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## Prospective Prediction of Women's Sexual Victimization by Intimate and Nonintimate Male Perpetrators

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### Abstract

Although behavioral risk factors such as substance use have been hypothesized to increase women's vulnerability to sexual victimization, prospective studies provide mixed empirical support. In the current prospective study, the authors considered substance use, sexual activity, and sexual assertiveness as predictors of sexual victimization from intimate partners and nonintimate perpetrators. Among a representative community sample of women ages 18–30 years ( $N = 927$ ), 17.9% reported sexual victimization over 2 years, the majority by an intimate partner. Low sexual refusal assertiveness, drug use, and prior intimate partner victimization predicted intimate partner sexual victimization. Heavy episodic drinking and number of sexual partners predicted victimization from nonintimates. The finding that there are different risk factors for sexual victimization from intimates versus nonintimates suggests the need for tailored prevention strategies.

### Keywords

victimization; rape; alcohol drinking patterns; drugs; psychosexual behavior

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A substantial proportion of North American women are sexually victimized each year. Estimates of the yearly incidence of rape, that is, forced sexual intercourse, range from about 1% per year in general population samples (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Tjaden & Thoennes, 2000) to an estimated 5% per year in college samples (Fisher, Cullen, & Turner, 2000; Mohler-Kuo, Dowdall, Koss, & Wechsler, 2004). When all forms of sexual victimization are considered, such as unwanted sexual contact, attempted rape, and sexual coercion, much higher yearly rates have been reported. For example, among two cohorts of college students, 13% to 17% reported some type of sexual victimization within a 3-month period (Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995). These high rates, coupled with well-documented negative effects of sexual victimization (for reviews, see Resick, 1993; Resnick, Acierno, & Kilpatrick, 1997) underscore the need for prevention. However, before effective prevention strategies can be implemented, it is necessary to identify the factors that put women at risk for sexual victimization, particularly behavioral risk factors that may be modified. Cross-sectional studies have revealed that women with a history of sexual victimization report higher levels of behavioral risk factors, including substance use and sexual activity. However, the few prospective studies that have been conducted have yielded only weak or mixed evidence supporting the role of these risk factors in subsequent victimization. The current prospective study was designed to examine whether women's substance use, sexual activity, and sexual refusal assertiveness contribute to sexual victimization vulnerability.

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Because the vast majority of sexual victimization experienced by women is perpetrated by men (Tjaden & Thoennes, 2000), we focused on male-perpetrated sexual victimization.

A unique aspect of the research was that we considered sexual victimization from intimate partners separately from sexual victimization from nonintimate partners. Although sexual victimization often has been considered a unitary construct, it is, in fact, a heterogeneous phenomenon, encompassing such diverse experiences as verbal coercion from an intimate partner, stranger rape, being fondled at a bar, and nonconsensual intercourse when too intoxicated to consent or object. Because risk factors for different types of sexual victimization may differ, prospective prediction may be improved by considering different types of sexual victimization separately. For example, retrospective studies have identified different correlates of sexual coercion versus rape (Testa & Dermen, 1999) and of incapacitated versus forcible rape (Mohler-Kuo et al., 2004; Testa, Livingston, VanZile-Tamsen, & Frone, 2003). Prior research also has suggested that the context, tactics, and outcomes of sexual victimization incidents differ according to the type of perpetrator (Koss, 1988; Koss, Dinero, Seibel, & Cox, 1988; Testa, VanZile-Tamsen, & Livingston, 2004). For example, most incidents of verbal sexual coercion are perpetrated by intimate partners (Livingston, Buddie, Testa, & VanZile-Tamsen, 2004). In contrast, incidents involving alcohol tend to involve a perpetrator who is less well acquainted with the victim (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2004; Ullman, 2003).

## Substance Use

Because a large proportion of sexual victimization incidents involve alcohol or drug use, there has been much theoretical and research interest in the causal link between alcohol consumption and subsequent sexual victimization (see Abbey et al., 2004, for a review). Substance use can impair cognitive and motor abilities, making it more difficult to recognize or avoid danger (Norris, Nurius, & Dimeff, 1996). Men may target drinking women because they perceive them as more sexually available (George, Gournic, & McAfee, 1988) or may actually encourage them to drink or use drugs in order to take advantage of them. Vulnerability may also result indirectly, reflecting the fact that drinking occurs in social settings, such as bars and parties that, in themselves, pose a risk for sexual victimization. Drug use in particular may increase vulnerability because of its association with illegal activity and deviant men (Kilpatrick et al., 1997).

Despite many potential linkages, prospective studies examining the association between substance use and subsequent sexual victimization have yielded mixed results. In two small college samples, women's alcohol use was found to predict later sexual victimization (Combs-Lane & Smith, 2002; Greene & Navarro, 1998). However, Gidycz et al. (1995) failed to find an association in a larger college sample; only prior victimization predicted later victimization. In a small sample of heavy-drinking women, alcohol problems, but not alcohol consumption, predicted sexual victimization over the subsequent year (Testa & Livingston, 2000). None of these studies considered drug use other than alcohol. However, in a nationally representative sample of 3,006 women, Kilpatrick et al. (1997) considered both alcohol and drug use as predictors of subsequent victimization. After controlling for prior victimization, drug use predicted later physical and sexual victimization, whereas alcohol problems did not. However, when sexual and physical assaults were analyzed separately, drug use was no longer a significant predictor of sexual victimization (Acierno, Resnick, Kilpatrick, Saunders, & Best, 1999).

