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The Roles of Victim and Offender Substance Use in Sexual Assault Outcomes

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Abstract

Objective—The impact of victim and offender pre-assault substance use on the outcomes of sexual assault incidents was analyzed.

Method—Nine hundred and seventy female sexual assault victims were identified from the first wave of a longitudinal study based on a convenience sampling strategy.

Results—Multivariate models showed that victim injury was more likely in assaults involving offender substance use (regardless of whether or not the victim was also using substances). Offender use of physical force and verbal threats were also related to greater odds of completed rape and injury, and force was associated with medical attention-seeking.

Conclusion—Based on this study, rape prevention programs should target men and focus on the role of substance use in sexual assault. These prevention programs should incorporate information on the roles of offender and victim substance use, offender aggression, and other situational factors in sexual assault outcomes. Study limitations and suggestions for future research on the role of victim and offender substance use in rape incidents are presented.

The Roles of Victim and Offender Substance Use in Sexual Assault Outcomes

Perpetrators use substances in approximately 60–65% of sexual assault incidents, compared to 35–55% of victims, based on community samples (see Testa, 2002; 2004; Ullman, 2003 for reviews). Alcohol is the most commonly used substance in sexual assaults, and victims who are drinking are usually assaulted by drinking offenders (Abbey, Clinton, McAuslan, Zawacki, & Buck, 2002; Brecklin & Ullman, 2002; Testa, Vanzile-Tamsen, & Livingston, 2004; Ullman & Brecklin, 2000). There have been several studies examining the impact of alcohol use on sexual assault outcomes (e.g., severity of sexual abuse and physical injury). Because the results of these studies have been mixed, it is important to continue to examine the role alcohol plays in sexual assault incidents, especially when controlling for demographic and situational characteristics. Furthermore, few studies have examined victim and offender substance use in relationship to both sexual victimization severity and injury outcomes, which is the purpose of this study.

There have been numerous studies that have analyzed the relationship between pre-assault alcohol use and sexual victimization severity. Ullman, Karabatsos, and Koss (1999-a, 1999-b) analyzed two national studies using path analyses. The first using a sample of 1,667

college women found a weak positive relationship between offender alcohol use and sexual aggression severity (Ullman et al., 1999-a), whereas the second study with a sample of 694 college men did not find any relationship between the two variables (Ullman et al., 1999-b). In both studies, victim drinking was related to greater sexual victimization severity (Ullman et al., 1999-a, 1999-b). In an analysis of 859 sexual assaults from the National Violence Against Women Survey (NVAWS), offenders who were drinking were more likely to commit completed rape, though victim drinking didn't affect rape completion (Brecklin & Ullman, 2002). In a study of 132 college women, the number of drinks an offender had did not relate to whether the rape was completed or attempted, however there was a positive relationship between victim alcohol consumption and rape completion (Abbey et al., 2002). In another study by Abbey, Clinton-Sherrod, McAuslan, Zawacki, and Buck (2003) of 113 college men who committed sexual assault, assaults were more severe when committed by offenders who drank a moderate amount of alcohol, while victim alcohol quantity was positively related to sexual victimization severity. Based on 359 victims' perceptions of their own and the offenders' levels of intoxication, Testa et al. (2004) reported that penetration was least likely by a very intoxicated offender and more likely with a drinking victim. In two studies of National Crime Victimization Survey (NCVS) data, offender alcohol use was related to less rape completion (Brecklin & Ullman, 2001; Martin & Bachman, 1998), however this relationship was only significant in multivariate analyses in Brecklin and Ullman's (2001) study. In summary, study results on the relationship between offender drinking and sexual victimization severity were mixed, whereas the majority of studies found that victim alcohol use was positively related to more severe assault outcomes (Abbey et al., 2002, 2003; Testa et al., 2004; Ullman et al., 1999-a, 1999-b).

