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A Comparison of Risk Factors for Alcohol-Involved and Alcohol-Uninvolved Sexual Aggression Perpetration

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Abstract

Much research has found that alcohol use is associated with sexual aggression (SA) perpetration among male college students. To increase understanding of this association, the present study examined whether other established risk factors for SA perpetration in this population were associated differentially with incidents that were preceded by alcohol use and incidents that were not preceded by alcohol use. The sample included 638 male college students who completed self-report measures of seven risk factors and SA perpetration during their first and second years of enrollment at a large, public university in the southeastern United States. A multivariate, multinomial logistic regression model revealed none of the seven factors increased risk for both alcohol-involved and alcohol-uninvolved SA perpetration. The model did identify binge drinking as a risk factor for alcohol-involved SA perpetration and impulsivity, rape myth attitudes, and hostility toward women as risk factors for alcohol-uninvolved SA perpetration. If these results can be replicated, then they would suggest that different risk factors should be targeted to optimize the effect of preventive interventions on the occurrence of the two types of SA perpetration.

Keywords

sexual aggression; sexual violence; alcohol; attitudes; peer influences; behavioral control

Sexual aggression (SA) perpetration occurs when one individual pressures or forces another individual to engage in some type of sexual activity. It can involve a range of behaviors that vary in severity from unwanted sexual contact to forced, completed rape resulting in physical injury (Basile & Saltzman, 2002). Because SA is a public health concern that can cause significant injuries for victims as well as economic and civil costs for society, concerted efforts should be made to prevent it.

Research has documented that SA perpetration is a notable concern for the college student population (Harrell et al., 2009). Studies have found that at least 10% of male college students have perpetrated SA in the preceding year (Abbey & McAuslan, 2004;

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Declaration of Conflicting Interests

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Thompson, Koss, Kingree, Goree, & Rice, 2011; White & Smith, 2004). Whereas some preventive interventions have been developed, implemented, and evaluated for this population (Banyard, Moynihan, & Plante, 2007; Gidycz, Borchowski, & Berkowitz, 2011; Stephens & George, 2009), the effects of the interventions have been limited and usually non-enduring, perhaps due to an incomplete understanding of the etiology of SA incidents.

Many risk factors for SA perpetration among male college students have been studied, including personality traits, attitudes toward gender roles and sexual activities, peer influences or norms related to sexual activities, and risky behaviors like alcohol use and sexual promiscuity (Harrell et al., 2009). Among these different factors, alcohol use appears to have a direct or indirect influence (Abbey, 2011; Testa, 2002). Alcohol is consumed prior to half or more of all SA perpetration incidents committed by this population (Nicholson et al., 1998; Ullman, Karabatsos, & Koss, 1999; Zawacki, Abbey, Buck, McAuslan, & Clinton-Sherrod, 2003). Most cross-sectional and prospective observational studies have found that male college students who perpetrate SA consume relatively high levels of alcohol in general and in sexual situations (Abbey & McAuslan, 2004; Corbin, Bernat, Calhoun, McNair, & Seals, 2001). Experimental studies have revealed that male college students who consume alcohol in a laboratory setting are more likely than those who consume a placebo to express approval of the use of sexually aggressive behaviors (Noel, Maisto, Johnson, & Jackson, 2009; Norris, Davis, George, Martell, & Helman, 2002).

As one half of SA incidents among college students are preceded by alcohol use, there is an opportunity for researchers to determine how such incidents differ from those that are not preceded by alcohol use. This is a cogent opportunity as it is unclear whether most risk factors for SA perpetration in this population differ for alcohol-involved and alcohol-uninvolved incidents. It is possible that various psychosocial factors increase susceptibility for one type of incident but not the other. If this is the case, then preventive interventions that address common psychosocial risk factors would not be expected to have as much impact on the overall incidence of SA.

