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Background Predictors and Event-Specific Characteristics of Sexual Aggression Incidents: The Roles of Alcohol and Other Factors

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Abstract

Sexual assault in the United States is an important public health concern. Using prospective longitudinal methods and responses from 217 community men, we examined whether background characteristics predicted subsequent sexual aggression (SA) perpetration during a three month follow-up period. We also examined event-specific characteristics of reported SA occurrences. Consistent with predictions, SA perpetration history, aggressive and impulsive personality traits, rape myth attitudes, and alcohol expectancies predicted SA (both non- and alcohol-involved) at follow-up. Additionally, alcohol-involved assaults occurred more often with casual (vs. steady) partners but were more likely to involve condom use with casual (vs. steady) partners. Results suggest important avenues for future research and SA prevention efforts.

Keywords

sexual aggression; sexual assault; longitudinal; alcohol; expectancies

Despite implementation of prevention programs, the rates of sexual assault continue to present a significant public health problem in the United States, particularly among young, sexually active drinkers. Although estimates vary across studies due to sample characteristics and survey methods, up to 80% of women report sexual victimization and up to 64% of men report sexual aggression (SA) perpetration since age 14 (Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Masters et al., 2013), which includes

nonconsensual sexual contact as well as attempted and completed nonconsensual sexual intercourse. Because many of these sexual assaults involve alcohol consumption by the perpetrator, the victim, or both (Abbey, 2011; Testa, 2002), continued empirical investigation of alcohol-involved sexual assaults is essential. Research that identifies individuals for whom and situations in which alcohol plays a contributory role in sexual assault can illuminate potential targets for prevention and intervention efforts. To that end, the current study surveyed young male drinkers at high risk for SA perpetration about their sexual experiences (both aggressive and non-aggressive) over a three month period in order to obtain information about specific event characteristics, including alcohol consumption, partner-related factors, and condom use. We also examined the role of background factors theoretically and empirically linked to SA perpetration as prospective predictors of these events, including SA perpetration history, trait aggression and impulsivity, and attitudes and expectancies regarding sex and aggression.

Background Perpetrator Characteristics

Research and theory suggest that particular traits and attitudes are predictors of SA perpetration. Men who perpetrate SA often exhibit more aggressive, impulsive, and angry/hostile personality traits than do non-perpetrators (Lisak & Roth, 1988; Spence, Losoff, & Robbins, 1991; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003). Moreover, men who commit alcohol-involved assaults report greater levels of impulsivity than do perpetrators whose assaults do not involve alcohol (Zawacki et al., 2003). These findings indicate that personality traits may be particularly important to consider in male drinkers' SA perpetration.

Greater endorsement of rape supportive attitudes also often distinguishes SA perpetrators from non-perpetrators. Specifically, stronger acceptance of rape myths – inaccurate and harmful misperceptions about rape – is associated with greater likelihood of sexual assault perpetration (Abbey & Jacques-Tiura, 2011). In support of the Confluence Model of SA (Malamuth, Sockloskie, Koss, & Tanaka, 1991), hostile masculinity – hostile attitudes toward women and adversarial heterosexual beliefs – consistently predicts men's SA perpetration (Abbey, Jacques-Tiura, & LeBreton, 2011; Logan-Greene & Davis, 2011; Malamuth, Linz, Heavey, Barnes, & Acker, 1995). In one study, perpetrators who used the victim's alcohol-related impairment as an assault tactic reported greater endorsement of hostility toward women and rape myths than did perpetrators who used verbally coercive tactics (Abbey & Jacques-Tiura, 2011), suggesting that these beliefs may play a particularly important role in alcohol-involved SA. Similarly, stronger expectancies that alcohol increases sexual drive and more frequent consumption of alcohol during sexual situations also have a demonstrated association with alcohol-involved SA (Zawacki et al., 2003).

Alcohol Consumption by the Perpetrator

Alcohol's involvement in sexual assault incidents varies, with research indicating that rates of perpetrator alcohol consumption range from 30% to 75% (Abbey, 2011). Because of this variation, investigators have examined whether or not individual perpetrators vary in their drinking during SA events. For example, Parkhill and Abbey (2008) found that one-quarter

of their sample reported having perpetrated SA in both sober and intoxicated states. In contrast, almost half (48%) of the perpetrators in their sample had only committed sexual assault when sober, while 27% had only committed sexual assault while drinking. In a survey of male non-problem drinkers, Davis and colleagues (Davis, Schraufnagel, George, & Norris, 2008) similarly found that just over one-quarter of the sample (28.4%) reported having consumed alcohol before some, but not all, of their sexual assault perpetration. Thus, in both of these studies, approximately one-quarter of perpetrators reported inconsistency in whether or not they had consumed alcohol at the time of their assaults, suggesting that within-subject analyses may reveal important information about situations in which alcohol does and does not act as a contributory factor to SA (Abbey, 2011).

