

TO SERVE AND PROTECT: DOES SELLING ALCOHOL AT INTERCOLLEGIATE  
FOOTBALL STADIUMS EQUATE TO HIGHER CRIMINAL ACTIVITY?

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## ABSTRACT

Archer T. Bane IV: To Serve and Protect: Does Selling Alcohol At Intercollegiate Football Stadiums Equate To Higher Criminal Activity?  
(Under the direction of Nels Popp)

College football game days are associated with high levels of alcohol consumption and increased criminal activity. Currently, 34 NCAA Division I schools sell alcohol throughout their entire football venue. The purpose of this study was to investigate the impact of alcohol sales within college football stadiums on deviant behaviors by patrons on a national level. This was achieved by comparing collegiate football game days in which alcohol is sold at on-campus football venues and non-game days on campus as well as game day criminal and alcohol related statistics for before and after the decision to sell alcohol was made. The significant findings suggest that criminal offenses and alcohol related incidents are higher on game days in comparison to non-game days. Furthermore, the results did not suggest that criminal offenses and alcohol related incidents will go down after selling alcohol, but they did not suggest that they will go up either.

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## LIST OF ABBREVIATIONS

BrAC	Breath alcohol concentrations
DI	The top division of the National Collegiate Athletic Association
DUI	Driving under the influence of alcohol
ERAC	Extreme Ritualistic Alcohol Consumption: consuming ten or more drinks for males and eight drinks or more for females on game day.
ESP	Event-specific prevention
FBS	Football Bowl Subdivision
NCAA	National Collegiate Athletic Association

## **CHAPTER I**

### **INTRODUCTION**

“Alcohol and sporting events go hand-in-hand,” (McGregor, 2012, p. 211). Why then do only 27% of Football Bowl Subdivision (FBS) institutions sell alcohol at their intercollegiate football stadium (Malone, 2015; Mitchell & Montgomery, 2015)? According to Nelson and Wechsler (2003), sports fans, “binged one or more times in the past two weeks” (p.5) at a 14% higher rate than non-sports fan. This data was not associated with live events. However, on game day, that connection is only heightened (Merlo, Ahmedani, Barondess, Bohnert, & Gold, 2011; Glassman, Werch, Jobli,& Bian, 2007; Neal & Fromme, 2007; Glassman, Dodd, Sheu, Rienzo, & Wagenaar, 2010). Glassman et al. (2011) found 90% of college football tailgaters consumed alcohol while tailgating. This heavier consumption on game day could possibly increase what is already known to be a window of higher criminal activity (Rees & Schnepel, 2009; Merlo, Hong, & Cottler, 2010).

For this reason, among others, athletic administrators are skeptical about selling alcohol. However, there are schools that have chosen to go against the grain. As of 2015, Malone (2015) has identified 34 institutions that sell alcohol throughout their stadium, 23 of which are at on campus stadiums. For many, revenue increases and game day experience enhancements have driven this decision (Services, 2014; Murphy, 2015; Kimes, 2014). ). In 2004, Tim Evan, at the time the assistant athletic director for marketing and promotions at New Mexico State was quoted saying, “Why not control it and make money off it?” (Lee, 2004, p.3). Schools such as West Virginia are taking the idea of controlling it to the next level and using alcohol sales as a



tactic to lower crime rates on game day (Murphy, 2015). The issue is that there is a gap in the current research. There is limited data on the effects of selling alcohol at intercollegiate football stadiums and this study intends to fill this void and statistically aid administrators in their decision to sell, or not to sell alcohol.

### **Statement of Purpose**

The purpose of this study is to investigate the impact of alcohol sales within college football stadiums on deviant behaviors by patrons. Specifically, the study will examine whether significant differences in the reported number of alcohol-related incidents and criminal offenses exist between collegiate football game days in which alcohol is sold at on-campus football venues compared to non-game days on campus. The study will also examine whether significant differences in alcohol-related incidents, criminal offenses, and in-stadium criminal offenses exist between game days before and after the decision to sell alcohol at the institutions' on-campus football venue.

