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Correlates Intimate Partner Violence among Men and Women in an Inner City Emergency Department

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Abstract

The present study surveyed medical and/or injured patients (men and women) in an inner city ED to examine the rates and correlates of IPV, including substance use patterns. Over a two-year period, participants (n=10,744) self-administered a computerized health survey during their ED visit that included screening items regarding past year history of IPV (including victimization and aggression). Overall, rates of any involvement in past year IPV were 8.7% (7.3% victimization and 4.4% aggression); however, women were more likely than men to report IPV. When examining participants' substance use patterns, participants who reported using both alcohol and cocaine were most likely to report IPV. Predictors of partner aggression and victimization were remarkably similar. This paper provides unique data regarding correlates of past year IPV history among a comprehensive sample of male and female ED patients presenting for medical complaints and/or injury.

Keywords

intimate partner violence; emergency; screening; substance use

Introduction

The role of the emergency department (ED) in the detection of intimate partner violence (IPV) has grown over the last ten to fifteen years. Accordingly, the Joint Commission on Accreditation of Healthcare Organizations (1992) has mandated that ED facilities must implement universal IPV screening in order to obtain hospital accreditation. Although screening has become more routine, recent data suggest that up to twenty percent of women reporting to EDs with injuries are not asked about partner violence (Bansal, Park, & Edwardson, 2007). This percentage may be even higher for women presenting with a medical illness. This is particularly concerning given recent findings that those who are affected by IPV are more

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likely to use the ED than those without such a history (Lipsky & Caetano, 2007), and may be more likely to discuss IPV with ED personnel than with a primary care physician (Bansal et al., 2007; McCloskey et al., 2005). Further supporting IPV screening approaches in the ED, a recent study indicated that screening and referral in the ED for IPV does not result in increased IPV in the 3-month post-ED visit screening, with one-third of women contacting a community resource (Houry et al., 2008).

In general, rates of past year IPV in the ED have ranged from 5% to 26% (mostly among females in relationships in the past year) (e.g., Dearwater et al., 1998; MacMillan et al., 2006; Houry, et al., 2008; Mills et al., 2006; Fulfer et al., 2007). These rates of IPV from ED samples are consistent with rates of IPV from community samples (Straus et al., 1990; Shafer et al., 1998; Field & Caetano, 2005a) but lower than rates found in substance abuse treatment samples, which often exceed 50% (Chermack et al., 2000; O'Farrell et al., 1995; Fals-Stewart et al., 2002). Limitations of prior research regarding IPV from ED samples include: failing to include both men and women in study samples; restricting samples to convenience samples or sub-sets of the ED population, such as domestic victimization, injuries, or admitted trauma populations; and, focusing on current IPV victimization without assessing past year history of IPV perpetration of aggression (Cherpitel, 1993; Cherpital, 1997; Abbott et al., 1995; Rand, 1997; Melnick et al. 2002; Houry 2008; MacMillon et al., 2006; Roche et al., 2007). Thus, most of the prior ED research has excluded the majority of ED patients (male and female) who are treated and released. A notable exception assessed IPV victimization and perpetration among men and women, regardless of ED presenting complaint (Lipsky et al., 2005); however, this study was limited by a relatively small sample size (n=384) and is potentially biased by seasonal effect given it was conducted in the spring over a 5 week period.

Research from a variety of settings examining risk factors for intimate partner violence typically focuses on individual (e.g., gender, race, marital status, socioeconomic status) and/or psychological/social characteristics (e.g., substance use/abuse, depression, mental health functioning). Although some research suggests that women are more likely to report injury following IPV (Archer, 2000; Felson and Cares, 2005; Tjaden and Thoennes, 2000; Walton et al., 2007), data from community surveys and substance use treatment settings shows similar rates of IPV for men and women (Caetano, Schafer, & Cunradi, 2001; Chermack, Walton, Fuller, & Blow, 2001; Chermack et al., in press). Additional individual correlates of IPV include being married, being of minority status (Field & Caetano, 2005; Rennison & Welchans, 2000), and lacking insurance (Vest et al., 2002). Previous findings for race are particularly important given research suggests that African-American and Hispanic women are more likely than Caucasian women to utilize ED and other hospital services in general (Gaskin & Hoffman, 2000; Zuckerman & Shen, 2004). Finally, some findings indicate an inverse relationship between socioeconomic status (SES) and IPV, with those of lower SES being more likely to engage in IPV than those of upper SES (e.g., Sorenson et al., 1996). As noted by Cunradi et al. (2002), individuals from lower SES backgrounds may have greater exposures to stressful life events (e.g., uninsured, unemployment) and have fewer resources to deal with such stressors.