The mixed evidence that substance use increases risk of sexual victimization may stem from the fact that this behavior increases risk for some types of sexual victimization but not for others. In a study of sexual assault tactics, Cleveland, Koss, and Lyons (1999) found that

acquaintances were significantly more likely to use drug and alcohol tactics than were intimate partner perpetrators. Intimate partners have easy access to the woman, a history of sexual precedence, and various verbal tactics at their disposal (see Livingston et al., 2004), hence they have little need to rely on the woman's intoxication. Because the majority of sexual assaults are perpetrated by intimate partners (Smith, White, & Holland, 2003; Tjaden & Thoennes, 2000), a relationship between substance use and assault by nonintimates is likely to be obscured by analyzing intimate and nonintimate assaults together.

## Sexual Activity

Although it has received much less research attention, consensual heterosexual activity also may increase women's risk of sexual victimization. Sexual victimization commonly arises from situations involving initially consensual sexual activity and often follows sexual misperception, by which a man interprets a woman's friendly behaviors as sexual interest (Abbey, McAuslan, & Ross, 1998). Thus, women who are exposed to greater numbers of potential perpetrators within sexual or potentially sexual situations are likely to increase their risk of sexual victimization. Such a conjecture is consistent with theories suggesting that some lifestyles and routine activities increase vulnerability to victimization (Cohen & Felson, 1979; Hindelang, Gottfredson, & Garofalo, 1978). Several studies indicate that women with a history of sexual victimization also report a higher number of consensual sexual partners (e.g., Abbey, Ross, McDuffie, & McAuslan, 1996; Cunningham, Stiffman, Dore, & Earls, 1994; Merrill et al., 1999). However, only a few studies have examined prospectively the relationship between consensual sexual activity and sexual victimization. Among college students, Greene and Navarro (1998) found that number of sexual partners at Wave 2 predicted Wave 3 victimization; however, Wave 1 partners did not predict Wave 2 victimization. Two other studies of college students found univariate prospective relationships, but these relationships were nonsignificant in multivariate analyses (Gidycz et al., 1995; Himelein, 1995).

Women with higher numbers of consensual male sexual partners may increase their risk of all types of sexual aggression because of their higher exposure to potential perpetrators. However, we hypothesized that number of consensual sexual partners will be more strongly predictive of victimization from a nonintimate perpetrator than from an intimate. We believe that number of sexual partners functions as a proxy for active socializing and, therefore, is likely to increase vulnerability to sexual victimization in a social context, perpetrated by an acquaintance, friend, or casual date.

## Sexual Refusal Assertiveness

Another aspect of sexual behavior that is potentially relevant in predicting subsequent victimization is sexual refusal assertiveness. Women who have difficulty refusing sexual requests are likely to be more vulnerable to sexual victimization, particularly sexual coercion from intimates. A cross-sectional study showed that women who had experienced sexual coercion reported lower general and sexual assertiveness, whereas assertiveness was not associated with history of rape (Testa & Dermen, 1999). In a prospective study, Greene and Navarro (1998) found that lower assertiveness with men predicted subsequent sexual victimization at two time points. Using the current data set, Livingston, Testa, and VanZile-Tamsen (in press) also found that lower sexual refusal assertiveness predicted later victimization after controlling for the effects of prior victimization, depression, and posttraumatic stress disorder. However, the Livingston et al. analysis did not consider victimization from intimates separately from victimization from nonintimates. Because verbal coercion is primarily a strategy of intimate partners (Livingston et al., 2004) and women find it difficult to refuse given prior sexual precedence (Shotland & Goodstein, 1992), we

hypothesized that low sexual refusal assertiveness would predict victimization from an intimate partner.

## Summary and Hypotheses

We hypothesized that three behavioral risk factors would be differentially associated with subsequent sexual victimization from intimate partner perpetrators and nonintimate perpetrators. Specifically, we hypothesized that lower initial sexual refusal assertiveness would predict intimate partner sexual victimization, but we made no hypothesis regarding its association with victimization perpetrated by nonintimates. In contrast, we expected that sexual victimization from nonintimate partners would be predicted by higher initial levels of alcohol and drug use and number of sexual partners. We made no corresponding hypotheses regarding the association of substance use and sexual activity with intimate partner victimization. Hypotheses were tested in a large community sample of young women. Compared with older women, young women are at elevated risk of sexual victimization (Bureau of Justice Statistics, 2003) and have higher rates of substance use (Midanik & Clark, 1994) and higher numbers of recent sexual partners (Laumann, Gagnon, Michael, & Michaels, 1994).

We tested the effects of behavioral risk factors on later victimization after accounting for the effects of prior sexual victimization, which is a consistent and robust predictor of later victimization (e.g., Gidycz et al., 1995; Humphrey & White, 2000). Because we believed that victimization by intimates and by nonintimates are different phenomena, we considered their separate effects on later intimate and nonintimate victimization experiences. Reasoning that women victimized by intimates are likely to experience repeated victimization because of daily exposure to a sexually aggressive partner, we hypothesized that a history of intimate partner sexual victimization would put women at elevated risk of subsequent intimate partner victimization. We were less certain, however, that prior nonintimate perpetrator victimization would be associated with subsequent nonintimate victimization after accounting for the effects of behavioral risk factors. We also considered the effects of childhood sexual abuse (CSA), which has been shown in some studies to increase the risk of later sexual victimization (e.g., Brener, McMahon, Warren, & Douglas, 1999; Nelson et al., 2002), and demographic variables.