Perpetrator alcohol consumption has also been related to level of sexual aggression during the incident as well as to the severity of the outcome in some studies. Although research using a dichotomous measure of alcohol consumption did not find a relationship between perpetrator alcohol use before the assault and SA severity (Ullman, Karabatsos, & Koss, 1999), studies using continuous measures of alcohol consumption have found significant associations. For example, Abbey and colleagues (Abbey, Clinton-Sherrod, McAuslan, Zawacki, & Buck, 2003) reported that the amount of alcohol consumed by the perpetrator was positively and linearly related to the use of aggression during the event. However, alcohol consumption was curvilinearly related to outcome severity with outcome severity increasing between 0–4 drinks, remaining constant for 5–8 drinks, and then declining when 9 or more drinks had been consumed. Similarly, another study of young, single men found that perpetrators who had consumed five or more drinks before a sexual assault used more physical force and committed more severe assaults than non-drinking or lighter drinking perpetrators (Parkhill, Abbey, & Jacques-Tiura, 2009). An examination of heavy episodic drinking men reported that incapacitated rapes (i.e., those in which the perpetrator took advantage of the victim's impairment due to alcohol intoxication to obtain nonconsensual sex) were significantly more likely to involve perpetrator alcohol consumption than non-consumption (Davis et al., 2012). However, alcohol consumption was not significantly related to other sexual assault tactics such as verbal coercion or physical force.

Finally, perpetrator alcohol consumption during sexual assault has also been shown to correlate negatively with perpetrator condom use during assaults involving penetration. Davis and colleagues (2008) found that alcohol consumption was associated with decreased condom use in forcible rape events but was not associated with condom use during incidents involving verbal sexual coercion. In a second study, Davis and colleagues (2012) reported that alcohol consumption was significantly associated with greater condom non-use across all sexual assault events. Additionally, repeat perpetrators were less likely to use condoms when drinking than when sober. Thus, perpetrator alcohol consumption may increase negative consequences for victims through increased severity of aggression and assaults, as well as decreased use of sexually protective measures such as condoms.

Alcohol Consumption by the Victim

Victim alcohol consumption is also a key factor in understanding SA incidents; indeed, obtaining nonconsensual sex by exploiting an impaired victim is a tactic commonly used by

perpetrators (Davis et al., 2012; Lawyer, Resnick, Bakanic, Burkett, & Kilpatrick, 2010; McCauley et al., 2009). Typically, these assaults occur after the victim has voluntarily consumed alcohol or other drugs and has become impaired or incapacitated (Kilpatrick, Resnick, Ruggiero, Conoscenti, & McCauley, 2007). Drinking women are considered by some men to be more sexually open and available, as well as more vulnerable to sexual coercion (Abbey, McAuslan, Thomson Ross, & Zawacki, 1999). Men who rely on victim impairment to perpetrate SA are more hostile towards women, have lower empathy, greater drinking problems, and consume more alcohol before sexual assaults than perpetrators who use verbally coercive tactics (Abbey & Jacques-Tiura, 2011). Moreover, according to perpetrator reports, incidents involving victim alcohol consumption were associated with greater aggression during the assault as well as greater SA severity (Ullman et al., 1999). Both victim and perpetrator drinking have been associated with the victim and perpetrator only knowing each other casually and socializing spontaneously in a party or bar atmosphere (Abbey et al., 2003; Ullman et al., 1999), suggesting that alcohol consumption may have varied associations with SA across different relationship types (e.g., casual acquaintances, new dating partners, steady/exclusive dating partners).

Longitudinal Studies of Sexual Aggression

The bulk of what we know about SA perpetration comes from cross-sectional surveys of male undergraduates. However, a few studies have examined sexual assault perpetration longitudinally, thereby improving the ability to draw temporal relationships. Some have studied changes in men's rates of perpetration over time as well as various predictors of these changes (Abbey & McAuslan, 2004; Abbey, Wegner, Pierce, & Jacques-Tiura, 2012; Hall, DeGarmo, Eap, Teten, & Sue, 2006). Most of these studies demonstrate that one of the best predictors of future SA perpetration is previous SA perpetration. For example, in one study prospective analyses indicated that more severe SA perpetration history significantly increased the odds of SA perpetration during a three month follow-up period (Loh, Gidycz, Lobo, & Luthra, 2005). Similarly, several other studies have found that a history of SA perpetration predicted future perpetration in a variety of samples (college men, community men, and military men) over periods from 1 to 10 years (Malamuth et al., 1995; McWhorter, Stander, Merrill, Thomsen, & Milner, 2009; White & Smith, 2004). These longitudinal studies have several important limitations, however. First, none specifically explored predictors of alcohol-involved SA. Second, many included both unwanted sexual contact and attempted rape outcomes in their rates of SA, thus making it difficult to determine whether predictors of completed rape differed from those of less severe outcomes. Finally, these studies typically included only an aggregate assessment of SA over a given follow-up period without a thorough examination of the characteristics of specific SA events. To address these limitations, the present study explored predictors and characteristics of alcohol-involved SA using a novel event-specific assessment of SA (see Method) that focused on only completed rape outcomes.

Study Overview and Hypotheses

The present study involves a prospective assessment of self-reported SA perpetration within a community sample of high risk men. Young male non-problem drinkers completed a three

part study, which consisted of a laboratory experiment that administered background measures, followed by two surveys that occurred six weeks and three months after the experiment. Background measures assessed typical alcohol use and expectancies about alcohol's effects on SA, SA perpetration history, and personality traits and attitudes related to SA. The follow-up surveys assessed SA perpetration, as well as event-specific assault characteristics.