Two notable, cross-sectional studies have examined risk factors for alcohol-involved and alcohol-uninvolved SA perpetration in the same sample of 356 male college students who were enrolled in a large, public university in the midwestern United States. Both studies classified the students into three groups (i.e., non-perpetrators, perpetrators of alcohol-involved SA, and perpetrators of alcohol-uninvolved SA) but varied in how the perpetrator groups were formed. Zawacki et al. (2003) differentiated between perpetrators who used or did not use alcohol in a single SA incident. In contrast, Parkhill and Abbey (2008) summed the total number of alcohol-involved and alcohol-uninvolved SA incidents perpetrated by the male students since they were age 14. Perpetrators of alcohol-involved SA and alcohol-uninvolved SA reported more delinquency and approving attitudes toward casual or aggressive sex than did non-perpetrators; however, only the alcohol-involved perpetration group had higher levels of impulsivity, hostile masculinity, and the use of alcohol in general and in social situations than did non-perpetrators.

The present study expanded on this line of research in several important ways. First, it evaluated the generalizability of the earlier findings by examining some similar variables

in a sample recruited from a university located in a different geographical region of the United States. Second, it incorporated peer influence variables that were not analyzed in the prior studies, which is germane as alcohol use and SA have been found to be significantly associated with such variables in prior studies with male college students (Quinn & Fromme, 2011; Swartout, 2013; Thompson, Swartout, & Koss, 2013). Third, with a prospective design, the present study produced data that allowed for stronger inferences about the potential causal effects of the risk factors on alcohol-involved and alcohol-uninvolved incidents of SA perpetration.

We have applied the Theory of Planned Behavior (Montano & Kasprzyk, 2008) to investigate risk factors for SA perpetration in our prior work with the same data set as the one used in the present study (Thompson et al., 2011). The Theory of Planned Behavior is a well-established, psychosocial theory that incorporates three types of factors (attitudes, perceived norms, and perceptions of behavioral control) that can shape a health-related behavior. Attitudes reflect one's evaluation or impression of the target behavior, including whether the behavior will have positive versus negative consequences. Perceived norms relate to one's perception of how significant others (e.g., peers) would judge the target behavior. Perceptions of behavioral control refer to the extent to which one perceives that he or she can exercise control over engaging in the target behavior. The present study used a modified version of the theory to examine two attitudinal factors (i.e., acceptance of rape myths, hostility toward women), two factors related to peer influences (i.e., fraternity membership, peer approval of forced sex), and three factors that can limit behavioral control (i.e., binge drinking, anger, and impulsivity), as predictors of SA perpetration. Prior research has shown that SA perpetrators tend to have higher levels of each of these factors when compared with non-perpetrators (e.g., Abbey & McAuslan, 2004; Koss & Dinero, 1988; Malamuth, Sockloskie, Koss, & Tanaka, 1991).

Based on the prior work discussed above, we hypothesized that both groups of perpetrators would report higher baseline levels of acceptance of rape myths, hostility toward women, and anger when compared with non-perpetrators but that only perpetrators of alcohol-involved SA would report higher levels of binge drinking and impulsivity than non-perpetrators. Moreover, because peer-influences have been shown to be strongly associated with alcohol use among male college students (Neighbors, Dillard, Lewis, Bergstrom, & Dillard, 2006; Quinn & Fromme, 2011), we hypothesized that perpetrators of alcohol-involved incidents, but not perpetrators of alcohol-uninvolved incidents, would have higher scores on the peer influence variables than would non-perpetrators.

Method

Sample and Procedures

The sample was recruited from a population of 1,472 first-year, full-time, male students at a large, public university in the Southeast. We focused on first-year, male students because alcohol use and risky sexual behavior tend to increase significantly during the transition from high school to college (Fromme, Corbin, & Kruse, 2008), alcohol use and risky sexual behavior have been shown to increase risk for SA, and a more complete understanding of this increase in risky behaviors can facilitate the development of effective

preventive interventions for SA. Recruitment was initiated in March 2008 when all members of the population were sent an electronic message that requested their participation in a longitudinal study on men's attitudes and behaviors toward women. The electronic message stated that enrollment and data collection for the study would occur on designated days and times in April 2008 (T1) in a classroom in the university's student health center. The electronic message also indicated that participants would complete a self-administered survey and would be paid US\$20.00. This same information was included in flyers placed in residential dormitories on the campus.

