Research Subjects at the University of Illinois at Chicago.

Informed consent: Informed youth assent and parental consent were obtained from all individual participants included in the study, and their legal guardians.

Author Contributions: WU: conceptualized the present study, assisted with the data analyses, and wrote the paper. AH: analyzed the data and drafted the results sections and tables, and assisted with drafting the methods and discussion, and collaborated in the reviewing and editing of the final manuscript. GD: designed and executed the larger intervention study, collaborated with the design and drafting of the introduction and discussion sections, and collaborated in the reviewing and editing of the final manuscript. EE: collaborated with the design and implementation of the study, helped draft the methods section, and collaborated in the reviewing and editing of the final manuscript.

INTRODUCTION

Youth in the juvenile justice system are at higher risk for contracting HIV and other sexually transmitted infections (STI) than their non-adjudicated peers (Wiehe, Rosenman, Aalsma, Scanlon, & Fortenberry, 2015). This higher STI risk is fueled, in part, by high rates of sexual risk behaviors and substance use, including infrequent condom use, sex with multiple partners, and sex while drunk or high (Bryan, Schmiede, & Broaddus, 2009; Teplin, Mericle, McClelland, & Abram, 2003). Additionally, justice involved youth are more likely to use alcohol and drugs than their peers (Bryan, Ray, & Cooper, 2007). Studies indicate up to 60% of adjudicated youth report recent substance use (Donenberg, Emerson, Mackesy-Amiti, & Udell, 2015), and between 25%–50% qualify for a substance abuse disorder (Chassin, 2008). While substance use is related to a variety of health problems, using substances during sexual encounters further exacerbates youth's STI risk by impeding rational decision making and decreasing the likelihood of using condoms correctly (Bryan et al., 2009).

According to the bioecological perspective (Bronfenbrenner & Morris, 2006), youth risk taking is impacted by varying levels of the environment, from the proximal (e.g., microsystem) to the distal (e.g., macrosystem). Two proximal factors influencing youth risk behaviors are neighborhoods and parents. Studies document the significant negative effects of neighborhood adversity on adolescent development, health, and well-being (Levanthal & Brooks-Gunn, 2009). A specific type of neighborhood adversity, community violence, is believed to be particularly harmful. Exposure to, and experiencing threats or acts of, physical harm in one's community (i.e., community violence exposure) is believed to impact youth through psychological mechanisms such as stress and emotion dysregulation. Living in an environment where violence is prevalent or erratic has been linked to increased stress and feelings of hopelessness (Wilson, Woods, Emerson & Donenberg, 2012; Woods-Jaeger, 2013). Youth may attempt to regulate and cope with such emotions through alcohol and drug use (Lindenberg, Reiskin, Gendrop, 1993). Indeed, research has documented an association between exposure to community violence and a variety of adolescent risk behaviors (Cooley-Strickland et al., 2009; Guerra & Dierkhising, 2011). Studies of youth in the general population have found community violence exposure (CVE) to be associated with an increase in alcohol and marijuana use (Lee, 2012; Pinchevsky, Wright, Fagan, 2013; Zinzow et al., 2009), and a greater likelihood to initiate sex at earlier ages, use condoms inconsistently, and report multiple sexual partners (Voisin, Chen, Fullilove, & Jacobson, 2015; Wilson, Woods, Emerson, & Donenberg, 2012).

Youth in the juvenile justice system experience significantly high levels of CVE (Abrams et al., 2004; Dierkhising et al., 2013). Yet, studies examining the relationship between CVE and adjudicated youth's drug use and sexual behaviors are limited. However, there is some evidence to suggest similar relationships to those found among non-adjudicated youth (Voisin, Neilands, Salazar, Crosby, & DiClemente, 2008; Voisin, Tan, Tack, Wade, & DiClemente, 2012). Voisin et al. (2007) found youth who witnessed community violence in the year prior to detainment were twice as likely to use marijuana and alcohol, and twice as likely to report having sex while high or intoxicated compared to peers who did not witness community violence. These findings underscore the public health importance of CVE on adolescent substance use and sexual risk.

