Relationship Between Drug Abuse and Intimate Partner Violence: A Longitudinal Study Among Women Receiving Methadone

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Over the past decade, intimate partner violence (IPV) has emerged as a significant public health problem among women in drug treatment. Past-year prevalence rates of experiencing IPV have been found to range between 25% and 57% among women in drug treatment, compared with rates of 1.5%–16% found in epidemiological surveys of community-based samples of women. Research on the relationship between substance abuse and IPV has focused primarily on how a perpetrator’s substance abuse increases the risk of IPV. Accumulating research has also found significant associations between women’s drug use and their victimization from IPV. Recent, frequent use of illicit tranquilizers, marijuana, cocaine, crack, and heroin has been found to be associated with experienced IPV in cross-sectional studies of women in methadone maintenance treatment programs (MMTPs). Research has yet to elucidate fully the causal relationships between women’s drug use and experiencing IPV: Does women’s drug use contribute to IPV? Does experiencing IPV lead to an increase in drug use? Or is there a reciprocal relationship between IPV and drug use?

The first possibility considered, that drug use leads to IPV, can be explained by several overlapping psychopharmacological, economic, and gender-related power factors. Psychopharmacological explanations focus on how drug use induces cognitive disruption and impairs the ability to process social interactions for the perpetrator and victim of IPV. These cognitive disruptions may lead to paranoia, impair judgment, and distort cues, increasing the likelihood of a violent interaction.

IPV occurs as an extension of the unequal distribution of power, social status, labor, and drugs between intimate partners. Qualitative research suggests that conflicts over spending money on and sharing drugs often lead to arguments that escalate to IPV. Because drug-dependent women are often deemed “sexually promiscuous” and are perceived as violating traditional gender norms, their partners may feel more justified in perpetrating violence against them.

The second possibility considered, that IPV leads to the use of illicit drugs, is supported by qualitative studies documenting that women initiate or increase their illicit drug use to cope with the pain of experiencing IPV. The use of tranquilizers or marijuana was cited as a frequent self-medication response to the physical and emotional pain experienced immediately after an episode of IPV in a study of abused women in MMTPs. A fourth plausible explanation is that instead of a direct association, several psychosocial variables are independently associated with both IPV and drug abuse. A wide range of psychosocial mediators have been found to be associated with both IPV and drug use, including posttraumatic stress disorder (PTSD), lack of social support, childhood sexual abuse, and HIV risk behavior.

In our study, data were collected in 3 waves (i.e., at baseline and 6 and 12 months later) to examine the temporal relationship.
between frequent drug use and IPV among a random sample of 416 women in MMTPs. We tested 3 hypotheses.

Hypothesis 1 was that frequent drug use increases the likelihood of subsequent IPV. We tested whether women in MMTPs who reported frequent use of cocaine, crack, heroin, marijuana, or frequent binge drinking at wave 2 were at higher risk of physical or sexual IPV at wave 3 than were women in MMTPs who did not use these drugs at wave 2, after control for background and relationship factors at wave 1.

Hypothesis 2 was that IPV increases the likelihood of subsequent frequent drug use. We tested whether women who reported IPV at wave 2 had greater odds than women who did not report IPV at wave 2 of reporting frequent use of crack/cocaine, heroin, marijuana, or frequent binge drinking at wave 3, after control for background and relationship factors at wave 1.

Hypothesis 3 was that the relationship between frequent drug use and IPV is reciprocal. This hypothesis was tested indirectly: if hypothesis 1 and hypothesis 2 were supported for a particular drug, then we can conclude that hypothesis 3 is supported for that drug.

**METHODS**

**Random Sampling and Recruitment Procedures**

We randomly selected 753 women from the total population of 1708 women enrolled in 14 MMTP clinics in New York City. Of the 753 women, 559 (74%) agreed to participate and completed informed consent and a screening interview; 194 (26%) refused to participate in the study or missed 2 or more appointments to be screened. Of the 559 women who completed the screening interview, 427 met eligibility criteria. Of those eligible, 416 (97%) women agreed to participate and completed a baseline survey. Eligibility criteria for this study were: being a female between the ages of 18 and 55 years, being enrolled at a MMTP for at least 3 months, and during the past year, having had a sexual or dating relationship with someone described as a boyfriend, girlfriend, spouse, regular sexual partner, or the father of her children.

MMTP counselors notified potential participants of their selection for the study and invited them to contact the recruiters in the clinic. Once a potential participant made contact with a recruiter, the participant would receive a flyer describing the study. If the potential participant expressed interest in the study, the recruiter would complete informed consent and conduct a screening interview to determine eligibility.