When arriving for the T1 assessment, the respondents were greeted by a researcher and had their student identification cards checked against a master list to ensure they were currently enrolled at the university and had not already completed the assessment. They were given a written description of the study and asked to provide their consent to participate. Among other things, the description stated that a follow-up survey assessment (T2) would occur at the same location in April 2009.

Similar data collection procedures were used at T1 and T2. After providing informed consent, the respondents were given the self-administered survey questionnaire and asked to complete it while sitting at a desk in the classroom. The survey given to respondents at T2 had a confidential and unique identifier that allowed for linking their survey responses across the two assessment points. After completing the surveys, the respondents deposited them in a locked box, received payment for their participation, and were given a referral sheet for counseling services that they could use if needed. Local IRB approval and a Certificate of Confidentiality from the National Institutes of Health were obtained prior to data collection.

Data collection for T1 occurred over a 1-week period and ended once the target sample size of 800 respondents had enrolled in the study. During the 12 months preceding T2, each respondent was sent three electronic messages indicating the specific dates, times, and compensation (i.e., US\$20.00) for the follow-up assessment.

Data collection for T2 occurred over a 3- to 4-week period. Five individuals were excluded from the analytic sample because they were not 18 years of age at T1. The 795 respondents (mean age of 18.56 years [$SD = 0.51$]; 89% White) comprised 54% of the population of first-year, male students at the university. The sample did not differ in terms of age, race/ethnicity, or status as a fraternity member from the population of freshman male students who were enrolled in the university in 2008 (Clemson University Office of Institutional Research, 2008).

Among the 795 eligible respondents, 652 (82%) were retained at T2. Fourteen of these respondents were not included in the analyses because they did not respond to one or more of the study measures. The T1 and T2 samples did not differ significantly on any of the study variables assessed at T1 (all $p > .11$).

Measures

Risky alcohol use.—A single-item measure was used to assess binge drinking, or the number of times in the prior 2 weeks that students consumed five or more drinks in a row

in a 2-hr period. A drink was defined as “a 12 ounce can or bottle of beer, a 4 ounce glass of wine, a 12 ounce can or bottle of wine cooler, or a shot of liquor straight or in a mixed drink.” Response options ranged from (0) “None” to (5) “10 or more times.” Because the initial responses to the item were skewed, they were subsequently collapsed into three categories: (0) = *none* ($n = 347$; 53%), 1 = *once* ($n = 96$; 15%), 2 = *2 or more times* ($n = 209$; 32%).

Risky attitudes.—Attitudes reflecting risk for SA perpetration were assessed at T1 with the 19-item, Rape Supportive Beliefs Scale (e.g., “When women talk and act sexy, they are inviting rape”; $\alpha = .90$; Lonsway & Fitzgerald, 1995) and a shortened, 8-item version of the Hostility toward Women Scale (e.g., “I think most women would lie to get ahead,” $\alpha = .90$; Check & Malamuth, 1983). Response options for both measures ranged from (1) “strongly disagree” to (5) “strongly agree.”

Risky peer influences.—Fraternity membership was assessed with a single item that asked respondents whether they were members of a Greek fraternity. Responses were dichotomously coded (1 = *yes*, 0 = *no*). Peer approval of forced sex was tapped with a six-item measure (e.g., “Do your friends approve of getting a woman drunk or high to have sex”; $\alpha = .78$; Abbey & McAuslan, 2004), which had response options ranging from (1) “not at all” to (4) “a lot.”

Risky personality traits.—Anger was assessed with an 8-item measure that was derived from the Pervasive Anger subscale of the Multidimensional Assessment of Sex and Aggression instrument (Knight, Prentky, & Cerce, 1994; $\alpha = .87$; “I lose my temper easily”). It had five response options ranging from (1) “never” to (5) “very often.” Impulsivity was measured with the 19-item Impulsivity Questionnaire (Eysenck, Pearson, Easting, & Allsopp, 1985; $\alpha = .79$; “Do you mostly speak before thinking things out”), which had two response options (0 = *no*, 1 = *yes*).

