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## Prior Substance Abuse and Related Treatment History Reported by Recent Victims of Sexual Assault

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### Abstract

To inform intervention approaches, the current study examined prevalence and comorbidity of recent use and history of abuse of alcohol, marijuana, and other illicit drugs as well as history of substance treatment among a sample of female victims of sexual assault seeking post-assault medical care. Demographic variables and prior history of assault were also examined to further identify factors relevant to treatment or prevention approaches. Participants were 255 women and adolescent girls seeking post sexual assault medical services who completed an initial follow-up assessment on average within 3 months post-assault. The majority (72.9%) reported recent substance use prior to assault, approximately 40% reported prior substance abuse history, and 12.2% reported prior substance treatment history. Prior history of assault was associated with recent drug use and history of drug abuse as well as substance treatment. Among those with prior histories of substance abuse and assault, assault preceded substance abuse onset in the majority of cases. Almost all those with prior treatment history reported recent drug or alcohol use. A portion of sexual assault survivors seen for acute medical services may benefit from facilitated referral for substance abuse treatment in addition to counseling at the time of screening. Assessment and intervention approaches should target alcohol, marijuana, and other illicit drug use and abuse. Substance use and associated impairment may serve as a rape tactic by perpetrators of assault. Substance use at the time of assault does not imply blame on the part of assault victims. Previous findings indicate that rape poses high risk of PTSD particularly among women with prior history of assault. Screening and intervention related to substance abuse should be done with recognition of the increased vulnerability it may pose with regard to assault and the high risk of PTSD within this population.

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## Keywords

rape; drug abuse; alcohol abuse; screening; referral; treatment

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## 1. Introduction

Substance-related sexual assault is a significant problem in the United States. Data from representative studies suggest that three million U.S. women have experienced drug incapacitated rape (i.e., rape following voluntary intoxication that results in loss of consciousness or inability to control behavior; Kilpatrick et al., 2007) and an estimated 2.6 million have experienced drug facilitated rape (i.e., following intoxication and incapacitation due to use of substances administered or facilitated by an assailant). Adult incapacitated rape victims have reported higher recent (McCauley et al., 2010) and adolescent (Testa et al., 2003) substance use. Longitudinal research suggests that relations between sexual assault and substance use and abuse are reciprocal in nature, such that prior assault increases risk for substance use and abuse, and substance use and abuse increases risk for assault (Kaysen et al., 2006; Kilpatrick et al., 1997; Testa et al., 2007).

Approximately 21% to 26.2% of rape victims age 18 or older report seeking post-assault medical care (Resnick et al., 2000; Zinzow et al., 2012) typically within 72 hours of the assault (Logan et al., 2007). Thus, the emergency department represents a potentially important point of contact for screening and referral to interventions for substance abusing patients (Blow et al., 2010). In a recent study with women presenting to the emergency room for a rape-related medical exam, 54% reported alcohol use and 12% reported marijuana use at the time of assault (Resnick et al., 2012). Use of alcohol or marijuana at the time of assault was related to use in the 6 weeks preceding assault and predicted use of each respective substance over the six-month follow-up. Thus, some victims of substance-related sexual assault may have pre-existing substance problems that are not adequately assessed or treated.

### 1.1 Current Study

The present study builds on Resnick and colleagues' (2012) findings by more fully characterizing the pre-assault substance abuse, treatment, and prior victimization histories of women presenting to the emergency room for a rape-related medical exam. The previous report (Resnick et al., 2012) examined associations between two indicators of recent use of alcohol and marijuana only (at time of assault and in six weeks preceding assault). In addition, effects of use at time of assault and *combined* indices of recent marijuana or alcohol use (at time of assault *or* in six weeks preceding assault), as well as a brief psycho-educational intervention on *post-assault* use and abuse of alcohol and marijuana were described. The current study includes report of recent use of *other illicit drugs* as well as alcohol or marijuana and the comorbid pattern of recent use. In contrast to previous publications addressing substance use and abuse (Resnick et al., 2007; 2012), the current paper examines reported *pre-assault* history of substance abuse and substance treatment, as well as associations between these variables with prior history of assault and combined indices of recent use (at time of incident or in six weeks preceding assault) of alcohol, marijuana, and other illicit drugs. Elucidating these patterns of use as well as history of abuse and prior assault is important to further identify factors relevant to assessment, treatment, and/or referral strategies that may be implemented at the time of the medical exam. Data related to order of onset of substance abuse relative to age of prior assault victimization are also presented. Because the current report is focused on historical variables restricted to pre-assault or assault time frames, potential effects of intervention were not examined.