In addition to neighborhood context, parenting may play an important role in adolescent risk behavior, albeit protective rather than facilitative. Parents are an important microsystemic factor that can help buffer youth from both risky sexual behavior (Kincaid, Jones, Sterret, & McKee, 2012) and drug use (Chassin et al., 2009). Adolescents whose parents are knowledgeable about their friends, activities and whereabouts are less likely to engage in early sexual initiation, unprotected sex, or have multiple partners (Huang, Murphy & Hser, 2011; Rai et al., 2003). Such associations between parental monitoring and adolescent sexual risk have been found among a variety of youth populations, including justice involved youth (Voisin, Hong & King, 2012). Regarding substance use, parental monitoring has been linked to lower levels of alcohol and marijuana use among both adjudicated and non-adjudicated youth (Udell, Donenberg & Emerson, 2011a; Voisin et al. 2012). For example, a meta-analytic review by Lac and Crano (2009) found a robust negative association between adolescent marijuana use and parental knowledge of the child's relations, activities and whereabouts. Additionally, Voisin et al. (2012) found a mediating relationship of parental monitoring on the link between CVE and detained youth's risk behaviors, with CVE being negatively associated with parental monitoring, and lower parental monitoring being associated with higher youth sexual risk and drug use.

Although extant research suggests both parental monitoring and CVE to be associated with adjudicated youth's drug use and sexual risk behaviors, the majority of this work has focused on justice involved youth in residential settings (e.g., incarcerated, detained, treatment facilities), and not on probation youth specifically. Additionally, no study has examined the moderating relationship of parental monitoring on CVE and adjudicated youth's sexual risk and substance use behaviors. Examining whether parental monitoring can moderate the negative impacts of CVE on probation youth, specifically, is important. Although probation youth share many of the same high risk sexual and drug use behaviors as detained and incarcerated youth (Donenberg, Emerson, Mackesy-Amiti & Udell, 2015; Udell, Donenberg & Emerson, 2011a), there are differences between the two populations. Probation youth represent a higher proportion and more diverse group of adjudicated youth than those in residential settings (Office of Juvenile Justice and Delinquency Prevention, 2017). Whereas detention youth are more likely to be tried for criminal offenses, probation youth are more likely to be status offenders or first-time juvenile offenders (Office of Juvenile Justice and Delinquency Prevention, 2017). Additionally, probation youth often live at home, providing them with sustained interaction with both neighborhood context and parents that may afford each a greater opportunity to impact youth's risk behaviors. Given the differences between the experiences of probation and detention youth, and the limited research on probation youth specifically, it is important to examine whether parental monitoring behaviors may moderate the negative impacts of CVE on probation youth's sexual risk and substance use behavior.

The present study seeks to expand our understanding of the ways in which probation youth are impacted by important parts of their microsystem. The study focuses on probation youth in Chicago, a city that has experienced extremely high rates of community violence over the past decade (Wills & Hernandez, 2016). Specifically, we assessed the relationship between community violence exposure (CVE), parental monitoring, and probation youth's drug use and sexual risk behaviors. We predicted that parental monitoring would moderate the

relationship between CVE and probation youth's risk behavior. In addition to predicting this moderating relationship, we predicted probation youth's drug use and sexual risk behaviors would be positively associated with CVE and negatively associated with parental monitoring

