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## The Link Between Alcohol Use and Aggression Toward Sexual Minorities: An Event-Based Analysis

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### Abstract

The current study used an event-based assessment approach to examine the day-to-day relationship between heterosexual men's alcohol consumption and perpetration of aggression toward sexual minorities. Participants were 199 heterosexual drinking men between the ages of 18–30 who completed (1) separate timeline followback interviews to assess alcohol use and aggression toward sexual minorities during the past year, and (2) written self-report measures of risk factors for aggression toward sexual minorities. Results indicated that aggression toward sexual minorities was twice as likely on a day when drinking was reported than on non-drinking days, with over 80% of alcohol-related aggressive acts perpetrated within the group context. Patterns of alcohol use (i.e., number of drinking days, mean drinks per drinking day, number of heavy drinking days) were not associated with perpetration after controlling for demographic variables and pertinent risk factors. Results suggest that it is the acute effects of alcohol, and not men's patterns of alcohol consumption, that facilitate aggression toward sexual minorities. More importantly, these data are the first to support an event-based link between alcohol use and aggression toward sexual minorities (or any minority group), and provide the impetus for future research to examine risk factors and mechanisms for intoxicated aggression toward sexual minorities and other stigmatized groups.

### Keywords

Alcohol Intoxication; Aggressive Behavior; Sexual Minorities; Prejudice

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For many years, policy makers, social scientists, and advocacy groups have raised concerns about aggression toward gay, lesbian, bisexual, and transgender individuals (i.e., sexual minorities). Indeed, multiple reports suggest that nearly 20% of hate crimes are based on the victim's sexual orientation (e.g., Harlow, 2005; Bureau of Justice Statistics, 2004), and data indicate that bias-motivated person or property crimes and verbal abuse were experienced by 20% and 50% of sexual minority adults, respectively (Herek, 2009). In addition, research indicates that victims of hate crimes based on sexual orientation suffer a greater severity of violence and experience more detrimental personal and psychological effects than victims of other bias-motivated (Dunbar, 2006) and nonbiased assaults (Herek, Gillis, & Cogan, 1999).

Commensurate with the significance of this public health problem, a great deal of research has been conducted to identify risk factors and mechanisms for aggression toward sexual minorities

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(for a review, see Franklin, 2000; Parrott, 2008). For instance, laboratory-based research has shown that higher levels of sexual prejudice (e.g., Bernat, Calhoun, Adams, & Zeichner, 2001), endorsement of male gender role beliefs (e.g., Parrott, 2009), and masculine gender role stress (e.g., Talley & Bettencourt, 2008) are associated with antigay aggression that functions to enforce traditional gender role norms. However, no published studies exist that specifically examine the link between acute alcohol intoxication and bias-motivated aggression toward sexual minorities or any other minority group (Hull & Van Treuren, 1986; Parrott & Miller, 2009). This gap in the literature is surprising for two reasons. First, it is well established that acute alcohol consumption facilitates aggressive behavior (reviewed in Bushman & Cooper, 1990; Chermack & Giancola, 1997; Taylor & Chermack, 1993). These data are consistent with epidemiological data linking alcohol use to a substantial number of violent crimes and self-reported incidents of aggression each year (Bureau of Justice Statistics, 2006; Pernanen, 1991; Wells, Graham & West, 2000). Second, recent data suggest that approximately 33% of convicted hate crime perpetrators were intoxicated at the time of the offense (Dunbar, 2003). Indeed, anecdotal reports gathered from sexual minority victims indicate that many of these aggressive acts were committed under the influence of alcohol or in proximity to bars (Human Rights Campaign, 2000). However, while this literature suggests an association between acute alcohol intoxication and perpetration of bias motivated aggression, including aggression toward sexual minorities, there remains no empirical evidence to support this hypothesis.