## 2. Methods

### 2.1 Participants

Participants were 442 female sexual assault victims age 14 or older who sought post-assault medical services at an academic medical center. Of these, 406 comprised 159 participants in a standard care condition and 247 who watched a brief psycho-educational video as randomly assigned.<sup>1</sup> Women provided informed consent; adolescent girls with consent of parent or legal guardian provided assent. Procedures were approved by the Institutional Review Board. Individuals who could not provide informed consent to participate (e.g., those with mental retardation or serious injury) were ineligible. Women assigned to the non-video condition or those assigned to the video condition and watched and who completed one or more follow-up interview assessments (Resnick et al., 2007) were included in current analyses (66%;  $n = 268$ ). All those completing follow-up were age 15 or older. Minority participants were less likely to complete follow-up assessment than non-minority participants (60.2% vs. 70.2%)  $\chi^2(1, n = 406) = 4.39, p < .05$ . Study assessments were conducted between 1997 and 2005. Data analyses for this report were conducted in 2012.

The sample was restricted to 255 participants with complete data on all key variables. Average age of participants was 26.23 years ( $SD = 10.33$ ). The sample was 62.7% ( $n = 160$ ) White, 36.5% ( $n = 93$ ) African American, and 0.8% ( $n = 2$ ) Asian. There were no differences in age and race within the subsample of 255 relative to the previously described sample of 268. For subsequent analyses, race/ethnicity was classified as minority ( $n = 95$ ) or non-minority ( $n = 160$ ).

### 2.2 Measures

Information gathered at the time of the medical exam included demographics and self-reported use of drugs or alcohol at time of assault. At initial follow-up, a structured clinical interview (*Sexual Assault Interview*) was used to collect data regarding lifetime victimization as well as lifetime and recent substance use and abuse (based on DSM-IV criteria, American Psychiatric Association, 1994) and lifetime substance treatment. Substance use, abuse, and assault history sections were developed and evaluated in prior epidemiological studies (Kilpatrick et al., 1997; Kilpatrick et al., 2000).

**2.2.1 Recent substance use**—Participants who reported alcohol, marijuana, or other illicit drug use (e.g., cocaine) at the time of assault *or* those who reported consuming four or more drinks in a day *or any* use of marijuana or other illicit drugs in the 6 weeks prior to assault were considered recent users.

**2.2.2 Pre-assault substance abuse**—Participants who reported substance use associated with: 1) problems at work, home, or school, 2) physically dangerous situations, 3) substance-related legal problems, or 4) continued use despite persistent interpersonal problems associated with use that occurred either: with onset age earlier than age at index assault or within the 6 weeks prior to assault were considered to have pre-assault substance abuse.

**2.2.3 Pre-assault substance treatment**—Participants were asked whether they had ever sought and received treatment for a drug or alcohol problem, whether treatment

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<sup>1</sup>Of the 442 participants recruited, 36 were assigned to a video condition but chose not to watch, or watched half or less of content. Of these 36, 20 completed at least one follow-up assessment and 17 provided information about substance treatment, use, and abuse history. We report here on the sample of 255/268 with complete history data who also participated in the intervention if assigned, rather than the intent to treat sample of 272/288 who completed follow-up regardless of participation, to allow for comparability with other reports. Data were re-analyzed including these 17 cases and the pattern of findings did not differ.

received was inpatient or outpatient, and their age when they first received treatment. Participants who ever received treatment for a substance problem (either alcohol or drugs), and who first received treatment at an age prior to their age at index assault, were considered positive for pre-assault substance treatment.

**2.2.4 Prior assault**—Questions from the National Women’s Study interview (e.g., see Resnick et al., 1993, p. 986) were used to assess incidents of previous vaginal, anal, or digital rape or physical attacks by someone who intended to seriously injure or kill the participant, or attacks with a weapon or that resulted in injury.