METHOD

Participants

Youth participants were attendants on probation in Chicago Cook County. The majority of youth attended Cook County's Evening Reporting Centers (ERC), a community-based probation program that is an alternative to detention following arrest. Youth not attending the ERC were monitored by Cook County probation. Youth were eligible to participate in the baseline assessment if they: a) understood the consent/assent process; b) spoke English (the assessments are normed for English speakers; 4 youth were ineligible due to this criteria); c) provided assent to participate; d) had consent to participate by a legal guardian; and e) would be in attendance at the ERC to participate in the full intervention. A total of 359 youth enrolled in the study; of these, 4 were excluded from further analyses: three were found ineligible after completing the baseline assessment and one revoked assent during the baseline interview. However, of the remaining 355, an additional eight youth had missing data for substantial portions of the baseline survey, including the sections with sexual behavior and substance use outcomes, so the maximum *n* for these analyses was 347. Youth were 67% male, ages 13–17 years old ($M=16.25$, $SD=1.08$), and 86% African American. The remaining youth were Latino (9%), Other/Non-Latino (4%) and White (0.6%). The majority of youth (80.8%) lived with at least one of their biological parents, the remaining 18.9% lived with other relatives (e.g., aunt, step father, and great grandmother) or with a foster parent (0.3%). Eighty-nine percent were categorized as low-income based on their qualifying for free or reduced lunch.

Procedure

This study reports baseline data from a randomized control trial of the PHAT Life intervention (Donenberg et al., 2015). PHAT Life is an interactive, comprehensive sex education program for justice-involved youth that also addresses mental health and substance use. Male and female probation youth were recruited from 6 ERC sites and probation officers in Chicago. The ERC offer single-sex, on-site, after school supervision and programming for up to 28 days while teens await sentencing. Minors from all city calendars can be ordered by the court to participate in the ERC from 5 to 28 days in lieu of Juvenile Temporary Detention Center placement. No formal data exist on youth remanded to the ERC, but teens have a range of offenses (M. Spooner, Operations Analyst, personal Communication, March 5, 2014).

Recruitment at ERC entailed research staff presenting the project to all youth present at a ERC as a group. Interested teens provided parental contact information to obtain consent. Recruitment via probation officers was used to increase the number of probation girls in the study who were less likely to be remanded to ERC. For this recruitment process, probation officers handed youth a recruitment flyer. Youth who indicated their interest on the flyer provided their contact information on the flyer and returned it to the probation officer in a

sealed envelope. Youth assent and parental consent was obtained for all participants. Youth completed a 2-hour baseline interview and 6- and 12-month post-intervention follow up assessments for which they were compensated \$35–\$45 depending on the time point. The present study is based on pre-intervention baseline data. All study procedures were approved by the University of Illinois at Chicago’s Institutional Review Board, with special attention to vulnerable populations.

Measures

Risky sexual behavior and drug and alcohol use—The AIDS-Risk Behavior Assessment (ARBA) (Donenberg et al., 2001) assesses teens’ self-reported sexual behavior and drug and alcohol use via audio-computer assisted self-interview (ACASI) to increase anonymity and privacy. Self-reported sexual behavior closely approximates actual behavior (Harrison, 1995), especially when questions are administered using computer technology (Romer et al., 1997) as in the present study. The ARBA has been used extensively with diverse low-income youth (Brown et al., 2010; Donenberg, Emerson, Mackesy-Amiti & Udell, 2015; Udell, Donenberg & Emerson, 2011a; Udell, Donenberg & Emerson, 2011b). Data analyses evaluated the following outcomes: (1) ever use of alcohol (yes/no), (2) frequency of alcohol use in the past 6 months, (3) ever use of marijuana (yes/no), (4) frequency of marijuana use in the past 6 months, (5) alcohol or substance use at last sex (yes/no), (6) frequency of alcohol or substance use during sex in the past 6 months, and (7) condom use at last vaginal/anal sex (yes/no).

Parental monitoring—A 4-item subscale of the Parenting Style Questionnaire (PSQ; Oregon Social Learning Center, 1990) assessed parental monitoring (e.g., “If your parents/caretakers or another adult are not at home, how often do you let them know where you are going?”) on a 5-point scale. The PSQ was administered via A-CASI. Each item is rated on a Likert scale from 1 (never/almost never) to 5 (always/almost always), resulting in a range of 4–20. Higher scores represent more monitoring. Internal consistency, measured by Cronbach’s alpha, was $\alpha = .85$.