Several studies have also examined whether or not drinking affects the injury sustained by the victim, however results have again been mixed. From a national sample including 163 sexual assault victims, Ullman and Brecklin (2000) found that offender drinking was associated with increased odds of victim injury, whereas victim drinking was related to less injury. Similarly, a community sample of 359 sexual assault victims demonstrated that offender intoxication was related to more victim injury, but victim intoxication was marginally related to less injury (Testa et al., 2004). In an analysis of 6,213 female victims of FBI-reported rapes (1991–1994) in South Carolina, Coker, Walls, and Johnson (1998) found that a correlate of injury was “alcohol and/or other drug use by victims and/or assailants” (p. 612). Based on a sample of 132 college women, there was a curvilinear relationship between victim injury and offender substance use, with more injury inflicted by either sober or very intoxicated offenders (Abbey et al., 2002). Highly intoxicated victims suffered less injury (Abbey et al., 2002). In an analysis of 279 sexual assaults from the National Crime Victimization Survey (NCVS), drinking offenders were more likely to injure victims (though this was not significant in multivariate models) (Martin & Bachman, 1998). However, two other national studies (362 sexual assaults from NCVS data and 859 from NVAWS data) demonstrated no relationship between offender alcohol use and victim injury (Brecklin & Ullman, 2001, 2002). In addition, victim drinking was not related to injury in the analysis of NVAWS data (Brecklin & Ullman, 2002). Overall, most studies demonstrated that offender alcohol use was related to more victim injury (Coker, Walls & Johnson, 1998; Martin & Bachman, 1998; Testa et al., 2004; Ullman & Brecklin, 2000). However, victim alcohol use seemed to be related to less injury (Abbey et al., 2002; Testa et al., 2004; Ullman & Brecklin, 2000), perhaps because less force is needed to subdue drinking victims.

Current Study

Few studies have examined use of substances such as drugs separately from use of alcohol in outcomes of rape incidents, partially because use of drugs other than alcohol is rare, and

even when drugs are used, they are often accompanied by alcohol use. For example, Kilpatrick, Resnick, Ruggiero, Conoscenti, and McCauley's (2007) recent national study showed that in cases of rape, only 2% of cases in the general population and 4% of cases in a college sample involved drugs only, consistent with other community samples (Testa, Livingston, VanZile-Tamsen, & Frone, 2003). In order to further examine the role of substance use in sexual assaults, the present study analyzed a large sample of sexual assaults against women from the community. Unfortunately because too few cases involved drug use alone (without alcohol) for analysis, overall substance use (e.g., alcohol and/or drug use) in assaults was examined. Assaults involving only alcohol were also examined to see if results differ when cases involving drugs were excluded..

Several publications have analyzed this data regarding risk factors for problem drinking (e.g., Ullman, Filipas, Townsend, & Starzynski, 2005; 2006; Ullman, Starzynski, Long, Mason, & Long, 2008; Ullman, Townsend, Starzynski, & Long, 2006), however none of these studies have analyzed victim and offender pre-assault substance use in the context of assault-specific characteristics and outcomes. This study will analyze the roles of victim and offender substance use in multiple outcomes of sexual assaults (e.g., completed intercourse, injury, and medical attention). In addition to including an additional outcome variable of medical attention, not examined in past studies, the role of victim and offender substance use was analyzed to see if this factor changes the results.

This sample is different from those in past studies in being volunteer and asking victims about their most serious experience, whereas other studies used college students and/or were representative samples and asked about the most recent or a randomly chosen assault (Abbey et al., 2002; Testa et al., 2004). Because of this, it is possible that this sample includes more severe assaults (e.g., assaults with more completed rape and physical injuries) than prior studies. Because such assaults have more negative consequences for women's health and well-being, attention to incidents that women appraise as more serious is warranted. Also, the use of a large, diverse community sample is a major strength that expands on past research. Hopefully, this cross-sectional study will provide more evidence to clarify mixed findings on the roles of substances in sexual assaults.

We hypothesized that offender substance use with or without victim substance use would be related to more severe rape and injury outcomes (e.g., completed rapes and serious injuries such as stab wounds), as will offender use of physical force and verbal threats. Physical force will be related to medical attention-seeking by victims. We expect that forceful physical resistance will be related to less completed rape and more physical injury. While we expect similar relationships for victim injury and medical attention, we believe that the victim-offender relationship will be significant in predicting medical attention, with stranger victims more likely to seek help. We will also examine whether substance use effects differ from alcohol use only and expect stronger relationships for substance use by offender and victim with assault outcomes than for alcohol use. This hypothesis is based on evidence that offenders using drugs may be more violent overall and hence physically harm their victims to a greater degree during sexual assaults (Ullman, Karabatsos, & Koss, 1999; Testa, VanZile-Tamsen, & Livingston, 2004).

Method

Sample

Data for the present study was drawn from the first wave of a longitudinal study on sexual assault recovery. Female sexual assault survivors were recruited for the study over a one-year period using a broad range of strategies in a large Midwestern city. Flyers were posted in a variety of places, including college buildings, mental health agencies, rape crisis

centers, and bookstores. In addition, study advertisements were placed in a community newspaper. Women with unwanted sexual experiences since the age of 14 were asked to participate in the study, and informed consent was provided by the women for participation in the research. Confidential surveys were then mailed to the women who expressed interest in the study, along with a cover letter, study information sheet, and a list of community resources for sexual assault survivors. Upon completion of the survey, the participants received \$20. Ninety percent of the women who called to participate returned their surveys. In total, 1,084 women completed surveys.