**2.2.5 Order of onset of substance abuse relative to prior assault history**—Earliest age of reported onset of alcohol, marijuana, and other illicit drug of abuse as well as earliest age of any substance abuse was examined in conjunction with reported onset age of prior assault to develop indicators of whether specific type of substance abuse and any substance abuse occurred before onset age of prior assault, at same age as prior assault, or following onset age at first assault.

### 2.3 Procedures

Women presenting at the hospital for a post-sexual assault forensic examination were assessed by trained project assistants regarding their ability to provide informed consent. Women were randomly assigned to a brief intervention condition or standard care. The current paper focuses on information reported at the medical exam and historical information from first follow-up interview and does not focus on intervention condition. Initial follow-up interviews were completed an average of 72.95 days post-assault ( $SD = 80.61$ ) by a study coordinator blind to treatment condition. More detailed description of the sample and study procedures is provided in previous reports (Resnick et al., 2007; 2012).

## 3. Results

### 3.1 Descriptive characteristics

**3.1.1 Recent substance use**—In the 6 weeks prior to or at time of assault, 27.1% ( $n = 69$ ) reported no substance use; 35.7% ( $n = 91$ ) reported alcohol use only; 5.9% ( $n = 15$ ) reported marijuana use only, 0.8% ( $n = 2$ ) reported other illicit drug use only, 18.8% ( $n = 48$ ) reported using alcohol and marijuana, 3.9% ( $n = 10$ ) reported using alcohol plus other illicit drugs, 0.8% ( $n = 2$ ) reported using marijuana plus other illicit drugs, and 7.1% ( $n = 18$ ) reported using alcohol, marijuana, and other illicit drugs.

**3.1.2 Pre-assault substance abuse history**—Approximately 59.6% ( $n = 152$ ) did not report a prior history of abuse; 18.4% ( $n = 47$ ) reported alcohol abuse only; 2% ( $n = 5$ ) reported marijuana abuse only, 3.5% ( $n = 9$ ) reported other illicit drug abuse only, 6.3% ( $n = 16$ ) reported alcohol and marijuana abuse, 4.3% ( $n = 11$ ) reported alcohol and other illicit drug abuse, 0.8% ( $n = 2$ ) reported marijuana and other illicit drug abuse, and 5.1% ( $n = 13$ ) reported alcohol, marijuana, and other illicit drug abuse. Mean age of reported alcohol abuse onset was 18.1 ( $SD = 4.4$ ); mean age of marijuana abuse onset was 16.4 ( $SD = 3.3$ ); mean age of other illicit drug onset was 21.5 ( $SD = 7.1$ ).

**3.1.3 Pre-assault substance treatment**—Of the total sample ( $N = 255$ ), 12.2% of participants ( $n = 31$ ) had received substance treatment, 9.8% ( $n = 25$ ) received drug treatment, 8.6% ( $n = 22$ ) received alcohol treatment. Among those who had received treatment, 29.0% ( $n = 9$ ) received drug treatment only, 19.4% ( $n = 6$ ) received alcohol treatment only, and 51.6% ( $n = 16$ ) received both drug and alcohol treatment. Further, 22.6% ( $n = 7$ ) received inpatient treatment, 25.8% ( $n = 8$ ) received outpatient treatment, and

51.6% ( $n = 16$ ) received both. Mean age of first substance treatment was 23.4 years ( $SD = 8.7$ ).

**3.1.4 Prior assault**—Approximately 58.8% ( $n = 150$ ) reported a prior assault. Mean reported age of onset of prior assault was 14.2 years ( $SD = 7.8$ ).