Alcohol-related and alcohol-unrelated sexual aggression perpetration.—The revised Sexual Experiences Survey (Koss et al., 2007) was used to assess SA perpetration. The survey included seven, behaviorally specific items that asked about the frequency in which respondents had engaged in various types of SA, ranging from unwanted sexual contact (“I fondled, kissed, or rubbed up against the private areas of a woman’s body [lips, breast/chest, crotch, or butt]”) to forcible penetration (“I put my penis, fingers, or objects into a woman’s vagina without her consent”), over the preceding 12 months. Respondents who reported engaging in one of these behaviors were classified as perpetrators and asked whether they had used alcohol and/or other drugs during their most recent SA perpetration incident. Responses to these two questions were used to assign respondents to one of three groups (0 = *non-perpetrators*, 1 = *alcohol-involved perpetrators*, 2 = *alcohol-uninvolved perpetrators*).

Analytic Approach

The study data were analyzed using SPSS Statistics 21. Frequency analyses were used to generate descriptive statistics for the study variables. Multinomial logistic regression

models, which can be used to analyze nominal outcome variables with more than two categories or groups, were used to examine associations between the risk factors assessed at T1 and the three-category SA perpetration variable assessed at T2. The models computed odds ratios and 95% confidence intervals that indicated whether one of the groups differed significantly from the non-perpetrator referent group on each predictor variable. For the present study, two sets of regression models were conducted. In the first set, a separate model was performed with each of the seven risk factors to determine whether it significantly differentiated between each perpetrator group and the referent group. In the second set, one multivariate model examined the risk factors simultaneously to determine whether each one varied uniquely between each perpetrator group and the referent group.

Results

Eighty-seven respondents (13.6% of the T2 sample) reported at least one incident of SA perpetration during the follow-up period. When considering the most severe incident reported, 16 (18%) of the perpetrators engaged in unwanted sexual contact, 30 (34%) committed sexual coercion, 11 (13%) attempted rape, and 30 (34%) completed rape.

A substantial majority ($n = 65$; 75%) of the perpetrators indicated they had used alcohol prior to their most recent perpetration incident. Alcohol use during the incident was associated with the severity of the SA incident, $\chi^2 (df = 1; n = 87) = 9.08, p < .01$. The 65 alcohol-involved incidents were much more likely to include rape or attempted rape ($n = 37$; 58%) than were the 22 alcohol-uninvolved incidents ($n = 4$; 18%).

Table 1 presents descriptive statistics for the risk factors for the full analytic sample as well as separately for non-perpetrators, alcohol-involved perpetrators, and the alcohol-uninvolved perpetrators. Table 2 presents inferential statistical values from the bivariate and multivariate regression models.

The bivariate models indicated the perpetrators of alcohol-involved SA had higher scores on each risk factor than did non-perpetrators. However, the multivariate model indicated that only binge drinking was higher among alcohol-involved perpetrators than among non-perpetrators. On the other hand, the bivariate and multivariate models produced consistent results for the contrasts between perpetrators of alcohol-uninvolved SA and non-perpetrators, with the former having higher scores on impulsivity, hostility toward women, and rape myth attitudes and the two groups not differing on anger, peer approval of forced sex, and fraternity membership.

Discussion

The present study used a modified version of the Theory of Planned Behavior to guide our examination of seven risk factors for alcohol-involved and alcohol-uninvolved SA perpetration incidents among male college students. The risk factors were examined individually in bivariate models as well as collectively in one multivariate model, with each model comparing one of the two perpetrator groups against the non-perpetrator group. The bivariate models indicated each risk factor predicted the occurrence of alcohol-involved incidents but only impulsivity, rape myth attitudes, and hostility toward women predicted the

occurrence of alcohol-uninvolved incidents. Whereas the multivariate model produced the same results as the bivariate models for alcohol-uninvolved incidents, it indicated that only binge drinking continued to predict alcohol-involved incidents when the risk factors were examined simultaneously.

In interpreting these findings, we are giving more weight to the multivariate model as it identified unique effects of specific risk factors by controlling for the other risk factors. As hypothesized based on results of prior research, the multivariate model indicated that respondents who engaged in binge drinking were more apt than their counterparts to perpetrate alcohol-involved SA. Our hypothesis that impulsivity would predict alcohol-involved SA was not supported as impulsivity actually predicted the occurrence of alcohol-uninvolved SA, and not alcohol-involved SA. Our hypothesis that the two peer-influence variables would predict alcohol-involved SA also was not supported as these variables were not related to either type of perpetration in the multivariate model. Apparently, the significant effects of the peer-influence variables on alcohol-involved SA that emerged in the bivariate models were due to their overlap with the binge drinking variable.