More specifically from ED studies, the use of alcohol is associated with an increase in present and past IPV victimization (Brokaw et al., 2002; Roche et al., 2007; Weinsheimer et al., 2005), with greater alcohol consumption and frequency of drinking noted in women who drink during an IPV episode (Lipsky et al., 2005). Alcohol use is also associated with increased incidents of IPV aggression, with perpetrators being up to 2.5 times more likely to be heavy drinkers (i.e., 5+ drinks per occasion) than non-perpetrators (Lipsky et al., 2005). Similarly, illicit drug use is associated with higher rates of both IPV victimization and aggression (Cunningham et al., 2007; Cunningham et al., 2003; Walton et al., 2007). A limitation of these previous ED studies is the inability to tease apart the relationship between IPV and unique illicit drugs and/or patterns of substance use and abuse/dependence (e.g., mono-substance use versus poly-

substance) due to limitations in sample size; instead, specific substances are analyzed without consideration of overlap in substance use (e.g., alcohol and cocaine use) (Cunningham et al., 2007; Lipsky et al., 2005b; Rhodes et al., 2002; Roche et al., 2007; Walton et al., 2007). Research from other settings regarding specific drugs is notably lacking with a few exceptions. Chermack et al (in press) examined individual substances but did not examine overlap in poly-substance use. Nonetheless, the authors found that cocaine users were more likely to engage in IPV and stimulant users reported more incidents of IPV-related injuries than non-stimulant users. Other specific illicit substances that have been implicated in the role of IPV include cannabis, hallucinogens, and stimulants (e.g., Feingold et al., 2008; Stuart et al., 2008). To our knowledge, not prior studies have examined prescription drug use and IPV among ED patients.

Finally, research on psychosocial health factors and IPV has shown a relationship between high levels of emotional distress and IPV (Chermack et al., 2001; Walton et al., 2002; Walton et al., 2007). More specifically, although results have varied somewhat by gender and IPV perpetration/victimization, higher levels of depression are found for men and women involved in IPV based on substance use treatment samples (Hamberger & Hastings, 1991; Caetano & Cunradi, 2003; Chermack et al., in press) and ED samples (Lipsky et al., 2005; Houry et al., 2007; Walton et al., 2007). Additionally, physical aggression by a partner has been associated with posttraumatic stress disorder (Coker et al., 2005; Pico-Alfonso et al., 2006) and suicidality (Houry et al., 2006; Kaslow et al., 2000). IPV has also been associated with poorer physical functioning (e.g., Bonomi et al., 2006; Ellsberg et al., 2008). A recent national survey related to health risk behaviors found that men and women victimized by IPV had a higher rate of chronic diseases such as asthma and joint disease, and were less likely to engage in healthy behaviors such as having an annual physical (Breiding et al., 2008). Few studies have been done on health status and IPV in the ED setting. An exception to this is a cross-sectional study of female patients presenting to the ED for injury or illness, which found that those who had experienced IPV were more likely to self-report having poorer health than those without such a history (Brokaw, 2002).

This study fills an important gap in the literature by examining past year history of IPV (including both victimization and aggression) among a comprehensive sample of men and women presenting to an urban ED (for injury or medical complaints) over a two-year period. The objectives of this study were to determine rates and correlates (i.e., demographics, specific substance use patterns, and psychosocial and physical health issues) of past year IPV among patients in an inner city ED, and unique correlates of victimization and aggression. These correlates were selected based on prior theoretical and empirical research regarding the relationship between substance use and IPV (e.g., Chermack, et al., 2006; Chermack and Giancola, 1997; Chermack et al., 2006; Cunradi et al., 2005). Further, this study examined the relationship between specific substance use patterns and substance use disorder diagnoses and IPV. Hypotheses were that correlates of IPV would be: younger age; more frequent binge drinking, cocaine use, and marijuana use; psychological distress; and substance abuse/dependence diagnosis. Based on our prior findings regarding the relationship between gender and violence in general ED samples (Cunningham et al., 2003; Cunningham et al., 2007; Walton et al., 2007), gender was not expected to be significantly related to violence. We expected that each of the substance use (and substance use disorder) variables would be related to IPV, with poly substance use, specifically cocaine in combination with alcohol, and/or marijuana, being the most robust predictor of IPV. Because the dynamics underlying IPV victimization and perpetration may differ, correlates of IPV were examined separately for any IPV, victimization, and perpetration variables. Findings will be used to inform ED-based screening and interventions to address IPV.

Methods

Study Design

The study site was an inner city Level 1 trauma center ED, Hurley Medical Center ED in Flint, Michigan, with an annual ED census of approximately 50,000 adult patients (age 18 and older) per year. (Note that it is unclear how many of these patients represent unique person visits as opposed to repeat visits by the same person.) Research staff recruited patients in the ED from 9am – 11pm, seven days a week. Based on the investigators' prior work, there is a high refusal rate on the midnight shift.³¹ All potentially eligible adult patients presenting to the ED were approached to complete a health screen. After obtaining written consent, the 10-minute screen was administered to eligible patients. The study protocol was approved by IRB's at the University of Michigan and the Hurley Medical Center, and Certificates of Confidentiality were obtained from NIAAA and NIDA.

Participants

Patients (ages 19–60) were approached by research staff to participate. Exclusions included: pregnancy, unstable vital signs (triaged to the resuscitation bay), inability to provide informed consent (e.g. unconscious, police custody, acutely intoxicated), acute suicidal risk, or presenting for a psychiatric evaluation. Patients who refused to participate provided their gender and race as well as reasons for refusing to participate. Data for this paper were obtained for two full years of recruitment (April, 2006 through March, 2008). See Cunningham et al. (in press) and Ilgen et al. (in press) for additional information regarding study participants.

Measures

Participants were interviewed using specially programmed tablet pc's regarding overall health status, substance use, and violence. Demographic questions were taken from the Substance Abuse Outcomes Module (Smith et al., 1996). Sensitive questions were embedded in an overall screening instrument to maximize the accuracy (Fleming et al., 1997; Saunders JB, Ashland OG, Babor TF, Addiction. 1993).