Consistent with prior research, we predicted that (1) men with a history of SA perpetration would be more likely to report SA during the follow-up than men without a perpetration history. We also predicted that (2) men's impulsive, angry, and aggressive personality traits; alcohol consumption; and endorsement of rape myths, hostile attitudes towards women, and adversarial heterosexual beliefs would positively predict their likelihood of SA perpetration during the follow-up. Additionally, we expected (3) alcohol-involved assaults to involve more casual relationships with the victim and to be less likely to involve condom use. Finally, we expected (4) men's alcohol consumption and alcohol expectancies regarding SA to positively predict their likelihood of perpetrating an alcohol-involved assault during the follow-up period.

Method

Participants

Participants were 313 men ($M_{age} = 25.5$, $SD_{age} = 3.5$) recruited from the community in a metropolitan area in the Pacific Northwest. Single male drinkers were recruited via online and print advertisements for a research study on male-female social interactions. Upon calling the research lab, interested men were screened for eligibility. In order to obtain a sample of men at elevated risk for SA based on their alcohol consumption and sexual risk behavior (Logan-Greene & Davis, 2011), eligibility criteria included: aged 21–30, single, non-problem drinker, interested in sexual activity with women, and reported vaginal or anal sexual intercourse without a condom on at least one occasion in the past year. Participants who reported any medical conditions or medications that contraindicated alcohol consumption, an adverse reaction to alcohol in the past, or problematic drinking were excluded due to the alcohol administration portion of the full study protocol (see below). Of the 313 men who completed background questionnaires, 285 (91.1%) provided data during the 3 month follow-up assessment period. We limited our analysis in the present investigation to the 218 men who reported having sex at least once during the follow-up period and were therefore presented follow-up questions about those sex events. Of these, the validity of one participant's data was a concern due to questionable response patterns, thus his data were deleted, resulting in a sample of 217 ($M_{age} = 24.57$, $SD_{age} = 2.87$). Approximately two-thirds of participants (66.5%) were Caucasian, 16.5% were Multiracial (or other), 9.0% were Asian/Pacific Islander, 7.1% were African American/Black, 0.9% were Native American, and 7.5% were Hispanic/Latino of any race. The majority of the sample (63.5%) had an income of \$30,999 per year or less and had completed some college or had received their college degree (80.1%). Only 34.3% of the sample were currently full or part-time students.

Procedure

Participants first completed a laboratory experiment during which they responded to the background survey measures and underwent a standard alcohol administration protocol. They then completed two follow-up assessments that occurred six weeks and three months after the experiment. We limit our discussion of measures to those relevant to the present investigation. All study procedures and materials were approved by the University's Human Subjects Division.

Background Measures and Laboratory Experiment—Upon arrival at the laboratory, participants were greeted by a male experimenter, provided informed consent, and completed a computerized background questionnaire in a private study room. Participants answered questions about their SA perpetration history, alcohol consumption and expectancies, SA-related attitude and trait measures, and other individual differences. Participants then completed the experimental portion of the study after which they were debriefed, compensated \$15/hour for their time, and reminded that they would be contacted for the follow-up assessments.

Follow-up Period—At both six weeks and three months after participation in the laboratory study, participants completed online follow-up surveys (DatStat Illume, Version 4.7) in which they reported their sexual activity, SA perpetration, condom use, and alcohol and recreational drug use during the previous six week period. Participants were emailed a link to the survey and were given two weeks to complete it. Compensation for the completion of each survey was \$30, with a \$15 bonus for participants who completed both surveys. Additionally, in order to increase retention rates, participants who completed surveys were entered into prize drawings. The surveys were identical for both the six week and three month follow-up; thus, data from the surveys were combined to encompass one three month follow-up period.

Background Survey Measures

SA perpetration history—Participants completed a modified version of the Sexual Aggression Survey (Abbey, Parkhill, & Koss, 2005), which assessed the number of times (0 = *never* to 5 = *5 or more times*) a perpetrator used verbal coercion, victim incapacitation, or force to obtain unwanted sexual activity (ranging from contact such as fondling to oral, vaginal, or anal penetration) from a female partner since the age of 14. Responses to all items were summed to create an overall frequency of past sexually aggressive behavior.

Alcohol use—Using the Daily Drinking Questionnaire (Collins, Parks, & Marlatt, 1985), participants indicated the number of standard drinks (defined as 4 ounces of wine, 1 ounce of liquor, or 12 ounces of beer) they consumed each day during a typical week in the past month. The average number of drinks per typical drinking day was calculated by summing the number of drinks per week and dividing by their weekly frequency of drinking. Participants also indicated their number of heavy drinking episodes (i.e., 5 or more drinks in a 2-hour period) in a typical week during the past month (NIAAA, 2003).

