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Super Bowl Sunday: Risky Business for At-Risk (Male) Drinkers?

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Abstract

Background—Major sporting events and other festive occasions are typically associated with alcohol consumption; however, little is known about risky drinking during events such as the “Super Bowl.”

Objectives—We sought to determine whether drinking on Super Bowl Sunday differed from Saturdays (the heaviest drinking day of the week) surrounding the date of the Super Bowl among at-risk drinkers.

Methods—Heavy drinking participants ($N = 208$) were recruited via advertisements for a two-year prospective study of drinking behaviors. From this larger sample, 196 were selected for whom the date of the Super Bowl was included in their daily alcohol consumption reports (including reports of abstinence on those days) for 2006, 2007, and/or 2008. Participants’ average age was 36.4 ($SD = 12.9$); 49.5% were women. Participants at the point of recruitment were not seeking treatment and had not been in alcohol treatment in the past year.

Results—Analyses using Multi-Level Modeling comparing Super Bowl Sunday to Saturdays indicated that men drank more alcohol on Super Bowl Sunday across all three years whereas women’s drinking was higher in only one of the three years.

Conclusions/Importance—These findings suggest that heavy drinking during the Super Bowl (and in association with other sporting events), particularly among men, warrants additional attention due to the potential for deleterious public health consequences.

Keywords

alcohol consumption; event-specific drinking; celebratory drinking; sporting events; at-risk drinkers

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

Introduction

Celebratory drinking at hazardous levels is well-documented among young adults (e.g., Neighbors et al., 2011). For example, 21st birthday festivities (e.g., Brister, Sher, & Fromme, 2011; Brister, Wetherill, & Fromme, 2010), holidays and spring break (Glindemann, Wiegand, & Geller, 2007; Lee, Lewis, & Neighbors, 2009), and college football games (e.g., Glassman, Dodd, Sheu, Rienzo, & Wagenaar, 2010; Neal & Fromme, 2007) are associated with young adult celebratory drinking. A limitation of this literature, however, is that very little is known about these celebratory consumption patterns and associated risks beyond young adulthood.

When considering gender and drinking, men typically consume more alcohol than women (Wilsnack, Wilsnack, Kristjanson, Vogeltanz-Holm, & Gmel, 2009), and men's drinking seems to be more susceptible to social influences (e.g., Borsari & Carey, 2001; Homish & Leonard, 2008; O'Grady, Cullum, Tennen, & Armeli, 2011). Some studies have indicated that increased celebratory alcohol consumption is more prevalent among young adult men (see Brister et al., 2011; Glassman et al., 2010; Glassman, Werch, Jobli, & Bian, 2007; Neal & Fromme, 2007). Further, some research suggests that young adult women may experience greater consequences of celebratory drinking (Haun, Glassman, Dodd, & Dale Young, 2007). However, gender-related variations in celebratory drinking pertaining to sports have seldom been a focus of research investigation.

The Super Bowl, the yearly championship game of the National Football League, is watched on television in approximately 40% of American households (Holmes & Gyimesi, 2007) and is traditionally associated with festive gatherings that include eating, drinking beer, and watching football. However, despite the celebratory intent, Super Bowl Sunday is linked to negative public health outcomes, such as high rates of alcohol-involved traffic fatalities (New Jersey Division of Highway Traffic Safety, 2005).

Current Study

We conducted secondary analyses to test our hypothesis that at-risk drinkers report greater alcohol consumption on Super Bowl Sunday as compared to Saturdays (the heaviest drinking day of the week). We also sought to explore gender and other demographic differences in drinking on Super Bowl Sunday. These data are innovative in that they focus on celebratory drinking in an adult sample and gender differences are examined.

Method

Recruitment, Eligibility, and Procedures

The focus of the parent study (described in xx [cite removed for blind review]) was to investigate help-seeking behavior among at-risk drinkers. Participants, responding to ads for “moderate to heavy drinkers,” were over 18 years of age and had an Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) score indicative of “hazardous and harmful alcohol use” (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001, p. 19). Participants completed an in-person baseline assessment and 6, 12, 18, and 24 month follow-ups by mail (retention from 74.0 to 80.3%).

Participants

From the total sample of 208 participants, the 196 participants in the current analyses provided daily alcohol consumption records (including reports of abstinence) that included at least one Super Bowl Sunday in 2006, 2007, and/or 2008: 43 participants provided data that included one Super Bowl date; 69 provided data for two Super Bowl dates; 84 provided data for three Super Bowl dates.

Participants' average age was 36.4 years ($SD = 12.5$; range 18 to 80); 49.5% were women; 68.4% were White/Caucasian, 26.5% were Black/African American, and 5.1% were Asian, Middle Eastern, Native American, or self-reported "other." Participants' marital status was as follows: 28.4% Married or Cohabiting, 71.6% Single (Never Married, Separated, Widowed, or Divorced). The majority of participants (60.4%) were employed full or part time. Most participants had completed at least high school (90.4%),

Daily Alcohol Consumption

The Timeline Follow-back (TLFB: Sobell & Sobell, 1992, 1996) was used to assess participants' daily alcohol consumption (using standard drink equivalents) for the 6 months prior to each assessment. Alcohol consumption variables computed using TLFB data reflect the three weeks before and after the Super Bowl in 2006, 2007, and 2008. The six week timeframe was chosen to account for variation between weeks and to minimize seasonal differences in alcohol consumption.

