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Physical Victimization of Rural Methamphetamine and Cocaine Users

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Abstract

Substance use and physical violence often co-occur, but little has been published on the correlates associated with receipt of partner versus non-partner physical violence for rural users of methamphetamine and/or cocaine. In this study, participants' substance use, depression and past-year physical victimization were assessed. In separate logistic regression models, received partner violence in females was associated with age; alcohol, cocaine and methamphetamine abuse/dependence; and number of drugs used in the past six months. In males, received non-partner violence was associated with age, cocaine abuse/dependence and being Caucasian. Findings suggest a relationship between stimulant use and received violence among rural substance users and a need for victimization screenings in settings where such individuals seek health care.

Keywords

Violence; substance use; cocaine; methamphetamine; alcohol; rural

Correlates of Physical Victimization in Rural Stimulant Users

Rural areas are witnessing a significant increase in stimulant trafficking and usage, fueled by more availability of crack and powder cocaine and methamphetamine (Strom, Wong, Weimer, & Rachal, 2005; Substance Abuse and Mental Health Services Administration & Office of Applied Studies, 2004; Substance Abuse and Mental Health Services Administration, 2007). Understanding the relationship between substance use and physical violence is particularly important in rural areas, given the limited access to substance abuse treatment services in such areas (Borders & Booth, 2007) and the reliance on primary care and emergency room visits to meet the mental health needs of substance users (Cherpitel &

Ye, 2008). From a public health perspective, both received and expressed violence among stimulant users is of substantial concern given that morbidity and mortality in cocaine users is most commonly due to intentional injury (Miller, Lestina, & Smith, 2001) and reports regarding increased violence among methamphetamine users (Cartier, Farabee, & Prendergast, 2006; Stretesky, 2008).

Studies examining the relationship between substance use and violence have found different rates and factors influencing risk, depending on the sample, time frame, definition of violence (e.g., received versus expressed and partner versus non-partner), and informant. For example, in a community study of 1,440 couples where an incident of violence required only one report of expressed or received violence by either partner, rates of male-to-female violence were 23%, 17% and 11% for African-American, Hispanic and Caucasians, respectively, while rates of female-to-male violence were 30%, 21% and 15% for African-Americans, Hispanics and Caucasians, respectively, in the past year (Cunradi, Caetano, Clark, & Schafer, 1999). This study also demonstrated that the effect of substance use on violence varies by racial and ethnic groups: Among Caucasians, risk for male-to-female partner violence (MFPV) and female-to-male partner violence (FMPV) was higher when there were female alcohol problems compared to couples with no female alcohol problems. Male alcohol problems did not significantly increase the risk for violence in these couples. Among African-American couples, risk for MFPV and FMPV was higher when there were male and female alcohol problems compared to couples who did not report such problems. Generally, male or female alcohol problems had a negligible effect on risk of MFPV and FMPV in Hispanic couples. In a later study, in which 10% of couples reported moderate male partner violence and 2.6% reported at least one episode of severe male partner violence, female and male alcohol-related problems were significantly associated with both types of violence. Variables placing couples at higher risk were race (African American), younger age, high unemployment, and female drug use (Cunradi, Caetano, & Schafer, 2002). In another community-based study, risk factors for MFPV included male and female drug use, male and female alcohol intoxication, and lower socioeconomic status (Kantor & Straus, 1989). Finally, in a study by Wells and Graham (2007) in which a total of 13.4% reported received violence, heavy episodic drinking and having received verbal and physical violence were significant risk factors for women but not men.

In studies of substance users recruited from either the community at large or specific treatment programs, rates of received violence have been much higher, ranging from 35% to 70%, depending on how the assault is defined and timeframe (past 12 months versus lifetime) (Boyd, 2003; Chermack, Walton, Fuller, & Blow, 2001; Fals-Stewart, Leonard, & Birchler, 2005; Johnson, Striley, & Cottler, 2007). Although a variety of risk factors for received violence have been identified in these samples, differences between men and women are fairly consistent across studies. For example, in their study of at-risk drinkers in the community, Chermack, Booth and Curran (2006) found that women were at greater risk if they were younger, alcohol dependent, and met criteria for lifetime depression or had comorbid depression and alcohol dependence, while men were at higher risk if they were younger, had less than a high school education, were unemployed, were married, met criteria for alcohol dependence, or had a combination of alcohol dependence plus depression. In a separate community sample of crack cocaine users, 52% reported they had received violence since they started using cocaine, and 37% reported they had experienced at least one more episode of received violence during the 12-month follow-up period (Siegal, Falck, Wang, & Carlson, 2000). In this study, daily crack and alcohol users were more likely than non-daily users to report receipt of violence. Received violence was also associated with a longer period of crack use and carrying a weapon.