To be included in the present study, the women had to answer “yes” to at least one of the items assessing sexual victimization since age 14 (e.g., unwanted sexual contact, sexual coercion, attempted rape, or completed rape). Women reported on what they perceived to be their most serious assault experience. The Modified Sexual Experiences Survey (Koss & Gidycz, 1985) was used to assess unwanted sexual experiences since age 14 in this sample. The SES is a widely used screening instrument using multiple behaviorally specific questions to reflect various degrees of sexual victimization (Koss, Gidycz, & Wisniewski, 1987). An internal consistency reliability of 0.74 has been reported for the female version of the SES, and, with administrations one week apart, the test-retest agreement rate was 93% (Koss & Gidycz, 1985). Although women were recruited based on experiencing an unwanted sexual experience as an adult, 11% of the 1,084 participants did not experience adult sexual victimization according to the Sexual Experiences Survey (Koss et al., 1987) criteria used here. Therefore, the final sample size for the present study was 970 adult sexual assault survivors.

Measures

Demographics—Victims’ current age was assessed in years at the time of the survey. Marital status was coded 0 for unmarried (single, divorced/separated, widowed) and 1 for married (including cohabiting). Other sociodemographic characteristics used in this study included victims’ educational status (0 = high school degree or less, 1 = at least some college) and employment (0 = unemployed, 1 = employed). The respondents’ race was coded 0 for minority (e.g., African-American, Hispanic, Asian, Pacific Islander/Native Hawaiian, American Indian or Alaskan Native) and 1 for Caucasian. Time since assault was coded in years by subtracting age when the assault occurred from age at the time of the survey.

Assault Characteristics—Sexual assault survivors were asked additional questions about their assault. Those respondents who had multiple unwanted sexual experiences were asked to report on the characteristics of the most serious assault.

Respondents were asked “Was the man or men using any intoxicants on this occasion?” which included response options “alcohol,” “drugs,” “both alcohol and drugs” “none” and “I don’t know.” Respondents indicating that the offenders were only using alcohol ($N = 223$), were under the influence of drugs ($N = 40$), or were using both drugs and alcohol ($N = 174$) were all coded 1 (yes) for *offender pre-assault substance use*, and those assaults where the offenders were not perceived to be under the influence of any substance were coded 0 (no) ($N = 215$). Cases where the victim didn’t know if the offenders were using any substances ($N = 284$) were designated as missing and excluded from all analyses except the logistic regression analyses. Similarly, the variable *victim pre-assault substance use* was created (0 = victim not using substances, 1 = victim using substances at time of assault). Victims who reported using alcohol ($N = 211$), drugs ($N = 54$) or both alcohol and drugs ($N = 91$) were included as substance use, while the majority of victims ($N = 579$) did not report any substance use. Because victims were rarely ever using substances when the offender was not

($N=16$), these cases were excluded, and the main categories analyzed were assaults involving no substance use ($N=198$), assaults where only the offender used substances ($N=145$), and assaults where both the victim and offender used substances ($N=291$).

Respondents were asked, "What was your relationship to the man or men at that time?"

Victim-offender relationship was coded by dichotomizing responses to this question into stranger (coded as 0) and known categories (coded as 1). For the bivariate analyses, victim-offender relationship was coded into four categories: stranger, acquaintance, relative, and husband/boyfriend. Respondents were asked, "Where did it happen?" from which *assault location* was coded 0 for outdoors and 1 for indoors. Offenders' use of several forms of coercion were coded as absent or present including: *weapons*, *physical force* (e.g., twisting arm, slapping, choking), and *verbal threats*.

To assess victim resistance, respondents were asked, "Did you do any of the following to resist his advances?" including the following categories: a) stay still or freeze until it was over, b) reason, plead, quarrel, or tell him to stop, c) cry or sob, d) scream for help, e) run away, f) physically struggle, push him away, hit, or scratch, and g) physically fight, kick, punch, use weapon, or martial arts techniques. Respondents were asked to circle either no or yes for each type of resistance. Those victims who physically fought or struggled, pushed, hit, kicked, or scratched their offenders, or used a weapon were coded as using *forceful physical resistance* (FPR), and victims who ran away were coded as using *nonforceful physical resistance* (NFPR). *Forceful verbal resistance* (FVR) included those victims who screamed for help, while *nonforceful verbal resistance* (NFVR) was coded as present for victims who cried, sobbed, reasoned, pleaded, quarreled, or told the offender to stop. Each of these four types of resistance was coded 1 if the victim used that particular type of resistance and 0 if she did not use the strategy. Correlations for these resistance types ranged from .18 – .43 ($p<.01$), and 71% of women who resisted used more than one type of resistance.