Physical and Mental Health functioning—The SF-12 was used to assess physical and mental health functioning (Ware, 1993). The SF-12 has been widely studied as a standardized screening tool for health status (Fleming et al., 1997; Larson et al., 2008). For analysis purposes, a cut-off of lower than the 25th percentile on the SF-12 was used to indicate low/high functioning in each domain. In addition, the nine-item depression module from the Patient Health Questionnaire (PHQ) was used, which has been shown to be a reliable and valid measure of depressive symptoms (e.g., Kroenke, Spitzer, & Williams, 2001; Martin, Rief, Klaiberg, & Braehler, 2006). Participants respond to symptoms in the past two weeks, with a score of 10 or more indicating evidence at least “moderate” depression (e.g., 5 or more items occurring “more than half the days”) (Kroenke et al., 2001).

IPV: Victimization and Aggression—Partner victimization was assessed using a single item taken directly from the Partner Violence Screen (PVS; Feldhaus et al., 1997): “In the past year, have you been hit, kicked, punched, or otherwise hurt by a partner or spouse?”; a “yes” is considered positive for partner victimization. The brevity of the PVS, combined with adequate sensitivity (54.5–71.4) and specificity (80.3–84.4) as compared to more lengthy measures (i.e., Conflict Tactics Scale, Straus, 1974; Revised Conflict Tactics Scale II, Straus et al., 1996), make it ideal for use in ED settings (Davis et al., 2003; Morrison et al., 2000). In a parallel manner, this approach was expanded to inquire about partner aggression: “In the past year, have you hit, kicked, punched, or otherwise hurt a partner or spouse?”; a “yes” response is considered positive for IPV aggression. Finally, an overall IPV variable was created based on a “yes” response to either question.

Alcohol and Drug Use—Frequency of substance use (past 4 weeks) and related symptoms of abuse/dependence were determined by items from the Substance Abuse Outcomes Module (SAOM; Smith et al., 2006). For this paper, the SAOM was used to measure past month frequency of tobacco use, binge drinking, cocaine and marijuana use, and other illicit and prescription drug use (e.g., heroin, depressants, opiates/analgesics, sedatives, stimulants, hallucinogens, inhalants, club drugs). For prescription drugs, participants indicated whether they had a prescription for each substance. Next, the SAOM contains questions to ascertain separate past year DSM-IV diagnoses for alcohol, marijuana, and cocaine abuse and dependence. The SAOM has demonstrated reliability (internal reliability, coefficient 0.58–0.90, test-retest reliability 0.56–0.99) and validity (concurrent validity generally 0.5–0.8, predictive validity 0.5–0.9) (Smith et al., 2000). Finally, patients reported participation in formal inpatient or outpatient drug or alcohol treatment within the prior three months.

Data Analysis

Data analyses were conducted with SAS version 9.1 (Cary, NC) for Windows. First, we present rates of partner violence in this sample. Second, bivariate associations between demographic characteristics, health functioning, and alcohol and drug use with partner violence are presented using a Chi-square test of independence for categorical predictors and a two-sample t-test for continuous predictors. An 8-level mutually exclusive substance use group variable was created based on the types of substance used in the past-30 days: no use; alcohol use only; marijuana use only; cocaine use only; alcohol and marijuana use only; alcohol and cocaine use only; marijuana and cocaine use only; and alcohol, marijuana, and cocaine use. A parallel 8-level abuse/dependence group variable was created: no abuse/dependence; alcohol diagnosis only; marijuana diagnosis only; cocaine diagnosis only; alcohol and marijuana diagnoses; alcohol and cocaine diagnosis; marijuana and cocaine diagnoses; alcohol, marijuana, and cocaine diagnoses. Third, hierarchical logistic regression analyses were conducted to predict any partner violence, partner aggression, and partner victimization based on significant factors ($p < .01$) in the previous bivariate analyses. Because substance use and substance abuse/dependence diagnosis variables were highly correlated, substance use group was included in the models because these questions are more practical for clinicians to administer in ED settings. Note that demographic variables were entered in block 1, and health and substance use factors were entered in block 2. Finally, similar regression analyses were conducted among the sub-sample of participants reporting any substance use in order to determine the relative impact of specific substance use patterns on any partner violence, victimization, and aggression.

Results

Based on chart review of days in which RA's did not cover shifts (e.g., major holidays, staff vacation/sick days), over two years 11,416 unique patients (ages 18–60) were not included in the study due to staff not working during these shifts. During this two-year sampling frame, 27,092 unique patients (ages 18–60) presented during RA staffed recruitment shifts (9am–11pm). Among these 27,092 potentially eligible patients, 9828 patients met exclusionary criteria (e.g., pregnancy, presentation for psychological evaluation, inability to provide informed consent, etc.) (see Cunningham et al., in press for additional details regarding patient flow). Thus, 16,991 eligible, unique patients presented to the ED on days in which RA's were working. Only 20.5% ($n = 3,498$) were missed by the research staff during their ED presentation, typically because the recruiters were busy with another patient and were not able to talk to them about the study prior to discharge. Thus, 13,493 patients were approached; 2,749 (20.4%) refused and 10,744 (79.6%) consented to participate in screening. Primary refusal reasons included concerned about confidentiality despite NIH certificate of confidentiality, too ill, tired or weak, or in too much pain to participate, and did not want to be involved in research study. Of the refusals, 45.6% were male and 55% were African-American. Participants were

young (mean age=36.4 years, SD=11.5), female (56.1%), African-American (55.6%), had a high school degree or less (63%), had some health insurance including Medicaid and Medicare (77.5%), and were unemployed (53.6%). The study group was similar to the refusals in terms of race and gender.