In a study involving men and women enrolled in a substance abuse treatment program, 59% (34% baseline only and 25% both baseline and follow-up) reported expressed violence and 50% (32% baseline only and 18% baseline and follow-up) reported received violence over a two-year period. Both expressed and received violence were associated with younger age. Persistent received violence (violence experienced at baseline and follow-up) was associated with younger age, less income, higher unemployment, being female, higher drug consequences, and higher psychological distress (Walton, Chermack, & Blow, 2002). In a related study, younger age, being of minority status, higher levels of drug-related consequences, psychiatric distress and frequency of expressed childhood aggression were related to severity of expressed and received violence in partner and non-partner relationships (Chermack et al., 2001). In a study of individuals meeting diagnostic criteria for methamphetamine dependence, 85% of women and 69% of men reported lifetime receipt of violence, and 11% of women and 7% of men reported receipt of violence after they entered a treatment program (Cohen et al., 2003). In other studies of treatment samples, received violence has been associated with concurrent use of alcohol and cocaine (Fals-Stewart, Golden, & Schumacher, 2003), any substance abuse/dependence (Cunningham et al., 2007), greater cocaine use and craving or cocaine abuse/dependence (Walton et al., 2002), consumption of alcohol in the six hours before illness or injury, having a drinking problem, abuse of alcohol, and history of illicit drug use (Lipsky, Caetano, Field, & Bazargan, 2004). Women have generally reported higher rates of received violence from parents, siblings, and partners, while men have had higher rates of violence from friends and others (Cohen et al., 2003).

Given the increasing prevalence of rural stimulant use and general dearth of services in rural areas, it is important to understand factors associated with received violence between partners and non-partners in this particular group of drug users, particularly those residing in rural communities. Because the majority of participants in this sample were polysubstance users (Booth, Leukefeld, Falck, Wang, & Carlson, 2006), it was of particular interest to identify which substances appeared most associated with physical victimization. Therefore, the purpose of the present study was to examine correlates associated with receipt of partner versus non-partner physical violence for Caucasian and African American males and females in a multi-state sample of rural stimulant users. Although received and expressed violence frequently co-occur, we inquired only about received violence in this study. With that issue in mind, we hypothesized based on previously cited literature that received violence would generally be associated with age; race; marital status; education; employment; cocaine, methamphetamine, marijuana and alcohol abuse/dependence in the past 12 months; positive depression screen; prior history of carrying a weapon; and number of substances used in the past six months. However, based on previous work (Chermack, Booth, & Curran, 2006), we also hypothesized that correlates of victimization would differ depending on gender, with alcohol abuse and depression more strongly associated with women's receipt of violence when compared to men.

Methods

Participants

Our sample was part of a larger study of rural stimulant users in three counties each in eastern Arkansas, western Kentucky, and western Ohio (Booth et al., 2006). The study used a natural history research design to identify a stratified community sample of rural stimulant users in counties selected to be non-metropolitan areas as defined by the U.S. Census Bureau, or counties with fewer than 50,000 persons. Within these counties, small towns (usually the county seat) with fewer than 20,000 people served as a central recruiting base.

Respondent-Driven Sampling (RDS) (Draus, Siegal, Carlson, Falck, & Wang, 2005; Heckathorn, 1997; Heckathorn, 2002; Wang et al., 2004), a variant of snowball sampling, was used to identify study participants. Such non-probabilistic sampling methods are critical for recruiting community “hidden populations” such as illegal drug users or those with Human Immunodeficiency Virus (HIV). Theoretically, RDS can generate a sample that is much more representative of the hidden population under study than can snowball or targeted sampling (Heckathorn, Semaan, Broadhead, & Hughes, 2002). One advantage of RDS over other targeted or referral sampling strategies is that initial “seeds” for sampling are not required to be random samples of the target population because RDS has been shown to “converge” to stable characteristics of the population following successive recruitment waves (Heckathorn, 1997; Heckathorn, 2002; Wang et al., 2004).