Assault Outcomes—Three measures of harm to the victim were analyzed: completed intercourse, physical injury, and post-assault medical attention. A *completed intercourse* variable was created according to the question: "Did you experience any of the following forms of sexual abuse during this incident?" with the responses of anal or vaginal intercourse (0 = no, 1 = yes). Respondents were asked, "Did you experience any of the following forms of physical injury?" in order to assess the extent of *physical injury* sustained due to the victimization. The injury measure was coded as a dichotomous variable with 0 for those not physically injured and 1 for injured (e.g., soreness, bruises/scratches, cuts, broken bones, knife/gunshot wounds). Respondents were also asked, "Did you receive medical attention?" This variable was coded 1 if victims received *medical attention* and 0 if they did not.

Results

Sample Characteristics

In this sample of 970 sexual assaults, the average age of the women at the time of the survey was 32.43 ($s = 10.97$, range: 18 – 71). The majority of victims were not married (73.1%) and had completed some college (72.9%). Approximately one-half of the women were employed (51.0%). Less than one-half of the respondents were Caucasian (40.0%), whereas 42.9% were African-American; 6.3% Hispanic; 2.8% Asian; 0.5% Pacific Islander/Native Hawaiian; 0.3% American Indian/Alaskan Native; and 7.1% mixed race. Assaults occurred an average of 12.94 years ago ($s = 10.93$), ranging from the previous year to 53 years ago.

Of victims who reported on the offenders' substance use, approximately two-thirds reported that the offenders were using alcohol and/or drugs (67.0%). Less than one-half of victims self-reported that they had been drinking and/or using drugs prior to the assault (38.1%). One-fifth of assaults were perpetrated by strangers to the victims (20.6%), compared to 45.5% by acquaintances, 10.8% by relatives, and 23.1% by husbands/boyfriends. The majority of the sexual assaults occurred indoors (86.2%). Few offenders used a weapon during the assault (15.9%), whereas most offenders in this sample used physical force against their victims (71.8%). Approximately one-half of offenders threatened the victims (48.0%). More than one-half of the women used forceful physical resistance against their attacker (61.8%), whereas only one-fifth used nonforceful physical resistance (20.3%). Twenty-eight percent of victims used forceful verbal resistance compared to the majority who used nonforceful verbal resistance (84.0%). Most victims experienced completed intercourse (85.1%). Most victims were injured by the offender (83.0%), and approximately one-fifth sought medical care after the assault (19.9%).

Comparisons of sexual assaults according to substance use

First, bivariate chi-square analyses were conducted to compare assaults with or without substance use on victim demographics and sexual assault incident characteristics. Results of the chi-square tests including Likelihood Ratio test statistics and percentages are presented in Table 1. In addition, one-way analyses of variance were conducted to examine whether victim age at the time of the survey and time since assault varied according to substance use status (not shown in tables). Results are described as statistically significant if $p < .05$.

Assaults where only the offenders were using substances involved less college-educated victims than other types of assaults. More Caucasian victims reported incidents involving substance use by both the victim and offender than minorities. Assaults where only the offender was using substances occurred longer ago ($M = 14.20$) than assaults without substance use ($M = 11.81$) and those with both victim and offender use ($M = 10.38$) ($F(2, 614) = 6.91, p < .01$). Assaults where only the offenders were using substances involved more offender weapon use, force, and threats than assaults without substance use and assaults with both parties using substances. Victims used all types of resistance more often in response to assaults where only the offenders were using substances. Assaults involving acquaintances were most likely to involve substance use by both the victim and offender. Assaults that did not involve substance use lead to less victim injury than assaults with substance use. When only the offender was using substances, victims were more likely to seek medical attention than when no substances were involved or both parties were using. Victim current age, marital status, employment, assault location, and completed intercourse did not differ according to pre-assault drinking status.