Alcohol expectancies—Participants indicated their agreement (1 = *not at all* to 5 = *very much*) with statements regarding their alcohol expectancies about aggression and sexual vulnerability (Abbey et al., 1999). We calculated average scores for three subscales: Aggression Perpetration (7 items, $\alpha = .91$; e.g., “When drinking alcohol I am more mean”), Sexual Coercion Perpetration (6 items, $\alpha = .86$; e.g., “When drinking alcohol I am more sexually coercive”), and Women’s Vulnerability to Sexual Coercion (6 items, $\alpha = .95$; e.g., “When drinking alcohol women are more likely to be taken advantage of sexually”). Higher scores reflect greater expectancies about aggression and sexual vulnerability. Several modifications were made to the original scale. First, we added the word “more” to each item in the aggression perpetration and sexual coercion perpetration subscales to reflect perceptions that alcohol increases one’s typical level of aggression and sexual coercion. Second, the sexual coercion perpetration subscale was modified to reflect a man’s beliefs that he would be more likely to perpetrate sexual coercion when drinking, whereas the original version of the scale reflected beliefs that the respondent would be more vulnerable to being a victim of sexual coercion after drinking.

Aggression and impulsivity—Participants completed the Anger (7 items, $\alpha = .78$; “I flare up quickly but get over it quickly”) and Physical Aggression (9 items, $\alpha = .51$; e.g., “Once in a while I can’t control the urge to strike another person”) subscales of the Buss Perry Aggression Questionnaire (Buss & Perry, 1992) using 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*). Participants completed a measure of trait impulsivity (Eysenck, Pearson, Easting, & Allsopp, 1985; 19 items, $\alpha = .80$; e.g., “Do you often buy things on impulse?”) using 2-point scales (0 = *no*, 1 = *yes*). Scale scores were calculated by summing responses across all items such that higher scores reflect greater trait anger, physical aggression, and impulsivity.

Attitudes related to SA—Participants completed three scales (Lonsway & Fitzgerald, 1995): the Rape Myth Attitudes Scale (19 items, $\alpha = .90$; e.g., “When women talk and act sexy, they are inviting rape”), the Hostility Toward Women Scale (10 items, $\alpha = .87$; e.g., “Generally, it is safer not to trust women”), and the Adversarial Heterosexual Beliefs Scale (15 items, $\alpha = .88$; e.g., “Men and women cannot really be friends”). All used 7-point scales (1 = *strongly disagree* to 7 = *strongly agree*) and responses were averaged across items within a given scale such that higher scores reflect greater acceptance of rape myths, greater hostility towards women, and greater adversarial heterosexual beliefs.

Follow-up Survey Measures

Upon beginning the survey, participants provided the initials of each female partner with whom they had engaged in vaginal, anal, and/or oral (giving or receiving) sex over the previous six weeks. Participants did not provide initials if they did not have sex during that period.

Sex partner specific question: Relationship type—Participants indicated whether or not they would categorize their relationship with each reported partner as a hook-up, fuck buddy, friend with benefits, booty call, one-night stand, casual sex partner, regular sex partner, exclusive sex partner, girlfriend, ex-girlfriend, trade partner, or other. For analysis

purposes, these categories were combined into a “steady” relationship type (including exclusive sex partner or girlfriend) and a “casual” relationship type (all other categories).

Sex event specific questions—Using a modified Timeline Followback procedure (Sobell & Sobell, 1992), participants were shown a calendar of the previous six weeks and indicated on which days they had sexual intercourse (oral, vaginal, or anal) with a day defined as beginning at 6:00am and ending at 5:59am the following day. For each day they reported having sex, participants selected the initials of that event’s sex partner from the initials they originally provided and then completed the following questions regarding that sex event.

Sex acts and condom use: Participants indicated whether or not they engaged in each of the following sexual activities during that event: you performed oral sex on her, she performed oral sex on you, you had vaginal intercourse, you had anal intercourse, or other. For participants who indicated that they had vaginal sex, anal sex, or received oral sex, they reported whether or not a condom was used at any time during that specific sex act.

Sexual aggression (SA): Participants indicated whether or not they used any of a series of tactics to obtain sex with their partner when she did not want to have sex. The tactics included three forms of verbal coercion (“Overwhelmed her with continual arguments or pressure”; “Made promises or told her things you knew were untrue”; and “Showed her your displeasure by swearing, sulking, getting angry, or making her feel guilty”), incapacitation (“Engaged in sexual activity with her when she was passed out or too intoxicated to give consent or stop what was happening”), and force (“Used or threatened to use some degree of physical force”). Participants were classified as having perpetrated SA if they positively endorsed any of these behaviors.

Participant alcohol and drug use: Participants indicated whether or not they had consumed alcohol on each sex day. For those who had consumed alcohol, they provided the time of day at which they consumed their first and last drink as well as the number of standard drinks they consumed during that time period. Using participants’ weights, number of standard drinks consumed, and drinking duration, we calculated an estimated blood alcohol concentration (eBAC) for each drinking day using the formula provided by Matthews and Miller (1979). Participants also indicated whether or not they had used recreational drugs on each sex day. For those who had used drugs, they selected all of those that they had used from a list of 12 commonly used drugs (e.g., marijuana, cocaine).

Partner alcohol and drug use: For each sex day, participants also indicated whether or not their partner had consumed alcohol. Additionally, participants indicated whether they thought their partner used drugs. They were again shown the list of commonly used drugs and asked to indicate which drugs they thought their partner had used.