Study eligibility was broad in order to capture the potential range of stimulant users age 18 or older in these geographic areas who: (1) used crack or powder cocaine or methamphetamine by any route of administration in any amount within the previous 30 days; (2) were not in formal treatment within the past 30 days; and (3) had a verified address within one of the targeted counties. Informed consent was obtained and the study received the approval of the relevant Institutional Review Boards. Participants were remunerated \$50 for the baseline interview that took 2–3 hours. See Booth and colleagues (2006) for more specific details on recruitment methods. Recruitment resulted in samples of 237 from Arkansas, 225 from Kentucky, and 248 from Ohio, for a total of 710.

Measures

Demographics—Data were collected on gender, marital status (unmarried/single versus married/cohabitating), living with any children under age 18, educational status (high school graduate versus non-graduate), employment (employed full- or part-time versus student, unemployed, disabled or retired), and race (Caucasian versus African American or other race).

Substance Use—The baseline interview contained a “drug matrix” developed by Wright State University investigators for lifetime, past six months and past 30 days use of a range of substances including cigarettes, alcohol, methamphetamine, crack and powder cocaine, marijuana, heroin, non-prescription use of prescription tranquilizers and painkillers including Oxycontin® (Siegal, Falck, Carlson, Wang, & Rahman, 1998). Lifetime and past twelve months substance abuse and dependence were determined using 17 questions derived from the Substance Abuse Outcomes Module (Smith et al., 2006) based on criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 1994). The SAOM has high internal consistency ($\alpha = .89$) and high agreement on a diagnosis of substance abuse or dependence (93%) (Smith et al., 2006) with the Composite International Diagnostic Interview (Cottler, Robins, & Helzer, 1989). Number of drugs used in the past six months was calculated by aggregating all types of substances that participants reported having used during that period.

Depression—Depression was assessed using the nine-item Patient Health Questionnaire (PHQ-9) derived from the Primary Care Evaluation of Mental Disorders (Spitzer et al., 1999). Criteria for major depression are met if five or more of nine depressive symptoms have been present more than half of the days in the past two weeks or the total sum of the nine items is 12 or more. One of the symptoms present must be anhedonia or depressive mood. One item, “Thoughts that you would be better off dead or of hurting yourself in some way,” counts regardless of the duration of the symptom. PHQ-9 scores range from 0 to 27, with each of the nine items scored from 0 (not at all) to 3 (nearly everyday) (Kroenke et al., 2001). Internal reliability and test-retest reliability are excellent, with a Cronbach’s alpha of

0.86–0.89. A PHQ-9 score of 10 or greater had a sensitivity of 88% and a specificity of 88% for major depression (Alterman, Bovasso, Cacciola, and McDermott, 2001; Kroenke et al., 2001; Spitzer et al., 1999; Pyne et al., 2009).

Violence Received—Questions on violence were included within the Substance Abuse and Health Services Utilization Assessment (Siegal et al., 1998). Specifically, at baseline, participants were asked “In the past 12 months, have you been physically attacked by someone?” If so, they were asked whether in the past 12 months they were a) shot; b) stabbed; c) punched, kicked, slapped hard, or choked; and d) held captive or kidnapped. If they responded affirmatively to any of these questions, they were subsequently asked about the relationship of the perpetrator to the participant (husband, wife or partner; acquaintance; stranger; friend; or family relation other than a husband/wife); whether the participant was high or involved in a drug sale at the time; whether the perpetrator was high on drugs or alcohol at the time; and whether the participant received medical care as a result of the attack. Participants were not asked to describe more than one incident in the same category (e.g., two different occasions in which they were punched, kicked, slapped hard or choked); however, they could describe more than one incident in different categories (e.g., being shot and being held captive or kidnapped). If participants reported more than one incident in the same category, they were asked to describe the most recent. Although 15 (2.1%) individuals reported they had been sexually assaulted in the past year, this type of victimization is not included in the present analysis. Subjects were also asked, “Did you ever carry a weapon?” and, if affirmative, “How often do you carry a weapon?” and “What do you usually carry?” Options were gun, knife, or other.

