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## Substance Use and Intimate Partner Violence: Clarifying the Relevance of Women's Use and Partners' Use

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### Abstract

Research has shown that when women and/or their partners are involved in substance use, women's risk for intimate partner violence (IPV) is higher. Prior research has not examined whether substance use by both women and their partners contributes independently or interactively to women's risk of victimization and has not identified factors moderating the effect of substance use by victim or partner. Mental health and social support are explored as moderators of the association between women's victimization and substance use by victim or partner in a study of 590 impoverished women residing in the Los Angeles area. This study found that substance use by both the woman and her partner independently predicted IPV and that social support moderated the effect of women's substance use. These findings clarify the relevance of substance use in the context of intimate relationships and that of social support as a buffer against IPV among impoverished women.

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Violence against women has received increasing attention from researchers and health care providers and is an especially significant threat for impoverished women.<sup>1–5</sup> A national council commissioned by Congress under the 1994 Violence Against Women Act cited the need for research on violence against women with a special emphasis on the needs of women traditionally underserved in health and social services.<sup>2</sup> Further efforts to understand violence against impoverished women are important for developing assessment, prevention, and intervention strategies tailored to the needs of this population.

Intimate partner violence (IPV) is more likely among women who use drugs or alcohol<sup>6–8</sup> and women whose partners use drugs or alcohol.<sup>9,10</sup> In a cross-sectional study of 590 impoverished women residing in homeless shelters or low-income housing in Los Angeles between 2001 and 2002, it was tested whether substance use by women and substance use by their partners contribute independently to the risk of IPV. The study also tested the possibility that substance use by both parties might interact in predicting IPV and tested whether women's mental health and social support might moderate the relationship between each person's substance use and IPV.

### Background

Intimate partners are the most common perpetrators of violence against women.<sup>11</sup> The risk of violence is significantly higher when a woman's partner is involved in drug or alcohol

use.<sup>12-14</sup> A woman's own use of drugs or alcohol is also a risk factor for violence victimization. Kilpatrick et al.<sup>8</sup> have shown that victimization by assault is more common among women with drug or alcohol involvement. El-Bassel et al.<sup>6</sup> found that IPV was positively associated with drug and alcohol use among impoverished women. It remains unclear whether substance use by each person contributes independently to IPV; the relationship between either person's substance use and the risk of violence may be an artifact of substance use by the other. Lipsky et al.<sup>15</sup> found that the victim's alcohol use becomes non-significant in predicting IPV after controlling for the partner's alcohol use. In addition, it is important to determine whether substance use by both victim and partner interact in predicting the occurrence of violence between them. The risk of violence victimization among substance-using women may be substantially greater when their partners also use drugs or alcohol.

In exploring the relationship between substance use and IPV, it is important to account for additional factors that may moderate the strength of this relationship, i.e., conditions under which substance use and violence are most closely linked. Two key factors deserving attention as moderators in this study are mental health status and social support, based on evidence of their importance from previous literature and their propensity to be influenced by interventions. Numerous studies have found that women's mental health problems are associated with increased risk of violence victimization, possibly because women with poor mental health may be less vigilant, suffer impaired judgment, appear more vulnerable to perpetrators, and may have compromised social interaction skills.<sup>16-21</sup> Mental health problems that have been identified as risk factors include, for example, depression, depressive symptoms, and anxiety disorders.<sup>20</sup> Evidence furthermore suggests that the co-occurrence of mental health problems with substance use is associated with greater risk for intimate partner violence than occurrence of one of these problems.<sup>22</sup> Studies have found that social support is a critical factor in reducing women's risk for victimization and that, conversely, poor social support is related to increased risk.<sup>23-27</sup> For example, social support networks may facilitate women's efforts to seek help and ultimately to end abusive relationships.<sup>25,28</sup> Beneficial social relationships may reduce risk of victimization by conferring protection in a harsh environment,<sup>29</sup> and may also reduce risk of re-victimization.<sup>30</sup> Beneficial support may be provided by friends and family in the form of encouragement, advice, tangible assistance, and a safe haven<sup>31</sup> and also by the formal service sector such as police, social service agency staff, and crisis hotlines, although women seek help from the formal service sector less commonly than from family and friends.<sup>25</sup>

While such factors may contribute independently to a woman's risk of IPV, they may also interact with either the woman's substance use or her partner's substance use to create a context in which risk is compounded. For example, a woman with mental health problems may be more vulnerable to aggression if she also uses drugs or alcohol, and a woman with low social support may be more vulnerable to aggression because she has no place to go when her substance-using partner becomes belligerent.