Thus, the current study sought to examine the day-to-day relationship between heterosexual men's alcohol consumption and perpetration of aggression toward sexual minorities in a racially diverse sample. An event-based assessment approach (e.g., Leonard, Collins, & Quigley, 2003; Leonard & Quigley, 1999) was employed to establish a direct link between men's alcohol use and perpetration of aggression. In doing so, data were obtained that (1) categorized respondents as non-perpetrators or as perpetrators of one or more acts of aggression toward a sexual minority, and (2) identified the quantity of alcohol consumed on days of self-reported aggressive incidents. In addition, this methodology permitted a unique opportunity to replicate laboratory-based findings on risk factors of aggression toward sexual minorities (e.g., Parrott, 2009; Talley & Bettencourt, 2008) in a community-based sample. It was hypothesized that the likelihood of aggression toward sexual minorities would be significantly higher on days in which participants consumed alcohol than on days in which participants did not consume alcohol.

## Method

### Participants

Participants were recruited via newspaper advertisements in a southeastern United States city that read "Males age 18–30 needed for study on drinking behavior and social attitudes." Men in this age range were recruited because assailants of sexual minorities are typically young men in their early twenties (Dunbar, 2003; NCAVP, 2007). Telephone screening confirmed age, race, a self-identified heterosexual orientation, and consumption of alcohol during the past year. Because the metropolitan catchment area is comprised of a high African-American population (i.e., 57% per 2006 Census estimate), we sought to obtain a sample with approximately 100 White men and 100 men of color. Of the 241 men invited to our laboratory, five were excluded for not meeting eligibility criteria. A heterosexual orientation was confirmed further by responses to the Kinsey Heterosexuality-Homosexuality Rating Scales (KRS; Kinsey, Pomeroy, & Martin, 1948). Men were assigned to the exclusively heterosexual sample if they endorsed exclusive sexual arousal to females and sexual experiences that occurred mostly or exclusively with females and confirmed a heterosexual orientation in the subsequent interview (Savin-Williams, 2006). The present study focuses primarily on this

group ( $n = 199$ ). The remaining men ( $n = 37$ ) were assigned to a non-heterosexual group. See Table 1 for demographics.

### Computer-Administered Questionnaires

Participants completed self-report measures administered on a computer via MediaLab 2000 (Empirisoft Research Software, Philadelphia, PA). Measures included a *Demographic Form*, which assessed age, race, and self-identified sexual orientation; *the KRS* (Kinsey et al., 1948), which assessed prior sexual arousal and behavioral experiences on a 7-point scale ranging from exclusively heterosexual to exclusively homosexual; the *Attitudes Toward Lesbians and Gay Men Scale* (Herek, 1988), which assessed sexual prejudice with 20 items rated 1–9; the *Masculine Gender Role Stress Scale* (Eisler & Skidmore, 1987), which assessed men's tendency to appraise as stressful situations that conflict with the traditional male gender role with 40 items rated 0–5; and the *Male Role Norms Scale* (Thompson & Pleck, 1986), which assessed three dimensions of masculine ideology (*Status*: men should try to attain high status; *Toughness*: men should be physically tough; and *Antifemininity*: men should not behave in a "feminine" manner) with 11, 8, and 7 items rated 1–7, respectively. Higher scores indicate higher levels of sexual prejudice and masculine gender role stress as well as more traditional gender role beliefs. Extant literature supports the reliability and validity of these measures.

### Timeline Followback Interview

Alcohol consumption during the past year was assessed with the Timeline Followback Interview (TLFB; Sobell & Sobell, 1992; 1996), which is a widely used calendar method that has excellent psychometric properties (e.g., Sobell & Sobell, 1992; Sobell et al., 2001). Aggression toward sexual minorities during the past year was measured separately with a modified approach in which aggression, not alcohol consumption, was the target behavior (TLFB-AG). A similar adaptation for intimate partner violence was found to be reliable and valid (Fals-Stewart, 2003; Fals-Stewart, Birchler, & Kelley, 2003). Both interviews employed anchoring events such as major holidays (e.g., New Year's Eve) and interviewer-prompted events of personal meaning to participants (e.g., vacations, birthdays). For the TLFB, participants were also asked about their typical drinking patterns to facilitate recall. Interviews were administered sequentially so that participants would not explicitly link drinking and aggressive days.