Data Analysis

Descriptive statistics (frequencies and, where applicable, means and standard deviations) of the data were displayed to examine variability in response categories. Responses to the question regarding the identity of the perpetrator (husband/wife/partner versus stranger/friend/other family member) were collapsed into two categories of partner versus non-partner received violence for the purposes of bivariate analyses. Demographic, clinical and substance use variables were examined for each category using bivariate analyses. Because of the small number of participants reporting receipt of partner versus non-partner violence in male versus female participants, two separate logistic regression models were developed to examine the relationship between independent variables and non-partner violence received by men (versus no violence) and partner violence received by women (versus no violence) in the past year. Independent variables included demographics; site; DSM-IV diagnoses of alcohol, marijuana, methamphetamine, or cocaine abuse or dependence in the past year; whether the participant carried a weapon in the past year; current depressive disorder (PHQ-9); and number of substances used in the past six months.

Results

On average, the sample was male (61%), Caucasian (68%), high school graduate (59%), young (mean age=32.6 years, SD=10.3 years), and unemployed (68%). Table 1 shows demographic and clinical characteristics of men versus women in the study. As shown, men were more likely to be employed and meet criteria for alcohol or marijuana abuse/dependence. Women were more likely to live with children, be married and screen positive for depression.

Of all participants, 184 (25.9%) reported they had been physically attacked in the past 12 months: 165 (23.2%) reported they had been punched, kicked, slapped hard or choked; 7 (1.0%) reported they had been held captive or kidnapped; 5 (.7%) reported they had been

shot; and 15 (2.1%) reported they had been stabbed. The total is greater than 184 due to participants endorsing more than one category of physical attack. Frequencies for no violence, partner violence, or non-partner violence (n=696 due to missing data for relevant variables) are shown in Table 2. Of these, 111 (15.9%) reported they had experienced non-partner violence only, and 59 (8.5%) reported they had experienced partner violence only. None reported they had experienced both partner and non-partner violence across the four categories. Chi-square analyses indicated multiple variables differentiated the three groups. Age; gender; race; education; cocaine, methamphetamine, marijuana, and alcohol abuse/dependence; history of carrying a weapon; depression; and number of drugs used in the past six months were associated with type of victimization received. Marital status, children living in the home, employment status, or report of victim or perpetrator being high on drugs were not associated with violence received. More men (10%) than women (4%) reported carrying a gun, χ^2 (df 1) = 8.5, $p < .05$; however, there were no differences between men and women carrying a knife (approximately 20%). More women (7%) reported carrying some other type of weapon when compared to men (4%), but this was not statistically significant.

Overall 70 (26%) of women reported receipt of physical violence, the majority of which were perpetrated by a partner. By comparison, 98 (23%) of the men reported receipt of physical violence, the majority of which were perpetrated by a non-partner.

Results of the multiple logistic regression models for females and males are displayed in Table 3. In the analysis for males, we identified a “structural zero” in that there were no non-Caucasian males in Kentucky reporting violence and this structural zero led to unreliable coefficient estimates. Therefore, we dropped site from our model for males. As hypothesized, risk variables for males and females were different. Most notably, females were more likely to have received physical violence from a partner in the previous year if they were between the ages of 23 and 41 years versus older than 41 years and met criteria for alcohol abuse/dependence, cocaine abuse/dependence, or methamphetamine abuse/dependence. Number of drugs used in the past month was inversely associated with receipt of partner violence. Women’s report that they had ever carried a weapon approached significance ($p = .06$). In men, being white, less than 23 years old and having a diagnosis of cocaine abuse/dependence in the past year were associated with a greater likelihood of receiving physical violence from a non-partner. No other demographic, clinical or substance use variables were significantly associated with victimization for males or females. We also examined the interactions of alcohol abuse/dependence with cocaine and methamphetamine abuse/dependence in each model; however these had negligible effects on the overall model.

Discussion

Approximately one-fourth of participants reported they received physical violence in the past year, with the majority having been punched, kicked, slapped hard or choked in assaults by someone other than their partner. These figures are slightly higher than community-based studies cited by Chermack and his colleagues (2006) in which past-year victimization ranged from 12–20% (Johnson & Elliott, 1997; Porcerelli et al., 2003; Schafer, Caetano, & Clark, 1998; Straus & Gelles, 1995). This is particularly of interest given national increases in stimulant availability and use (Booth et al., 2006) in rural areas as well as widespread concerns about increased violence and criminal justice involvement by stimulant users (Cartier et al., 2006; Stretesky, 2008).