Community violence exposure (CVE)—We define community violence exposure (CVE) as exposure to or experiencing threats or acts of physical harm in one’s neighborhood. Youth reported on CVE using a 4-item subscale of the UCLA PTSD Index for DSM-IV for adolescents (Steinberg, Brymer, Decker, & Pynoos, 2004). Selected items measuring youth’s exposure to violent events were administered via A-CASI. One of the four items assessed youth’s experience to violence in their community (i.e., “Being beaten up, shot at or threatened to be hurt badly in your town”). Two of the four items assessed youth’s witnessing violence in their community (i.e., “Seeing someone in your town being beaten up, shot at, or killed;” “Seeing a dead body in your town (do not include funerals)”). The last item assessed youth’s perception of the surrounding violence (i.e., “Being in a place where a war was going on around you”). Items assessing exposure to violent events in the home were excluded as they represent domestic violence and/or maltreatment, more than CVE. Items were measured on a binary scale and summed to create the subscale, which ranged from 0–4. A higher score indicates more exposure to CVE. Internal consistency, measured by Cronbach’s alpha, was $\alpha = .62$.

Data Analyses

This analysis examined both the moderating and independent effects of CVE and parental monitoring on sexual risk and drug use among 347 youth on probation. Logistic regression models were used to examine the effects of CVE and parental monitoring on binary outcomes and negative binomial regression was used for frequency outcomes. To facilitate interpretation of the logistic regression estimates in terms of effect size magnitude, we also calculated the probability of an event for each of our binary outcomes per standard deviation increase in CVE and parental monitoring. Interaction terms were included in the models to assess moderation of the association between CVE and risk outcomes by parental monitoring. For each outcome, direct effects of each construct were examined separately, and then combinations of variables and interactions were explored. Given the abundance of research on factors impacting youth risk, all models controlled for age and gender as covariates for consistency with prior literature (Fergus, Zimmerman, & Caldwell, 2007; Udell, Donenberg, Emerson, 2011). Multivariable models included main effects for parental monitoring and neighborhood violence in the same models to quantify the independent effects of each in the presence of the other. Data were analyzed using Stata/SE version 14.1 for Windows (Stata Corp, 2015).

RESULTS

Table 1 describes the risk behaviors of probation youth in our study. The majority of youth had used alcohol (62.5%) and marijuana (74.4%) at least once in their lives. Probation youth reported greater marijuana use than alcohol use over the period of 6 months, with a median number of days youth drinking alcohol and number of times using marijuana being 2 days and 15 times respectively (see Table 1). Most youth (66.3%) were sexually active, with the majority (62.5%) reporting using a condom at last vaginal or anal sex. The majority of the sexually active youth had not used alcohol or substances during sex within the past 6 months (median = 0; interquartile range (IQR) 0–5). However, over half (52.8%) reported using alcohol or other substances at last sexual intercourse (which for many occurred more than 6 months prior).

Youth reported moderate parental monitoring, with a mean of 13.6 and a range of 4–20. The majority of youth (70%) experienced 2 or more of the 4 CVE events. The most prevalent CVE events experienced by youth were “seeing someone in your town being beaten up, shot at, or killed” (78.5%), followed by themselves being “beaten up, shot at, or threatened with being badly hurt in your town” (56.8%). Although fewer youth reported “seeing a dead body in your town (not at a funeral)” (44.1%) and “being in a place where it felt like a war was going on” (42.9%), these two types of CVE events were common among youth in our sample. Community violence exposure was negatively associated with parental monitoring ($r = -0.14, p < 0.01$).

Models assessing interactions between parental monitoring and youth CVE were not significant for any of the risk behaviors, suggesting that parental monitoring did not moderate the negative impact effect of CVE on probation youth risk behaviors. Although moderating analyses were not significant, analyses examining main effects of both parental monitoring and CVE on probation youth risk were significant.