### 3.2 Recent use by substance abuse history

Women who reported recent alcohol use (use at time of assault or in 6 weeks prior) were more likely to report prior alcohol abuse,  $\chi^2(1, n = 255) = 44.6, p < .001$ . Specifically, 48.5% ( $n = 81$ ) of those with recent use had an alcohol abuse history compared with 6.8% ( $n = 6$ ) of those without recent use. Conversely, 81/87 (93.1%) of those with an alcohol abuse history reported recent alcohol use prior to assault. Similarly, 33.7% ( $n = 28$ ) of women with recent marijuana use reported a history of marijuana abuse compared with 4.7% ( $n = 8$ ) of women without recent use,  $\chi^2(1, n = 255) = 39.1, p < .001$ . Conversely, 28/36 (77.8%) of those with prior marijuana abuse were recent marijuana users. Finally, 50.0% ( $n = 16$ ) of women with recent other illicit drug use reported a history of other illicit drug abuse compared with 8.5% ( $n = 19$ ) of women without recent use,  $\chi^2(1, n = 255) = 40.7, p < .001$ . Conversely, 16/35 (45.7%) of those with prior history of other illicit drug abuse were recently using.

### 3.3 Recent substance use and prior substance abuse by prior substance treatment

Among those reporting prior substance treatment, 30/31 (96.8%) reported recent use of alcohol or drugs. With regard to specific recent substance use, 90%, 61%, and 32% of those with a substance treatment history reported recent alcohol, marijuana, and other illicit drug use, respectively. Prevalence of prior substance treatment as a function of different patterns of substance use and abuse and results of chi-square analyses is presented in Table 1.

### 3.4 Recent substance use, substance abuse history, and substance treatment by prior assault

Victims with recent marijuana and/or other illicit drug use were significantly more likely to have a prior assault history compared to victims without such recent use or victims whose recent use only involved alcohol (see Table 2). A similar pattern was observed with regard to risk of prior assault among those with prior marijuana or other illicit drug abuse. In addition, those with prior substance treatment were significantly more likely to have experienced a prior assault.

### 3.5 Order of onset of substance abuse relative to prior assault history

Of 57 participants who reported prior alcohol abuse and prior assault, alcohol abuse preceded onset age of victimization history in 26.3% of cases, occurred at the same age in 17.5%, and occurred after victimization in 56.1%. Age of first assault differed significantly as a function of order of onset of alcohol abuse,  $F(2, 54) = 30.1, p < .001$ . Post hoc Scheffe test indicated that those who reported assault victimization prior to alcohol abuse onset ( $M = 10.03, SD = 4.64$ ) were significantly younger than those who reported alcohol abuse at the same age as assault ( $M = 16.90, SD = 2.51$ ) and those with alcohol abuse that preceded victimization history ( $M = 22.07, SD = 6.92$ ), all  $p < .01$ . The latter two groups did not differ from each other.

Of 27 participants who reported prior marijuana abuse and prior assault, marijuana abuse preceded onset age of victimization history in 14.8% of cases, occurred at the same age in 25.9%, and occurred after victimization in 59.3%. Age of first assault differed significantly as a function of order of onset of marijuana abuse,  $F(2, 24) = 8.05, p < .001$ . Post hoc

Scheffe test indicated that those who reported assault victimization prior to marijuana abuse onset (mean age = 11.38,  $SD = 4.67$ ) were significantly younger at first assault than those with marijuana abuse that preceded victimization history (mean age = 20.00,  $SD = 5.10$ ),  $p < .01$ , and neither of these groups differed from those who reported marijuana abuse at the same age as assault (mean age = 16.00,  $SD = 1.53$ ).

Of 26 participants who reported prior other illicit drug abuse and prior assault, other drug abuse preceded onset age of victimization history in 11.5% of cases, occurred at the same age in 15.4%, and occurred after victimization in 73.1%. Age of first assault differed significantly as a function of order of onset of other drug abuse,  $F(2, 23) = 13.56$ ,  $p < .001$ ). Post hoc Scheffe test indicated that those who reported assault victimization prior to other drug abuse onset (mean age = 12.32,  $SD = 5.14$ ) and those who reported other drug abuse at same age as victimization (mean age = 16.00,  $SD = 1.53$ ) were significantly younger than those with other drug abuse that preceded victimization history (mean age = 27.00,  $SD = 0.0$ ),  $p < .01$ . Those with same age onset and those whose assault preceded other drug abuse onset did not differ from each other.