Rates of IPV

Rate of overall IPV was 8.7%, 7.3% for victimization and 4.4% for aggression. Females (10.3%) were significantly more likely than males (6.7%) to report overall IPV, victimization, and aggression ($p<.0001$). Similarly, females reported significantly more victimization (8.2%) than males (6.1%); and, females (6.0%) reported significantly more aggression than males (2.3%). When comparing victimization and aggression, 3.0% ($n=317$) reported both victimization and aggression, 4.3% victimization only ($n=465$), and 1.4% ($n=154$) aggression only.

Bivariate Comparisons: IPV, Aggression, and Victimization

Table 1 shows bivariate comparisons between overall IPV and demographics, health status and substance use variables. Participants reporting IPV were significantly more likely to be younger, female, African-American, and not married. Regarding socioeconomic factors, although no difference was observed for health insurance, participants reporting IPV had less than college education, were more likely to have an income below \$20,000, and were less likely to be employed than participants not reporting IPV. Regarding health factors, participants reporting IPV were significantly more likely to report feeling downhearted and blue specifically, and to be in the lowest quartile for mental health composite more generally. Although no differences were observed for physical health functioning, participants reporting IPV were more likely to present to the ED for injury (as opposed to medical complaint) than participants without IPV.

Regarding substance use, as compared to participants without IPV, participants reporting IPV were significantly more likely to report prior substance use treatment (past 3 months), tobacco use, and prescription drug use in the past month. Further, when dividing the sample based on substance use patterns, participants in the IPV group were significantly more likely to use alcohol and illicit drugs (marijuana or cocaine) as compared to participants without IPV; the odds ratio's were largest for the alcohol and cocaine, and the alcohol, marijuana, and cocaine group. Similarly, meeting criteria for a substance abuse/dependence diagnoses was significantly related to IPV; odds ratios were largest among participants who met diagnostic criteria for the alcohol and cocaine, and the alcohol, marijuana, and cocaine group.

Table 2 shows parallel, bivariate comparisons for partner aggression (yes/no) and victimization (yes/no) based on demographics, health status, and substance use variables. The pattern of the relationship between partner victimization/aggression and demographic factors was consistent for most variables including age, gender, marital status, and most socio-economic factors. Two unique differences for victimization and aggression were identified; participants reporting victimization were less likely to have college education and participants reporting aggression were significantly more likely to be African-American. Regarding health factors, no differences were observed in victimization and aggression based on physical and mental health; however, participants reporting victimization were significantly more likely to present to the ED with injury, whereas, aggression was not related to current ED visit reason. The pattern of findings for substance use variables did not vary based on aggression or victimization.

Logistic Regression Analyses: IPV, Aggression, and Victimization

Hierarchical logistic regression analyses predicting any IPV, aggression and victimization (based on demographics entered in block 1 and health and substance use entered in block 2)

were significant ($p < .0001$; Table 3). Any IPV was most common among participants who were: younger, female, African-American, unmarried; presenting with an injury, depression, and prior substance abuse treatment; and, who used psychoactive prescription drugs, marijuana, only, alcohol only, alcohol and marijuana, alcohol and cocaine, or alcohol, marijuana, and cocaine. Participants risk for IPV was strongest for users of alcohol and cocaine, followed by alcohol, marijuana, and cocaine users. Correlates of partner aggression and victimization were remarkably similar with a few unique exceptions (Table 3). Victimization was related to being unmarried, with less than a college education, reporting substance use treatment in the past 3 months, and psychoactive prescription drug use. In contrast, unique correlates of aggression were being African-American and tobacco use. Although substance use group was significant for both victimization and perpetration, in general, the odds ratios were more robust for perpetration. Finally, similar regression analyses were conducted among a sub-sample of participants reporting any substance use. Findings were generally similar to findings with the total sample. However, the only two substance use groups that were significantly related to IPV, victimization, and aggression were users of alcohol and cocaine, and alcohol, marijuana, and cocaine users.

Discussion

Given the potential for ED-based interventions to impact IPV due to the notion of such medical visits providing a “teachable moment”, it is imperative to better understand correlates of IPV among a comprehensive portrait of ED patients to inform future intervention development efforts. Findings from this study show that about 9% of male and female patients presenting to the ED for care for any reason (medical or injured) were involved in IPV in the prior year. These rates are on the lower end of the range found in prior ED studies (5–29%) (Cunningham et al., 2003; Dearwater et al., 1998; Houry, et al., 2008; MacMillan et al., 2006; Walton et al., 2007). Further, the rates found in this study are consistent with data from community samples (e.g., 7.8% – 21.5%) (Shafer & Caetano, 1998; Staus, 1990). Variations in rates may reflect measurement differences (for review see Lindhorst & Tajima, 2008), sampling differences (women only as compared to women and men), or definition differences (among the total sample as compared to those with a current or recent partner).

Females were significantly more likely to report IPV (including victimization and aggression) than males. This finding may reflect underreporting among males who fear retribution for admission. It is important to note also that violence severity and subsequent injury may differ by gender and requires further investigation. Socio-demographic factors (e.g., insurance, income, employment, education) were related modestly to IPV in expected directions. Surprisingly, African-Americans were more likely to report IPV than other races. The relationship between ethnicity and IPV is unclear; as noted by Grossman and Lundy (2007), several studies have reported negligible race differences after controlling for socioeconomic status.