## Method

### Participants

Random digit dialing of households in the Buffalo, New York, area, between May 2000 and April 2002, was used to identify women 18–30 years of age. The sampling frame contained all telephone exchanges in the city of Buffalo and most from surrounding Erie County, excluding those areas most geographically distant from downtown Buffalo where the initial interview was conducted. In-person interviews were completed with 1,014 women, or 61% of eligible women identified, a completion rate similar to that of surveys conducted solely by telephone (e.g., Simon et al., 2001; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001).<sup>1</sup> The sample appeared a good representation of the local population from which it was drawn. For example, the sample was 75.3% Caucasian and 16.9% African American, with small percentages of Hispanic (3.2%), Asian (1.6%), Native American (.7%), and women of mixed or other background (2.4%). The expected percentages of Caucasians and African Americans

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<sup>1</sup>Tjaden and Thoennes (2000) reported a somewhat higher completion rate of 72% for women in their study. However, whereas their study involved a 25-min telephone survey, ours required a 2-hr, in-person data-collection session held at a downtown location. To determine whether subject burden may have reduced response rate or influenced results, we recruited a separate sample of 318 women, using identical random digit dialing procedures, to complete similar measures via a questionnaire that was sent and returned by mail. Completion rate was much higher (88%) when participation did not require travel to a central location, suggesting that in-person participation was a barrier, particularly for suburban women. Nonetheless, self-reported sexual victimization, substance use, and sexual behavior were comparable for the two samples (see Testa, Livingston, & VanZile-Tamsen, 2005), arguing against nonresponse bias.

for the area, based on 2000 census data, are 78.1% and 16.5%, respectively. Median annual household income for the sample was about \$35,000, compared with \$36,498 for the area. Most participants had graduated from high school (95%), compared with 89% of young women for the area as a whole. Although college housing was not included in our sampling frame, 39.8% were enrolled in higher education (32.6% in college and 7.2% in graduate school), compared with 35.9% of similarly aged women in the county. At Time 1 (T1), most were unmarried (76% never married, 3% divorced or legally separated), with an average age of 23.76 years ( $SD = 3.71$ ). Most were employed either full time (35.0%) or part time (43.8%).

Of the 1,014 women who completed T1, 927 (91.4%) completed all three waves (T1, T2, and T3). Noncompleters did not differ from completers on age, income, marital status, CSA, sexual victimization, alcohol or drug abuse, sexual refusal assertiveness, or sexual risk behavior. However, 5.7% of Caucasians were noncompleters compared with 16.5% of non-Caucasians, a difference that was statistically significant,  $\chi^2(1, N = 1008) = 28.63, p < .001$ .

## Procedure

The study was conducted in compliance with the university institutional review board. Eligible women were asked to participate in a longitudinal study of women's social experiences, consisting of three waves of data collection, 12 months apart. Initial participation involved a 2-hr session conducted at the Research Institute on Addictions (RIA), for which participants were paid \$50. When the participant arrived at RIA, we explained the study procedures and obtained written informed consent. T1 data were collected using a computer-assisted self-interview, which is thought to increase willingness to report sensitive data (see Gribble, Miller, Rogers, & Turner, 1999), followed by a confidential personal interview with a trained female interviewer.

At T2 and T3, questionnaire booklets were mailed to participants' homes and returned in a postage-paid envelope. Measures were similar to those used at T1 but focused on the past 12 months. On average, T2 booklets were completed 366.40 days ( $SD = 14.38$ ) after the T1 interview, and T3 booklets were completed 371.02 days ( $SD = 28.28$ ) after completion of T2. Women were sent a \$50 check on receipt of the completed questionnaires.

## Measures

**CSA**—At T1, women responded positively or negatively to a series of seven items describing unwanted or nonconsensual sexual experiences before age 14. Use of multiple, behaviorally specific items to assess CSA is thought to increase external validity by reducing the tendency to under-report (Williams, Siegal, & Pomeroy, 2000). Items, adapted from Whitmire, Harlow, Quina, and Morokoff (1999), ranged from contact (e.g., person kissed or hugged you in a sexual way) to completed intercourse (e.g., person had oral, anal, or vaginal intercourse with you). Women who reported at least one type of unwanted sexual experience before age 14 were considered to have experienced CSA.

**Adult sexual victimization**—At T1, an 11-item modified version of the Sexual Experiences Survey (SES), with demonstrated external validity, was used to assess history of male-perpetrated sexual victimization since age 14 (see Testa, VanZile-Tamsen, Livingston, & Koss, 2004). The original SES (Koss, Gidycz, & Wisniewski, 1987) consists of 10 behaviorally specific items that assess unwanted sexual contact, verbally coerced intercourse, attempted rape, and rape experiences. In this revised version, the wording of several items was modified to improve clarity. Items describing completed or attempted sexual intercourse “because a man gave you alcohol or drugs” were modified to specify that substances were given “without your knowledge or consent” to make them conform more closely with legal statutes (Gyls &

McNamara, 1996). We also added an 11th item assessing whether unwanted sexual intercourse had occurred when the woman was passed out or incapacitated by alcohol or drugs. For each item, the respondent indicated whether or not the experience had occurred and, if so, how old she was the most recent time it occurred.