In models controlling for age, gender and parental monitoring, higher exposure to community violence was associated with probation youth's having ever used alcohol (adjusted Odds Ratio [aOR] 1.26; 95% CI 1.06–1.51) and marijuana (aOR 1.48; 95% CI 1.21–1.80). This corresponds to a 7% and 9% increase in the probability of alcohol and marijuana use respectively per standard deviation (SD) increase in CVE. Among sexually active youth, CVE was positively associated with both youth's use of alcohol or substances at last sex (aOR 1.28; 95% CI 1.01–1.61; 7% increase per SD CVE), and youth's greater frequency of using alcohol or substances during sex in the past 6 months (adjusted Rate Ratio [aRR] 1.74; 95% CI 1.18–2.57). The associations between CVE and frequency in the last 6 months of alcohol use (aRR 1.19; 95% CI .99–1.43) and marijuana use (aRR 1.22; 95% CI .97–1.52) were marginally significant ($p < 0.1$). Condom use at last sex was not associated with CVE among probation youth in our study.

Parental monitoring was associated with a range of drug use and sexual risk behaviors among probation youth. In models controlling for age, gender and CVE, parental monitoring was significantly protective against youth ever using either alcohol (aOR 0.93; 95% CI 0.88–0.98; 8% reduction in probability per SD increase in parental monitoring) or marijuana (aOR 0.93; 95% CI 0.87–0.98; 6% reduction per SD), and was associated with less frequent alcohol (aRR 0.93; 95% CI 0.88–0.99) and marijuana (aRR 0.94; 95% CI 0.90–0.99) use in the past 6 months. Among sexually active probation youth, greater parental monitoring was negatively associated with use of alcohol or substances at last sex (aOR 0.89; 95% CI 0.84–0.95; 12% reduction per SD), and positively associated with condom use at last sex (aOR 1.19; 95% CI 1.11–1.27; 17% increase per SD). However, parental monitoring was not protective against frequency of alcohol or substance use during sex over the past 6 months.

DISCUSSION

This study is one of few to examine the joint impact of community violence exposure (CVE) and parental monitoring on justice-involved youth's sexual risk and drug use, and is the first to focus on probation youth specifically. Results from this study are both sobering and hopeful. Contrary to our hypothesis, parental monitoring did not moderate the negative effects of CVE on probation youth's sexual risk and drug use. Rather, CVE and parental monitoring had differential effects on probation youth's risk, both in terms of kind of impact and type of risk behavior. In other words, while parental monitoring was generally associated with lower levels of substance use and sexual risk among probation youth, it was not strong enough to mitigate the additional risks conferred by CVE. The reasons for these findings are unclear. Given the modest magnitude of main effects, failure to detect significant interactions may have resulted from low statistical power to detect significant effects due to the small sample size and low internal consistency (.62) of the CVE assessment.

It is also possible that parental monitoring may buffer the negative effects of some types of CVE and not others. For example, monitoring may buffer the impact of CVE that is related to youth's personal activities and/or associations (e.g., gang-, drug-related activities) by prompting parents to have more frequent and detailed discussions with youth about the dangers associated with their involvement in specific risky environments and activities. On

the other hand, the unpredictable nature of random acts of violence (e.g., unrelated bystander) frequently occurring in some Chicago communities may make it more difficult for parents to help youth prepare for and cope with exposure to such violence. Future research on probation youth should utilize larger samples sizes and more robust and detailed measures that cover a range of community violence exposures. Such measures may allow researchers to carefully examine the various mechanisms by which youth are exposed to community violence, and assess whether parental monitoring may protect probation youth from the negative impact of different types of CVE.