Markers of IPV were remarkably similar for victimization and aggression, perhaps reflecting the reciprocal nature of IPV. Although aggression may be exhibited by both partners, it is likely that the motivation behind the violence (e.g., control vs. self-defense) differs by gender and should be further studied. Interesting exceptions were that participants who reported psychoactive prescription drug use and recent substance use treatment were more likely to report victimization than aggression. It may be that victims of violence self-medicate with prescription drugs as a coping strategy; however, this supposition requires further validation. Finally, substance use treatment episodes may provide an opportunity to assess and intervene with violence issues.

The notion that substance use is a potent marker of IPV is not new. However, this study provides a broad examination of alcohol, illicit drugs, and psychoactive prescription drug use, as well as substance use patterns and diagnoses of substance use disorders in a large sample of inner-city ED patients. Any substance use, including tobacco, alcohol, marijuana, cocaine and psychoactive prescription drug use, was related to IPV. Further, participants who report any substance abuse/dependence diagnoses, regardless of specific drug, were more likely to report IPV. This study makes an important contribution to the literature by examining substance use groups, acknowledging differences in participants based on whether they use a single substance, or are poly-substance users, and the specific combinations of substances that they use. Consistent with prior research on violence (Chermack & Blow, 2002; Fals-Stewart, 2003), findings show that participants who reported alcohol and cocaine use were the most likely to report IPV. Overall, both acute intoxication and social/contextual considerations may explain the relationship substance use and IPV. For example, laboratory research demonstrates increased aggression following acute alcohol use in particular, but also with cocaine use (Chermack & Giancola, 1997). Prior research also shows that women who abuse substances are likely to have a substance abusing partner (Grisso et al., 1999; Gombert 1993; Kyriacou et al., 1999), that substance use among men is associated with increase risk for IPV (Chermack, Walton, Fuller, Blow, 2001), and that women's substance use is viewed by partners as an excuse to justify violence (Leonard, 2001).

Although IPV was not related to overall physical health in this relatively young ED sample, current ED visit reason was significantly related to IPV, with injured patients being more likely to report IPV than medical patients, even when controlling for other factors. Finding regarding the relationship between IPV and depression is consistent with prior research from substance abuse treatment and ED samples showing that psychiatric distress is associated with IPV (15 Houry et al., 2007, Lipsky et al., 2005; Walton et al., 2007). Participants reporting depression were twice as likely to have experienced IPV in the past year, controlling for other factors. Inclusion of this depression questions in routine screenings would indicate patients in need of additional assessment for IPV. Although the causal direction of the relationship between IPV and depression or poor mental health functioning can not be determined in this study, theoretically, it is possible that distress is both a precipitant and a result of IPV (Briere & Jordan, 2004).

Despite mandates from the Joint Commission on Accreditation of Healthcare Organizations (JACHO) recommending screening all women for IPV, there are limitations to this in practice including lack of questioning of medical patients, and one in five injured women are not assessed for IPV (Bonsal et al., 2007). Although the development of brief single- or multi-item measures has reduced time/feasibility concerns, barriers to routine IPV screening in the ED include methodology (e.g., asking in the presence of the abusing partner), concerns by patients (e.g., fear from patients regarding police involvement and retaliation), and concerns by staff (e.g., feeling inadequate to address IPV) (for a review see Ernst & Weiss, 2002). A recent study alleviates some of these concerns, as IPV did not increase following ED screening; further, a third of women sought community resources within three months post ED screening (Houry et al., 2008). Data from this study suggest that referral approaches should include information on substance use and mental health functioning, given the correlation between these factors and IPV. Referral menu approaches could be standardized for both men and women, to allow for gender differences in interest in services. For example, men are clearly not appropriate for referrals to domestic violence shelters, but may be amenable to other substance use or mental health services. It may be particularly important to address concomitant substance use given evidence that reduced substance use following treatment is related to reduced aggression (O'Farrell et al., 2003; O'Farrell et al., 2004; Walton et al., 2002). A recent meta-analysis of brief alcohol interventions in the ED concluded these approaches effectively reduce alcohol-related consequences (Harvard et al., 2008). Alternatively, motivational enhancement

approaches (Miller and Rollnick, 2002; Dunn, Deroo, Rivara, 2001) could be used to increase referral compliance, given data shows that such approaches increase engagement and retention in substance use treatment (De Leon, 1996; Joe et al., 1998). ED-based brief interventions approaches for alcohol and other drug use should consider assessing and intervening for IPV.

Limitations of this study require acknowledgement and include the fact that IPV was measured using very brief computerized screening questions; more lengthy approaches may find higher rates of IPV. Next, given our setting, an inner city ED, findings may not generalize to ED's located in suburban or rural settings. Findings require replication with patients presenting during midnight shifts. Further, although no data was collected from significant others to corroborate IPV, validity of self-report is increased in research where no consequences occur as a result of admission (see Darke, 1998). Findings from this study may not generalize to rural or suburban settings. Additional studies should be conducted in communities with greater concentrations of people of Hispanic/Latino ethnicity. Future longitudinal studies are needed that employ timeline calendar techniques (Chermack & Blow, 2002; Fals-Stewart, 2003) to elucidate the role of acute substance consumption and IPV. Finally, future ED-based studies should examine gender differences in IPV based on motivation (control, defensive, result of escalatory processes) to better inform screening and intervention efforts.