Women who reported adult sexual victimization at T1 were subsequently interviewed to obtain additional information about the most recent incident of victimization, including the type of perpetrator. Women were coded as experiencing intimate partner victimization if they had been victimized by a boyfriend/dating partner, husband, ex-boyfriend, or ex-husband and as experiencing nonintimate perpetration if victimized by a stranger, someone just met, acquaintance, friend, relative, or group. Supporting the validity of the distinction, 74.6% of women reporting victimization by an intimate indicated that they previously had had consensual sexual intercourse with the perpetrator, compared with 5.0% of women victimized by a nonintimate,  $\chi^2(1, N = 360) = 177.49, p < .001$ . Eight women who reported sexual victimization at T1 failed to complete the personal interview and, hence, type of perpetrator could not be determined. These women were included in determining victimization incidence at T2 and T3 (Table 1) but were not included in any other tables or analyses.

The interview focused on only the most recent incident of sexual victimization. Women who reported more than one sexual victimization incident were coded as experiencing additional T1 sexual victimization, although the perpetrators of these prior incidents were unknown.

At T2 and T3, the modified SES was used to assess sexual victimization experiences over the past 12 months. For each item that had occurred, the woman recorded the month and year of occurrence and the perpetrator, allowing us to categorize as intimate or nonintimate perpetrator in the manner described above.

**Substance use**—Women completed several measures of substance use, which was characterized in several ways. We used frequency of heavy episodic (“binge”) drinking as our primary independent measure because we believe that vulnerability to sexual assault increases with more episodes of intoxication. Heavy episodic drinking was assessed using two questions: (a) frequency of consuming five or more drinks on a single occasion in the past 12 months and (b) frequency of drinking until intoxicated in the past 12 months. Both items were assessed on a 6-point scale ranging from 0 (*never*) to 5 (*5 or more days per week*). Because these items were highly correlated ( $r = .75$ ), they were averaged. We also assessed average drinks per drinking occasion and maximum drinks per drinking occasion. All alcohol consumption measures were positively correlated with each other within and across time periods, providing evidence of their internal validity. Finally, the Diagnostic Interview Schedule (DIS-IV) Alcohol Module (Robins, Cottler, Bucholz, & Compton, 1997) was administered by the interviewer and used to obtain a diagnosis of past-year alcohol abuse or dependence using *Diagnostic and Statistical Manual for Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria.

Women responded to a series of separate questions regarding frequency of use of marijuana, cocaine, opiates, psychedelics, club drugs, barbiturates, amphetamines, inhalants, and nonprescribed prescription drugs in the past year. Consistent with our belief that sexual vulnerability increases with episodes of impairment, our primary measure of drug use consisted of a single frequency of use score based on the drug used most frequently in the past 12 months. Scores ranged from 0 (*no use in the past 12 months*) to 6 (*used every day or nearly every day in the past 12 months*). We also counted the number of illicit drugs used and administered the Drug Abuse Screening Test (DAST; Skinner, 1982), a 20-item measure of drug-related

problems (e.g., “Have you lost a job because of drug abuse?”) with adequate internal consistency ( $\alpha = .81$ ).

**Consensual sexual partners**—At each wave, women were asked with how many partners they had engaged in vaginal, oral, or anal sex in the past 12 months.<sup>2</sup> To reduce skewness resulting from high numbers of partners reported by a few women, the variable was log-transformed. Number of past-year sexual partners was positively correlated with other measures of sexual risk taking, such as number of times having sex with someone just met that day (see VanZile-Tamsen, Testa, Harlow, & Livingston, 2006), providing evidence of construct validity.

**Sexual refusal assertiveness**—At T1, we administered the Sexual Assertiveness Scale (SAS; Morokoff et al., 1997), an 18-item scale containing Sexual Initiation, Pregnancy Prevention, and Sexual Refusal Assertiveness subscales. For this analysis, we focused on the Sexual Refusal Assertiveness subscale, which consists of 6 items (e.g., “I refuse to have sex if I don’t want to, even if my partner insists”) rated on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. The subscale had adequate internal consistency ( $\alpha = .77$ ).

**Demographic variables**—Age, ethnicity, and marital/cohabiting status were assessed at T1.

## Results

### Incidence of T2 and T3 Sexual Victimization

At T2, 116 women (12.5%) reported experiencing some type of sexual victimization over the past 12 months, including sexual contact, coercion, attempted rape, or rape. Over the next 12 months, at T3, 94 (10.1%) reported some type of sexual victimization. Recognizing that a woman may experience more than one incident within a given time period, or more than one experience within an incident, it is common to classify victims according to the most serious type of sexual victimization experienced. These results are presented in Table 1.