In summary, this study's main research questions are to test whether substance use by both women and their partners contributes independently or interactively to women's risk of victimization, and whether mental health and social support moderate the association between women's victimization and substance use by victim or partner in a sample of 590 impoverished women.

## Methods

### Design

The study proposed in this paper uses a subset of a sample of impoverished women from the Los Angeles County area collected during the years 2001 and 2002.<sup>32,33</sup> One of the main characteristics of the design of the larger study, which is described below, was collecting two parallel samples of women residing in shelters and of women residing in low-income housing in the same geographic area and at the same time.

Women residing in shelters were sampled from facilities that were located within an approximate 15-mile radius of downtown Los Angeles, had a majority of homeless residents (e.g., persons who would otherwise live in the streets or who sleep in shelters and have no place of their own to go), and did not charge persons a fee exceeding the means of homeless women on public assistance, as reported by shelter directors. The shelter sample was drawn from all the eligible facilities in the study area. Fifty-one facilities were found to be eligible from all those listed in local service directories. These 51 facilities included homeless emergency shelters, transitional living facilities, single-room occupancy hotels, board-and-care facilities, detox and rehabilitation facilities, mental health facilities, and HIV and AIDS transitional homes. Domestic violence shelters were excluded since their addresses and locations are not published. Although women sampled from the 51 facilities were not individually screened for homelessness, 92% of them reported an experience of literal homelessness sometime during their lifetime. Women residing in shelters were selected by means of a stratified random sample, with shelters serving as sampling strata. A proportionate-to-size stratified random sample would have been overly burdensome on the larger shelters, so small departures were made from a proportionate-to-size sampling approach and corrected with design weights. The response rate was 86%.

Women residing in low-income housing were sampled from Section 8 private, project-based subsidized apartments by the US Department of Housing and Urban Development (or HUD) in the study area. The housed sample was drawn from 66 HUD Section 8 apartment buildings, with buildings serving as sampling strata. To qualify for Section 8 housing, an individual can make no more than 50% of the median income for Los Angeles County. All such apartment buildings within the study area that were reported by HUD to consist entirely of Section 8 project-based apartments not specifically designated to house elderly or disabled tenants were included. To sample units from a building, the same sampling scheme adopted for the shelters was used. Once a unit was sampled from a building, one woman resident within that unit was randomly sampled. The response rate was 76%. Additional details on this study's sample design are provided elsewhere.<sup>34</sup>

### Participants

This study was based on 590 impoverished women who reported a current relationship with a male or female primary partner in the past six months. These women were part of a larger sample of 898 of women residing in shelters or in low-income housing in the Los Angeles County (460 in shelters, 438 in low-income housing). Eligible women were between the ages of 18 and 55, spoke and understood English, and did not have significant cognitive impairment. Individual computer-assisted face-to-face interviews were conducted by trained female interviewers and lasted 1 to 1.5 hours. Women were paid \$15 for their participation. The research protocol was approved by the RAND Corporation Institutional Review Board, and a Certificate of Confidentiality was obtained from the U.S. Department of Health and Human Services.

## Measures

### Outcome variable and main predictors

**Intimate partner violence:** The literature reveals inconsistencies in defining intimate partner violence; however, it is often defined to include physical, sexual and psychological violence.<sup>35</sup> In this study, the outcome variable of IPV is operationalized as physical violence, although as we describe in the Results section, we found significant co-occurrence among physical, sexual and psychological violence in that a woman who experienced physical violence from a partner rarely did not *also* experience sexual or psychological violence. We operationalize the three different types of violence here.