Despite these limitations, to our knowledge this is the first detailed examination of demographic, health, and substance use correlates of IPV among a comprehensive sample of ED patients (medical and injured). Clinically, results further justify routine screening of all ED patients for IPV, especially patients with poor mental health or substance use. The use of brief screens administered by computer increase the translation of protocols for detecting patients in need of a variety of healthcare services (e.g., violence prevention, mental health, and substance use treatment). The interrelationship among mental health, substance use, and violence problems needs to be considered when developing referral guidelines and potential intervention approaches for IPV. Future studies should develop and test the effectiveness of brief interventions and referrals for IPV and related problems among both males and females in the ED.

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Table 1

Bivariate Comparisons of IPV Based on Demographic, Health Status, and Substance Use (n=10,744).

Variables	Any IPV (n=936)	None (n=9808)	OR (95% CI)
	M(SD)	M(SD)	
Age ^I	31.6 (9.93)	36.8 (11.58)	
	%	%	
Female ^I	66.2	55.1	1.60 (1.39, 1.84)
Black or African-American ^{2/a}	61.1	55.1	1.28 (1.12, 1.47)
Married or Living Together ^I	23.2	32.9	0.61 (0.53, 0.72)
Some College or College Grad ^I	30.5	37.5	0.73 (0.63, 0.84)
With Health Insurance ^a	75.0	77.7	0.86 (0.73, 1.00)
Annual Income < \$20,000 ^{1/a}	78.6	64.5	2.02 (1.66, 2.46)
Employed ^{1/a}	38.6	47.1	0.71 (0.62, 0.81)
Current Visit Injury-related ³	31.8	26.9	1.27 (1.10, 1.47)
PHQ-Evidence of Depression ^I	39.4	20.4	2.54 (2.20, 2.92)
SF12 Physical ≤ 25th Percentile	24.6	25.0	0.98 (0.83, 1.14)
SF12 Mental ≤ 25th Percentile ^I	46.9	22.9	2.97 (2.59, 3.41)
Substance Use Treatment (Past 3 Months) ^I	7.8	3.8	2.12 (1.63, 2.74)
Tobacco Use (Past 30 Days) ^I	68.6	53.1	1.93 (1.67, 2.23)
Psychoactive Prescription Use (Past 30 Days) ^I	20.4	13.9	1.59 (1.35, 1.89)
<u>Substance Use Group (Past 30 Days)^I</u>			
Marijuana Only *	7.1	4.7	2.64 (1.98, 3.51)
Alcohol Only *	28.4	30.0	1.68 (1.41, 2.01)
Cocaine Only *	0.6	0.3	3.84 (1.58, 9.33)
Alcohol and Marijuana *	25.0	12.4	3.57 (2.96, 4.30)
Alcohol and Cocaine *	4.9	1.2	7.43 (5.16, 10.68)
Marijuana and Cocaine *	0.3	0.3	2.23 (0.67, 7.43)
Alcohol, Marijuana and Cocaine *	5.8	1.8	5.79 (4.17, 8.06)
<u>Substance Abuse/Dependence Group^I</u>			
Marijuana A/D *	5.0	1.9	3.84 (2.76, 5.35)
Alcohol A/D *	16.2	6.9	3.35 (2.75, 4.07)
Cocaine A/D *	1.9	1.1	2.56 (1.54, 4.26)
Alcohol and Marijuana A/D *	6.5	1.9	4.80 (3.55, 6.49)
Alcohol and Cocaine A/D *	5.5	1.1	6.81 (4.84, 9.59)
Marijuana and Cocaine A/D *	0.3	0.1	3.21 (0.92, 11.18)
Alcohol, Marijuana, and Cocaine A/D *	4.2	0.8	7.78 (5.23, 11.56)

Percentages used in the table are column percentages;

M= mean, SD= Standard deviation.

^a Some subjects did not respond or skipped this question;

* Reference category = 'No Substance Use';

¹
p<0.0001

²
p<0.001

³
p<0.01

Table 2

Bivariate Comparisons of Partner Victimization and Aggression Based on Demographic, Health Status, and Substance Use (n=10,744).