Of 68 participants who reported prior substance abuse of any type and prior assault, substance abuse preceded onset age of victimization history in 25.9% of cases, occurred at the same age in 19.1%, and occurred after victimization in 55.9%. Age of first assault differed significantly as a function of order of onset of substance abuse,  $F(2, 65) = 37.57$ ,  $p < .001$ ). Post hoc Scheffe test indicated that those who reported assault victimization prior to any substance abuse onset ( $M = 10.26$ ,  $SD = 4.79$ ) were younger than those who reported substance abuse onset at same age as victimization ( $M = 16.77$ ,  $SD = 2.28$ ) and both of these groups on average were significantly younger than those with substance abuse that preceded victimization history ( $M = 22.65$ ,  $SD = 6.68$ ),  $p < .01$ .

Age at onset of specific types of substance abuse or any substance abuse did not differ as a function of order of onset relative to onset age of prior assault. In addition, among all those with specific types of substance abuse and any type of substance abuse, age of onset of substance abuse did not differ as a function of having a prior assault history as opposed to no prior history of assault.

### 3.6 Associations with age and race

Current age was unrelated to recent alcohol use or prior history of alcohol abuse. Participants with recent alcohol use were *less* likely to report minority race/ethnicity than non-users (24.6% vs. 61.4%),  $\chi^2(1, n = 255) = 33.4$ ,  $p < .001$ . Similarly, those with prior history of alcohol abuse were *less* likely to report minority race/ethnicity (17.2% vs. 47.6%),  $\chi^2(1, n = 255) = 22.63$ ,  $p < .001$ . Participants with recent marijuana use were likely to be younger ( $M = 23.1$ ,  $SD = 7.8$ ) than participants without recent use ( $M = 27.8$ ,  $SD = 11$ ),  $F(1, 253) = 12.1$ ,  $p < .001$ . Recent marijuana users were also *less* likely to report minority race/ethnicity than those without recent marijuana use (20.5% vs. 45.3%),  $\chi^2(1, n = 255) = 14.8$ ,  $p < .001$ . Those with marijuana abuse were younger ( $M = 22.31$ ,  $SD = 8.09$ ) than those without abuse ( $M = 26.9$ ,  $SD = 10.5$ ),  $F(1, 253) = 6.2$ ,  $p < .05$  and were also *less* likely to report minority race/ethnicity than non-abusers (13.9% vs. 41.1%), ( $\chi^2(1, n = 255) = 9.79$ ,  $p < .01$ ). Participants reporting recent use of other illicit drugs or prior history of abuse of other illicit drugs did not differ in terms of either current age or race. Victims with prior history of assault ( $M = 27.87$ ,  $SD = 10.37$ ) were older than those without a prior history (mean age = 23.90,  $SD = 9.84$ ),  $F(1, 253) = 9.4$ ,  $p < .01$ ) but did not differ in terms of race. Those with history of substance treatment did not differ in terms of age or race.

## 4. Discussion

The current study found that the majority of participating sexual assault victims (73%) used one or more substances either in the six weeks prior to the assault or at time of the incident. Half of all recent alcohol and other illicit drug users and one third of marijuana users met substance-specific abuse criteria *prior to* the rape incident for which they were receiving medical services. Forty percent of all victims met any substance abuse criteria, regardless of recent use. Finally, 12% reported prior formal substance treatment history. Thus, consistent with efficacy findings related to screening, brief intervention, and referral to treatment (SBIRT) approaches related to substance abuse within broader emergency department and other health care seeking populations (Madras et al., 2009), sexual assault survivors may benefit from SBIRT at the time of receipt of post-assault medical services. Data from the current study indicate that facilitated referral for substance abuse treatment within the community (Blow et al., 2010; Boudreaux et al., 2009), may be an important component for many survivors, in addition to counseling related to problem use at ER visit. Although alcohol and marijuana were the most frequently used drugs, prevalence of other illicit drug abuse was comparable to marijuana abuse, indicating that assessment and intervention approaches should target alcohol, marijuana, and other illicit drugs (e.g., Boudreaux et al., 2009).