Average drinks per drinking day for the six-week timeframe ranged from 5.8 to 6.8 (SD 4.1 - 5.2) for men and 4.5 to 5.7 (SD 3.3 - 4.5) for women. Percent heavy drinking days (≥ 5 men; ≥ 4 women) ranged from 31.2 to 38.9% for men and 16.6 to 34.3% for women. Percent drinking days (≥ 1 drink) ranged from 58.6 to 63.1% for men and 33.9 to 53.7% for women. Because abstinence on Sundays was common among participants we opted to focus on the more rigorous comparison of Super Bowl Sunday with Saturdays, the day of the week with the highest typical alcohol consumption.

Analyses

The primary analytic strategy was Multi-Level Modeling with full maximum likelihood estimation of standard errors (Raudenbush & Bryk, 2002) using Stata Version 11.1 (StataCorp, 2009). Difference variables were created to compare Super Bowl Sunday alcohol consumption with average number of drinks on Saturdays within the six weeks surrounding each Super Bowl.

To examine seasonal variation in drinking, we compared percent days abstinent and mean drinks per drinking day on Saturdays during the six weeks to a random sample of Saturdays throughout the year. Drinking on Saturdays during the six-weeks surrounding the Super Bowls was highly comparable to other times of year.

Results

For descriptive purposes, unadjusted mean comparisons were conducted using paired sample t-tests by year for the overall sample and broken down by socio-demographic subgroups

(Table 1). Examination of the multi-level analyses, and in particular the analyses that are adjusted for covariates, provide more meaningful interpretation of the study findings.

Using MLM, an intercept-only model was calculated to compare Super Bowl Sunday to Saturday drinking across time (i.e., 2006, 2007, 2008). A random effect estimate was included in the model to test variation between participants. Model findings revealed that in the overall sample across the three years participants drank an average of 2.0 more drinks on Super Bowl Sunday than on Saturdays in the three weeks before and after the Super Bowl (95% CI = 1.2, 2.7; $p < 0.001$). A significant random effect indicated that the level of difference varied significantly between participants in the sample ($s^2 = 4.04$; 95% CI = 3.4, 4.8; $p < 0.001$).

Table 2 displays results from the fully adjusted model which breaks down the comparison by sociodemographic subgroups. Year was included as a covariate because of a trend of decreased drinking over the three years. The finding of greater alcohol consumption on Super Bowl Sunday than Saturdays was consistent across all subgroups except for gender. The difference was significantly lower for women than for men ($b = -2.1$; 95% CI = $-3.5, -0.7$; $p < 0.01$). Examination of the estimated marginal means revealed that men consumed a greater number of drinks on Super Bowl Sunday than on Saturdays (mean difference = 3.05, 95% CI = 2.04, 4.04). Among women the difference was less pronounced, with a trend toward significance at $p = 0.06$ (mean difference = 0.98, 95% CI = $-0.02, 1.98$).

Discussion

Previous research has demonstrated that sporting events and other celebratory occasions are often paired with heavy and potentially hazardous alcohol consumption in young adults. Not surprisingly, data from the current study indicate that for the average adult participant in this sample (with the exception of women in 2008), Super Bowl Sunday constituted an “at risk” drinking day based on the National Institute on Alcohol Abuse and Alcoholism (2005) thresholds of 5 or more drinks per day for men and 4 or more for women. When comparing Super Bowl Sunday to Saturdays (the heaviest drinking day of the week), men consumed considerably more than usual, whereas women's Super Bowl drinking was significantly higher in only one of the three years. Findings from the current study do not explain why Super Bowl Sunday seems to present more of a risk for men. Possible explanations worthy of future investigation include men's higher level of interest in spectator sports (e.g., Wann, Melnick, Russell, & Pease, 2001) and the fact that social influences on drinking may be greater for men than for women (Borsari & Carey, 2001; Homish & Leonard, 2008; O'Grady et al., 2011).

These data were not collected with the intention of analyzing Super Bowl drinking. Therefore, data were not available to estimate participants' blood alcohol content on the day of the Super Bowl or to indicate whether participants watched the game. Furthermore, participants' may have overestimated their drinking on that day. Another limitation of the study is that TLFB data at baseline were collected via interview, whereas follow-up information was collected via self-administered paper-and-pencil calendars.