Variable	Victimization			Aggression		
	Yes (n=782)	No (n=9962)		Yes (n=471)	No (n=10273)	
	M(SD)	M(SD)		M(SD)	M(SD)	
Age	31.5 (10.0)	36.7 (11.6) ¹		30.7 (9.4)	36.6 (11.6) ¹	
	(%)	(%)	OR(95%CI)	(%)	(%)	OR (95% CI)
Female	63.4	55.5 ¹	1.39 (1.19, 1.62)	76.9	55.1 ¹	2.70 (2.17, 3.36)
Black or African-American ^a	59.0	55.3	1.16 (1.00, 1.35)	67.3	55.0 ¹	1.68 (1.38, 2.05)
Married or Living Together	22.1	32.9 ¹	0.58 (0.49, 0.69)	23.1	32.5 ¹	0.63 (0.50, 0.78)
Some College or College Grad	28.3	37.6 ¹	0.65 (0.56, 0.77)	32.5	37.1	0.82 (0.67, 0.99)
With Health Insurance ^a	74.7	77.7	0.84 (0.71, 1.00)	77.9	77.5	1.02 (0.82, 1.28)
Annual Income < \$20,000 ^a	77.3	64.8 ¹	1.85 (1.49, 2.29)	82.4	64.9 ¹	2.54 (1.90, 3.38)
Employed ^a	38.6	47.0 ¹	0.71 (0.61, 0.82)	37.7	46.8 ²	0.69 (0.57, 0.83)
Current Visit is Injury Related	33.0	26.9 ²	1.34 (1.15, 1.56)	30.8	27.2	1.19 (0.98, 1.46)
PHQ-Evidence of Depression	38.0	20.8 ¹	2.33 (2.00, 2.71)	43.3	21.1 ¹	2.86 (2.37, 3.45)
SF12 Physical ≤ 25th Percentile	24.7	25.0	0.98 (0.83, 1.16)	23.6	25.1	0.92 (0.74, 1.15)
SF12 Mental ≤ 25th Percentile	46.6	23.3 ¹	2.87 (2.47, 3.32)	51.0	23.8 ¹	3.32 (2.76, 4.01)
Substance Use Treatment (Past 3 Months)	8.3	3.9 ¹	2.26 (1.72, 2.96)	6.8	4.1 ³	1.72 (1.18, 2.49)
Tobacco Use (Past 30 Days)	69.2	53.3 ¹	1.97 (1.68, 2.30)	70.3	53.7 ¹	2.04 (1.67, 2.49)
Psychoactive Prescription Use (Past 30 Days)	20.5	14.0 ¹	1.59 (1.32, 1.90)	19.5	14.2 ³	1.47 (1.16, 1.85)
<u>Substance Use Group (Past 30 Days)¹</u>						
Marijuana Only [*]	7.3	4.8	2.79 (2.05, 3.79)	6.2	4.9	2.70 (1.77, 4.11)
Alcohol Only [*]	28.5	29.9	1.74 (1.43, 2.11)	32.3	29.7	2.33 (1.81, 2.99)
Cocaine Only [*]	0.8	0.3	4.80 (1.97, 11.69)	0.6	0.3	4.38 (1.32, 14.53)
Alcohol and Marijuana [*]	24.8	12.6	3.58 (2.92, 4.39)	25.7	13.0	4.25 (3.25, 5.55)
Alcohol and Cocaine [*]	5.4	1.2	8.19 (5.61, 11.95)	5.7	1.3	9.42 (5.97, 14.85)
Marijuana and Cocaine [*]	0.3	0.3	1.79 (0.42, 7.57)	0.4	0.3	3.59 (0.84, 15.34)

Variable	Victimization		Aggression			
	Yes (n=782)	No (n=9962)	Yes (n=471)	No (n=10273)		
Alcohol, Marijuana and Cocaine*	6.0	1.8	6.06 (4.27, 8.59)	1.9	7.12 (4.63, 10.93)	
Substance Abuse/Dependence Group ^L						
Marijuana A/D*	5.2	1.9	4.00 (2.82, 5.68)	5.9	2.0	4.60 (3.04, 6.95)
Alcohol A/D*	15.9	7.1	3.23 (2.61, 4.00)	20.2	7.2	4.28 (3.35, 5.47)
Cocaine A/D*	2.1	1.1	2.76 (1.62, 4.70)	1.9	1.1	2.62 (1.31, 5.22)
Alcohol and Marijuana A/D*	6.9	2.0	5.05 (3.69, 6.92)	7.0	2.1	5.02 (3.41, 7.38)
Alcohol and Cocaine A/D*	5.6	1.2	6.81 (4.76, 9.75)	5.7	1.3	6.58 (4.28, 10.12)
Marijuana and Cocaine A/D*	0.4	0.1	3.95 (1.13, 13.79)	0.0	0.2	–
Alcohol, Marijuana, and Cocaine A/D*	4.6	0.8	8.51 (5.67, 12.77)	3.2	1.0	5.02 (2.88, 8.76)

Percentages used in the table are column percentages;

M= mean, SD= Standard deviation.

^a Some subjects did not respond or skipped this question;

* Reference category = 'No Substance Use';

¹ p<0.0001;

² p<0.001;

³ p<0.01;

Table 3

Parallel Logistic Regression Analysis for Any Partner Violence, Partner Victimization or Partner Aggression by Demographics, Health Status, and Substance Use Group.