The TLFB assessed the number of standard drinks consumed during each day within the prior year and yielded three indices of drinking behavior: number of drinking days, mean number of drinks per drinking day, and number of heavy drinking days (consuming five or more drinks). The interviewer provided participants with a standard drink conversion chart to facilitate accurate reporting of the amount of alcohol consumed on a given drinking day. The TLFB-AG identified days during the past year when participants perpetrated aggression toward a sexual minority. A standard definition of aggressive behavior (Baron & Richardson, 1994) and examples of different types of aggression (e.g., verbal threats, punching) were provided. For days when an aggressive episode was reported, participants were queried to recall the number of people in their party (i.e., not associated with the victim) who were present during the incident.

### Procedure

Upon arrival to the laboratory, participants were informed that the aim of the study was to learn about people's thoughts and actions in regard to various social issues, including homosexuality, the roles of men and women, and alcohol use. After obtaining informed consent, computer-administered questionnaires were administered. A male interviewer then conducted the TLFB interviews. Upon completion of the study, participants were debriefed and paid \$25.

## Results

Analyses were of two kinds: those that used the individual as the unit of analysis and those that used the day as the unit, pooling over individuals. Pooling was used when occurrences of the behaviors under consideration (e.g., self-reported aggression) were too few for reliable individual-level analyses. We applied sequential analytic techniques (Bakeman, 2009; Bakeman, Deckner, & Querea, 2005; Bakeman & Gottman, 1997) to the categorical time-series data generated by the TLFB and TLFB-AG. We used the Generalized Sequential Quierier program (Bakeman & Querea, 1995, 2009) both for pooled analyses and to derive indices for subsequent individual-level analyses. Unlike individual difference variables (all standardized skewness were less than 2), drinking variables derived from the TLFB were positively skewed. Thus, non-parametric statistics (e.g., Spearman rhos) are reported for analyses involving drinking variables.

### Individual-Level Analyses

Of the 199 men in our sample, 37 endorsed at least one act of aggression toward a sexual minority in the past year (19%). They reported a total of 75 days with aggression toward a sexual minority out of a possible 72,635 days (0.10%); 19 men reported one aggressive incident during the past year, 10 men reported two incidents, and the remaining eight men reported three to nine incidents (see Table 2). Of the 75 reported aggressive incidents, 65 reportedly occurred in the presence of others (87%). The 37 perpetrators reported drinking on more days than non-perpetrators and having more heavy drinking days; these effects were statistically significant but weak (see Table 3)<sup>1</sup>. Perpetrators also reported consuming more drinks per drinking day, but not significantly so. They also scored higher on individual difference risk factors for aggression toward sexual minorities: Mean levels of sexual prejudice, masculine gender role stress, and traditional male gender role beliefs were higher for perpetrators than non-perpetrators and, although significant, were mainly weak (see Table 4).

The rates of aggression toward sexual minorities differed by racial group weakly but not significantly; percentages of men reporting at least one aggressive act towards a sexual minority in the past year were 23% and 14% for men of color and White men, respectively (OR = 1.73, 95% CI = 0.83–3.59,  $p = .14$ )<sup>2</sup>. The mean drinks per drinking day and number of heavy drinking days, but not the number of drinking days, was significantly lower for men of color compared to whites. However, the size of these effects was weak (see Table 5).

Generally, sexual prejudice, masculine gender role stress, and endorsement of male role norms were not associated with drinking variables: 12 of the 15 correlations were less than  $|\cdot 10|$ ; the other three were weak and only one of them was statistically significant ( $\rho = -.14, -.11, \text{ and } -.11$ ;  $p = .046, .12, \text{ and } .11$ ; for sexual prejudice with number of heavy drinking days, status with number of heavy drinking days, and sexual prejudice with drinks per day, respectively). To assess the unique importance of demographic, drinking, and individual risk factors for aggression toward sexual minorities, we regressed aggression reported (yes or no) on age, race, drinking variables, and individual risk factors. The logistic regression was significant,  $\chi^2(10, N = 199) = 45.4$ , Cox & Snell  $R^2 = .20$ ,  $p < .001$ , but only age ( $p = .004$ ) and antifemininity ( $p = .002$ ) were significant. Thus, controlling for the other predictor variables, the probability

<sup>1</sup>Per Cohen (1988), we term correlations between  $\cdot 10$  and  $\cdot 30$  as “weak,” between  $\cdot 30$  and  $\cdot 50$  as “moderate,” and above  $\cdot 50$  as “strong.”