### **Research Questions**

**RQ1:** Is there a statistically significant difference in the number of (a) criminal offenses and (b) alcohol related incidents reported on game days where alcohol was sold at on campus football venues compared to the number reported on non-game days?

**RQ2:** At schools where alcohol is sold at on-campus football venues, is there a statistically significant difference in the number of (a) criminal offenses, (b) alcohol related incidents, and (c) in-stadium criminal offenses recorded on game days compared to game days before alcohol was sold in the venue?

## Definition of Terms

1. **Criminal Offenses:** Any documented police arrest, ticket, or citation issued by the institutions campus police department.
2. **Alcohol Related Incidents:** Any criminal offense, injury/illness, or police report that was associated with alcohol consumption. Criminal offenses can be: public intoxication, open container violation, violation of liquor laws, alcohol consumption and possession by a minor, sale of alcohol to a minor, driving under the influence (DUI) of alcohol, and any other crime that was committed in connection with alcohol consumption.
3. **In-Stadium Offenses:** Any criminal offense that occurred inside the stadium at each institution.
4. **Jurisdiction:** The area in which the campus police of the institution has authority. The focus of the study was on-campus football stadiums. The hope was to limit the amount of outlier data from city jurisdictions in towns of decent size where the crime may have had zero correlation to the football game.
5. **Binge Drinking:** “Having 5 or more drinks on an occasion in the previous 30 days” (Mitka, 2009, p. 1).
6. **Non-game Day Saturday-** A Saturday during the fall semester where there is not a home football game.

## Limitations

1. The sample data used in this study was from a stronger representation of the national landscape, but it was still difficult to predict what will happen at each individual school after they begin to sell alcohol.

2. It was difficult to get an accurate number of DUI's resulting from football game day due to campus jurisdiction size and many attendees of games did not live on campus and therefore could receive DUI's in other jurisdictions.
3. A select group of the sample began to sell alcohol as recent as 2014 allowing for only a two year post sale of alcohol analysis.
4. Certain schools began to sell alcohol before institutions were required to keep daily crime logs. This hindered the studies ability to gain pre- and post-sale of alcohol data.

### **Delimitations**

1. This study is delimited to FBS institutions that sold alcohol at their on campus football venue. Off campus venues were outside the jurisdiction of campus police departments, preventing the studies ability to best connect crimes and alcohol related incidents to the game and game day itself.

### **Assumptions**

1. The research methods used in this study are valid and reliable.

### **Significance of Study**

This study is significant because to date, no one has empirically investigated on a national scale the relationship between serving alcohol at college sporting events and alcohol-related deviant behaviors. Until now, administrators have only been able to utilize single institution data. The data discovered through this study is representative of the national college football game day landscape, and will aid administrators greatly in their decision whether or not to sell alcohol at their own on campus football venue.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

This chapter will provide a review of the existing literature with regards to alcohol abuse on college campuses, the connection between alcohol-related deviant behaviors and sporting events, and the current trends in athletics. The topic of alcohol abuse on college campuses highlights the current culture of drinking on campus and examines the current policies implemented by administrators. Next, the link between alcohol and sports is examined. The emphasis of the section will be placed on game day drinking levels, and the resulting consequences. Lastly, the current landscape of alcohol sales at intercollegiate football games will be reviewed. The incentives to sell, how administrators prevent undesirable actions, and the new train of thought that selling alcohol can curb excessive drinking and the resulting consequences are brought to light.

#### **Alcohol Abuse on College Campuses**

Alcohol consumption is an ongoing concern on college campuses. Research from the *National Institute on Alcohol Abuse and Alcoholism* reported as of 2009 just under 45% of college students aged 18 to 24 participate in binge drinking (Mitka, 2009). The same institute reported in 2012 that 25% of college students conveyed academic struggles due to their alcohol consumption (Strauss, 2013). On a more tragic level, the report also found an estimated 1,825 college students die each year from alcohol-related unintentional injuries. This section will delve into this issue by examining the current landscape of alcohol consumption on collegiate

campuses, current policies being practiced by administrators, and the practice of event specific prevention.