Eligible participants were interviewed at baseline (wave 1) and received follow-up interviews at 6 months (wave 2) and 12 months (wave 3). Data were collected between 1997 and 2000. Research assistants (RAs) conducted face-to-face baseline and follow-up interviews, which averaged between 1.5 and 2 hours in length. The RAs were all women who had at least a bachelor's degree. RAs received 24 hours of training in interviewing and recruitment skills. The institutional review boards of the participating MMTPs and Columbia University approved the protocol for this study. Participants received $5 for participating in the screening, $25 for the baseline interview, $30 for the 6-month interview, and $35 for the 12-month interview.

**Measurement**

The baseline and follow-up interviews covered psychological distress, childhood sexual abuse, PTSD, relationship factors, drug use, HIV risk behaviors, IPV, and perceived social support. Sociodemographic characteristics were collected at baseline only. Information on a maximum of 3 current intimate partners was elicited from participants.

Sociodemographic and relationship characteristics included age, race/ethnicity, level of education, incarceration, homelessness, employment status, average monthly income, length and type of intimate relationships, and number of intimate partners in the past 6 months.

Childhood sexual abuse was measured using the Childhood Sexual Abuse Interview, which includes 2 subscales: touching/exposure, measured by 6 items, and penetration, assessed with 3 items. A positive indicator also required that a respondent reported the perpetrator used force, was a relative, or was 5 years older than the woman at the time the abuse occurred.

The Brief Symptom Inventory (BSI) was used to assess psychological distress. The BSI includes a global severity index that provides an overall assessment of psychological status. It has good internal consistency ranging between .71 and .74 and has been tested with a wide range of populations. PTSD was assessed using the Posttraumatic Stress Diagnostic Scale (PDS), a self-report instrument with a high internal consistency (Cronbach α of .91).

The Drug Use and Risk Behavior Questionnaire was developed by the investigators to provide frequency counts of using alcohol, heroin, crack, cocaine, marijuana, and other drugs during the previous 6 months. Internal consistency was assessed with 800 subjects and yielded α reliability of .80. For each drug, respondents were asked “In the past 6 months, how often have you used ______?”. Participants responded on an 8-point Likert scale ranging from “never” to “2 or more times a day.” Respondents who indicated “once a week” or more often were categorized as “frequent” users of a drug. This definition of frequent drug use has been used in previous research. Binge drinking was defined as drinking 4 or more alcoholic drinks within a 6-hour period. Respondents who indicated binge drinking once a week or more in the past 6 months were defined as “frequent” binge drinkers.

Relationship dependencies were also examined. Housing dependency was measured by whether the woman or her partner held the lease to their residence; contribution to household expenses was measured by whether the women and her partner contributed the same amount or whether one partner contributed more. Drug dependency was measured by whether the partner paid for the woman’s drugs.

HIV risks included whether women reported having monogamous, serially monogamous, or multiple, concurrent partners in the past 6 months and the frequency of condom use with intimate partners (never, sometimes, always).

IPV was assessed using the Revised Conflict Tactics Scales (CTS2). The CTS2 provides 3 subscales measuring sexual, physical, and injury-related IPV in the past 6 months. These 3 subscales have minor and severe components that, when combined, provide an overall prevalence of IPV that we defined as...
“physical and/or sexual IPV.” We examined IPV across regular sexual partners at each wave. Internal consistency of the CTS2 subscales ranges between .79 and .95.47

Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS), a 12-item instrument that measures perceived social support from family, friends, and a significant other.48 The MSPSS has been used with diverse populations and has excellent internal consistency, with an \( \alpha \) of .91 for the total scale.48

**Data Analysis**

To reduce the potential for bias resulting from missing data and differential attrition, we used multiple imputation.49,50 Of the 416 participants who completed the baseline interview (wave 1), 346 (83%) and 317 (76%) women provided data at waves 2 and 3, respectively. Univariate analyses indicated that women who were not retained at wave 2 and wave 3 did not differ significantly from retained women on any background or outcome variables assessed at wave 1.

We used propensity score matching to reduce the selection bias that can occur in an observational (i.e., nonexperimental) study. This heuristic, nonparametric technique in effect “reconstructs” a sample that mimics the results of a randomized clinical trial by selecting procedures to select a final sample of participants that are associated with both the treatment and the outcome. Propensity score matching can eliminate this bias if we are able to balance (across the treatment and control groups) all the covariates that are associated with both the treatment and the outcome.