**Physical violence:** Questions were adopted from the revised Conflict Tactics Scale, which employs behavior-based questions designed to elicit disclosure.<sup>36</sup> Women were asked thirteen questions about experiences of physical violence during the past 6 months, including whether something had been thrown at them that could hurt; they had their arm or hair twisted in a hurtful way; they had been pushed, shoved, or grabbed in a hurtful way; they had been slapped; they had been punched or hit with something that could hurt, like a fist or object; they had been choked; burned or scalded on purpose; they had been beaten up; they had been kicked; bitten or scratched; they had been slammed against the wall; or a knife or gun had been used against them (including as a threat). All items were asked with reference to five groups of perpetrators: primary sexual partner; casual sexual partner; need-based sexual partner (defined as someone with whom a woman had sex because she needed money, food, a place to stay, drugs, or something else); friends; and acquaintances; and strangers. Primary partners were defined as husband or steady boyfriend or girlfriend and need not have been living in the same place. A detailed accounting of types of violent acts and perpetrators is provided elsewhere.<sup>37</sup> A dichotomous variable to represent whether any IPV (i.e., physical violence committed by the primary sexual partner) had been perpetrated against the women during the previous 6 months was created.

**Sexual violence:** The measure of sexual violence is based on four questions about experiences of forced vaginal, anal, and oral sex and other undesired sexual acts during the past 6 months.<sup>38,39</sup> A dichotomous variable indicating any sexual violence perpetrated by a primary partner in the previous 6 months was created.

**Psychological violence:** The psychological violence measures is based on three questions about whether the primary partners treated the respondent as inferior or stupid, made her tell them where she had been or what she had done; and called her names or swore at her in the previous 6 months.<sup>40</sup> A dichotomous variable indicating any psychological violence perpetrated by a primary partner in the previous 6 months was created.

**Substance use:** Women were asked to report their own use of alcohol or illicit drugs during the past 6 months. To aid in recall, a list of drug types modified from the World Health Organization Composite International Diagnostic Interview Short-Form (CIDI-SF) was shown to the women during the interview.<sup>41</sup> Modifications were made to incorporate drug nicknames used by respondents during the instrument pre-testing phase of this study. Drug types included amphetamines or other stimulants (“speed,” “crystal meth,” “ice,” or “crank”); sedatives; marijuana or hashish; crack cocaine (“rock”); other cocaine; inhalants (“nozz,” “fumes”); LSD or other hallucinogens; heroin; PCP; and club drugs such as GHB (“grievous bodily harm”) or Ecstasy. Women were also asked to report partner use, i.e., use of alcohol and each drug type by their primary partner. The analytic variable reflects own use or partner’s use of either drugs or alcohol, or both drugs and alcohol. Although additional information was collected on frequency and severity of substance use by the women, they were asked to report only the incidence of *any* substance use in the past 6

months by partners. To maintain parallelism between measures of substance use by each person, it was therefore necessary to restrict the focus to use, not heavy use or dependence.

**Demographics and background characteristics**—The demographic and background characteristics used to profile the sample were: age; race/ethnicity; education (a three-level variable: less than high school, high-school and more than high-school); income (a four-level categorical variable of the total income received in the past 30 days from legal and illegal sources: \$0–\$200, \$201–\$499, \$500–\$999, \$1000+); employment (a dichotomous variable indicating whether in the previous 6 months a woman was either working full-time or part-time); marital status (a dichotomous variable indicating whether a woman is currently married); currently living with the primary partner; childhood physical abuse (the analytic variable reflects occurrence of any of the following forms of abuse<sup>39</sup>: whether an adult had ever “hit, kicked, choked, burned, beaten up, used a knife or gun on the respondent, or something like that” before she turned 18 years old); and housing status (a variable indicating whether at the time of the interview the respondent resided in a shelter or in a low-income housing setting).

### Potential moderators

**Mental health distress:** This measure is based on the RAND Mental Health Inventory, which asks how often an individual experienced each of 5 symptoms of distress in the past month.<sup>42–44</sup> Responses ranged from “all of the time” (scored 1) to “none of the time” (scored 6). Cronbach’s alpha in this sample was 0.82. Mean scores were computed and rescaled to range from 0 to 100. A dichotomous measure of distress was created on the basis of previous work showing that scores under 66 indicate a high risk for mental health problems.<sup>44</sup>

**Social support:** Social support was assessed by four items from a scale originally developed for the RAND Medical Outcomes Study.<sup>45</sup> A four-item index assesses how often at least one person has been available to provide informational, tangible, and emotional support. Response options ranged from “never (a value of 1) to “always” (a value of 5). Cronbach’s alpha in this sample was 0.86.