Logistic Regression Analyses

In order to assess the roles of substance use prior to assault by offenders and victims in assault outcomes, a series of logistic regression models was performed. For the most part, the same variables from the bivariate analyses are included in the multivariate analyses, with a few exceptions. Because few offenders used weapons during the assaults and weapon use was significantly associated with offender force ($X^2(1, 685) = 41.56, p < .001$), offender weapon was removed from the logistic regression models. Similarly, victim age and time since assault were highly correlated ($r = .74, p < .01$), therefore only time since assault was included in the models. No multicollinearity was found between the other independent variables. Dummy-coded contrasts were created for victim and offender substance use. Because of the large number of victims who did not know if the offender was using substances ($N = 284$), a separate dummy code was created for missing information on

substance use, resulting in three dummy-coded contrasts (offender only substance use, both victim and offender substance use, and missing for substance use).

An initial set of three models included victim demographic variables (marital status, educational level, employment, race, and time since assault) and assault characteristics (dummy coding – offender only substance, dummy coding – both victim and offender substance use, dummy coding – missing, victim-offender relationship, assault location, offender force, offender threats, victim forceful physical resistance, victim nonforceful physical resistance, victim forceful verbal resistance, and victim nonforceful verbal resistance) as predictors. Dependent variables were dichotomous assault outcomes of completed intercourse, injury, and medical attention. Second, the three models were re-run omitting demographic variables that were not significant in the initial models. Beta weights, odds ratios, and *p* values for the reduced models are presented in Table 2.

Assaults with completed intercourse were more than twice as likely to involve offender force and threats. Substance use, victim-offender relationship, assault location, and resistance strategies were not significant for the outcome of completed intercourse.

Employed victims were less likely to be injured. As the length of time since the assault increased, the likelihood of injury to the victim decreased. Victim injury was three times as likely when the only the offender was using substances and twice as likely when both the victim and offender were using substances. Odds of victim injury were over two times greater when the offender used physical force and over four times greater when the offender threatened the victim. Victims who used forceful physical resistance were more likely to be injured. Victim-offender relationship, assault location, and other resistance strategies were nonsignificant.

The odds of medical attention seeking were greater for attacks by stranger assailants. Medical attention was more than twice as likely when the offender used physical force, while victims who used nonforceful physical resistance and those who used forceful verbal resistance were both more likely to seek medical attention. Substance use, assault location, offender threats, and nonforceful verbal resistance were nonsignificant.

Models were also re-run to account for use of alcohol (instead of the general category of substance use) prior to assault to assess whether these factors would change the results. Logistic regression models were conducted replacing dummy codings for substance use categories with dummy codings for alcohol use in order to compare the results. Full results of these additional analyses are available from the authors upon request. There was only one main difference in the relationships between dummy coded contrasts for offender and victim alcohol abuse and the three outcome measures (completed intercourse, victim injury, and medical attention). Similar to the analyses involving substance use, there was no relationship between the alcohol dummy codes and intercourse completion or between alcohol and medical attention. When both the victim and offender were drinking, the victim was more likely to sustain physical injury, whereas in substance use analyses, the victim was more likely to be injured when both the victim and offender used substances as well as when it was only the offender.

Discussion

The roles of victim and offender substance use in the outcomes of sexual assaults were examined with a sample of 970 adult sexual assault female victims. Similar to prior research, victims who were using substances were usually assaulted by offenders who were also using substances, and victims rarely were using substances when the offender was not (Brecklin & Ullman, 2002; Testa et al., 2004; Ullman & Brecklin, 2000; Ullman et al.,

1999-a, 1999-b). Multivariate models showed that victim injury more often occurred in assaults involving offender substance use (regardless of whether or not the victim was also using substances). Specifically, the odds of injury were higher in assaults with only offender substance use compared to those where both the victim and offender were using substances. This finding is somewhat similar to two prior studies demonstrating that cases with offender drinking only were significantly related to injury but cases involving both victim and offender drinking were unrelated to victim injury (Testa et al., 2004; Ullman & Brecklin, 2000).

Bivariate study results confirmed that offender substance use was related to more victim injury and more medical attention, consistent with past studies (Coker et al., 1998; Martin & Bachman, 1998; Testa et al., 2004; Ullman & Brecklin, 2000). This suggests that women need to be warned that men using substances may pose a greater threat in terms of their potential for causing more serious physical harm to victims during sexual assaults. This is not too surprising considering that assaults where only the offenders were using substances involved more offender weapon use, force, and threats than assaults without substance use and assaults with both parties using substances. These assaults appear to be more dangerous ones for victims that need further investigation. This could be due to the characteristics of the perpetrators who are using substances only and/or the more dangerous assault situations in which assaults by these substance-using perpetrators take place. Future research should also analyze the effects of substance use on severity of injury. Unfortunately, because of skewed data in the current study, it was not possible to create a variable with levels of injury, therefore only a dichotomous variable could be used for injury. More in-depth research is needed to understand cases of sexual assault where male perpetrators are using substances prior to assault. Qualitative studies of either victims or perpetrators of these assaults may help to shed light on the pathways (e.g., individual, situational, contextual) through which substance use by offenders contributes to increased physical harm to victims.