In bivariate analyses, demographic, clinical and substance use variables differentiated participants with receipt of partner versus non-partner violence. For example, males disproportionately reported higher rates of non-partner violence, while females reported

higher rates of partner violence. The results are consistent with findings of Cohen and colleagues (2003) showing that women substance users are more likely to be physically victimized by partners or close family members, while men substance users are more likely to have received violence from friends or strangers. Intimate partner violence against women continues to be a huge public health concern. The National Crime Victim Study (Rennison & Welchans, 2000) found that 85% of intimate partner violence incidents involved women as the victim with a large number killed by an intimate partner. Women with intimate partner violence experience 60% higher rates of health problems with costs from medical and mental health care exceeding \$1.8 million. Received violence also influences subsequent abuse, which may be a problem in this group as well. In women, the likelihood of being physically victimized was significantly higher if they met criteria for alcohol, cocaine or methamphetamine abuse or dependence in the past year.

Women may be more vulnerable to physical abuse because of their significant substance use and associated problems, which may increase their exposure to risky situations and/or further exacerbate their ability to extricate themselves from abusive partnerships. On the other hand, these women may be more likely to abuse substances because of their victimization histories. Unfortunately, it is impossible to determine whether the received violence preceded, coincided with or followed the problems associated with misuse of these substances, yet either possibility has grave consequences for the physical and mental health of these rural women. Women were also more likely to receive partner violence if they were older than 23 but younger than 41. This would be the age range coinciding with bearing children and establishing a family, which may increase a woman's risk for experiencing violence from a partner. Interestingly, a combination of abuse/dependence of alcohol, cocaine and/or methamphetamine was not associated with an increased risk of received violence in women. It is plausible that the substance use in this sample may be so problematic that a ceiling effect moderated the effects of multiple diagnoses.

Although the results were not statistically significant, the findings suggest that women who experienced partner violence were more likely to report carrying a weapon, which may reflect self-protective behavior in response to high victimization or a tendency toward aggressive behaviors that contribute to increased engagement in violence. Again, the lack of data regarding the temporal sequencing of these behaviors limits our interpretation of these findings. Although Siegal and his colleagues (2000) found that carrying a weapon increased the risk for victimization of crack users, they did not differentiate between men and women in their study.

Interestingly, partner violence received by women was associated with their alcohol abuse/dependence but this was not a factor in non-partner violence received by men. Previous research on women's self-reports about their own and their partner's drinking shows that women and their partners who drink alcohol often have higher rates of physical violence compared to women and partners who drink less often (Temple, Weston, Stuart, & Marshall, 2008). These higher rates for male-to-female physical aggression have also been observed in both female and male alcoholics compared to non-alcoholics (Cunradi et al., 1999). In a separate study, females, but not males, were more likely to report verbal victimization or verbal combined with physical victimization if they were heavy episodic drinkers (Wells & Graham, 2007). It is plausible that the interaction between alcohol use and received partner violence may be more pronounced among women, even in this sample of participants who concurrently use stimulants. Furthermore, the combined use of alcohol and cocaine in females may increase their exposure to risky interpersonal situations or may increase the likelihood that they would instigate physical attacks. It is also plausible that women who are victimized increase their use of substances to cope with the psychological and emotional sequelae of the trauma. Because we did not ask about expressed violence, we can not rule

out either of these possibilities. However, the finding that women who used fewer drugs *in the past six months* were less likely to experience violence may suggest that women do not increase substance usage after such an incident but may, in fact, decrease their usage as a preventive measure.

We were not able to replicate the findings of Chermack and his colleagues (2006) regarding the association between violence received and depression in females. This may be related to differences in samples (at-risk rural and urban drinkers versus rural stimulant users) and method of depression assessment (diagnostic assessment tool versus self-report screening tool). For example, about 20% of females and 10% of males met criteria for depression in Chermack's study (2006), compared to 41% of females and 52% of males screening positive for depression in the current study. Women who are using substances such as alcohol and stimulants may also not be aware of their depressive symptoms due to masking effects of these substances or high levels of denial of any psychological or medical problems.