**Alcohol on campus.** Excessive consumption of alcohol is happening on campus. In 2002, O'Malley & Johnston compiled data from five sources estimating recent levels of alcohol intake by college students. One of those sources, the *Monitoring the Future* (MTF) study which showed that in 1999, 69.6% of full time college students ages 19-22 had had an alcoholic beverage within thirty days of the survey (O'Malley & Johnston, 2002). Taking it a step further, four of the studies consistently found heavy drinking to be near 40% among college students (i.e. five or more drinks on at least one occasion in either the past two weeks or past 30 days) (O'Malley & Johnston, 2002). In a study of 800 students from a Southeastern U.S. university, Woodyard and Hallam (2010) found alcohol consumption was greatest on a typical in-semester weekend, followed by celebratory events (holidays, tailgating for football) and then a typical weekday. Interestingly enough, the greatest number of students to report not drinking (51.86%) came during nonconference football games (Woodyard & Hallam, 2010).

Excessive drinking has consequences. Presley, Meilman, and Cashin (1996) used a Core Alcohol and Drug Survey in 1994 that surveyed 107 institutions and discovered heavy alcohol consumption affects multiple areas of a student's life. First is in the classroom; 21.8% of students reported performing poorly on a test or project and 27.9% had missed class due to excessive drinking (Presley et al., 1996). The researchers also found a correlation between number of drinks consumed per week and grade average. Students with an A average consumed 3.4 drinks and students with a D or F consumed 9.8 drinks. Next is the harm they put themselves in; 29.6% of students were involved in an argument or fight, 47.1% reported nausea or vomiting, 32.6%

stated they had driven under the influence, and 35.8% regretted something that they had done due to substance use (Presley et al., 1996).

To understand the student's perspective, Perkins, Meilman, Lichliter, Cashin, and Presley (1999) surveyed 100 schools in which students' self-reported substance use as well as their perceptions of the rest of the institution. On campuses where abstaining from drinking was the norm (more than 50% reported), only 14.1% of students accurately perceived abstinence. At schools where the norm was monthly alcohol use, 71% of the students perceived that the norm was weekly. Perkins et al. discovered that college students have an inflated comprehension of alcohol consumption amongst their peers. This understanding can aid future university alcohol consumption educational efforts.

**Current policies.** So what are schools doing? Cremeens, Usdan, Talbott-Forbes, and Martin (2013) interviewed the Vice President of Student Affairs at 21 different institutions. The results indicated all the universities had a written policy pertaining to alcohol use and possession on campus; however the contents of those policies vary. Twenty four percent of schools prohibited alcohol use on campus, 67% prohibited keg deliveries, and 52% had alcohol-free dorms and living spaces. Only four universities reported having bars and restaurants on campus that sell alcohol. At intercollegiate athletic events, 85.7% had policies prohibiting alcohol use, and advertising alcohol at sporting events was prohibited by 42.9% of sample schools (Cremeens et al., 2013).

A study done by Wechsler, Kelley, Weitzman, San Giovanni, and Seibring (2000) surveyed 734 US college administrators to discover what colleges were doing to reduce binge drinking. Nearly 77% of universities stated that they have substance abuse officers and 60% have a task force to deal with on-campus use and abuse. Schools are also attempting to gain data

on the extent of their student population's binge drinking (54.6%) and the impact of their programs and policies (40.3%).

**Event-specific prevention.** One potential strategy is Event-Specific Prevention (ESP). ESP's are "strategies that address college student drinking associated with peak times and events" (Neighbors, Walters, Lee, Vader, Vehige, Szigethy, & DeJong, 2007, p. 2667). The motivation behind ESP is that much of the prevention efforts by institutions have been geared toward lowering the overall drinking rates. However, the push to drink on a typical day might be completely different than for an event.