Abbey et al. (2002) discovered that victims who were more intoxicated reported that the offenders used less aggression, consistent with our finding that assaults with both offender and victim substance use involved less aggression than when just the offender was using substances. Offenders may perceive that they don't need to use as much physical force with drinking victims. Furthermore, according to Zawacki, Abbey, Buck, McAuslan, and Clinton-Sherrod's (2003) sample of 356 college men, offenders who committed sexual assaults involving alcohol were more likely to believe that women who were drinking were more interested in having sex than non-drinking offenders and non-offenders. Similarly, Testa and Livingston (1999) maintain that men think a drinking woman is more sexually available than a sober woman; men are also less likely to label forced sex with a drinking woman as rape. In summary, offenders may seek out drinking victims because they believe them to be easier targets.

Given evidence that victims often match their level of resistance to offenders' use of force (Abbey et al., 2003; Murnen, Perot & Byrne, 1989; Siegel, Sorenson, Golding, Burnam, & Stein, 1989; Ullman, 1998; Ullman & Knight, 1992), it is not surprising that victims were more likely to use all types of resistance in assaults when they were sober and only the offender was using substances (and were most aggressive). This is similar to three prior studies which showed more victim resistance against drinking offenders (Atkeson et al., 1989; Brecklin & Ullman, 2001; Ullman et al., 1999-a), but contrary to Harrington and Leitenberg's (1994) study which demonstrated that victims who perceived their attackers to be somewhat drunk engaged in less resistance. The finding of less resistance by victims in cases where both the victim and offender were using substances is also substantiated by past studies (Abbey et al., 2002; Harrington & Leitenberg, 1994). A common theme found in Testa and Livingston's (1999) qualitative research on 190 female social drinkers was that

alcohol use lessened resistance and their ability to leave dangerous situations. Fifty-six percent of drinking women in that study said alcohol affected their judgment and behavior (Testa & Livingston, 1999), so drinking women may be less able to resist effectively.

Interestingly though, when both the victim and offender were drinking, the victim was more likely to sustain physical injury, whereas in the substance use analyses, the victim was more likely to be injured when both the victim and offender used substances as well as when it was only the offender. This finding suggests that predicting of assault outcomes may need to address whether alcohol, drugs, or both substances were used to more accurately understand which assaults lead to the greatest risk of negative outcomes. It is possible that assaults that have drug use by offenders and/or victims, either alone or in combination with alcohol use, may be more dangerous and lead to more severe assault outcomes. More research is needed to explore this possibility, as we already know that although relatively rare, drug-facilitated rapes, in which offenders give drugs to victims without their permission, can be quite deleterious for victims (Kilpatrick et al., 2007). In the logistic regression models, as predicted, offender aggression was related to more completed intercourse, more injury, and more medical attention, consistent with past research (Brecklin & Ullman, 2002; Siegel et al., 1989; Ullman & Brecklin, 2000; Ullman et al., 1999-a, 1999-b; Ullman & Knight, 1991). Similarly, offender threats predicted more intercourse completion and injury but not medical care.

Substance use was *not* related to completion of intercourse, but this may be due to the high percentage of cases involving completed intercourse (85.1%) in this sample. A lot of completed rapes in this sample resulted from our methodology of asking victims for details regarding their most serious assault, unlike other past studies. While this is a limitation perhaps, these are also more serious incidents that are in need of study. According to Testa (2002), offender drinking is more prevalent in the more severe incidents of sexual victimization (e.g., attempted and completed rapes) than less severe incidents (e.g., sexual coercion), which is consistent with these results.

Victims assaulted by known offenders were less likely to seek medical attention than stranger victims. Assaults involving acquaintances were most likely of all victim-offender relationships to involve both victim and offender substance use, consistent with past research (Abbey, Ross, McDuffie, & McAuslan, 1996; Ullman et al., 1999-a, 1999-b). Bivariate results demonstrated that cases involving only offender substance use were more likely to involve medical attention than those with both victim and offender substance use or no substance use. It is possible that substance-using victims seek less medical attention than non-substance using victims. Victims who were assaulted by acquaintances and using drugs and/or alcohol may have feared negative reactions (e.g., blaming) from medical personnel and were therefore less likely to seek medical help. More research and attention should be directed towards encouraging acquaintance rape victims to seek medical attention. In addition, medical providers should screen women for all types of sexual assault. Future research should determine whether substance use negatively affects victims' decisions to seek medical attention and if so, how this can be ameliorated.