<sup>2</sup>We say “weakly” because we regard odds ratios between 1.25 and 2.00 as “weak,” between 2.00 and 3.00 as “moderate,” and above 3.00 as “strong.” Likewise, we regard odds ratios between 0.80 and 0.50 as “weak,” between 0.50 and 0.33 as “moderate,” and below 0.33 as “strong.” To our knowledge, there is no conventional standard for the strength of an odds ratio as there is for correlations, but it seems reasonable to say that increasing the odds 100% (an odds ratio of 2.00) would represent at least a moderate effect, and these cut points correspond to values of  $\cdot 11, \cdot 33, \text{ and } \cdot 50$  absolute for Yule’s Q, an index of association for  $2 \times 2$  tables that ranges from  $-1$  to  $+1$ .

of aggression (1) increased by 100% with each one point increase on the antifemininity scale (partial OR = 2.00), and (2) declined about 20% with each year of age (partial OR = 0.79).

### Analyses of Days: Association Between Alcohol Use and Aggression Toward Sexual Minorities

Of the 75 days when aggression toward sexual minorities was reported, 38 involved consumption of at least one alcoholic drink by the perpetrator (32 of which occurred in the presence of others) and 37 did not. However, on days when no aggression was reported, less than a third involved drinking. Consequently, when we pooled days over all men ( $N = 199$ , 72,635 days), we found that aggression was twice as likely, a moderate effect, on a day when drinking was reported than on non-drinking days (OR = 2.15, 95% CI = 1.37–3.38,  $p = .001$ ). Values for days when heavy drinking was reported were similar (OR = 2.05, 95% CI = 1.21–3.48,  $p = .008$ ). Likewise, when we pooled days just for the 37 perpetrators ( $N = 37$ , 13,505 days), we found that aggression was one and half times as likely on a day when drinking was reported than on non-drinking days, a weak effect whose significance was marginal (OR = 1.51, 95% CI = 0.96–2.38,  $p = .074$ ). Values for days when heavy drinking was reported were again similar (OR = 1.67, 95% CI = 0.98–2.83,  $p = .060$ ). By definition, only perpetrators reported drinking days with aggression. However, perpetrators also reported more drinking days, and hence more drinking days without aggression, than non-perpetrators. This accounts for why the odds ratio declines when only days reported by perpetrators were analyzed.

Of the 37 perpetrators, 23 were men of color (62%). The likelihood of aggression when drinking differed moderately between men of color and Whites, albeit not significantly (OR = 2.80, 95% CI = 0.71–11.1,  $p = .14$ ). However, the likelihood of aggression on days of heavy drinking was essentially equal for the two groups (OR = 0.96, 95% CI = 0.24–3.85,  $p = .95$ ).<sup>3</sup>

### Comparisons of Exclusively and Non-Exclusively Heterosexual Men

The 37 men who did not endorse an exclusively heterosexual orientation were demographically similar to the primary sample (see Table 1). They reported more drinking days (median = 169 vs. 92,  $p = .15$ ,  $p = .023$ ) but did not differ on mean number of drinks per day or heavy drinking days ( $p_s = -.08$  and  $.06$ ,  $p = .23$  and  $.33$ ). They reported significantly less sexual prejudice ( $M = 2.78$  vs. 4.03,  $r = .23$ ,  $p < .001$ ) but did not differ from the primary sample with respect to masculine gender role stress and endorsement of male role norms ( $r_s = .04$  to  $.11$ ;  $p_s = .08$  to  $.53$ ). Eight of these 37 men reported aggression, about the same percent as for the primary sample (22% vs. 19%). However, unlike the primary sample, aggression was equally likely on days when drinking was and was not reported (odds ratio = 1.12, 95% CI = 0.72–1.76,  $p = .62$ ).

