Examining the Impact of Game Characteristics on Alcohol-Related Stadium Ejections in College Football

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Introduction
Alcohol consumption and associated consequences remains a major public health issue, particularly the influence of mass-entertainment and sporting events on alcohol-related injury, intoxication, and hospitalization. College football game days represent some of the heaviest alcohol consumption days for college students (Neal & Fromme, 2007; Sperber, 2001) and non-college student fans alike (Glassman et al., 2007). Moreover, there are more alcohol-related arrests on collegiate game-days than both non-football Saturdays and traditional drinking holidays such as New Year’s Eve and St. Patrick’s Day (Merlo et al. 2010). Overall, host communities of college football games experience distinct increases in assaults, vandalism, arrests for disorderly conduct, and arrests for alcohol-related offenses on game days (Rees & Schnepel, 2009). Identifying indicators of alcohol-related behavior and associated consequences can inform prevention efforts and polices for college sport events and venues, which ultimately may improve public health and safety.

The current investigation sought to add further insights into the measurement-related issues associated with the manner in which researchers operationalize the magnitude of a game, and its associated opponent. In particular, this investigation sought to determine whether the manner in which the profile of a game/opponent was operationalized, such as classification (e.g., in-state opponent, conference opponent) or opponent quality (e.g., top-25 status, or computer-based quality assessment), influenced the reported stadium ejections of a college football venue. Moreover, we sought to determine whether these associations existed above and beyond the influence of several noteworthy covariates (i.e., time of kickoff, attendance, temperature).

Literature Review
Alcohol-related anti-social behavior may result in the need for law enforcement intervention (e.g., ejections, arrests, and statue violations) during and around college football games. Recognizing the potential impact of spectator drinking may have on the health and welfare of sporting event participants, administrators have sought to implement policies to decrease crime and arrests on game-days (Johannessen et al., 2001; Borrman & Stone, 2001). For instance, upon initiating stricter alcohol restrictions at college football games/activities at the University of Arizona, there was less crime, fewer neighborhood calls to law enforcement, and a reduction of other alcohol-related problems (Johannessen et al., 2001). Borrman & Stone (2001) reported that University of Colorado experienced a dramatic decrease in alcohol-related arrests and ejections from the stadium following the ban of alcohol consumption and sale within the stadium. In addition to alcohol sales policy, Menaker and Chaney (2014) also identified several important factors that influence reported crime and alcohol-related ejections, such as game attendance, start time of game, and whether or not the game was a conference game (a game played between teams in a predetermined grouping of teams) and/or “rivalry” game (between teams playing frequently from the same state with a tradition of being rivals). In sum, stadium administrators have acknowledged that excessive alcohol consumption is one of their major concerns, and further recognize the importance of prevention strategies and proactive game day policing aimed at minimizing the negative impact of spectator drinking (Menaker et al., 2016).

While college football games, in general, are considered drinking "windows of risk" (Neighbors et al. 2012), it has been documented that the magnitude/importance of a game (e.g., rivalry game) further impacts the alcohol consumption of fans, such that games of greater magnitude (i.e., featuring a highly rated opponent) result in greater alcohol consumption (Barry et al., 2014; Neal & Fromme, 2007; Neal et al., 2005). That said, measures of opponent quality, as measured by factors such as team multi-year winning percentage, poll ranking, or even overall record, are
rarely considered or operationalized in the published literature. Instead, previous investigations have contextualized high-magnitude/profile games as those against conference/traditional rivals or games occurring on homecoming (Champion et al., 2009; Menaker & Chaney, 2014; Neal & Fromme, 2007). We are aware of only one investigation which considered the influence of how the respective profile of an opponent influenced drinking behaviors (see Barry et al. 2014). Specifically, Barry and colleagues (2014) documented that games featuring a higher profile opponent (as measured by the Massey rating system) resulted in greater breath alcohol concentrations among restaurant and bar patrons.

Data and Methodology
Data were collected from four of the seven major college football stadiums that collect ejection data from a single southeastern state. All home games played at these venues over a three year period were selected which resulted in 78 games sampled. The primary objective of this investigation was to establish whether classification and opponent quality measures of college football opponent quality could predict ejections at college football stadiums, above and beyond the influence of several other pertinent game day environmental variables/covariates. Covariates were specifically chosen due to their influence on factors such as stadium location (i.e., on or off-campus) and specific environmental factors (e.g., time of game, temperature). Independent variables of interest included various measures of game importance/rivalry (e.g., in-state opponent, conference opponent) and computer generated measures of team quality (as measured by the Massey rating system).

A two-step process was employed to investigate the influence of game importance/opponent ranking on the number of reported alcohol-related ejections. First, we conducted two independent samples t-tests to assess the influence of both of our classification measures (i.e., conference opponent, and in-state opponent) on the number of reported ejections. Second, we examined the impact of the game-related independent variables (e.g., rivalry, Top 25 status, opponent quality ranking) on stadium ejections via multiple regression analyses.

Results
First, results from two independent samples t-tests found that there were significantly more ejections (p < .05) for a conference game (M = 27.15, SD = 21.90) when compared to a non-conference game (M = 17.54, SD = 13.18). Additionally, differences in the number of ejections were marginally significant (p = .062) when comparing in-state opponents (M = 31.27, SD = 30.45) and out-of-state opponents (M = 21.08, SD = 14.88).

Second, a complete regression model, which included all of the aforementioned independent variables and covariates, was statistically significant \[R^2 = .31, F(8, 69) = 4.02, p < .01\]. The results of the model suggested that the following significantly predicted an increase in in-stadium ejections: (1) a later game start time (p < .05); (2) playing against an in-state opponents (p < .01); and (3) playing against a conference opponent (p < .001).

Discussion and Implications
To address the main objective of the present study, the study findings suggest the primary determinants that impact ejections during a given football game are the: game start time and the type of opponent the home team is playing (e.g., in-state rival, conference opponent, etc.). Based on these findings, it is important for university and community officials to be cognizant of these game day factors when allocating resources and personnel to effectively monitor and optimize fan safety before, during, and after football contests. Complete descriptive statistics, results from statistical analyses conducted (i.e., t-tests and regression models), study limitations, and implications for sport management researchers, athletic administrators, and university and community stakeholders will be discussed.