Victim use of forceful physical resistance was significantly related to more injury, likely due to the correlational nature of these data, given that forceful resistance is unrelated to injury when sequence of offender attack and victim resistance is accounted for (Ullman & Knight, 1992; Ullman, 1998). Both forceful and nonforceful forms of verbal resistance were significantly related to more medical attention, possibly due to a greater willingness to speak out among women who take a more verbal approach to resisting the assailant and seeking help post-assault. More research is needed on the interaction of substance use and resistance

strategies in relationship to sexual assault outcomes to clarify how and whether women can avoid completed assaults where substance use has taken place.

There are several limitations of this study that may have affected the results. First, convenience sampling was utilized in this study; therefore this is likely not a representative sample of all sexual assault incidents. Because the majority of assaults in this sample were completed rapes (78.1%), the power of statistical tests to distinguish varying levels of sexual attacks may have been reduced. This was due to our methodology, which differed from past studies in that we asked about their most serious assault, not the most recent or a randomly chosen assault. Samples with more variance in sexual victimization severity (e.g., less severe assaults) may find different relationships between substance use and assault outcomes. It is also possible that substance use may affect *severity* of injury, which should be analyzed in future research. However, in this study, medical attention may have served as a proxy for severity of injury. Victims reported on the presence of offender substance use according to their own recollections of their assaults, which may not have always been accurate, particularly given that some of the assaults occurred many years ago in this community sample. In this study, the victims didn't know if the offenders were using substances in 284 cases, not uncommon in self-report victimization surveys (e.g., Brecklin & Ullman, 2002). However, because these 284 cases were designated as missing for all analyses, study results may have been affected. These missing cases were included as predictors in the logistic regression models to determine any differences between cases with and without missing substance use information. In addition, as Abbey et al. (2002) suggested, information about both the type and amount of alcohol consumed by the victim and offender prior to the assault is important to study in relation to assault outcomes. Future studies should also collect data on the different combinations of substances used by both the victim and offender. However, when we replicated our analyses using alcohol use instead of substance use, the results did not substantially differ (except for the dependent variable of injury), contrary to our prediction that substance use would have more negative effects than alcohol use on outcomes.

Clearly, victim and offender substance use are often simultaneously present in sexual assaults. Based on multivariate models where demographics and situational factors were controlled, it appears that attacks characterized by offender pre-assault substance use are more likely to be associated with injury to the victim, whether or not the victim also uses substances. Based on this study, two main types of rape prevention programs should be used, targeting males and females separately. Prior research has consistently supported the use of single-gender audiences for rape education programs (e.g., Brecklin & Forde, 2001; Breitenbecher, 2000; Gidycz, Dowdall, & Marioni, 2002). First, rape prevention programs should target men in an attempt to reduce sexually aggressive behavior. These rape education programs should incorporate information on the roles of offender and victim substance use, offender aggression, and other situational factors in sexual assault outcomes. Second, risk reduction programs should be presented to women, where offender typologies, characteristics of potentially dangerous situations, and strategies for avoidance and resistance are highlighted. While both types of programs should cover the role of substance use in sexual assault, they must also clearly state that drinking does not excuse sexual assault and that drinking victims should not be blamed for assaults. In the past, most rape prevention programs have targeted college students, however similar programs could be adapted for use with younger populations, such as high school students, as well as with adults in the community. Possible avenues may include integrating information about rape into substance abuse prevention programs in schools and in mass media campaigns. Such efforts can educate adolescents and the adult population about how substance use and sexual assault are related and may result in more effective prevention overall. Finally, further research is needed to understand the roles of both alcohol and drug use by perpetrators and

victims in adult sexual assault outcomes, so that prevention can address the potentially unique effects of these distinct forms of victimization.