Apparent relapse following prior substance treatment was indicated by recent substance use reported by all but one individual who previously received treatment. Those with prior history of assault, for whom the index rape was a re-victimization, were significantly more likely to report both recent use and prior abuse of marijuana and other illicit drugs. In the majority of women with both prior histories of assault *and* substance abuse, assault history preceded onset of substance abuse. This was most striking with regard to abuse of other illicit drugs, the onset of which reportedly occurred after age at first prior assault in 73% of cases. Age of first assault among those whose assault history preceded substance abuse was on average age 12 or younger regardless of substance type. These data are consistent with previous findings related to alcohol abuse (Miller et al., 1987) and may indicate that substance abuse problems and other illicit drug abuse in particular, identified through screening in this population, may be viewed as potential markers for chaotic or violent environments during childhood and adolescence.

It is also important to recognize that a majority of recent rape victims reported neither previous history of substance abuse, nor prior substance treatment history. In addition, approximately 36% of the sample reported recent alcohol use only and 27% reported no recent substance use of any type. However, previous findings indicate reported use of substances (primarily alcohol) at the time of assault by at least 50% of rape victims seeking care in a hospital based setting (Avegno et al., 2009; Resnick et al., 2012). As such, use proximal to, or as part of an assault incident may indicate benefits of risk reduction approaches even for those without prior history of substance abuse.

High prevalence of substance use at the time of assault among recent rape victims also underscores the need to sensitively conduct screening and intervention approaches so as not to be misinterpreted as blaming (e.g., Ledray, 2008; Logan et al., 2002). Additional barriers may include avoidance by healthcare staff of asking about illicit drugs specifically (Resnick et al., 2012). In fact, alcohol or drug use at the time of assault actually constitutes a rape perpetrator tactic if the victim is so intoxicated that she either passes out or is so intoxicated that she is unable to control her behavior or what is happening. This may occur either as a result of covert administration of a drug or attempts to get the victim intoxicated (drug or alcohol facilitated rape) or due to voluntary use (incapacitated rape) on the part of the victim (Kilpatrick et al., 2007). Zinzow and colleagues (2012a) found that among older adolescent

and adult rape victims, 28% of those who reported seeking medical care post-assault met these criteria for drug or alcohol facilitation or incapacitation at the time of a most recent or only rape incident. In such cases, forcible rape elements need not be present to meet the legal definition of rape (Kilpatrick, 2004). Regardless of whether a victim meets criteria for substance facilitated or incapacitated rape, drug or alcohol *use* may increase vulnerability to assault via mechanisms that may include reduced ability to perceive danger cues and perception on the part of the assailant that the incident would be less likely to be reported to police or brought to successful prosecution (Kilpatrick et al., 1997). Education and feedback about substance use as an assault tactic or vulnerability factor might be helpful for victims in terms of reduced self-blame as well as providing for discussion of risk reduction.

Data also indicate that a majority of those who seek post rape medical care are likely to have experienced forcible rape tactics (e.g., physical force, threats of harm), regardless of whether substance use is also involved. For example, Zinzow and colleagues (2012a) found that 95% of all older adolescent and adult rape victims who said they received post rape medical care following a most recent or only incident reported the perpetrator had used forcible rape tactics (e.g., verbal threats of harm, physical restraint). A majority of those receiving medical care also reported that they feared they might be killed or seriously injured during the incident. Three-fourths (71%) indicated concerns about STDs other than HIV, and 62% reported being concerned about HIV due to the assault (Zinzow et al., 2012a).

Risk of PTSD is also considerable among that subset of rape victims who report the incident to police or other authorities, with over 90% initially meeting the symptom criteria for PTSD (Rothbaum, et al., 1992). Other findings indicate significantly elevated prevalence of PTSD among revictimized as compared to single incident rape victims (Walsh, et al., 2012). Additional research needs to be conducted to examine patterns of PTSD or other mental health problems among those with substance use at time of assault. Some extant findings indicate that women whose assaults included both incapacitation due to substance use or administration *and* forcible rape, as compared to those experiencing only substance related *or* forcible rape tactics, reported highest prevalence of current PTSD, major depression, and alcohol abuse (Zinzow et al., 2012b). Similarly, Kaysen and colleagues (2006) found that alcohol use disorders and alcohol problems were positively associated with severity of PTSD symptoms over time among victims of assault who were followed longitudinally.