Results

Prospective Prediction of SA Perpetration

Of the 285 men who provided follow-up data, 217 (76.1%) indicated they had sex during the three month follow-up. Of those, 130 (59.9%) reported a history of SA perpetration since the age of 14, and 21 (9.7%) perpetrated SA at least once during the three month follow-up period. Using logistic regressions we examined background characteristics as predictors of any SA perpetration during the three month follow-up (Table 1). As expected (hypothesis 1), SA perpetration history predicted SA perpetration during the follow-up period. Also consistent with predictions (hypothesis 2), expectancies that alcohol increases one's tendency for sexual coercion perpetration, as well as higher levels of trait anger, trait impulsivity, and rape myth attitudes significantly predicted perpetration during the three month follow-up period. There was a non-significant trend ($p = .06$) for higher levels of trait physical aggression to be predictive of SA perpetration. Contrary to our predictions in hypothesis 2, typical drinking quantity, number of heavy drinking episodes, expectancies about women's vulnerability to sexual coercion, expectancies about aggression perpetration, hostility toward women, and adversarial heterosexual beliefs did not predict SA perpetration.

Contextual Examination of SA Events

Of the 21 men who perpetrated SA, 13 (61.9%) reported only one aggressive event, whereas eight men perpetrated SA more than once ($M = 2.87$ events, $SD = 1.25$, range 2–6), resulting in a total of 36 SA events over the three month follow-up period. Table 2 summarizes the characteristics of these events. All SA events involved verbal coercion, and those that included use of force also included incapacitation. The majority of the SA events (61.1%) involved multiple sex acts, and condoms were only used consistently in 13.9% of events. There was considerable overlap in partners' drinking; the victim consumed alcohol in 73.3% of the events in which the perpetrator consumed alcohol. Additionally, the perpetrator consumed alcohol in 91.7% of the events in which the victim consumed alcohol. On occasions in which the perpetrator drank alcohol, he consumed an average of eight drinks ($SD = 5.5$, range 3–26) and had an average estimated blood alcohol concentration (eBAC) during those events of .07 ($SD = .06$, range .01–.26). There was also considerable overlap between the perpetrator and victim's use of recreational drugs during SA events: the perpetrator used drugs in all (100%) of the SA events in which the victim also used drugs, and the victim used drugs in 69.2% of the SA events in which the perpetrator used drugs. The most frequently used drug was marijuana. Over the course of the 3 month period, participants indicated engaging in sexual activity an average of 6.7 ($SD = 10.2$, range 1–39) times with casual partners and an average of 15.6 ($SD = 6.4$, range 5–29) times with steady partners involved in an SA event. For four of the SA events, this was the only time the participant engaged in sexual intercourse with this partner during this 3 month period. Thus, most perpetrators reported having had both consensual and nonconsensual intercourse with the same partner during the follow-up period.

SA events by repeat perpetrators—Twenty three (63.9%) of the 36 events were perpetrated by participants ($n = 8$) who reported more than one SA event during the follow-

up. To examine consistency across events perpetrated by the same participant, we calculated percentages in which particular event-specific characteristics occurred in SA events by the same perpetrator. Verbal coercion was used in all (100%) events by all repeat perpetrators. Incapacitation was used 100% of the time by one perpetrator, 50% of the time by another, and none of the time by six other perpetrators. Force was used consistently (100%) by one perpetrator, but no other perpetrators reported the use of force. During vaginal penetration, a condom was used 100% of the time by three perpetrators, 50% of the time by one perpetrator, and 0% of the time for two perpetrators. Three perpetrated all (100%) of the events against a casual partner, and another three perpetrated all (100%) events against a steady partner. One perpetrated against both partner types. Three participants consumed alcohol for all (100%) SA events, three did not consume alcohol for any (0%) events, and two inconsistently consumed alcohol. Similarly, two participants used drugs during all (100%) events, four did not use drugs during any (0%) events, and two inconsistently used drugs.

Alcohol-Involved SA Events

Somewhat consistent with the prediction that alcohol-involved assaults would be more likely with casual vs. steady partners (hypothesis 3), there was a non-significant trend for alcohol-involved SA events to have occurred with a casual partner (80%) more often than with a steady partner (20%); $t(30) = 1.62, p = .06, d = 0.59$. However, when alcohol was not consumed, the victim was no more likely to be a casual partner (52.9%) than a steady (47.01%) one. Next, we examined whether condom use significantly varied as a function of partner type when participants either were or were not drinking. We focused on vaginal sex events because of the lack of condom use during both oral and anal sex. When alcohol was not consumed, there was no difference in condom use as a function of partner type; $t(6) = 0.65, p = .27, d = 0.53$. However, when alcohol was consumed, perpetrators were more likely to use a condom with a casual partner (75.0%) than with a steady partner (0.0%); $t(9) = 2.71, p = .01, d = 1.81$. Thus, the prediction that alcohol-involved sexual assaults would be less likely to involve condom use only received support when the victim was a steady partner.