**Analysis**—The use of a disproportionate sampling design and differential non-response rates require the use of design and non-response weights to represent the target population from the sample of respondents. All analyses incorporate these weights in the computation of standard errors to account for the modest design effect that the weights induce. These standard errors go by several names: robust standard errors, Huber-White correction, linearization method or sandwich estimator.<sup>46</sup>

To examine the association between IPV past six months and each person’s substance use past six months, logistic regression models were run in which own use and partner use were tested separately. To determine whether each person’s substance use contributed independently or interactively to the prediction of IPV, a model including both own use and partner use and their interaction was used. Since the interaction was found not significant it was not included in any of the successive models. Each predictor variable was then modeled individually, controlling only for own use and partner use. Predictor variables that were associated with IPV at  $p < 0.05$  (Table 2) were retained for further analysis and included in a final trimmed multivariate model.

The considered potential predictors included: background and demographic characteristics (age, race/ethnicity, education, income, employment status, physical abuse during

childhood, marital status, cohabitation and housing status); and the two hypothesized moderators: mental health distress and social support.

A separate set of four models tested whether mental health distress and social support moderated the relationship between own use and partner use and IPV.

## Results

Background characteristics for the entire sample and for the sheltered and housed samples separately are reported in Table 1. Well over half of the women (61.9%) were between 18 and 35 years old. Most were African American (64.9%) or Hispanic/Latina (23.9%). More than one fourth of the women (27%) had been physically abused in childhood, while almost half had high scores on mental health distress (42.8%). A few women (3.9%) reported having a female primary partner (and no male primary partner) during the six-month period. Those women were retained in the analysis (see below).

Substance use tended to co-occur in these women's intimate relationships. That is, if the woman used drugs or alcohol, her partner was likely to do so; if she did not use drugs or alcohol, her partner was likely not to. For example, non-using women with non-using partners comprised 43.2% of the sample, and using women with using partners comprised another 27.7%. Overall, 42.8% of the women were substance users, and about two-thirds of those women (27.7/42.8=.647) reported substance use by their partners as well. Among non-using women, three-quarters (.432/57.2=.755) reported that their partners had not used drugs or alcohol.

About one in ten women in this sample (9.9%) reported IPV (physical violence) during the past 6 months. The prevalence of sexual violence in the past 6 months in the sample was 1%, while the rate of psychological violence during the past 6 months was 40.5%. All the women that were victims of sexual violence were victims of physical violence as well, while 89% of the women that were victims of physical violence experienced psychological violence as well. The strong association between sexual and physical violence and between psychological and physical violence underscores that the subset of women who experienced physical violence are the most vulnerable group, since all of them experienced sexual and psychological violence at higher rates than the overall sample.

Own use (OR=4.67,  $p<0.001$ ) and partner use (OR=6.12,  $p<0.001$ ) were significant predictors of IPV, when tested separately. When tested together, own use and partner use each independently predicted IPV (OR=2.78,  $p=0.004$  for own use; OR=4.18,  $p<0.001$  for partner use). Then an interaction term was added to determine the multiplicative effect of own use and partner use in predicting IPV. The interaction term was not significant.

Table 2 reports the odds ratios for the bivariate relationships between the predictor variables and IPV after accounting for own use and partner use.

Older women and more educated women are less at risk for IPV. Living with the primary partner and greater social support are also significant protective factors. On the other hand, childhood physical abuse, poor mental health and residing in a shelter are significant risk factors for IPV.

Table 3 shows the moderator analysis for mental health distress and social support.

In Table 3 it can be seen that partner use retained its independent effect and did not interact with either mental health distress and/or social support. Own use, instead, no longer had an independent effect on IPV but appeared to interact with social support (OR=1.83,  $p<0.05$ ).



The meaning of such interaction is the following: among women who did not use substances, greater social support was clearly protective; while among women who used drugs/alcohol, greater social support had no protective effect.