The effect of even the slightest intervention geared to a specific event can be worthwhile. For instance, Cronin (1996) showed the negative consequences of alcohol abuse to a treatment group a week before spring break. He then asked them to fill out a diary of what they intended to drink each day. They, along with a control group, kept record of what they drank on the trip. When they came back, the treatment group experienced far less negative alcohol consequences in comparison to the control group.

On a larger scale, in 1995, the University of Arizona decided to implement a program to reduce alcohol-related problems during its homecoming festivities (Johannessen, Glider, Collins, Hueston, & DeJong, 2001). The Alcohol Policy Committee developed several key policies: (a) organizations with a tent must hire two bartenders who are the only ones that can serve alcohol (b) restrict alcohol service to certain areas within tents, and ban open kegs (c) limit beer purchases to two, and require that each organization providing alcohol have liability insurance (d) cannot display large quantities of alcohol (e) and alcohol cannot be displayed on parade floats (Johannessen et al., 2001). Results were instantaneous. In 1994, 36 tents (60%) served alcohol, in

1995, 22 tents (31.4%) served alcohol. Complaints from neighborhoods about disturbances and other criminal actions saw a decline as well.

Neighbors, Atkins, Lewis, Lee, Kaysen, Mittmann, Fossos, and Rodriguez (2011) examined 1,124 students who had turned twenty-one in the past three weeks to see if their blood alcohol concentration was significantly different on holidays when compared to 21<sup>st</sup> birthdays and typical weekend and weekday drinking over a 90 day period. The results revealed that 21<sup>st</sup> birthday drinking was higher than most holidays and typical weekends. Also, there were certain holidays such as New Year's Eve that were associated with drinking and in larger quantities than usual (Neighbors et al., 2011). The results "suggest that we can identify specific events that are most associated with riskier drinking" and administrators can begin "designing interventions around specific, predictable events" to reduce drinking and its consequences on campus (Neighbors et al., 2011, p.706).

Sporting events also provide an opportunity for peak alcohol consumption (Woodyard & Hallam, 2010). Designing and implementing policies around these predictable events rather than adopting policies for the masses could provide campuses with an opportunity for reducing alcohol consumption (Neighbors et al., 2011). The sale of alcohol in stadia along with other ESP tactics could possibly lower negative alcohol-related behaviors.

### **Link Between Alcohol-Related Deviant Behavior and College Sporting Events**

Alcohol consumption and sports have long been paired together (Wieberg, 2005). The fight with alcohol on campuses is already a well-documented struggle. Several authors (Nelson & Wechsler, 2003; Higgins, Tewksbury, & Mustaine, 2007; Neal & Fromme, 2007; Wolfe, Martinez & Scott, 1997) have found a link between sport affinity and increased drinking. This section will shed light on this concept and will link fandom, alcohol, and campus.



**Sports fandom and alcohol.** Nelson and Wechsler (2003), using data from the Harvard School of Public Health College Alcohol Study, found 53% of male sports fans reported they usually binge drink when they consume alcohol in comparison to 41% of males who are non-fans. Among females in the study, 53% of female sports fans binge drink when consuming alcohol compared to 37% of female non-fans. Sports fans also maintained higher percentages in every other drinking related category in the study, with the exception of abstaining from alcohol (Nelson & Wechsler, 2003).

Higgins, Tewksbury, and Mustaine (2007) conducted a similar study in an attempt to discover if the connection of being a college sports fan and binge drinking was related to low self-control and/or differential association. They found that low self-control is only a link for college sports fans, but that peer association affects both sports fans and non-sports fans (Higgins et al., 2007). This suggests that group influences are stronger than individual reasons when it comes to binge drinking, allowing for game days to create a heightened window of peer association.