Propensity scores were calculated using attributes for observed confounders measured at wave 1, treatment variables at wave 2, and outcome variables at wave 3. This analysis plan ensures that observed confounders temporally precede treatment “assignment,” which, in turn, precedes determination of outcome variables. The confounders included sociodemographics, history of trauma (childhood sexual abuse, PTSD), psychological distress, social support, and HIV risks. For hypothesis 1, the treatment variable is frequent drug use measured at wave 2, and the outcome variable is IPV assessed at wave 3. For hypothesis 2, the treatment variable is IPV at wave 2, and the outcome variable is frequent drug use assessed at wave 3. Various diagnostics, including robust tests such as Kolmogorov–Smirnov and Shapiro–Wilk, were performed to confirm that the matching procedures resulted in groups that were similar with respect to confounders and that differed only with respect to the treatment variable.

After using propensity score matching procedures to select a final sample of participants for which valid causal effect size estimates could be obtained, we used multiple logistic regression to test each hypothesis. For each type of drug, adjusted odds ratios (ORs) and their associated 95% confidence intervals (CIs) were examined to test hypothesis 1 and hypothesis 2, adjusting for the same set of background and relationship confounders used in the propensity score matching procedures. For all evaluations in testing hypothesis 1 and hypothesis 2, we compared frequent users of each drug to nondrug users. Women who reported occasional but not frequent use of a drug for hypothesis 1 and hypothesis 2 were excluded from the analysis.

**RESULTS**

**Sociodemographic and Relationship Characteristics**

Sociodemographic characteristics of the sample are presented in Table 1. The women’s mean age was almost 40 years (SD = 6.7 years), and the majority self-identified as Latina or African American. More than half of the sample did not have a high school diploma. Almost one-tenth of the women resided with their intimate partner in the past year. One-third said that they always used condoms with their intimate partner or partners in the past 6 months.

**Childhood Sexual Abuse and Mental Health Status**

Of the total sample, 54.8% experienced touching or exposure and 23.1% experienced penetration. The mean score of the global severity index of the BSI was .89. This mean is comparable to the mean found among other drug-involved female populations, but it is substantially higher than the estimate of...
Prevalence of IPV

Prevalence rates of experiencing of different types of IPV in the past 6 months reported at each wave are presented in Figure 1a. The figure illustrates that prevalence of IPV for each wave decreased slightly over time.

Prevalence of Drug Use

The prevalence of frequent drug use is reported in Figure 1b for each type of drug at each wave. In general, frequent drug use decreased over time, with the largest decrease observed for heroin use.

Hypotheses Testing

Hypothesis 1: frequent drug use increases the likelihood of subsequent IPV. The findings presented in Table 2 are the adjusted ORs for experiencing IPV at wave 3 contingent on frequent drug use reported at wave 2, after control for confounders measured at wave 1. Women who used crack at least once a week at wave 2 were more than 4 times as likely to report physical or sexual IPV at wave 3 compared with women who did not report using any drugs or binge drinking at wave 2 (OR=4.4; 95% CI=2.1, 9.1; P<.01); similar results were found for frequent use of marijuana (OR=4.5; 95% CI=2.4, 8.4; P<.01). Findings support hypothesis 1 for frequent crack or marijuana use. Although not significant, the results indicate that frequent cocaine users experienced higher rates of subsequent IPV compared with women who did not report using drugs or binge drinking (OR=1.6; 95% CI=.84, 3.0; P=.11).

Hypothesis 2: IPV increases the likelihood of subsequent frequent drug use. The lower panel of Table 2 contains the adjusted ORs for engaging in frequent drug use at wave 3 contingent on experiences of physical or sexual IPV measured at wave 2 after control for confounders measured at wave 1. Women who reported physical or sexual IPV at wave 2 were more likely than women who did not report IPV to indicate frequent use of heroin at wave 3 (OR=2.7; 95% CI=1.1, 6.5; P=.04). Marginal support was found for an increased likelihood of frequent crack use (OR=8.7; 95% CI=.9, 82; P=.06) and marijuana use (OR=2.4; 95% CI=.9, 6.2; P=.07) at wave 3 among women who reported IPV at wave 2 compared with women who did not report IPV. The results are indicative that IPV increases the likelihood of weekly or more frequent cocaine use (OR=2.1; 95% CI=82, 5.5; P=.11). The findings support the hypothesis that IPV at wave 2 increases the likelihood of frequent use of heroin and were suggestive for crack, cocaine, and marijuana use, but not frequent binge drinking, at wave 3.

Hypothesis 3: the relationship between frequent drug use and IPV is reciprocal. Hypothesis 3 was not supported at a 95% level of confidence; however, the results presented above indicate that both hypothesis 1 and hypothesis 2 were suggestive for crack and marijuana use.