Unfortunately, research on help-seeking behaviors among victimized rural women is limited. In a comparison of rural versus urban females experiencing violence, Shannon and colleagues (2006) found that rural women victimized by an intimate partner used fewer resources, contacted police and victim advocates less frequently, and were less likely to discuss the abuse with friends. Limited availability and access to services, fear of retaliation, lack of economic resources, feelings of embarrassment, blame and stigma, and concerns about confidentiality frequently prevent rural women from seeking and receiving help (Logan, Stevenson, Evans, & Leukefeld, 2004), but these may be exacerbated if they are known in a rural community as a user of illicit drugs. Therefore, screenings, safety planning, and ongoing monitoring are essential for working individually with women with alcohol and/or cocaine abuse/dependence, while system-wide changes in healthcare, court and substance abuse treatment systems need to be implemented. Receipt of violence among women with cocaine and methamphetamine problems raises questions about the nature of the violence and types of partners with whom these women associate, particularly given the large number of children living with these women and their potential exposure to the violence.

For males, Caucasians were at greater risk for violence compared to African-Americans and other minorities. These findings are consistent with the report of Bachman (1992), who found that Caucasians were more likely than African Americans to be victimized in rural areas, whereas African Americans were more likely to be victimized than Caucasians in urban areas. Bachman attributed these differences to an increased likelihood of violence to resolve disputes and higher rates of domestic violence among rural Caucasians when compared to rural African Americans; however, we are unable to determine whether such patterns are applicable in this sample. As noted earlier, males with cocaine abuse or dependence were also at greater risk for victimization. This finding would suggest that as use progresses and becomes more problematic (thus meeting criteria for abuse or dependence), there may be a concurrent increased risk of victimization. For example, Siegal and his colleagues (2000) found that daily crack users were more likely than non-daily crack users to report violence received. Longer duration of crack use was also associated with receipt of physical violence. Moreover, younger men were more likely to have received violence, perhaps because they are more likely to engage in physical altercations, generally, or they are more vulnerable to violence when substance use is first initiated.

Although previous studies have found a relationship between physical aggression and methamphetamine use, the populations studied included intimate partner violence reported to police (Ernst, Weiss, Enright-Smith, Hilton, & Byrd, 2008), adults incarcerated for criminal behaviors (Cartier et al., 2006) adolescents in a juvenile justice system (Miura,

Fujiki, Shibata, & Ishikawa, 2006) and men and women in treatment for methamphetamine dependence (Cohen et al., 2003). These studies, which focused on expressed violence, may have also included methamphetamine users with more severe problems, including criminal behaviors.

There were several limitations in our sampling and methods that may have biased the findings. Most notably, participants were not randomly sampled from the general population or the drug-using population. Although other studies using this sampling strategy (Heckathorn, 2002; Wang et al., 2004) have shown that use of multiple referral waves resulted in increasingly few demographic changes in sample composition over successive waves and almost none after four to five waves (known as “convergence”), our sampling strategy through recruitment networks may not have reached certain potential sub-groups of stimulant users, including individuals from diverse socioeconomic backgrounds. Secondly, we asked participants whether in the past 12 months they had been physically attacked by someone and if they responded affirmatively, we inquired as to whether they were punched, kicked, slapped hard or choked; shot; stabbed; or held captive or kidnapped or sexually abused. We did not, however, ask for more than one incident within each of these four categories, suggesting that we may have actually underestimated the extent of violence in this population. We also did not ask in the interview about the context of the violence (i.e., whether the incident involved not only received violence, but also expressed violence). This would be important information to have when considering interventions for this group, particularly related to partner violence. An additional limitation is the methodology used to assess received victimization. Because we asked only about the most recent event, we may have omitted important information about other abuse experiences that would further contribute to our knowledge about substance use and received violence. This method may not necessarily represent participants’ broader experiences of violence received, including the type, context, perpetrator and other relevant details. Unfortunately, we were also limited in our analyses because of the small number of men and women reporting partner violence and non-partner violence, respectively. In addition, the temporality of our independent and dependent variables differed. For example, we asked whether participants had ever carried a weapon, which may have preceded or followed the violence episode. Thus, a prospective study would have provided more information about risk factors for received violence for both men and women. Finally, we based our findings on retrospective reports of stimulant users, many of whom reported they were high at the time of the incident. Thus, their recall for specific incidents may be inaccurate or distorted.