Furthering the connection between alcohol and sport fandom, Barry, Howell, Bopp, Stellefson, Chaney, Piazza-Gardner, and Payne-Purvis (2014) collected data throughout the whole 2011 season in a Southeastern college community and found that while alcohol is regularly consumed throughout the season, breath alcohol concentrations (BrAC) are higher when the quality of opponent goes up. On campus at The University of Texas at Austin, alcohol consumption is higher on both home and away game Saturdays than on non-game Saturdays (Neal & Fromme, 2007). Interestingly, drinking rose on home football game days with a higher profile opponent if the students were in session.

**Consequences.** Drinking on campus is an issue because of the negative ramifications that it produces. Students who are sports fans are more likely to experience those negative results than non-sports fans (Nelson & Wechsler, 2003). Haun, Glassman, Dodd, and Young (2007) found that males consume larger quantities, but that females were at higher risk for negative consequences due to drinking such as hangovers, vomiting, injuries, fighting, and unwanted sexual encounters. Even more concerning is that sports fans have higher negative related problems with their studies due to drinking than do non-sports fans (Nelson & Wechsler, 2003). According to Nelson and Wechsler (2003), on average, sports fans rated 7% higher in alcohol-related problem categories. Categories such as; “forget where you were or what you did”, “miss a class”, “do something you later regretted”, and “experience five or more alcohol-related problems” led the list at a minimum of 12% higher with sports fans than non-sports fans (Nelson & Wechsler, 2003, p. 6).

**College football game day: A real concern for binge drinking.** It is well documented that not only do a large portion of the fans who partake in game day activities consume alcohol (Glassman, Braun, Reindl, & Whewell, 2011; Glassman, Miller, Miller, Wohlwend, & Reindl, 2012; Haun, Glassman, Dodd, & Young, 2007), but they also do so at dangerously high levels (Glassman, Dodd, Sheu, Rienzo, & Wagenaar, 2010; Glassman, Werch, Jobli, & Bian, 2007; Merlo, Ahmedani, Barondess, Bohnert, & Gold, 2011; Neal & Fromme, 2007;). Glassman et al. (2011) found 90% of college football tailgaters consumed alcohol while tailgating. Within their sample, the mean BrAC of the participants was .054 mL/L. Additionally, it is suggested that college football fans consume more alcohol on game day than they did the last time they partied (Glassman et al., 2012; Glassman et al., 2007).

Student drinking levels also see a spike on football game days. At the University of Texas, football game days were associated with higher levels of student drinking than other Saturdays (Neal & Fromme, 2007). During the 2009 season at a large University in the Southeast with a top-25 football program, 58.7% of the sample of students consumed alcohol on game day at least once (Glassman et al., 2012). Among the sample that consumed alcohol, 59.2% were considered “high-risk drinkers consuming five or more drinks on game day for males or four or more for females and 20.4% drank double that amount, engaging in ERAC” (Glassman et al., 2012, p. 204). Extreme Ritualistic Alcohol Consumption (ERAC) is defined as consuming 10 or more drinks on game day for males and 8 or more drinks for females (Glassman et al., 2010). A study published by Glassman, Dodd, Sheu, Rienzo, and Wagenaar (2010) discovered that at a large Southeastern university, 15.7% of the 740 students sampled participated in ERAC on game days.

As competition levels increase, so do the drinking levels on football game days. Neal, Sugarman, Hustad, Caska, and Carey (2005) found that during Syracuse’s run to the men’s basketball National Championship in 2005, in both the semifinal and final games, alcohol consumption on campus among students was much higher than what was typical of those days on regular occasions (Neal et al., 2005). At a Division I Southeastern College, when the football team played high-profile opponents, BrAC mean levels increased by .012 when compared to low-profile game weekends (Barry, Howell, Bopp, Stellefson, Chaney, Piazza-Gardner, & Payne-Purvis, 2014).