### Predicting Sexual Victimization by Intimate Versus Nonintimate Perpetrators

Consistent with prior research, the majority of women who reported sexual victimization were victimized by an intimate partner (67.2% at T2, 65.9% at T3). As expected, women experiencing intimate partner victimization were much more likely to report sexual coercion than were women reporting nonintimate perpetrator victimization both at T2 (80.5% vs. 15.0%),  $\chi^2(1, N = 117) = 46.43, p < .001$ , and at T3 (86.2% vs. 33.3%),  $\chi^2(1, N = 88) = 25.48, p < .001$ .<sup>3</sup>

Our goal was to identify predictors of sexual victimization by intimate partners separately from predictors of sexual victimization by nonintimate perpetrators. Given the relative rarity of sexual victimization, particularly from nonintimate perpetrators, we combined reports of victimization at T2 and T3 to ensure a reasonable ratio of events per predictor variable and to avoid unstable estimates (see Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). Henceforth, T3 sexual victimization refers to victimization occurring during the 24-month follow-up period between T1 and T3 (see Table 1). By T3, 166 women (17.9%) reported some

<sup>2</sup>Although we did not ask specifically about number of male sexual partners, we believe that the vast majority were male. Eight women reported currently being in a lesbian relationship. When analyses were repeated excluding these eight women, the pattern of results was unchanged.

type of sexual victimization; 92 by an intimate partner only, 51 by a nonintimate perpetrator only, and 20 by both types of perpetrator. Three women failed to provide information on the perpetrator and were not included in subsequent analyses.

Table 2 displays univariate associations between T1 risk factors and type of T3 victimization. Women victimized by a nonintimate perpetrator reported higher frequency of heavy episodic drinking and more past-year sexual partners than any other group. Although drug use frequency appeared elevated among victimized women, pairwise comparisons failed to yield significant differences among the groups. Compared with nonvictimized women, women victimized by an intimate were significantly lower in sexual refusal assertiveness. They reported more partners than nonvictimized women but fewer partners than those victimized by nonintimates.

Next, we sought to identify multivariate predictors of the two types of victimization. As expected, several predictor variables were modestly intercorrelated (see Table 3). Because the victimization outcome variable was a four-level nominal variable (none, intimate, nonintimate, or both) rather than a dichotomous variable, we could not use standard logistic regression to predict type of T3 sexual victimization. Rather, we used an extension of the logistic regression model developed for outcomes with more than two categories called multinomial or polychotomous regression (Long, 1997). In a multinomial logistic regression,  $k - 1$  dichotomous outcomes are analyzed simultaneously, where  $k$  equals the number of categories in the nominal outcome variables. In the present study, the three simultaneous dichotomous outcomes compared each of the three categories of victimized women with women who reported no T3 victimization.

Odds ratios (ORs) associated with each risk factor are shown in Table 4. Predictors of T3 intimate partner victimization were marriage or cohabitation, prior intimate partner victimization and additional sexual victimization experiences, more frequent drug use, and low sexual refusal assertiveness. T3 victimization by a nonintimate perpetrator was predicted by being single, more frequent heavy episodic drinking, and more consensual sexual partners. The only variable that distinguished women who experienced both types of victimization from nonvictims was prior intimate partner victimization; however, results should be interpreted with caution given the small number of women in this group.<sup>4</sup> Although the positive association between drug use and intimate partner victimization was unexpected, in general, hypotheses were supported.

### Supplemental Analyses

To ensure the robustness of these findings, we repeated the multinomial analysis with some variation in the predictors. First, we repeated the analysis using any T1 sexual victimization as a predictor, instead of the three separate T1 victimization variables. Any T1 victimization predicted both intimate and nonintimate victimization; the pattern of results for the other predictors was unchanged. We also repeated the analysis substituting several alternative measures of T1 alcohol and drug use: number of T1 drugs, T1 DAST score, T1 average drinks per occasion, T1 maximum drinks per occasion, and T1 alcohol abuse/dependence diagnosis in the past 12 months. The pattern of results was not altered regardless of which substance use measures were used. Likewise, results were unchanged when number of occasions of sexual intercourse with someone just met was substituted for number of sexual partners.

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<sup>3</sup>We did not offer any hypotheses regarding the relationship between type of perpetrator and other types of victimization (e.g., contact, rape) and found no consistent pattern of results.

<sup>4</sup>The multinomial logistic regression was repeated omitting women who reported both types of victimization. The pattern of results for the other two types of victimization was unchanged.

We have argued that heterogeneity in sexual victimization calls for predicting intimate partner victimization separately from non-intimate perpetrator victimization. However, most researchers have sought to predict any kind of sexual victimization, regardless of perpetrator. To determine how findings might differ with a single victimization measure as the outcome, we performed logistic regression using any T3 sexual victimization as the outcome. We included as predictors any T1 sexual victimization and all other variables included in the multinomial analysis. Significant predictors of T3 victimization were T1 sexual victimization ( $\beta = 2.11$ , confidence interval [CI] = 1.46, 3.07), T1 sexual partners ( $\beta = 3.23$ , CI = 1.28, 8.16), T1 drug use ( $\beta = 1.10$ , CI = 1.01, 1.21), and T1 sexual refusal assertiveness ( $\beta = .59$ , CI = .45, .76). Nagelkerke pseudo- $R^2$  was .14.

## Discussion

When sexual victimization from intimates and victimization from nonintimates were considered separately, nonoverlapping sets of predictors emerged, suggesting that these are two separate phenomena, with different risk factors. The customary method of analyzing sexual victimization as a unitary construct may obscure important relationships, particularly with respect to victimization from nonintimate perpetrators, which occurs less frequently. Our findings help to explain inconsistencies in results of previous studies and have important implications for prevention.