Thus, screening and information/referral intervention approaches including SBIRT targeting substance abuse problems with recent rape victims need to be implemented with an understanding of the context of the sexual assault exam, awareness of substance facilitation/incapacitation as a perpetrator rape tactic, fear or other acute emotional reactions, concerns about HIV and other STDs, high risk of PTSD and depression, and patterns of prior assault and substance abuse that may be present. Approaches to screening that focus on addressing broader health related issues/concerns including substance use problems may be beneficial (e.g., D'Onofrio & Degutis, 2010). Given high prevalence of prior assault history and generally increased risk of PTSD, screening and treatment approaches that address problems of PTSD with or without comorbid substance abuse may be particularly beneficial (Back, 2010; Hien et al., 2010) both to reduce previously untreated problems and to address risk of onset or exacerbation of PTSD post-rape, which may be associated with increased risk of substance abuse.

#### 4.1 Limitations

Limitations of the current study include the fact that data were retrospective, cross-sectional self-report of historical variables. Findings may not be generalizable to all victims of rape. As noted a subgroup of rape victims seek post-assault medical care and they are more likely to indicate specific post assault health concerns and to report the incident to police (Resnick



et al., 2000; Zinzow et al., 2012a). Prior assault history in the current study was based on reported rape as well as physical assault incidents consistent with aggravated assault and thus may be considered a conservative measure. While the study was conducted at a single hospital site and may not be generalizable to all similar programs, other reports of sexual assault victims seeking immediate medical care indicate that over half of victims report substance use at time of incident (e.g., Avegno et al., 2009).

## 4.2 Conclusions

Findings suggest that prior history of substance use or abuse and previous assault are prevalent among recent victims of sexual assault. Moreover, women reporting recent drug use, prior history of drug abuse, or substance treatment appear to be at increased risk of re-assault. Conversely, assault history is a risk factor for substance abuse. Findings thus highlight the importance of addressing substance abuse among survivors of sexual assault. Successful treatment may reduce substance abuse as well as risk of revictimization, given the putative bidirectional relationships between the two (Cunningham et al., 2009; Kaysen et al., 2006; Kilpatrick et al., 1997).

Optimal strategies for implementation of SBIRT with this population need to be developed and evaluated. Current study findings provide assessment and treatment relevant information about problems that may be present at the time of medical service seeking including: prevalence of recent other illicit drug use and recent substance comorbidity; *pre-existing* substance abuse, and substance treatment; and associations between recent use, prior abuse, and prior assault history. This information may further help to guide development or adaptation of optimal assessment and intervention approaches that may be implemented with recent sexual assault victims seeking post-assault medical care.

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### Highlights

We examine alcohol and drug abuse history in recent rape victims seeking medical care

We examine comorbid patterns of recent substance use among recent rape victims

We examine prevalence and correlates of prior substance treatment among rape victims

We examine prevalence and correlates of prior history of assault among rape victims

Order of onset of victimization and substance abuse history is examined

Table 1

## Recent Substance Use and Prior Substance Abuse by Prior Substance Treatment

	Treatment 31 (12.2%)	No Treatment 224 (87.8%)	$\chi^2$
Recent Alcohol Use ( $n = 167$ )	28 (16.8%)	139 (83.2%)	
<u>No Recent Alcohol Use (<math>n = 88</math>)</u>	3 (3.4%)	85 (96.6%)	9.63 **
Recent Marijuana Use ( $n = 83$ )	19 (22.9%)	64 (77.1%)	
<u>No Recent Marijuana Use (<math>n = 172</math>)</u>	12 (7.0%)	160 (93.0%)	13.28 ***
Recent Other Illicit Drug Use ( $n = 32$ )	10 (31.2%)	22 (68.8%)	
<u>No Recent Other Illicit Drug Use (<math>n = 223</math>)</u>	21 (9.4%)	202 (90.6%)	12.49 ***
No Recent Use of Any Substance ( $n = 69$ )	1 (1.4%)	68 (98.6%) <sup>b,c</sup>	
Recent Alcohol Use Only ( $n = 91$ )	8 (8.8%)	83 (91.2%) <sup>a,c</sup>	
<u>Any Recent Drug Use (<math>n = 95</math>)</u>	22 (23.2%)	73 (76.8%) <sup>a,b</sup>	19.14 ***
<u>Alcohol Abuse History (<math>n = 87</math>)</u>	19 (21.8)	68 (78.2%)	
<u>No Alcohol Abuse History (<math>n = 168</math>)</u>	12 (7.1%)	156 (92.9)	11.59 **
Marijuana Abuse History ( $n = 36$ )	11 (30.6%)	25 (69.4%)	
<u>No Marijuana Abuse History (<math>n = 219</math>)</u>	20 (9.1%)	199 (90.9%)	13.29 ***
Other Illicit Drug Abuse History ( $n = 35$ )	15 (42.9%)	20 (57.1%)	
<u>No Other Illicit Drug Abuse History (<math>n = 220</math>)</u>	16 (7.3%)	204 (92.7%)	35.81 ***
No Prior Abuse of Any Substance ( $n = 152$ )	3 (2.0%)	149 (98.0%) <sup>b,c</sup>	
Prior Alcohol Abuse Only ( $n = 47$ )	7 (14.9%)	40 (85.1%) <sup>a,c</sup>	
<u>Any Prior Drug Abuse (<math>n = 56</math>)</u>	21 (37.5%)	35 (62.5%) <sup>a,b</sup>	48.77 ***