Logistic regression analyses were conducted to determine the alcohol-related background characteristics (i.e., alcohol use behavior and alcohol expectancies) predictive of event-specific alcohol use by either the perpetrator or the victim (Table 3; hypothesis 4). For perpetrator alcohol use, expectancies that alcohol makes women vulnerable to sexual coercion significantly predicted alcohol-involved assault. Alcohol expectancies regarding aggression and sexual coercion perpetration, as well as typical drinking quantity, and number of heavy drinking episodes did not predict the subsequent perpetration of alcohol-involved assaults. We also used logistic regression analyses to examine background alcohol expectancies as possible predictors of whether or not the partner had consumed alcohol prior to SA. Expectancies that alcohol makes women vulnerable to sexual coercion significantly predicted victim alcohol use, but alcohol expectancies regarding participants' own aggression and sexual coercion perpetration did not.

Discussion

Using a novel method for assessing SA perpetration, the present study examined specific characteristics of SA events as well as the prospective predictors of SA perpetration over a three month time period in a community sample of young men at elevated risk for perpetration. Because research on the context and characteristics of SA events typically involves retrospective, cross-sectional surveys that aggregate information across all SA events occurring during a given time frame, this study enhances our knowledge about these events through its prospective, longitudinal design and examination of event-specific characteristics. Our predictive and associational hypotheses were largely confirmed, suggesting potential worthy targets for prevention and intervention efforts.

Of the men who reported having sexual intercourse over the relatively brief three month follow-up, just under 10% reported using verbal coercion, victim incapacitation, or physical force or threats thereof to obtain unwanted sexual intercourse. This rate of completed rape is almost three times the rate reported in other studies using a similar follow-up time period (e.g., Loh et al., 2005), thereby reflecting the high risk nature of the sample. Although we cannot generalize these rates of SA to young men generally, that does not undermine the importance of examining higher risk men. Indeed, secondary prevention programs may benefit most from a better understanding of these perpetrators and the situations in which they are most at risk for committing rape.

Consistent with other research, a prior history of engaging in SA was a significant prospective predictor of perpetration during the follow-up period, suggesting that SA history could serve as a useful screening measure to identify high risk men for targeted secondary interventions. Other research also notes that a substantial minority of men desist from repeat perpetration of sexual assault over time (Abbey et al., 2012; Hall et al., 2006). Further research regarding the individual characteristics of the men who persist and desist in sexually aggressive behavior over time could enhance our understanding of the mechanisms involved in maintaining (and discontinuing) such behavior, yielding fruitful prevention and intervention insights.

SA perpetration was also prospectively predicted by men's individual characteristics. Men's angry, aggressive, and impulsive personality traits positively predicted sexual aggression perpetration during the follow-up period. Although this work substantiates that distal personality traits are predictive of SA, it is unclear how these traits may function more proximally during specific sexual assault events. Laboratory studies have demonstrated that men's proximal experiences of impulsive and angry feelings predict their sexual aggression intentions (Davis, 2010). Future research in this area should continue to explore the ways in which distally measured personality traits are associated with more proximal cognitive and emotional responses during actual sexual assault events.

As expected, rape myth attitudes were also predictive of SA, suggesting that despite intervention efforts, the acceptance of rape myths persists in high risk men. Continued efforts to change social norms regarding the acceptability of rape and SA through bystander intervention programs (e.g., Banyard, 2011) and other programs are warranted. In addition,

high risk men may require interventions that specifically challenge their acceptance of rape myths, such as social normative feedback (e.g., Neighbors et al., 2010) or cognitive restructuring (e.g., Stinson & Becker, 2012). Similarly, men's expectancies about alcohol's effects on their sexually aggressive behavior were also predictive of SA; such expectancies might also benefit from targeted intervention efforts, such as alcohol expectancy challenges (e.g., Scott-Sheldon, Terry, Carey, Garey, & Carey, 2012).

Contrary to our hypotheses and previous research, men's typical alcohol consumption and heavy drinking episodes were not predictive of their alcohol-involved sexual aggression. This may have been due to the relatively low number of incidents involving alcohol consumption by either the perpetrator or the victim or due to the relatively restricted range of our sample's typical alcohol consumption created by our eligibility criteria. Additional research that includes a wider variety of drinkers (e.g., light drinkers, heavy drinkers) should be conducted in order to test this possibility. That noted, men's expectancies about drinking women's vulnerability to SA positively predicted likelihood of perpetrating an alcohol-involved assault. Men who more strongly espouse these beliefs may have been more likely to take advantage of a victim who was drinking, believing her to be more vulnerable to their SA tactics. Because other research has reported that men who believe drinking women are sexually vulnerable also report greater sexual arousal when presented with depictions of sexual assault events (Davis, Norris, George, Martell, & Heiman, 2006), future research should examine how these expectancies function in-the-moment to influence men's responses during SAs. Research is also needed to explore these relationships at the event-level in order to understand if men with such beliefs specifically target drinking women in their pursuit of sex.

Also contrary to our expectations, constructs assessing hostility towards women and adversarial heterosexual beliefs were not significantly predictive of SA perpetration. This is in contrast to previous research suggesting that these are important predictors of SA perpetration (e.g., Malamuth et al., 1995). One possible explanation for these discrepant findings is that these constructs may not necessarily be predictive of specific SA events, but rather are associated with SA perpetration when examining aggregate behavior over time. It may be that more proximal factors such as anger and impulsivity tend to drive more of the event-specific SA engagement. Continued research is needed to further examine predictors of specific SA events.