Although women's alcohol use frequently has been hypothesized as a risk factor for subsequent sexual victimization, many studies have failed to find such a relationship (e.g., Gidycz et al., 1995; Kilpatrick et al., 1997). We hypothesized, and found, that the relationship between alcohol and sexual victimization is specific to victimization from nonintimate perpetrators. Findings are consistent with prior research indicating that perpetrators who are less well acquainted with the victim are more likely to use intoxication tactics than are intimate partners, who already have sexual access (Cleveland et al., 1999). The association between alcohol and victimization by nonintimates also may reflect the fact that heavy episodic drinking, because it typically occurs outside the home and in the presence of others who are also drinking, reflects a lifestyle that poses a greater risk for sexual victimization by men who are less well known. In addition, as hypothesized, number of sexual partners was positively associated with subsequent sexual victimization from nonintimates but not from intimates. Having more sexual partners is indicative of a lifestyle that involves greater exposure to men and, hence, potential perpetrators. Number of partners may be less important in intimate partner victimization than are the characteristics of those partners. That is, a woman in a monogamous relationship is at high risk of sexual victimization if her partner is sexually aggressive.

Consistent with the finding that most victimization from intimates involves verbal sexual coercion, low sexual refusal assertiveness was associated, as hypothesized, with intimate partner victimization. The relationship may be a direct one, reflecting difficulty refusing a partner's requests for sex. Alternatively, less assertive women may be willing to remain in coercive relationships. Whereas prior victimization has generally been assumed to be an important predictor of later victimization (e.g., Breitenbecher, 2001), our study suggests a potentially important limitation to this relationship. That is, the tendency for sexual victimization history to increase the risk of later victimization was limited to intimate partner victimization, perhaps reflecting repeated victimization occurring within ongoing intimate relationships.

Contrary to our hypothesis, drug use was a risk factor for intimate partner victimization but not for victimization from nonintimates. This finding, although unexpected, is consistent with previous analyses of this data set showing that women's drug use predicted subsequent intimate

partner physical violence, both within ongoing relationships and in new relationships (Testa, Livingston, & Leonard, 2003). Other studies also have shown that women's drug use is associated with subsequent intimate partner physical violence (El-Bassel, Gilbert, Wu, Go, & Hill, 2005) or with physical violence more generally (Acierno et al., 1999), much of which is perpetrated by intimate partners (Tjaden & Thoennes, 2000). We do not know whether the intimate partner victimization reported in our study occurred because or when the woman was using drugs, although prior event-based studies of sexual victimization incidents typically have found that very few involve victim drug use (e.g., Ullman, Karabatsos, & Koss, 1999). Because women who use drugs are likely to have partners who also use drugs (Yamaguchi & Kandel, 1997), it is plausible that the link between drug use and sexual victimization from an intimate reflects the tendency for drug-using men to victimize their partners (e.g., El-Bassel, Gilbert, & Schilling, 2000; Magdol et al., 1997).

Despite the many strengths of the study, we acknowledge several limitations as well. Although the community sample was large and diverse and appeared to represent the local population, participants were drawn from a single geographic location, potentially limiting generalizability. Response rate was respectable given the mode of recruitment and subject burden; however, the extent to which nonresponse may have biased findings is not known. Attrition was low, but women of color were more likely to be lost to follow-up. Other limitations involve internal validity. For example, the victim-perpetrator relationship may be classified according to intimacy in several different ways (see Testa, VanZile-Tamsen, & Livingston, 2004), and different definitions of intimate partner may have yielded somewhat different results. Predictors also may have differed if a shorter or longer follow-up intervals were used. Furthermore, as is common in this type of research, we relied on self-reports of sexual behavior, sexual victimization, and substance use, which may be subject to error or bias. The fact that the pattern of results was unchanged when different measures of our predictor variables were used bolsters confidence in the findings. However, these novel results require replication, preferably with an even larger sample, given that some types of victimization occur less frequently than others.

The finding that sexual victimization from intimate partners has different predictors than victimization by nonintimates has important implications for prevention. Prevention strategies designed to reduce heavy episodic drinking and number of sexual partnerships may prove fruitful in reducing sexual victimization from nonintimates. Such strategies also may be appropriate for certain populations, such as college students, that are characterized by high levels of drinking (Knight et al., 2002), many short-term sexual relationships (Corbin & Fromme, 2002), and a high proportion of alcohol-involved assaults (Mohler-Kuo et al., 2004). On the other hand, such strategies are unlikely to reduce the most common form of sexual victimization: that perpetrated by intimate partners. Women are at risk of sexual victimization from an intimate by virtue of being in a relationship with a man who is prone to sexual aggression and having difficulty refusing his sexual advances. Interventions designed to increase sexual assertiveness within intimate relationships, such as those implemented for HIV prevention (see Exner, Seal, & Ehrhardt, 1997) or to discourage young women from entering or remaining in coercive relationships, may help to prevent this type of sexual victimization. Ultimately, we believe that considering different types of sexual victimization as separate phenomenon offers a fruitful approach to understanding and ultimately preventing sexual victimization.