### Discussion

The current study is the first to show that acute alcohol use is directly associated with an increased risk of aggression toward sexual minorities (or any minority group). Results are consistent with prior literature and make several important new contributions. First, decades of research show that alcohol facilitates aggressive behavior (reviewed in Bushman & Cooper, 1990; Chermack & Giancola, 1997). The present findings are consistent with this literature and extend this line of research to (1) the perpetration of aggression toward sexual minorities specifically, and (2) bias-motivated aggression generally. Moreover, these data suggest that alcohol facilitated aggression toward sexual minorities similarly for Whites and men of color. Second, analyses failed to detect an association between participants' drinking patterns and

<sup>3</sup>Just as large correlations can be statistically insignificant with small sample sizes, so too can large odds ratios be statistically insignificant when one or more number in the cells of the  $2 \times 2$  table are small.

perpetration status after accounting for demographic and risk factor variables. Coupled with the increased odds of perpetration on drinking days, these data are consistent with previous research (e.g., Chermack & Blow, 2002) in suggesting that it is the acute effects of alcohol, and not men's chronic drinking patterns, that are associated with an increased risk for aggression. Third, the present study found in a diverse urban sample that 19% of participants endorsed at least one act of aggression toward sexual minorities during the past year. To our knowledge, this is the first study to provide a perpetrator-based, one-year prevalence estimate of aggression toward sexual minorities. Finally, consistent with numerous laboratory-based investigations (e.g., Bernat et al., 2001; Parrott, 2009), this study demonstrated that self-identified perpetrators reported higher levels of sexual prejudice and masculine gender role stress and endorsed more traditional norms of masculinity than non-perpetrators. In fact, after accounting for all study variables, age and antifemininity were the only two significant predictors of being a perpetrator.

Although these data do not shed light on *why* alcohol increased aggression toward sexual minorities, pertinent theory suggests several explanations. According to the inhibition conflict model (Steele & Josephs, 1990), alcohol facilitates aggression to a greater extent when an individual experiences a high level of conflict between opposing response tendencies (i.e., instigatory and inhibitory cues). Accordingly, it has been argued that alcohol intoxication facilitates the behavioral expression of prejudice, "but only to the extent that those prejudices are suppressed" (Crandall & Eshleman, 2003, p. 425). Thus, when there are strong, simultaneous pressures of instigatory cues (e.g., a situation that fosters the expression of sexual prejudice) and inhibitory cues (e.g., one's disposition toward suppressing sexual prejudice), alcohol is likely to increase aggression toward sexual minorities. Future research is needed to determine whether this mechanism accounts for the present findings. Also, research has shown that alcohol facilitates social bonding in small male groups (Kirchner, Sayette, Cohn, Moreland, & Levine, 2006) and that contexts in which friends encourage aggression increase the likelihood of intoxicated aggressive behavior (Tomsen, 1997). These peer dynamics are a key motivation for perpetrators of aggression toward sexual minorities (McDevitt, Levin, & Bennett, 2002) who wish to "prove both toughness and heterosexuality to friends" (Franklin, 1998, p. 12). In the present study, over 80% of alcohol-related aggressive acts occurred in the presence of others. Though future research is needed, this literature suggests that alcohol is especially likely to exacerbate peer influences which instigate aggression toward sexual minorities.

Some limitations of this research merit attention. We could not determine whether alcohol use was involved in a greater proportion of assaults of sexual minorities relative to nonbiased or other bias-motivated assaults, nor could we confirm that alcohol use preceded all acts of aggression. Indeed, some acts of intoxicated aggression may have been committed regardless of the target's sexual orientation. However, exclusively heterosexual, relative to non-heterosexual, perpetrators reported higher levels of pertinent risk factors and exhibited increased risk of aggression on drinking days. These findings are consistent with data that alcohol increases aggression to a greater extent among persons who are predisposed to such behavior (e.g., Collins, 1988; Fishbein, 2003) and suggest that alcohol increased risk for aggression toward sexual minorities specifically. Also, the reliability of men's retrospective recall of alcohol use and aggression may be limited because of recall bias. Nevertheless, the present data are the first to support an event-based link between alcohol use and aggression toward sexual minorities and represent a useful starting point for future research to examine risk factors and mechanisms for intoxicated aggression toward sexual minorities and other stigmatized groups.