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Table 1

Characteristics of Victims and Assaults With and Without Substance Use

<i>Victim Characteristics</i>	No Sub Use (N=198)	Off. Only Sub Use (N=145)	Both Sub Use (N=291)	X²
Married	30.3%	22.4%	25.2%	2.95
College	79.1%	63.9%	75.0%	10.01 **
Employed	53.6%	50.3%	50.7%	.50
Caucasian	38.9%	28.5%	54.9%	30.49 ***
<i>Assault Characteristics</i>				
Indoors	94.2%	89.2%	88.7%	3.87
Offender Weapon	8.4%	21.6%	7.2%	14.20 ***
Offender Force	64.4%	79.7%	64.6%	10.37 **
Offender Threats	37.3%	61.3%	33.6%	24.71 ***
FPR	52.0%	71.8%	57.7%	11.53 **
NFPR	9.2%	30.1%	15.7%	19.08 ***
FVR	18.2%	36.3%	16.9%	15.80 ***
NFVR	78.0%	93.5%	79.1%	17.44 ***
<i>Victim-Offender Relation</i>				
Stranger	7.7%	16.9%	17.3%	91.71 ***
Acquaintance	37.4%	36.9%	62.7%	
Relative	15.9%	17.7%	1.4%	
Husband/Boyfriend	39.0%	28.5%	18.7%	
<i>Assault Outcomes</i>				
Completed Intercourse	80.9%	85.9%	86.4%	2.71
Injury	69.4%	91.0%	84.9%	28.99 ***
Medical Attention	10.6%	32.4%	15.1%	27.41 ***

* $p < .05$;** $p < .01$;*** $p < .001$.

Note. Married (0 = no, 1 = yes); college (0 = no, 1 = yes); employed (0 = no, 1 = yes); Caucasian (0 = no, 1 = yes); indoors (0 = no, 1 = yes); offender weapon (0 = no, 1 = yes); offender force (0 = no, 1 = yes); offender threats (0 = no, 1 = yes); forceful physical resistance (0 = no, 1 = yes); nonforceful physical resistance (0 = no, 1 = yes); forceful verbal resistance (0 = no, 1 = yes); nonforceful verbal resistance (0 = no, 1 = yes); victim-offender relationship (1 = stranger, 2 = acquaintance, 3 = relative, 4 = husband/boyfriend); completed intercourse (0 = no, 1 = yes); injury (0 = no, 1 = yes); medical attention (0 = no, 1 = yes).

Table 2

Logistic Regression Analyses Predicting Intercourse, Injury and Medical Attention

	Completed Intercourse	Injury	Medical Attention
	Beta Value (Odds Ratio)	Beta Value (Odds Ratio)	Beta Value (Odds Ratio)
Victim Employment		-.67 (.51) *	
Time Since Assault		-.03 (.97) *	
Dummy Coding (Off Only Sub Use)	-.24 (.79)	1.10 (.302) *	.63 (1.88)
Dummy Coding (Both Sub Use)	.39 (1.48)	.71 (2.04) *	.13 (1.14)
Dummy Coding (Missing)	.06 (1.06)	.58 (1.79)	.19 (1.21)
Victim-Offender Relationship	-.12 (.89)	.24 (1.27)	-1.63 (.20) ***
Location	.18 (1.19)	-.28 (.76)	.68 (1.96)
Offender Force	.83 (2.30) **	.94 (2.57) **	.85 (2.34) *
Offender Threats	.86 (2.35) *	1.40 (4.03) **	-.14 (.87)
Forceful Physical Resistance	-.07 (.93)	.76 (2.14) *	-.58 (.56)
Nonforceful Physical Resistance	.18 (1.20)	-.59 (.55)	.73 (2.07) *
Forceful Verbal Resistance	-.01 (.99)	1.45 (4.28)	1.06 (2.89) **
Nonforceful Verbal Resistance	.52 (1.68)	.23 (1.25)	.49 (1.63)
N	483	469	492
- 2 × log likelihood	388.93	330.03	376.37
X ²	38.17	107.80	79.63
df	11	13	11
p value	.000	.000	.000

+ $p < .10$;* $p < .05$;** $p < .01$;*** $p < .001$

Note. *Victim employment* (0 = no, 1 = yes); *Time since assault* (years); *Dummy coding - Offender only using substances* (0 = no, 1 = yes); *Dummy coding - Both using substances* (0 = no, 1 = yes); *Dummy coding - Missing for substance use* (0 = no, 1 = yes); *Victim-offender relationship* (0 = stranger, 1 = known offender); *Assault location* (0 = outdoors, 1 = indoors); *Offender force* (0 = no, 1 = yes); *Offender threats* (0 = no, 1 = yes); *Forceful physical resistance* (0 = no, 1 = yes); *Nonforceful physical resistance* (0 = no, 1 = yes); *Forceful verbal resistance* (0 = no, 1 = yes); *Nonforceful verbal resistance* (0 = no, 1 = yes); *Completed intercourse* (0 = no, 1 = yes); *Injury* (0 = no, 1 = yes); *Medical attention* (0 = no, 1 = yes).