\*\*  
 $p < .01$ ,

\*\*\*  
 $p < .001$

Note: Different letter subscripts denote significant differences.

Table 2

## Recent Substance Use and Substance Abuse by Prior Assault

	Prior assault 150 (58.8%)	No prior assault 105 (41.2%)	$\chi^2$
Recent Alcohol Use ( <i>n</i> = 167)	101 (60.5%)	66 (39.5%)	
<u>No Recent Alcohol Use (<i>n</i> = 88)</u>	49 (55.7%)	39 (44.3%)	.55
Recent Marijuana Use ( <i>n</i> = 83)	61 (73.5%)	22 (26.5%)	
<u>No Recent Marijuana Use (<i>n</i> = 172)</u>	89 (51.7%)	83 (48.3%)	10.93 ***
Recent Other Illicit Drug Use ( <i>n</i> = 32)	24 (75.0%)	8 (25.0%)	
<u>No Recent Other Illicit Drug Use (<i>n</i> = 223)</u>	126 (56.5%)	97 (43.5%)	3.95 *
No Recent Use of Any Substance ( <i>n</i> = 69)	36 (52.2%)	33 (47.8%) <sup>c</sup>	
Recent Alcohol Use Only ( <i>n</i> = 91)	46 (50.5%)	45 (49.5%) <sup>c</sup>	
<u>Any Recent Drug Use (<i>n</i> = 95)</u>	68 (71.6%)	27 (28.4%) <sup>a,b</sup>	10.21 **
Alcohol Abuse History ( <i>n</i> = 87)	57 (65.5%)	30 (34.5%)	
<u>No Alcohol Abuse History (<i>n</i> = 168)</u>	93 (55.4%)	75 (44.6%)	2.44
Marijuana Abuse History ( <i>n</i> = 36)	27 (75.0%)	9 (25.0%)	
<u>No Marijuana Abuse History (<i>n</i> = 219)</u>	123 (56.2%)	96 (43.8%)	4.53 *
Other Illicit Drug Abuse History ( <i>n</i> = 35)	26 (74.3%)	9 (25.7%)	
<u>No Other Illicit Drug Abuse History (<i>n</i> = 220)</u>	124 (56.4%)	96 (43.6%)	4.00 *
No Prior Abuse of Any Substance ( <i>n</i> = 152)	82 (53.9%)	70 (46.1%) <sup>c</sup>	
Prior Alcohol Abuse Only ( <i>n</i> = 47)	27 (57.4%)	20 (42.6%)	
Any Prior Drug Abuse ( <i>n</i> = 56)	41 (73.2%)	15 (26.8%) <sup>a</sup>	6.32 *
Prior Substance Treatment History ( <i>n</i> = 31)	26 (83.9%)	5 (16.1%)	
<u>No Prior Substance Treatment History (<i>n</i> = 224)</u>	124 (55.4%)	100 (44.6%)	9.14 **

\*  $p < .05$ ,\*\*  $p < .01$ ,\*\*\*  $p < .001$ 

Note: Different letter subscripts denote significant differences.