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**Table 1**

## Sample Demographics

Variable	Sample	
	Exclusively heterosexual	Non-heterosexual
Sample size ( <i>n</i> )	199	37
Age ( <i>SD</i> )	24.2 (3.2)	24.8(3.2)
Education (%)		
Less than high school	8	8
Only high school	14	5
Some college	48	41
Completed college	30	46
Ethnicity (%)		
European American	49	51
African American	48	46
Mixed, Other	3	3
Marital status (%)		
Single	79	68
Married	8	0
Living with partner	10	27
Divorced, separated	3	5

*Note.* Participants who endorsed exclusive sexual arousal to females and sexual experiences that occurred mostly or exclusively with females and who confirmed a heterosexual orientation in the subsequent interview were assigned to the exclusively heterosexual group; the present study focuses primarily on this group.

**Table 2**

Number of Men Reporting One or More Days of Aggression Toward Sexual Minorities

Number of Aggressive Days Reported	Number of Men Reporting This Many Days	Number of Aggressive Days Total
1	19	19
2	10	20
3	3	9
4	2	8
5	2	10
9	1	9
Totals	37	75

*Note.*  $n = 199$ , thus 162 men (81%) reported no days with aggression.

**Table 3**

Drinking Variables: Perpetrators and Non-Perpetrators Compared

Variable	Perpetrators		Non-perpetrators		$\rho$	$p$
	Median	(25th–75th percentile)	Median	(25th–75th percentile)		
Number of drinking days	133	(60–213)	82	(31–166)	.14	.044
Drinks per drinking day	4.6	(2.8–6.4)	3.8	(2.7–5.6)	.08	.278
Number of heavy drinking days	36	(11–88)	15	(2–65)	.14	.048

*Note.*  $n = 37$  for perpetrators and 162 for non-perpetrators. Drinking variables were all positively skewed (standardized skew  $> 3$ ); thus medians and non-parametric statistics were used. The point biserial Spearman  $\rho$  gauges the difference between the medians; its  $p$  value is essentially the same as that for the comparable Mann-Whitney U test.

**Table 4**

Sexual Prejudice, Masculine Gender Role Stress, and Endorsement of Male Role Norms: Perpetrators and Non-Perpetrators Compared

Variable	# items	scale	Perpetrators		Non-perpetrators		<i>r</i>	<i>p</i>
			<i>M</i>	( <i>SD</i> )	<i>M</i>	( <i>SD</i> )		
Sexual prejudice	20	1-9	5.05	(2.04)	3.80	(1.85)	.25	<.001
MGR stress	40	0-5	2.41	(0.81)	2.09	(0.78)	.16	.025
Status	11	1-7	5.19	(1.01)	4.71	(1.06)	.17	.014
Toughness	8	1-7	4.90	(1.06)	4.13	(1.00)	.28	<.001
Antifemininity	7	1-7	4.03	(1.32)	3.01	(1.04)	.34	<.001

*Note.*  $n = 37$  for perpetrators and 162 for non-perpetrators. MGR stress = masculine gender role stress. Means reflect the per item mean for each scale. The point biserial Pearson  $r$  gauges the difference between the mean; its  $p$  value is identical to the comparable  $t$  test.

**Table 5**

Drinking Variables: Men of Color and Whites Compared

Variable	Men of Color		Whites		$\rho$	$p$
	Median	(25th–75th percentile)	Median	(25th–75th percentile)		
Number of drinking days	88	(31–195)	93	(33–153)	.02	.77
Drinks per drinking day	3.4	(2.6–4.7)	4.7	(3.0–6.8)	.22	.002
Number of heavy drinking days	12	(2–49)	30	(7–100)	.19	.007

*Note.*  $n = 102$  for men of color and 97 for Whites. Drinking variables were all positively skewed (standardized skew  $> 3$ ); thus medians and non-parametric statistics were used. The point biserial Spearman  $\rho$  gauges the difference between the medians; its  $p$  value is essentially the same as that for the comparable Mann-Whitney U test.