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**Table 1**  
Incidence of Sexual Victimization by Time Period (N = 927)

| Type of victimization | Time period (T) |      |                |      |                      |      |
|-----------------------|-----------------|------|----------------|------|----------------------|------|
|                       | T2 (12 months)  |      | T3 (12 months) |      | T2 or T3 (24 months) |      |
|                       | n               | %    | n              | %    | n                    | %    |
| No victimization      | 811             | 87.5 | 833            | 89.9 | 761                  | 82.1 |
| Sexual contact        | 29              | 3.1  | 19             | 2.0  | 37                   | 4.0  |
| Sexual coercion       | 58              | 6.3  | 57             | 6.1  | 87                   | 9.4  |
| Attempted rape        | 9               | 1.0  | 4              | .4   | 11                   | 1.2  |
| Rape                  | 20              | 2.2  | 14             | 1.5  | 31                   | 3.3  |

**Table 2**  
 Baseline (T1) Characteristics of Women According to Type of Sexual Victimization at 24-Month Follow-up (T3)

| Variable  | No sexual victimization ( <i>n</i> = 761) |      |      | Victimization from intimate partner ( <i>n</i> = 92) |      |      | Victimization from nonintimate perpetrator ( <i>n</i> = 51) |      |      | Victimization from both types of perpetrator ( <i>n</i> = 20) |                   |   | F                              | $\chi^2$                         |
|---|---|------|------|--|------|------|---|------|------|---|-------------------|---|--------------------------------|----------------------------------|
|   | M   | SD   | %    | M  | SD   | %    | M   | SD   | %    | M   | SD                | % |                                |                                  |
| T1 age  | 23.82 <sub>a</sub>                        | 3.72 |      | 24.12 <sub>a</sub>                                   | 3.63 |      | 22.02 <sub>b</sub>  | 3.37 |      | 22.80 <sub>ab</sub>   | 3.56              |   | 4.5 <sub>9</sub> <sup>**</sup> |                                  |
| T1 married or cohabiting                          |   |      | 38.0 |  |      | 53.3 |   |      | 7.8  |   |                   |   |                                | 29.3 <sub>8</sub> <sup>***</sup> |
| Caucasian   |   |      | 78.5 |  |      | 72.8 |   |      | 72.0 |   |                   |   |                                | 3.11                             |
| Childhood sexual abuse                            |   |      | 29.0 |  |      | 45.6 |   |      | 37.3 |   |                   |   |                                | 12.8 <sub>5</sub> <sup>**</sup>  |
| T1 intimate partner sexual victimization          |   |      | 14.5 |  |      | 41.8 |   |      | 19.6 |   |                   |   |                                | 52.0 <sub>8</sub> <sup>***</sup> |
| T1 nonintimate perpetrator sexual victimization   |   |      | 17.6 |  |      | 15.4 |   |      | 31.4 |   |                   |   |                                | 7.38                             |
| Additional T1 sexual victimization                |   |      | 10.0 |  |      | 37.0 |   |      | 25.5 |   |                   |   |                                | 58.5 <sub>5</sub> <sup>***</sup> |
| T1 frequency of past-year heavy episodic drinking | 0.95 <sub>a</sub>                         | 0.84 |      | 0.93 <sub>a</sub>                                    | 0.77 |      | 1.46 <sub>b</sub>   | 0.99 |      | 1.00 <sub>a</sub>   | 0.79              |   |                                | 5.9 <sub>9</sub> <sup>**</sup>   |
| T1 frequency of past-year drug use                | 1.12 <sub>a</sub>                         | 1.94 |      | 1.85 <sub>a</sub>                                    | 2.25 |      | 2.00 <sub>a</sub>   | 2.24 |      | 2.00 <sub>a</sub>   | 2.36              |   |                                | 7.1 <sub>2</sub> <sup>***</sup>  |
| T1 past-year sexual partners <sup>a</sup>         | 1.53 <sub>a</sub>                         | 1.45 |      | 1.99 <sub>b</sub>                                    | 1.84 |      | 2.94 <sub>c</sub>   | 2.75 |      | 2.05  | 1.68 <sub>b</sub> |   |                                | 10.0 <sub>0</sub> <sup>***</sup> |
| T1 sexual refusal assertiveness                   | 3.88 <sub>a</sub>                         | 0.68 |      | 3.43 <sub>b</sub>                                    | 0.77 |      | 3.71 <sub>ab</sub>  | 0.72 |      | 3.54 <sub>ab</sub>  | 0.66              |   |                                | 13.6 <sub>7</sub> <sup>***</sup> |

Note. Means with different subscripts differ at  $p < .05$  or greater by Tukey's honestly significant difference test. Because of varying numbers of missing cases for each variable, degrees of freedom for the *F* tests range from (3, 897) to (3, 920); *M*s for the chi-square tests range from 912 to 924.

<sup>a</sup>Means are based on actual number of partners; analysis of variance and pairwise comparisons are based on log-transformed variable.

\*\*  $p < .01$ .