Results from the current study and other studies linking drinking to sports (e.g., Glassman et al., 2007; Neal, Sugarman, Hustad, Caska, & Carey, 2005; Nelson & Wechsler, 2003) suggest that greater attention should be given to heavy alcohol consumption and related detrimental effects during sporting events. It would be useful to know whether social drinkers engage in similarly hazardous drinking during the Super Bowl as was found in our at-risk sample. Additional information relevant to understanding Super Bowl drinking includes whether spectators are regular sports fans, whether they watch the game, whether they are drinking in a social setting, and details concerning the context of their game day experience. Furthermore, it would be important to ascertain whether negative consequences result from alcohol consumption on Super Bowl Sunday, beyond what has been demonstrated by traffic safety data (New Jersey Division of Highway Traffic Safety, 2005; Redelmeier & Stewart, 2003). The potential for severe consequences associated with heavy drinking on Super Bowl Sunday suggest that this is an important public health concern that extends beyond young adults and that merits additional attention.

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Glossary of Key Words and Concepts

Multi-level modeling	A modeling approach that allows for estimation of statistical parameters when there is a nested structure to the data, such as when there are repeated measures for the same individuals.
Full maximum-likelihood estimation	A means of estimating the most probable statistical parameters in a model based on the known parameters of all available observed data. This method derives parameters that provide the best agreement between the tested model and the observed data.
Difference score	A new variable that is obtained by subtracting one score from another (i.e., the difference between the two scores).

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Table 1

Comparison of mean number of drinks between Super Bowl Sunday and Saturdays, overall and as a function of sociodemographic subgroups and year

	Average number of drinks 2006			Average number of drinks 2007			Average number of drinks 2008		
	<i>n</i>	Super Bowl	Saturdays	<i>n</i>	Super Bowl	Saturdays	<i>n</i>	Super Bowl	Saturdays
Overall									
Sample	178	7.6 (8.2)	6.0 (4.9) *	155	7.3 (8.0)	4.5 (3.7) *	100	6.1 (6.6)	4.3 (4.0) *
Sex									
Male	90	10.1 (9.5)	7.0 (5.3) *	74	9.2 (8.7)	5.5 (4.1) *	49	8.7 (7.8)	6.0 (4.3) *
Female	88	5.1 (5.7)	5.1 (4.3)	81	5.5 (6.8)	3.7 (3.1) *	51	3.6 (4.0)	2.6 (2.9)
Race/Ethnicity									
White	118	6.8 (6.3)	5.3 (4.0) *	110	6.7 (6.8)	4.5 (3.7) *	67	5.8 (5.7)	4.4 (4.2) *
Black	50	10 (11.4)	7.0 (6.6) *	38	9.0 (10.9)	4.4 (3.7) *	27	6.7 (8.7)	4.2 (3.8)
Other	10	5.6 (7.0)	7.4 (4.1)	7	6.3 (6.7)	5.3 (4.1)	6	7.3 (6.5)	3.2 (3.7)
Marital Status									
Not married	127	7.0 (8.2)	5.9 (5.1)	106	6.8 (8.1)	4.2 (3.8) *	70	5.7 (7.1)	4.3 (4.3) *
Married/cohabiting	51	9.3 (8.2)	6.4 (4.7) *	49	8.3 (7.6)	5.2 (3.5) *	30	7.2 (5.2)	4.3 (3.3) *
Education									
HS/GED	68	10.4 (10.2)	7.4 (6.3) *	60	9.5 (10.2)	5.1 (4.1) *	42	7.7 (8.1)	4.6 (4.0) *
> HS	110	6.0 (6.2)	5.2 (3.6)	95	5.8 (5.7)	4.1 (3.5) *	58	5.0 (5.1)	4.1 (4.1)
Employment									
Unemployed	73	7.4 (8.6)	6.1 (6.0)	61	7.5 (7.9)	3.8 (3.3) *	40	5.6 (5.9)	3.4 (3.3) *
Employed	104	7.9 (8.0)	6.0 (4.1) *	93	7.2 (8.1)	5.0 (4.0) *	59	6.5 (7.2)	4.9 (4.4) *

Note. Mean number of drinks consumed on Super Bowl Sunday was compared with Saturdays (during the 3 weeks before and after the Super Bowl) in the corresponding year using a paired-sample t-test.

*
p < 0.05.

Table 2

Results from Multi-Level Modeling: Subgroup differences in comparisons of drinking on Super Bowl Sunday with Saturdays

	Beta	95% Confidence Interval
Sex		
Male	Ref.	---
Female	-2.10	(-3.54, -0.66)**
Race/Ethnicity		
White	Ref.	---
Black	1.10	(-0.69, 2.88)
Other	-1.26	(-4.48, 1.96)
Marital Status		
Not married	Ref.	---
Married/ cohabiting	1.31	(-0.30, 2.92)
Education		
HS/GED	Ref.	---
> HS	-1.30	(-2.87, 0.27)
Employment		
Unemployed	Ref.	---
Employed	-0.44	(-1.94, 1.06)
Age	0.01	(-0.05, 0.06)
Year		
2006	Ref.	---
2007	1.03	(-0.02, 2.08)
2008	0.04	(-1.19, 1.26)

Note: The outcome variable for the model was a difference variable, calculated by subtracting average drinks on Saturdays from drinks consumed on Super Bowl Sunday. Thus, beta coefficients represent a comparison between subgroups on this difference variable.

* $p < 0.05$

**
 $p < 0.01$