Our examination of contextual factors involved in SA events concluded that the majority of events involved multiple sexual acts. Moreover, while all events involved some type of verbal coercion, five of the events also included force or incapacitation. If this pattern of findings is supported in future research, it could have important implications for the ways researchers assess SA experiences. Because most measures of SA events assess the occurrence of each tactic individually and separately by specific sexual acts (e.g., Koss et al., 2007), it is difficult to ascertain how many separate SA incidents respondents have perpetrated. Our findings suggest that many of these assaults involved multiple tactics as well as multiple sexual acts, which suggests that – although challenging – future work should explore ways to revise our assessments of SA events to best capture these complexities.

Alcohol and drugs were used by either the perpetrator or the victim in a substantial minority of assaults, and there was considerable overlap in perpetrator and victim use. In those events involving perpetrator alcohol use, average eBACs were approximately .07%, which is just under the legal limit for driving while under the influence. However, there was also a wide range of eBACs, suggesting that cognitive and physical impairment levels of the perpetrators may have also varied widely. To our knowledge, this is the first study to report estimated blood alcohol concentration levels of perpetrators during their assaults. Because these findings are novel, future research should not only replicate these results, but also investigate the role of eBAC in predicting SA outcomes and tactics at the event-level to examine whether there is a linear or potentially curvilinear relationship between eBAC and SA severity as observed in cross-sectional studies. Moreover, future research should disentangle SA events in which perpetrators target women who have voluntarily become intoxicated from events in which perpetrators surreptitiously increase their victims' intoxication level (e.g., spiked drinks).

Although the majority of victim-perpetrator relationships were categorized as "casual," perpetrators reported having had sex, typically consensual sex, multiple times with their victims. These findings corroborate previous results indicating that sexual assaults often occur after consensual sexual events have occurred on prior occasions (Livingston, Buddie, Testa, & VanZile-Tamsen, 2004; Testa & Livingston, 1999). What is unclear, however, and deserves future empirical investigation, is how prior consensual sexual intercourse with a particular partner may influence a perpetrator's perceptions and responses during later sexual situations that are or become nonconsensual. Moreover, just over one-third of the SA events occurred within a steady relationship. Although sexual violence is defined as an aspect of intimate partner violence (IPV; Centers for Disease Control, 2010), many IPV studies focus primarily on verbal or physical, rather than sexual IPV. Moreover, many studies on SA do not consider the relationship of the victim to the perpetrator beyond the typical stranger/acquaintance distinction. Because one-third of the events reported in this study involved a steady dating relationship, both IPV and SA researchers should address the occurrence of SA within steady dating relationships in their research efforts. In particular, because alcohol-involved assaults tended to occur more often within casual relationships, it will be important to determine if there are other more salient risk factors for SA that occur within steady relationships.

Perpetrators rarely used condoms during oral sex acts and never used them during anal sex acts. For vaginal sex acts, condom use was dependent upon partner type, with condom use less likely during alcohol-involved assaults with steady partners. Because most assaults involved multiple acts, it is important to examine condom use throughout all sex acts in a particular sexual assault event. In approximately 86% of SA events, condoms were not used for every sex act during the assault, indicating greater risks of sexually transmitted infection (STI) transmission. Because perpetrators were more likely to use condoms during vaginal sexual acts than other sex acts, we may surmise that they were more concerned about unplanned pregnancies than STI transmission. Alternatively, they may believe that STI transmission is more likely with vaginal intercourse than with anal intercourse. They also may not have used condoms as frequently with their steady relationship partners because these partners may have been more likely to be using hormonal birth control (or the

perpetrators were more likely to know about their use of birth control). Although we do not know from these data whether any of these assaults resulted in pregnancies or STI transmission, other studies suggest that 3 – 20% of rape victims acquire an STI from the assault (Jenny et al., 1990; Tjaden & Thoennes, 2006) and that approximately 5% of victimized women of reproductive age become pregnant from their assault (Holmes, Resnick, Kilpatrick, & Best, 1996). Our results indicate that it will be important in future studies to examine whether these rates differ according to victim-perpetrator relationship type.

Consistent with previous studies (e.g., Lisak & Miller, 2002), the majority of SAs were committed by a minority of men, suggesting that concentrating intervention efforts towards these high frequency perpetrators may substantially reduce the incidence of SA. Additionally, repeat perpetrators appear to be fairly consistent in their sexually aggressive tactics, assault-related alcohol and drug use (or non-use), condom use (or non-use), and relationship with the victim, although some perpetrators did report variability in these contextual factors. Additional research is needed to explicate why some perpetrators are consistent in their tactics, alcohol use, etc., whereas others are not. Moreover, because men who engage in similar types of SAs over time (e.g., they always involve alcohol) may be different from more inconsistent perpetrators (e.g., some assaults involve alcohol, others do not) in important ways, intervention efforts may need to tailor their efforts accordingly. For example, for perpetrators who consistently consume alcohol before being sexually aggressive, intervention programs could target reductions in drinking frequency and quantity to potentially reduce aggression. Because this strategy would not be as effective for men who are consistently or sometimes sober while aggressing, intervention efforts would need to target a risk factor that is more prominent for those particular men.