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

Table 3

Intercorrelations Among Variables

| Variable  | 1        | 2        | 3       | 4        | 5        | 6       | 7        | 8       | 9       | 10       | 11   |
|---|----------|----------|---------|----------|----------|---------|----------|---------|---------|----------|------|
| 1. Age  | 1.00     |          |         |          |          |         |          |         |         |          |      |
| 2. Time period 1 (T1) married/cohabiting <sup>a</sup>           | 0.38***  | 1.00     |         |          |          |         |          |         |         |          |      |
| 3. Ethnicity <sup>b</sup>                                       | 0.07*    | 0.01     | 1.00    |          |          |         |          |         |         |          |      |
| 4. Childhood sexual abuse <sup>c</sup>                          | 0.02     | -0.03    | 0.21*** | 1.00     |          |         |          |         |         |          |      |
| 5. T1 intimate partner sexual victimization <sup>d</sup>        | 0.11**   | 0.08*    | -0.05   | 0.22***  | 1.00     |         |          |         |         |          |      |
| 6. T1 nonintimate perpetrator sexual victimization <sup>e</sup> | -0.03    | -0.03    | 0.08*   | 0.02     | -0.22*** | 1.00    |          |         |         |          |      |
| 7. Additional T1 sexual victimization <sup>f</sup>              | 0.06     | 0.07*    | -0.05   | 0.20***  | 0.44***  | 0.21*** | 1.00     |         |         |          |      |
| 8. T1 frequency past-year heavy drinking                        | -0.09**  | -0.19*** | 0.16*** | 0.05     | -0.05    | 0.13*** | 0.02     | 1.00    |         |          |      |
| 9. T1 frequency past-year drug use                              | 0.14***  | -0.11*** | -0.07*  | 0.14***  | 0.01     | 0.16*** | 0.13***  | 0.40*** | 1.00    |          |      |
| 10. T1 past-year sexual partners                                | -0.03    | -0.09**  | -0.10** | 0.17***  | 0.06     | 0.12*** | 0.11**   | 0.29*** | 0.29*** | 1.00     |      |
| 11. T1 sexual refusal assertiveness                             | -0.12*** | -0.05*   | 0.05    | -0.11*** | -0.21*** | -0.02   | -0.22*** | -0.01   | -0.07*  | -0.09*** | 1.00 |

<sup>a</sup> Dichotomous with married or cohabiting coded 1.

<sup>b</sup> Dichotomous with Caucasian coded 1.

<sup>c</sup> Dichotomous with any childhood sexual abuse coded 1.

<sup>d</sup> Dichotomous with any intimate partner sexual victimization coded 1.

<sup>e</sup> Dichotomous with any nonintimate perpetrator sexual victimization coded 1.

<sup>f</sup> Dichotomous with any other sexual victimization incident coded 1.

\*  $p < .05$ .

\*\*  $p < .01$ .

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

**Table 4**

Multinomial Logistic Regression Analysis of Sexual Victimization at 24-Month Follow-up (T3) by Type of Perpetrator

| Variable  | Intimate partner |            | Nonintimate perpetrator |             | Both types of perpetrator |             |
|---|------------------|------------|-------------------------|-------------|---------------------------|-------------|
|   | OR               | CI         | OR                      | CI          | OR                        | CI          |
| Age   | 0.98             | 0.91, 1.05 | 0.93                    | 0.84, 1.02  | 0.86                      | 0.74, 1.00  |
| Marital/cohabiting                              | 1.95*            | 1.17, 3.23 | 0.21**                  | 0.07, 0.63  | 1.06                      | 0.36, 3.09  |
| Ethnicity                                       | 0.94             | 0.54, 1.65 | 0.62                    | 0.30, 1.28  | 0.71                      | 0.24, 2.10  |
| Childhood sexual abuse                          | 1.19             | 0.71, 1.97 | 1.05                    | 0.54, 2.06  | 1.19                      | 0.42, 3.35  |
| T1 intimate partner sexual victimization        | 2.03*            | 1.05, 4.00 | 1.43                    | 0.55, 3.72  | 4.41*                     | 1.33, 14.60 |
| T1 nonintimate perpetrator sexual victimization | 0.79             | 0.38, 1.67 | 1.55                    | 0.71, 3.42  | 0.85                      | 0.17, 4.34  |
| T1 additional sexual victimization              | 2.40*            | 1.24, 4.66 | 2.16                    | 0.88, 5.31  | 0.98                      | 0.26, 3.76  |
| T1 frequency of past-year heavy drinking        | 0.84             | 0.61, 1.16 | 1.44*                   | 1.01, 2.04  | 0.90                      | 0.48, 1.67  |
| T1 frequency of past-year drug use              | 1.18**           | 1.05, 1.33 | 0.99                    | 0.85, 1.16  | 1.13                      | 0.89, 1.44  |
| T1 past-year sexual partners                    | 2.04             | 0.56, 7.47 | 5.15*                   | 1.28, 20.66 | 1.20                      | 0.10, 13.78 |
| T1 sexual refusal assertiveness                 | 0.56***          | 0.40, 0.77 | 0.78                    | 0.50, 1.22  | 0.68                      | 0.34, 1.35  |

Note.  $n = 877$ .  $\chi^2(2565, N = 877) = 2,498.22, p = .82$ ; Cox and Snell pseudo- $R^2 = .15$ ; Nagelkerke pseudo- $R^2 = .21$ ; McFadden pseudo- $R^2 = .13$ . OR = odds ratio; CI = confidence interval; T = time period.

\*  $p < .05$ .

\*\*  $p < .01$ .

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