**Crime and game days.** Alcohol-related deviant behaviors are already an issue on campus (Presley et al., 1996), and sport fans appear to have higher rates of negative consequences from drinking regardless of location (Nelson and Wechsler, 2003). College

football game day brings both of those together and amplifies the problem (Merlo, Hong, & Cottler, 2010; Rees & Schnepel, 2009). Researchers at the University of Florida, where alcohol is not sold in-stadium, examined thirty days' worth of public alcohol-related arrest records during a two year window in order to find if game day was at risk for a higher arrest count (Merlo et al., 2010). Ten of those days were home football game days, ten were holidays associated with heavier alcohol consumption, and ten were control days (Merlo et al., 2010). Overall, 944 alcohol-related arrests occurred in the thirty days that were a part of the study. The average number of alcohol-related arrests on game day was 70.3. Control Saturdays and holidays averages were 12.3 and 11.8 respectively (Merlo et al., 2010). Even more alarming is that not only were open container, unlawful possession, and possession by a minor violations higher on game days than on holidays and the control days, but driving while under the influence and battery offenses were significantly higher as well (Merlo et al., 2010).

Rees and Schnepel (2009) were able to gain a more universal scope of crime on game days by looking at data from the National Incident-Based Reporting System for 26 universities for the years 2000-2005. Not every crime indicated was alcohol related but the data is nonetheless insightful and important. On game days, the study found an increase of 13% for drunken driving arrests, and a 76% increase in liquor law violations. An additional component of this study was that it was able to factor in the result of the game and if it was an upset win or loss. Home game losses were associated with 12% and 24% increases in assaults and Driving Under the Influence (DUI) arrests; whereas wins were only associated with 8% and 10% increases. DUI's increased by 77% if the win is an upset, and they increased by 57% if the home team was upset (Rees & Schnepel, 2009).

A study conducted by Lindo, Siminski, and Swensen (2016) examined daily criminal data from the National Incident Based Reporting System for 96 institutions over 13,773 games from 1991-2012 in an effort to identify reports of rape that were associated with college football game days. They found for college-aged victims, rape incidents increased by 28% on football game days. Home games in particular increased by 41%. The study also reports that disorderly conduct, DUI, drunkenness, and liquor law violations collectively increase by 80% on game days (Lindo, Siminski, & Swensen, 2016). It is suggested in the study that football game days increase alcohol-related rapes and that this number could be under reported.

These three studies suggest a link between alcohol-related deviant behavior and college football game days. It is important to note, however, these studies did not examine the mediating effect of permissible alcohol sales within the stadium. The next section will examine the impact that selling alcohol throughout the stadium can have for an athletic department, whether it is on the balance sheet or seen through the overall game day experience.

### **Impact of Serving Alcohol within Collegiate Sport Venues**

Currently, the majority of NCAA DI FBS institutions do not sell alcohol throughout the entire stadium. There are 128 FBS institutions, and as of 2015, Malone (2015) found 34 that sell alcohol throughout the entire stadium on football game days (Malone, 2015; Mitchell & Montgomery, 2015). That number has grown by 13 since 2012 (DeRusha, 2012). The NCAA does not sell alcohol at its championship events (McGregor, 2012), and the SEC has a conference-wide policy prohibiting alcohol sales in public areas of the stadium, but allowing sales in private/leased areas (Oliva, 2014). While alcohol sales can lead to increased revenue and may enhance the game day experience of spectators, administrators are concerned with game day's association with higher levels of alcohol intake from both students and other game

attendees (Glassman et al., 2007; Glassman et al., 2012). The potential for amplified alcohol-related deviant behaviors (Merlo, Hong, & Cottler, 2010; Nelson and Wechsler, 2003; Rees & Schnepel, 2009) due to this excessive drinking has caused skepticism from administrators on the decision to sell in venue.

**Incentive to sell.** With the rising cost of athletics and declining attendance figures (NCAA, n.d.; Wilson, 2014), schools are attempting to find ways to raise revenue as well as enhance the overall game day experience. Alcohol sales contributed to 60% of the University of Louisiana Lafayette's cumulative concession revenue for the five years after it decided to sell alcohol at its football games in 2009 (Conelly, 2015). The University of West Virginia nets \$500,000 a year in beer sales (Tracy, 2015), and Troy's decision to sell alcohol was aided by the estimation that beer would account for \$200,000 in concession revenue (Schools eye, 2014). Outside of beer sales, alcohol advertising is another revenue stream. For example, bymarketing coaches' images on Maker's Mark bourbon bottles, the University of Louisville was able to raise \$2.5 million dollars over a three-year period (Wilson, 2014).