Strengths and Limitations

One limit to the generalizability of our findings is our use of a sample that was at high risk for SA perpetration. However, we have argued that it is precisely this group of men whose SA perpetration risk factors need to be elucidated so as to target prevention efforts more efficiently. Strengths of the present investigation are 1) its use of a community sample; 2) its short time frame, which reduces participant memory distortions and errors; and 3) its prospective and longitudinal nature, which allow us to infer temporal associations that cannot be inferred with cross-sectional designs. Furthermore, rather than asking participants to report on SA perpetration directly, we first asked them to answer questions about sex events more broadly and then answer questions about SA tactics as a follow-up. This innovative technique was employed to increase the number of incidents that participants might recall. However, one limitation to this structure is that we did not capture perpetration of unwanted sexual contact or attempted rape events; thus, our data cannot speak to these types of events. In addition to asking about specific sex events, we also assessed whether those events involved condom use, which is rarely asked and allowed us to comment on the potential for STI transmission and pregnancy as a result of an SA event. Finally, almost 10% of respondents reported perpetrating 36 completed rapes over three months. Although this is a substantial number of assaults from a public health perspective, it is limited in terms of conducting more sophisticated statistical analyses. Future research could build upon this

initial investigation by including a larger number of participants and following them for a longer period of time in order to have sufficient data for more complex analyses.

Implications and Conclusions

The present investigation used a prospective, longitudinal study design to examine background factors predictive of men's SA perpetration as well as characteristics of alcohol-involved and non-alcohol-involved SA events. Results suggest the importance of targeting men at high risk for SA perpetration for prevention and intervention efforts and suggest specific targets for doing so including rape supportive attitudes and expectancies that alcohol affects SA behavior and women's vulnerability to SA. With regard to the characteristics of specific SA events, the results indicate multiple avenues for future research and stress the importance of considering event-specific characteristics, such as relationship type (casual vs. steady) and alcohol use, in order to gain a fuller understanding of how SA events unfold so as to better identify prevention and intervention targets.

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Table 1

Logistic Regressions Predicting Three Month Follow-Up Sexual Aggression Perpetration from Background Characteristics

	OR	95% CI	p-value
SA perpetration history	1.06	1.01, 1.10	.01
Alcohol use			
Average drinks per typical drinking day	1.02	0.86, 1.20	.81
Number of heavy drinking episodes	1.15	0.91, 1.45	.24
Alcohol expectancies			
Aggression perpetration	1.49	0.91, 2.46	.12
Sexual coercion perpetration	1.85	1.13, 3.05	.02
Women's vulnerability to sexual coercion	1.11	0.72, 1.70	.64
Trait aggression and impulsivity			
Anger	1.07	1.01, 1.14	.03
Physical aggression	1.03	0.99, 1.07	.06
Impulsivity	1.12	1.01, 1.24	.04
Attitudes related to SA			
Rape myth attitudes	1.68	1.07, 2.65	.03
Hostility towards women	1.24	0.85, 1.81	.27
Adversarial heterosexual beliefs	1.41	0.90, 2.20	.13

Note. OR = odds ratio; CI = confidence interval.

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Table 2

Descriptive and Contextual Characteristics of the Follow-Up SA Events (n = 36)

	<i>n</i> (%)
SA Tactic	
Verbal coercion	36 (100.0)
Incapacitation	5 (13.9)
Threats or use of force	3 (8.3)
Types of sex acts	
Oral sex performed on victim	18 (50.0)
Oral sex performed on perpetrator	24 (66.7)
Vaginal penetration	25 (69.4)
Anal penetration	6 (16.7)
Condom use	
With oral sex	1 (2.8)
With vaginal sex	22 (61.1)
With anal sex	0 (0.0)
Alcohol use	
By perpetrator	17 (47.2)
By victim	12 (33.3)
Recreational drug use	
By perpetrator	13 (36.1)
By victim	10 (27.8)
Partner type	
Casual	21 (58.3)
Steady/exclusive	11 (30.6)

Note. For each SA event, participants could select multiple tactics and types of sex acts.

Table 3

Logistic Regressions Predicting Three Month Follow-Up Alcohol-Involved Sexual Aggression Perpetration

	OR	95% CI	p-value
Perpetrator Alcohol Use			
Alcohol use			
Average drinks per typical drinking day	1.33	0.93, 1.90	.11
Number of heavy drinking episodes	1.26	0.86, 1.85	.24
Alcohol expectancies			
Aggression perpetration	0.85	0.44, 1.64	.64
Sexual coercion perpetration	1.07	0.54, 2.13	.85
Women's vulnerability to sexual coercion	7.48	1.51, 37.12	.01
Victim Alcohol Use			
Alcohol expectancies			
Aggression perpetration	0.52	0.24, 1.12	.09
Sexual coercion perpetration	0.98	0.47, 2.05	.95
Women's vulnerability to sexual coercion	5.36	1.23, 23.5	.03

Note. OR = odds ratio; CI = confidence interval.