While we failed to find a moderating role of parental monitoring on probation youth's sexual risk and drug use, it is important to note that the independent associations between youth risk and parental monitoring and CVE were consistent with our hypotheses regarding main effects. As suspected, CVE was associated with greater sexual risk and drug use among probation youth, whereas parental monitoring was associated with lower levels of these risk behaviors. Findings show that although CVE and parental monitoring were both related to the majority of risk outcomes, there were a few differences in associations. Whereas parental monitoring was associated with youth's alcohol and marijuana use in the past six months and condom use at last sex, CVE was unrelated to these particular risks. Similarly, CVE, but not parental monitoring, was related to frequency of sex while using alcohol or substances over the past 6 months. The reasons for these differential associations are not clear, and cannot be determined by the present study. However, research suggests that problem behaviors may have different trajectories and therefore be associated with different risk and protective factors (Wang et al., 2013). Future research should more closely examine factors contributing to different sexual risk and drug use behaviors among probation youth.

Limitations and Future Research

Results should be interpreted within the context of study limitations. First, the cross-sectional nature of the data prohibits determining the direction of the effects. Second, the study relied on adolescent report (as opposed to parent report) of parental monitoring, which may not reflect actual parent behavior. However, research suggests advantages of adolescent report for understanding the relationship between parental monitoring and youth risk behavior (Kerr, Stattin & Burk, 2010). Also, youth's self-reported drug use and sexual risk behaviors may be subject to reporting and/or recall biases, but research indicates general correspondence between biological tests and self-reported sexual behaviors (DiClemente, Sales, Danner, & Crosby, 2011). Additionally, the low internal consistency of the CVE measure may have reduced statistical power. Our selection of items from the UCLA PTSD index to measure CVE was guided by the literature to reflect the various types of CVE that negatively impact youth. We chose not to examine single items in separate analyses due to lack of theoretical justification for this approach, and because correction for multiple hypothesis testing could have resulted in increased likelihood of type II error. The low alpha may reflect the fact that the scale contained only 4 items, but also suggests that CVE may not be a unidimensional construct. Therefore, future studies may benefit from more comprehensive and robust measures of CVE. Despite the limitations of our measure, results revealed important and meaningful findings. Not only do results show that many probation youth experience several types of violent experiences in their communities, but that CVE is

related to some forms of risk behaviors and not others. These results can inform new research questions, as it is possible that there are differential impacts of various types of CVE on probation youth risk. Finally, the study is based on a sample of predominantly African American probation youth in Chicago and may not generalize to adjudicated youth populations from other racial/ethnic backgrounds or from non-urban areas. Despite these limitations, the study contributes to the small, yet growing, literature on the impact of CVE and parenting on adjudicated youth risk behavior. More importantly, findings raise important questions regarding the role of parents in buffering probation youth from the impacts of CVE. There is a common optimism in youth development research regarding the ability of parents to protect youth from engaging in risk behaviors. Parental monitoring appears to be protective for some risk behaviors among probation youth in our study, but the additional risks conferred by CVE may be too difficult for parents alone to disrupt. Although parents can help youth better manage and cope with the stress associated with CVE, youth's continuous exposure to such risks face parents with an uphill battle.

While it is important to consider the ways in which parents may serve as protective factors from the negative effects of CVE on probation youth, results from this study show it is equally important to consider the possibility that pervasive and sustained exposure to community violence is so impactful that it may take more than parenting practices to protect youth (Proctor, 2006). Ultimately, youth will be best aided by reducing violence in their communities. Research suggests that increasing the number and variety of neighborhood youth organizations protects urban youth from CVE by deterring violent crime in their neighborhoods (as opposed to keeping youth engaged and off the streets) (Gardner and Brooks-Gunn, 2009). Such research holds some promise for probation youth, who tend to engage with youth-serving organizations less than their non-adjudicated peers. Future research should examine the associations between community organizations, CVE and risk behavior among probation youth specifically, along with the potential benefit of parental involvement in these organizations.