DISCUSSION

To our knowledge, this is the first longitudinal investigation of the causal relationship between frequent drug use and IPV among a random sample of women attending MMTPs. This study examined the temporal and reciprocal relationships between frequent use of different drugs and IPV at 2 points (wave 2 and wave 3) over a 1-year period, using state-of-the-art analytical procedures to control for observed confounders collected at baseline (wave 1). This study’s findings significantly improve on earlier studies, which relied primarily on cross-sectional, retrospective designs.

The first hypothesis, that frequent drug use increases the likelihood of subsequent IPV, was supported for crack and marijuana and suggestive for cocaine but could not be
The finding supporting a causal relationship between IPV and frequent crack or marijuana use. These findings highlight the need to understand the multiple contexts and chronological sequence in which IPV and drug use cooccur.

The study has several limitations that need to be addressed in future research. One-quarter of the women who were selected in the random sample refused to participate in the study. We do not have the background information necessary to determine whether these women differ from participants in terms of sociodemographics and IPV characteristics. Therefore, we may have missed some women who have experienced IPV in the prevalence rates reported in this study. The generalizability of study findings to other low-income, urban populations of women in MMTPs is greater than previous studies, which have used nonrandom samples. However, these findings may not be generalizable to other populations of women in drug treatment. Another major limitation of the study is the inability to isolate the unique effect of each drug on IPV, and vice versa. The sample sizes of crack-only, marijuana-only, and heroin-only users were too small to permit this type of analysis.

Despite these limitations, the findings have important implications. For women in MMTPs, not using illicit drugs frequently may be a protective factor for IPV. Intervention strategies to reduce or stop drug use and interrupt the cycle of IPV for women in drug treatment programs need to be developed and tested. The use of drugs as self-medication to deal with IPV suggests the potential utility of combined psychopharmacological and behavioral treatments that will help women build alternative coping skills in conjunction with monitored medication to address the psychological or physical pain stemming from IPV. Standard protocols for assessment, safety planning, treatment, and referrals to address the problem of IPV among women enrolled in drug treatment programs need to be designed, tested, and implemented. Ignoring the problem of IPV may not only jeopardize the safety of women in drug treatment but also increase the likelihood of relapse and premature attrition from treatment.

**TABLE 2—Frequent Drug Use and Any Intimate Partner Violence (IPV)**

<table>
<thead>
<tr>
<th>Frequent Drug Use</th>
<th>Any Intimate Partner Violence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds Ratio (95% Confidence Interval)</td>
</tr>
<tr>
<td><strong>Hypothesis 1:</strong> frequent drug use increases the likelihood of subsequent IPV (wave 3)</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td>1.6 (0.84, 3.0)</td>
</tr>
<tr>
<td>Crack</td>
<td>4.4 (2.1, 9.1)</td>
</tr>
<tr>
<td>Heroin</td>
<td>1.5 (0.70, 3.2)</td>
</tr>
<tr>
<td>Marijuana</td>
<td>4.5 (2.4, 8.4)</td>
</tr>
<tr>
<td>Binge drinking</td>
<td>1.0 (0.49, 2.0)</td>
</tr>
<tr>
<td><strong>Hypothesis 2:</strong> IPV (wave 2) increases the likelihood of subsequent frequent drug use</td>
<td></td>
</tr>
<tr>
<td>Frequent drug use at wave 3</td>
<td></td>
</tr>
<tr>
<td>Cocaine</td>
<td>2.1 (0.82, 5.5)</td>
</tr>
<tr>
<td>Crack</td>
<td>8.7 (0.98, 78)</td>
</tr>
<tr>
<td>Heroin</td>
<td>2.7 (1.1, 6.5)</td>
</tr>
<tr>
<td>Marijuana</td>
<td>2.4 (0.92, 6.2)</td>
</tr>
<tr>
<td>Binge drinking</td>
<td>0.8 (0.04, 17)</td>
</tr>
</tbody>
</table>

**References**


**About the Authors**

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**Contributors**

N. El-Bassel and L. Gilbert conceptualized and implemented the study. N. El-Bassel conceptualized the data analysis plan, wrote the article, and supervised the process of data analysis. L. Gilbert participated in the conceptualization of the data analysis and article revision. E. Wu participated in the data analysis and article revision. H. Go conducted the data analysis, and J. Hill provided ongoing expertise on the data analysis and article review.

**Human Participant Protection**

The protocol was reviewed and approved by the institutional review boards of Columbia University and the Methadone Maintenance Treatment Program at the Beth Israel Medical Center, New York.

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**RESEARCH AND PRACTICE**