All the significant predictors in table 2 together with the interaction between own use and social support were included in a final model. The results practically did not change with respect to the bivariate models in table 2 with the exception of childhood physical abuse that was no longer significant and mental health distress that was only marginally significant.

A sensitivity analysis was conducted in which women who reported having female partners (corresponding to 3.9% of the sample; see Table 1) were excluded. Results for the final model in which these women were excluded were substantively the same; all predictors' coefficients and their significance were practically unchanged.

## Discussion

The population of women represented in this study is disproportionately burdened by violence. According to the National Violence Against Women Survey, a nationally representative survey, 1.3% of women annually experience physical violence by an intimate partner, compared to approximately 10% of this sample victimized by their intimate partners in just the past 6 months.<sup>47</sup> One quarter (27.0%) of the sample had also been victimized as children. Impoverished women clearly face a high and persistent risk of violence victimization.

This study's findings are consistent with prior research showing that the risk of IPV is higher when women are involved in substance use and when their partners are also involved.<sup>15,48</sup> This analysis also found a high degree of co-occurrence of substance use by women and their partners, as did Gilbert et al.<sup>49</sup> Thus it is possible that the relationship between either person's substance use and the risk of violence may be an artifact of substance use by the other partner, or that such risk might be most elevated when both persons are involved in substance use. In this analysis, each person's substance use contributed independently to the prediction of IPV, but own use and partner use did not interact. Thus, while risk may not be multiplied when both persons are involved in drug or alcohol use, risk seems to be additive. That is, the predictive power of a woman's own use is not simply an artifact of her partner's use, or vice versa. In this study, substance-using women and their substance-using partners both "brought risk to the table", this finding adds to the findings of Lipsky et al.<sup>15</sup>

The risk of IPV was lower among women who reported a relatively high level of social support, unless they were substance users. Greater social support had no protective effect among women who reported substance use. Research has consistently shown that social support is broadly important for health and quality of life;<sup>50,51</sup> however, the nature of the moderating effect of social support on the relationship between the victim's substance use and IPV has not been demonstrated previously. More specifically, as indicated in this study, greater social support seems to be associated with a reduced risk of IPV. Women with strong social support may have more access to tangible resources (e.g., money and a place to stay) that enable them to escape situations where spousal violence appears imminent and to end abusive relationships.<sup>25,28,52</sup> Intangible resources may also come into play.<sup>31</sup> A study of women in university clinic settings indicates that social support may enhance psychological well-being among women who have experienced IPV, and that expressions of caring and encouragement from one's support network are beneficial.<sup>53</sup> This research adds to the extant literature by suggesting that social support loses its protective value among women involved in substance use. Social support may be insufficient in buffering against the influence of

substance use on victimization by violence. Alternatively, although we cannot test this possibility in the current study, women who use substances may be enmeshed in social networks with other substance users and thus receiving support that is lacking in protective effects, or may otherwise find available support to be lacking in some way. In a previous study,<sup>54</sup> substance-involved women who have been victimized by violence expressed some dissatisfaction from the support received from friends and family.

Women who were over age 25 and those living with their partners were less likely to experience IPV. Age and cohabitation may be proxies for length of one's relationship, and cohabitation (whether in shelters or low-income housing) may also reflect greater stability of, or mutual commitment to, the relationship. Alternatively, cohabitation may be a more likely living arrangement for women whose partners are less prone to violence. In line with a finding from our previous work,<sup>33</sup> homelessness is a significant risk factor for victimization. It might be that a more stable housing situation (such as an apartment instead of a temporary shelter) provides an environment that is more protective with respect to many of the risky aspects of these women's lives.

Finally, previous research has shown that mental health problems are more common among impoverished women, primarily because of numerous stressors associated with poverty.<sup>1,55</sup> In addition, poor mental health has emerged as a risk factor in violence victimization.<sup>16,17,19</sup> This analysis is consistent with prior research in showing that mental health distress conferred a higher risk of IPV. Moreover, given this study's interest in factors that might moderate the influence of substance use on violence victimization, it is notable that this analysis showed no sign of interaction between mental health distress and either own use or partner use. Poor mental health remains a strong risk factor for IPV, but its effect appears not to be compounded by the negative effects of substance use.