Although we did not make specific hypotheses for the two attitudinal variables, both rape myth attitudes and hostility toward women were associated with alcohol-uninvolved SA but not with alcohol-involved SA in the multivariate model. Thus, alcohol use may contribute to the occurrence of many incidents of SA perpetration, but other factors shaped one-fourth of the incidents reported in this study. The personality and attitudinal factors found to be associated with alcohol-uninvolved incidents are relatively stable or enduring personal characteristics. When present at relatively high levels, these factors may precipitate SA in persons who have not consumed alcohol.

The findings from the current study can be compared with those of two others that examined risky alcohol use in relation to alcohol-involved and alcohol-uninvolved SA perpetration among male college students. Different measures of risky alcohol use have been found to be associated with the occurrence of alcohol-involved incidents but not with the occurrence of alcohol-uninvolved incidents in each of the studies. This consistent and logical finding points to the need for additional research to examine the ways that risky alcohol use contributes to SA perpetrations. Based on the theoretical framework used in the present study, risky alcohol use would be expected to contribute to SA perpetration by compromising perceived behavioral control. Future prospective studies can examine global and incident-specific measures to determine whether reductions in perceived behavioral control and other cognitive factors (e.g., sex-related expectancies for alcohol use, errors in information-processing) mediate the association between risky alcohol use and SA perpetration.

The findings from the present study also can also be compared with those from one of the prior studies that examined impulsivity as a risk factor for alcohol-involved and alcohol-uninvolved SA perpetration. Whereas impulsivity was associated with only alcohol-uninvolved SA perpetration in the present study, it was associated with only alcohol-involved SA perpetration in the prior study. The differences in the findings between the two studies may have been due to variations in the geographic characteristics of the samples (i.e.,

a state university located in a semirural area of the lower South versus a state university in an urban area of the upper Midwest. designs (i.e., prospective versus cross-sectional), measures used to assess impulsivity, or covariates used in the analyses. Given the differences between the studies, additional research is needed to determine the nature of association between impulsivity and the two types of SA perpetration. This research should aim to determine whether impulsivity is associated with only one type of SA, and if so, what factors may explain these associations.

These findings illuminate the challenges for understanding and addressing SA perpetration among college students. SA is a complex phenomenon that occurs in different forms and may or may not be preceded by alcohol use. The modified Theory of Planned Behavior used in this study is a cogent framework for investigating this phenomenon generally because it includes diverse domains of risk factors that have been shown previously to be associated with SA perpetration. However, because our findings indicated that the capacity of the individual risk factors to predict incidents of SA depended on whether they were preceded by perpetrator's alcohol use, and because only binge drinking was associated with alcohol-involved incidents, it appears that other theoretical frameworks may better account for alcohol-involved SA. Alcohol-specific theories that can point to motivations for using alcohol in social and sexual situations (e.g., alcohol expectancy theories; Abbey, McAuslan, Ross, & Zawacki, 1999), and/or explain how alcohol use affects information processing (e.g., alcohol myopia theory; Steele & Josephs, 1990) may be more useful for understanding and predicting alcohol-involved SA.

The complexity of SA and the limited effectiveness of empirically evaluated interventions point to the need for developing new prevention approaches. The findings from the present study suggest that a potentially useful, general approach would tailor different strategies to binge drinking and non-binge drinking college students. Strategies that may be useful for male binge drinkers would include discussions about the ways that risky alcohol use is perceived by female students, the adverse effects of alcohol on decision-making and self-perceptions, and how alcohol use can lead to SA perpetration. Skill-building exercises that increase social self-efficacy may also contribute to a reduction in risk for SA perpetration among male students who binge drink. As for male students who do not engage in frequent binge drinking, our findings suggest it would be useful to target a subset who report high levels of impulsivity, hostility toward women, and acceptance of rape myths. Strategies that are designed to counter negative attitudes or to enhance empathy and self-control may be useful with these persons. However, before these strategies are implemented in a large intervention, their short-term efficacy should be evaluated rigorously with experimental designs.