Variable	Any Partner Violence*			Victimization*			Aggression*		
	OR	95% CI	CI	OR	95% CI	CI	OR	95% CI	CI
Demographics									
Age	0.96 ^I	0.95	0.97	0.96 ^I	0.95	0.97	0.95 ^I	0.94	0.96
Female	1.97 ^I	1.68	2.30	1.73 ^I	1.47	2.04	3.36 ^I	2.66	4.26
Black or African-American	1.37 ^I	1.18	1.59	1.21	1.03	1.42	1.87 ^I	1.51	2.32
Married or Living Together	0.78 ³	0.66	0.92	0.72 ²	0.60	0.87	0.85	0.68	1.07
Some College or College Grad	0.87	0.75	1.02	0.78 ³	0.66	0.93	0.97	0.78	1.20
Employed	0.88	0.75	1.02	0.88	0.74	1.03	0.87	0.71	1.08
Health and Substance Use									
Current Visit is Injury Related	1.45 ^I	1.24	1.70	1.47 ^I	1.24	1.73	1.52 ²	1.22	1.88
PHQ-Evidence of Depression	2.20 ^I	1.89	2.57	1.99 ^I	1.68	2.35	2.38 ^I	1.94	2.93
Substance Use Treatment (Past 3 Months)	1.50 ³	1.12	2.00	1.56 ³	1.15	2.10	1.22	0.81	1.86
Tobacco Use (Past 30 Days)	1.28 ³	1.09	1.50	1.24	1.04	1.48	1.38 ³	1.10	1.73
Psychoactive Prescription Drug Use (Past 30 Days)	1.41 ²	1.17	1.69	1.40 ²	1.15	1.70	1.29	1.00	1.67
Substance Use Group (Past 30 Days)**									
Marijuana Only	2.04 ^I	1.51	2.76	2.10 ^I	1.53	2.90	2.11 ²	1.36	3.28
Alcohol Only	1.68 ^I	1.40	2.02	1.70 ^I	1.39	2.08	2.42 ^I	1.86	3.15
Cocaine Only	2.89	1.13	7.40	3.66 ³	1.43	9.32	3.40	0.96	12.05
Alcohol and Marijuana	2.79 ^I	2.27	3.43	2.69 ^I	2.15	3.37	3.48 ^I	2.59	4.67
Alcohol and Cocaine	6.81 ^I	4.58	10.13	7.27 ^I	4.83	10.94	9.56 ^I	5.77	15.84
Marijuana and Cocaine	1.64	0.47	5.67	1.24	0.28	5.42	3.24	0.72	14.67
Alcohol, Marijuana and Cocaine	4.65 ^I	3.24	6.68	4.61 ^I	3.15	6.74	6.66 ^I	4.14	10.73

Model Statistics: Any IPV; Block 1 χ^2 (6) = 294.1, $p < .0001$; Block 2- χ^2 (12) = 442.5, $p < .0001$; Full Model χ^2 (18) = 736.6, $p < .0001$.

Victimization: Any; Block 1 χ^2 (6) = 239.4, $p < .0001$; Block 2- χ^2 (12) = 358.2, $p < .0001$; Full Model χ^2 (18) = 597.6, $p < .0001$.

Perpetration: Any: Block 1 $\chi^2(6) = 259.5$ $p < .0001$; Block 2 – $\chi^2(12) = 314.5$, $p < .0001$; Full Model $\chi^2(18) = 573.9$, $p < .0001$.

* Reference category = 'No Partner Violence'

** Reference category = 'No Substance Use'

¹ $p < 0.0001$;

² $p < 0.001$;

³ $p < 0.01$.

Table 4

Parallel Logistic Regression Analysis for Any Partner Violence, Partner Victimization or Partner Aggression by Demographics, Health Status, and Substance Use Group among Participants reporting any Substance Use in the Past Month.

Variable	Any Partner Violence*			Victimization*		
	OR	95% CI	OR	95% CI	OR	95% CI
Demographics						
Age	0.96 ^I	0.95	0.97	0.96 ^I	0.95	0.97
Female	2.11 ^I	1.76	2.53	1.87 ^I	1.54	2.27
Black or African-American	1.32 ³	1.10	1.58	1.16	0.96	1.41
Married or Living Together	0.77	0.63	0.94	0.72 ³	0.58	0.89
Some College or College Grad	0.89	0.73	1.08	0.82	0.67	1.01
Employed	0.91	0.76	1.09	0.90	0.74	1.10
Health and Substance Use						
Current Visit is Injury Related	1.44 ²	1.20	1.74	1.50 ^I	1.24	1.83
PHQ-Evidence of Depression	2.18 ^I	1.81	2.62	2.05 ^I	1.68	2.50
Substance Use Treatment (Past 3 Months)	1.34	0.96	1.89	1.36	0.95	1.94
Tobacco Use (Past 30 Days)	1.36 ³	1.11	1.67	1.31	1.05	1.63
Psychoactive Prescription Drug Use (Past 30 Days)	1.19	0.96	1.49	1.15	0.91	1.46
Substance Use Group (Past 30 Days)**						
Alcohol Only	0.80	0.60	1.09	0.79	0.57	1.08
Cocaine Only	1.42	0.54	3.73	1.79	0.68	4.72
Alcohol and Marijuana	1.37	1.01	1.86	1.28	0.92	1.77
Alcohol and Cocaine	3.28 ^I	2.07	5.20	3.48 ^I	2.16	5.61
Marijuana and Cocaine	0.82	0.23	2.90	0.61	0.14	2.72
Alcohol, Marijuana and Cocaine	2.32 ²	1.52	3.56	2.27 ²	1.45	3.55

Model Statistics: Any IPV: Block 1 χ^2 (6) = 199.8, $p < .0001$; Block 2- χ^2 (11) = 222.9, $p < .0001$; Full Model χ^2 (17) = 422.7, $p < .0001$.

Victimization: Any: Block 1 χ^2 (6) = 163.8, $p < .0001$; Block 2- χ^2 (11) = 187.9, $p < .0001$; Full Model χ^2 (17) = 351.7, $p < .0001$.

Perpetration: Any: Block 1 χ^2 (6) = 216.3, $p < .0001$; Block 2- χ^2 (11) = 135.9, $p < .0001$; Full Model χ^2 (17) = 352.2, $p < .0001$.

* Reference category = 'No Partner Violence'

Reference category = Marijuana Only'
¹ p< 0.0001;
² p<0.001;
³ p< 0.01.