This study has several limitations that must be noted. Measures of alcohol and drug use were based on self-report and not substantiated with testing; thus, some under-reporting may have occurred. Rates of substance use reported by sheltered and housed women, however, were higher on average than those reported by women in the general population in the National Household Survey on Drug Abuse.<sup>56</sup> Studies in similar populations have found that self-reports of drug use have fair accuracy.<sup>57,58</sup>

Another study limitation is the ability of generalizing the findings to a larger geographic context. While the results can be extended to the population of impoverished women in the Los Angeles County, since they are based on a probability sample from that region; inferences to other geographic areas might be less tenable. However, it is important to stress that the Los Angeles area is one of the major metropolitan areas, extremely diverse and with the largest concentration in the country of homeless people. Therefore some of the findings and their implications might apply to indigent women residing in other major metropolitan areas of the US.

## Implications for Behavioral Health

This study has highlighted the notable presence of physical violence in indigent women's lives and underscores the importance of services to support independence from abusive partners.<sup>4,33,52,59</sup> The independent predictive power of women's substance use indicates a need for drug/alcohol treatment, domestic violence intervention, and other services tailored to the life circumstances of impoverished women and the value of outreach to bring such women into contact with services. At the same time, substance use by women and substance use by their partners typically co-occur, and each contributes independently to women's risk of victimization. Thus, services to substance-using women represent a valuable opportunity for outreach, assessment, and intervention with their substance-using partners as well. It is



important to note that the substance use measures included in this analysis reflected any drug/alcohol involvement, not specifically heavy use or dependence, by either the woman or her partner. The risk of IPV may be greater for relationships in which substance use by one or both partners is severe, but such risk is notably high if either partner reports any substance use at all and still higher if both are involved in substance use. This study strongly underscores the importance of substance abuse treatment for women and their partners.

It may be crucial to assess levels of social support among impoverished women. El-Bassel et al.<sup>24</sup> found that impoverished women are sometimes dissatisfied with the social support they receive, despite abundant research indicating the value of social support in reducing risk for violence.<sup>25,26,28</sup> Thus, intervention may be needed to augment both the tangible and intangible support available in women's social networks.<sup>33</sup> Social support enhancement is an important and appropriate target for intervention.<sup>60</sup> Liang et al.<sup>25</sup> have suggested that since most women who seek support for victimization turn to informal sources such as friends and family, information about violence and resources to help address it should be widely distributed in communities. Informal helpers will then be better equipped to both understand the violence a woman is experiencing and assist the women in need of help. The absence of a protective effect for social support among substance-using women underscores the importance of interventions to assist such women in accessing potential support available in their existing social networks and developing support if it is lacking. Intervention protocols have been shown to improve skills for mobilizing social support in one's social network.<sup>61,62</sup> Because homeless women experience higher rates of substance use and violence than housed women<sup>33</sup>, such protocols could be designed and delivered in shelter facilities and, in view of the interaction with women's substance use, should be available and promoted as an ancillary service in drug/alcohol treatment programs.

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**Table 1**

Characteristics for the entire sample and the sheltered and housed samples separately