This study has some limitations that must be considered when interpreting the findings. First, because the sample was recruited from one university and included a relatively high proportion of Caucasians, the findings may not be generalizable to male college students at other universities. Second, the extent to which the index SA incident used to assess alcohol-involved and alcohol-uninvolved perpetration was representative of other incidents that participants may have experienced is unknown, which further constrains generalizing the findings.

In conclusion, this study revealed important distinctions in risk factors for alcohol-involved and alcohol-uninvolved incidents of SA perpetration. Additional research is needed to confirm these findings in other samples and with different methods. To the extent that the findings are confirmed, they would suggest that preventive interventions would be optimized by focusing on different risk factors for potential perpetrators depending on their likelihood of engaging in alcohol-involved, or alcohol-uninvolved, SA.

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Table 1.

Descriptive Values for the Risk Factors at T1 for the Full Sample and Individually for the Non-Perpetrator, Alcohol-Involved Perpetrator, and Alcohol-Uninvolved Subgroups.

	Descriptive Statistical Values															
	Sample				Non-Perpetrators				Alcohol-Involved Perpetrators				Alcohol-Uninvolved Perpetrators			
	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%
Binge drinking episodes																
0			343	54			320	94			11	17			11	50
1			95	15			11	3			12	19			4	18
2 or more			200	31			11	3			42	64			7	32
Anger	2.40	0.03			2.36	0.03			2.84	0.08			2.61	0.15		
Impulsivity	6.33	0.15			6.03	0.17			7.86	0.48			8.64	0.82		
Rape myth attitudes	2.24	0.02			2.18	0.02			2.66	0.07			2.82	0.13		
Hostility toward women	2.59	0.03			2.52	0.03			3.13	0.10			3.46	0.17		
Peer approval for forced sex	1.27	0.02			1.22	0.02			1.78	0.04			1.70	0.08		
Fraternity membership																
No			483	76			431	78			38	58			14	64
Yes			155	24			120	22			27	42			8	36

Table 2.

Bivariate and Multivariate Associations Between the Risk Factors and Sexual Aggression Perpetration.

Hypothesized Risk Factor	Bivariate Analyses		Multivariate Analyses	
	OR	95% CI	AOR	95% CI
Binge drinking				
NPs vs. AIPs	2.72	[1.97, 3.75]	2.26	[1.56, 3.27]
NPs vs. AUPs	1.17	[0.73, 1.89]	0.85	[0.46, 1.57]
Personality				
Anger				
NPs vs. AIPs	2.08	[1.46, 2.97]	1.49	[0.95, 2.36]
NPs vs. AUPs	1.58	[0.87, 2.86]	0.70	[0.34, 1.45]
Impulsivity				
NPs vs. AIPs	1.12	[1.05, 1.19]	1.01	[0.94, 1.10]
NPs vs. AUPs	1.17	[1.06, 1.30]	1.16	[1.02, 1.32]
Attitudes				
Rape myth attitudes				
NPs vs. AIPs	2.38	[1.53, 3.72]	1.71	[0.96, 3.04]
NPs vs. AUPs	5.83	[2.61, 13.00]	3.46	[1.29, 9.26]
Hostility toward women				
NPs vs. AIPs	1.87	[1.34, 2.62]	1.12	[0.71, 1.75]
NPs vs. AUPs	3.61	[2.00, 6.51]	2.22	[1.07, 4.61]
Peer influence				
Peer approval of forced sex				
NPs vs. AIPs	3.66	[2.15, 6.22]	1.51	0.77, 2.96
NPs vs. AUPs	2.16	[0.82, 5.45]	0.68	0.23, 2.06
Fraternity membership				
NPs vs. AIPs	2.55	[1.50, 4.35]	1.28	0.69, 2.35
NPs vs. AUPs	2.05	0.84, 5.00	2.34	0.78, 7.05

Note. AOR = adjusted odds ratio; NPs = non-perpetrators; AIP = alcohol-involved perpetrators; AUPs = alcohol-uninvolved perpetrators. CIs that are bolded and do not include 1 are statistically significant ($p < .05$).