In summary, the study demonstrates a moderately high incidence of violence received among rural stimulant users in a community sample. Although there is a perception that stimulant users are more susceptible to victimization, this study suggests that the rates are not any higher than those observed among other drug-using samples. Furthermore, this study revealed important differences in the occurrence and correlates of violence received by females versus males. Notably, females were more likely to have experienced violence from a partner than males, and they were more susceptible to violence generally if they had more than one substance abuse/dependence diagnosis. By comparison, males were more vulnerable to receiving physical violence if they were Caucasian and/or met the criteria for cocaine abuse or dependence in the past 12 months. While some gender differences in the correlates of violence exist, the expansion of primary prevention and formal substance abuse programs aimed at rural cocaine users could contribute to reductions in the incidence of violence among both males and females. Formal screenings and assessments would constitute the first step, while specific interventions might mitigate the psychological distress and substance use that have been documented following victimization (Carbone-Lopez, Kruttschnitt, & Macmillan, 2006; Coker et al., 2002). These findings also support the need for special screenings in settings where stimulant users may seek health care (e.g.,

primary care, emergency departments, and other hospital settings), particularly when individuals present with injuries. Interventions aimed at reducing the incidence of cocaine abuse/dependence disorders, including primary cocaine use prevention programs and formal substance abuse treatment programs, may result in reductions in violence among rural male and female stimulant users.

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Table 1

Demographic, Substance Use and Mental Health Variables by Gender

Variable	Male (n=426)	Female (n=270)	χ^2 (df=1)
Age (Mean, SD)	32.0 (10.4)	33.2 (10.1)	$Z = 1.51^a$
Caucasian Non-Caucasian	286 (67 %) 140 (33 %)	187 (69 %) 83 (31 %)	0.3421
High School Graduate Less than High School	248 (58 %) 178 (42 %)	158 (59 %) 112 (41 %)	0.0062
Employed Full-Time Not Employed Full-Time	151 (35 %) 275 (65 %)	72 (27 %) 198 (73 %)	5.85 *
Living with Children Not living with Children	86 (20 %) 340 (80 %)	112 (41 %) 158 (59 %)	36.81 ***
Married/Cohabiting Single/Divorced	56 (13 %) 370 (87 %)	54 (20 %) 216 (80 %)	5.84 *
Alcohol Abuse/Dependence ^b No Alcohol Abuse/Dependence	271 (64 %) 155 (36 %)	125 (46 %) 145 (54 %)	20.2 ***
Marijuana Abuse/Dependence ^b No Marijuana Abuse/Dependence	203 (48 %) 223 (52 %)	94 (35 %) 176 (65 %)	11.13 ***
Cocaine Abuse/Dependence ^b No Cocaine Abuse/Dependence	253 (59 %) 173 (41 %)	160 (59 %) 110 (41 %)	0.0012
Methamphetamine Abuse/Dependence ^b No Methamphetamine Abuse/Dependence	126 (30 %) 300 (70 %)	83 (31 %) 187 (69 %)	0.1064
Number of Drugs Used ^c	6.33 (2.84)	5.72 (2.46)	$Z = 2.33^{a*}$
Positive Depression Screen Negative Depression Screen	118 (28 %) 308 (72 %)	112 (41 %) 158 (59 %)	14.2 ***

^aWilcoxon test was used to compare age and number of drugs used in the past six months.

^bAbuse/Dependence diagnosis is reported past 12 months

^cPast six months

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 2

Bivariate Analyses Comparing No Violence, Partner Violence Only and Non-Partner Violence Only (N=696)^a