Community violence exposure is a complex problem impacted by a variety of factors. Mitigating the effects of such a multifaceted problem will require examining factors at all levels of youth's ecology. In addition to identifying microsystemic factors that buffer youth from such harm, probation youth may also benefit from research that identifies ways to successfully reduce neighborhood violence. Long-term investment in a variety of youth-serving organizations in high crime communities may provide an important step in reducing probation youth's CVE (Gardner & Brooks-Gunn, 2009; Wo, Hipp & Bossen, 2016) and therefore their sexual risk and drug use behaviors.

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Table 1

Sexual Risk Behaviors, Substance Use, Parental Monitoring, and Neighborhood Violence Exposure

	N total	n (%)
Ever had vaginal/anal sex	347	230 (66.3)
Ever used alcohol	347	217 (62.5)
Frequency of alcohol use in past 6m (days drank alcohol), Median (IQR)	217	2 (1–6)
Ever used marijuana	347	258 (74.4)
Frequency of marijuana use in past 6m (times used marijuana), Median (IQR)	257	15 (5–65)
Alcohol or substance use at last vaginal/anal sex	229	121 (52.8)
Frequency of alcohol or substance use with sex in past 6m, Median (IQR)	194	0 (0–5)
Condom use at last vaginal/anal sex	229	143 (62.5)
Parental Monitoring	345	
Median (IQR)		14 (10–17)
Mean (SD); Range		13.60 (4.55); 4–20
Neighborhood violence exposure	354	
0		49 (13.8)
1		56 (15.8)
2		82 (23.2)
3		101 (28.5)
4		66 (18.6)
Median (IQR)		2.0 (1.0–3.0)
Mean (SD); Range		2.22 (1.30); 0–4

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Table 2

Association of risk behaviors with neighborhood violence exposure and parental monitoring

Outcome	Neighborhood Violence Exposure		Parental Monitoring	
	Unadjusted OR/RR (95% CI)	Adjusted OR/RR ^a (95% CI)	Unadjusted OR/RR (95% CI)	Adjusted OR/RR ^b (95% CI)
Alcohol use ever, n=347	1.27 (1.07–1.50)**	1.26 (1.06–1.51)**	0.93 (0.89–0.98)**	0.93 (0.88–0.98)**
Frequency of alcohol use in past 6m ^c , n=217	1.19 (0.97–1.45)	1.19 (0.99–1.43)	0.93 (0.88–0.99)*	0.93 (0.88–0.99)*
Marijuana use ever, n=347	1.50 (1.25–1.81)**	1.48 (1.21–1.80)**	0.92 (0.87–0.98)**	0.93 (0.87–0.98)*
Frequency of marijuana use in past 6m ^d , n=257	1.20 (0.94–1.54)	1.22 (0.97–1.52)	0.93 (0.89–0.98)**	0.94 (0.90–0.99)*
Alcohol or substance use at last sex ^e , n=229	1.29 (1.03–1.62)*	1.28 (1.01–1.61)*	0.89 (0.84–0.95)**	0.89 (0.84–0.95)**
Frequency of vaginal/anal sex while drinking/using drugs in past 6m ^e , N=194	1.50 (0.95–2.38)	1.74 (1.18–2.57)**	0.89 (0.74–1.06)	0.89 (0.79–1.01)
Condom use at last vaginal/anal sex	0.94 (0.75–1.18)	0.95 (0.73–1.23)	1.14 (1.07–1.22)**	1.19 (1.11–1.27)**

Abbreviations OR, odds ratio; RR rate ratio, CI, confidence interval

*
p<0.05**
p<0.01^a Adjusted for age, gender, and parental monitoring^b Adjusted for age, gender, and neighborhood violence exposure^c Among those reporting any alcohol use^d Among those reporting any marijuana use^e Among sexually active participants

Effect estimates were generated from logistic regression for binary outcomes and negative binomial regression for count outcomes, and represent odds ratios for binary outcomes and rate ratios for frequency outcomes. No statistically significant interactions were detected between neighborhood violence exposure and parental monitoring for any of the above outcomes so only main effects are presented.