	Entire sample N=590	Sheltered Sample N=268	Housed Sample N= 322	P-Value
<b>Age</b>				0.001
18 – 25	29.4	24.2	32.4	
26 – 35	32.5	27.8	35.2	
36 – 45	28.6	32.8	26.3	
46 – 55	9.3	15.2	6.0	
<b>Race/Ethnicity</b>				<0.001
African American	64.9	55.6	70.2	
Hispanic/Latina	23.9	21.6	25.2	
Non-Hispanic White and other	11.2	22.8	4.5	
<b>Education</b>				<0.001
< high school	26.1	36.9	19.9	
= high school	37.0	28.3	41.9	
> high school	36.9	34.8	38.2	
<b>Income</b>				<0.001
\$0 – \$200	16.6	19.9	14.8	
\$201 – \$499	14.2	26.9	6.9	
\$500 – \$999	32.6	34.4	31.6	
\$1000+	36.5	18.7	46.7	
<b>Employed (yes)</b>	51.0	41.1	56.6	0.001
<b>Childhood physical abuse (yes)</b>	27.0	45.0	16.7	<0.001
<b>Married (yes)</b>	17.3	13.3	19.6	0.10
<b>Living with partner (yes)</b>	34.0	20.4	41.7	<0.001
<b>Gender primary partner (male)</b>	96.1	95.0	98.0	0.044
<b>Mental health distress (yes)</b>	42.8	62.0	32.0	<0.001
<b>Social support (mean)</b>	4.2	3.9	4.3	<0.001
(SD)	(0.05)	(0.07)	(0.06)	
<b>Substance abuse</b>				0.17
No own use, no partner use	43.2	37.4	46.5	
Own use, partner use	27.7	29.9	26.4	
Own use, no partner use	15.1	18.8	13.0	
No own use, partner use	14.0	13.9	14.1	
<b>Intimate partner violence (yes)</b>	9.9	18.3	5.1	<0.001
(physical violence)				
<b>Sexual violence (yes)</b>	1	2.3	0.3	0.027
<b>Psychological violence (yes)</b>	40.5	46.5	37.2	0.048

Note: all the reported statistics are percentages with the exception of social support (a continuous measure), for which the mean and standard deviation (in parenthesis) are reported.

**Table 2**

Predictors of intimate partner violence (bivariate analyses accounting for own use and partner use)

	<b>OR</b>	<b>[95% CI]</b>
<b>Age</b>		
18 – 25 (omitted)	-	-
26 – 35	0.38 <sup>*</sup>	(0.18, 0.81)
36 – 45	0.35 <sup>*</sup>	(0.16, 0.80)
46 – 55	0.69	(0.27, 1.76)
<b>Race/Ethnicity</b>		
African American (omitted)	-	-
Hispanic/Latina	1.42	(0.70, 2.86)
Non-Hispanic White and other	1.72	(0.77, 3.83)
<b>Education</b>		
< high school (omitted)	-	-
= high school	0.28 <sup>**</sup>	(0.12, 0.66)
> high school	0.66	(0.33, 1.29)
<b>Income</b>		
\$0 – \$200 (omitted)	-	-
\$201 – \$499	0.77	(0.28, 2.07)
\$500 – \$999	1.51	(0.64, 3.55)
\$1000+	0.60	(0.23, 1.55)
<b>Employed</b> (yes)	1.16	(0.63, 2.14)
<b>Childhood physical abuse</b> (yes)	2.71 <sup>**</sup>	(1.46, 5.01)
<b>Married</b> (yes)	0.49	(0.18, 1.37)
<b>Living with partner</b> (yes)	0.28 <sup>**</sup>	(0.13, 0.62)
<b>Shelter</b> (yes)	4.26 <sup>***</sup>	(2.13, 8.52)
<b>Mental health distress</b> (high)	2.85 <sup>**</sup>	(1.45, 5.61)
<b>Social support</b>	0.67 <sup>**</sup>	(0.51, 0.88)

\*  
p<.05\*\*  
p<.01\*\*\*  
p<.001†  
p<.10



**Table 3**

Moderator analysis for mental health distress and social support

	OR	[95% CI]
1. Own use (yes)	3.17	(1.03, 9.68)
Mental health distress (high)	3.53	(1.09, 11.40)
Own use: Mental health distress	0.75	(0.18, 3.01)
2. Own use (yes)	3.69 <sup>***</sup>	(1.80, 7.54)
Social support (centered at the mean)	0.45 <sup>***</sup>	(0.29, 0.70)
Own use : Social support	1.83 <sup>*</sup>	(1.05, 3.19)
3. Partner use (yes)	3.04 <sup>†</sup>	(0.99, 9.30)
Mental health distress (high)	1.73	(0.56, 5.35)
Partner use: Mental health distress	1.93	(0.49, 7.56)
4. Partner use (yes)	3.72 <sup>***</sup>	(1.89, 7.30)
Social support (centered at the mean)	0.77	(0.55, 1.08)
Partner : Social support	0.82	(0.49, 1.36)

\*  
p<.05\*\*  
p<.01\*\*\*  
p<.001†  
p<.10