Variable	No Violence (N = 526)	Partner Violence Only (N=59)	Non-Partner Violence Only (N=111)	χ^2 (DF=2)
Age (Mean, SD) ^b	33.5 (10.4)	31.7 (8.3)	27.9 (9.7)	29.47 ^{***}
Male Female	326 (62%) 200 (38%)	15 (25%) 44 (75%)	85 (77%) 26 (23%)	42.99 ^{***}
Caucasian Non-Caucasian	343 (65%) 183 (35%)	41 (69%) 18 (31%)	89 (80%) 22 (20%)	9.50 ^{**}
Married/Cohabiting Single/Divorced	82 (16%) 444 (84%)	14 (24%) 45 (76%)	14 (13%) 97 (87%)	3.65
High School Graduate Less than High School Education	222 (42%) 304 (68%)	23 (39%) 36 (61%)	29 (26%) 82 (74%)	9.93 ^{**}
Employed Unemployed	169 (32%) 357 (68%)	16 (27%) 43 (73%)	38 (34%) 73 (66%)	0.90
Living with Children Age <18 Living with No Children	147 (28%) 379 (72%)	20 (34%) 39 (66%)	31 (28%) 80 (72%)	0.94
Alcohol Abuse/Dependence ^c No Alcohol Abuse/Dependence ^c	272 (52%) 254 (48 %)	43, 73% 16, 27 %	81, 73% 30, 27 %	23.61 ^{***}
Marijuana Abuse/Dependence ^c No Marijuana Abuse/Dependence ^c	208, 40% 318, 60 %	25, 42% 34, 58 %	64, 58% 47, 42 %	12.29 ^{**}
Cocaine Abuse/Dependence ^c No Cocaine Abuse/Dependence ^c	280, 53% 246, 47 %	44, 75% 15, 25 %	89, 80% 22, 20 %	33.79 ^{***}
Meth ^d Abuse/Dependence ^c No Meth ^d Abuse/Dependence ^c	145, 28% 381, 72 %	22, 37% 37, 63 %	42, 38% 69, 62 %	6.22 [*]
Victim High on Drugs ^e Victim Not High on Drugs ^e	--- ---	29, 49% 30, 51 %	71, 64% 40, 36 %	3.48
Perpetrator High on Drugs ^e Perpetrator Not High on Drugs ^e	--- ---	49, 83% 10, 17 %	95, 86% 16, 14 %	0.19
Ever Carried a Weapon Never Carried a Weapon	138, 26% 388, 74 %	23, 39% 36, 61 %	41, 37% 70, 63 %	8.20 [*]
Depression Screen Positive ^f Depression Screen Negative ^f	161, 31 % 365, 69 %	27, 46 % 32, 54 %	42, 38 % 69, 62 %	6.87 [*]
Drugs Used ^{a,g} (Mean, SD)	5.81 (2.56)	5.76 (1.98)	7.66 (3.14)	34.63 ^{***}

*
 $p < 0.05$ **
 $p < 0.01$ ***
 $p < 0.001$ ^a Columns add to 100%^b Kruskal-Wallis test was used to compare age and number of drugs used^c Past 12 Months^d Methamphetamine^e Degrees of Freedom = 1

^fPatient Health Questionnaire Depression Scale

^gPast six months

Table 3

Logistic Regression Models for Receipt of Partner Violence for Females and Non-Partner Violence for Males in the Past Year

Covariates	FEMALES (N=270) Odds Ratio (Confidence Interval)	MALES (N=426) Odds Ratio (Confidence Interval)
Age (<23 versus >41)	2.64 (.68, 10.21)	3.13 (1.27, 7.78)*
Age (23 - < 31 versus > 41)	3.88 (1.18, 12.71)*	1.78 (.73, 4.31)
Age (31 versus > 41)	2.31 (.72, 7.40)	1.02 (.40, 2.59)
Caucasian	2.25 (.74, 6.83)	2.78 (1.29, 7.78)**
Married/Cohabiting	1.95 (.75, 5.06)	.88 (.37, 2.06)
High School Graduate	.86 (.40, 1.84)	.85 (.49, 1.5)
Employed	.99 (.39, 2.49)	.88 (.50, 1.57)
Living with Children Age <18	.63 (.28, 1.41)	1.70 (.85, 3.38)
Alcohol Abuse/Dependence ^a	3.76 (1.59, 8.88)**	1.37 (.70, 2.68)
Marijuana Abuse/ Dependence ^a	1.30 (.56, 3.05)	.77 (.43, 1.39)
Cocaine Abuse/ Dependence ^a	3.09 (1.15, 8.30)*	4.42 (2.12, 9.22)***
Methamphetamine Abuse/ Dependence ^a	2.93(1.06, 8.06)*	1.11 (.59, 2.1)
Ever Carried a Weapon	2.23 (1.06, 8.06)	1.22 (.69, 2.16)
Positive Depression Screen	1.67 (.77, 3.62)	.96 (.52, 1.77)
Number of Drugs Used ^b	.74 (.60, .92)**	1.04 (.92, 1.17)
State Enrolled KY vs. ARK OH vs. ARK	0.70 (.24, 2.00) 1.81 (.59, 5.61)	--- ---

* $p < .05$,

** $p < 0.01$,

*** $p < .001$

^aPast 12 months

^bPast 6 months