In addition to revenue, administrators see alcohol sales as an incentive to entice fans to come see the game in person rather than watch it from their flat-screen TV (Schools eye, 2014). Institutions in metropolitan markets have fan bases that expect professional sport environments and alcohol is a part of that (Wilson, 2014). Schools are fighting for the consumer's entertainment dollar, and selling alcohol can aid in that effort (Murphy, 2015).

**Prevention strategies for undesirable alcohol related behaviors.** In 2010, the University of Iowa implemented its "Think Before You Drink" campaign with the hopes of changing its football game day drinking environment (House, Morrison, Pelc, & Harland, 2014). The focus was to eject fans that were overly intoxicated or in possession of alcohol, provide a

text message service to allow patrons to contact law enforcement in regards to unruly fan behavior, limit postgame tailgating, expand enforcement of open container laws, and to increase the number of road patrols and check points. House et al. (2014) examined if there was a significant change in the amount of emergency department visits after the policies implementation. The study found the policy had little effect, and alcohol-related emergency department visits did not vary from pre-policy to post-policy.

Banning alcohol from being sold in-venue has been a tactic previously used in an attempt to lower alcohol related deviant behaviors. The data in these cases varies. In 1996, the University of Colorado decided to no longer sell alcohol at their football games. The results showed an immediate decrease in game day security incidents the following year, followed by a plateau effect for the next three years (Bormann & Stone, 2001). The University of Arizona decided to discontinue its policy which allowed patrons to bring alcohol into the stadium during the 1985 season (Spaite, Meislin, Valenzuela, Criss, Smith, & Nelson, 1990). The study analyzed the injury/illness rates per 10,000 fans for two years before, the year of, and the year after the ban and found there to be no significant differences between the individual seasons (Spaite et al., 1990). On a more national level, The Harvard School of Public Health published a study which assessed the results from a 2001 national survey with data from 116 schools (Nelson, Lenk, Xuan, & Wechsler, 2010). Over two thirds of those schools prohibit alcohol from all sporting events.

**A new train of thought.** A new strategy currently being discussed is to sell alcohol in order to gain control over the flow of alcohol, and to slow down excessive drinking throughout game day (Beer Boosts, 2012; Kimes, 2014; Lee, 2004; Murphy, 2015; Steinbach, 2011). In 2011, the University of West Virginia's athletic department decided to sell alcohol in stadium as

well as discontinue the long practiced “passout-policy” which allowed patrons the opportunity to re-enter the game after they left at halftime (Murphy, 2015). The year before the change in policy, WVU had 68 police cases during the first four home games. That number dropped to 24 in the same time frame during the 2011 season (Murphy, 2015). The WVU Police Chief backed Athletic Director Oliver Luck stating, “This was probably the best season I’ve ever worked” (Beer boosts, 2012, p. 2).

Athletics department officials at Northern Illinois University have elected to sell in designated areas rather than throughout the entire stadium. Since this decision, they have seen a decrease in alcohol related incidents (Malone, 2015). Senior associate athletic director John Cheney attributes this trend to fans not feeling the need to binge drink before entering the game. Other schools such as Minnesota and Toledo both reported that alcohol-related incidents remained the same or declined once they decided to sell alcohol at their home games (Kimes, 2014).

A recent study done by Howell, Barry, and Salaga (2015), analyzed and compared the number of in-venue alcohol-related incidents for twenty home football contests over three seasons at a power-five university. The first two seasons, 2010 and 2011, no alcohol was sold at the on-campus venue. In the third season, 2012, alcohol was sold. The study found that in the two years in which alcohol was not allowed, there were more alcohol related incidents than in the year in which it was allowed.

Most evidence for either side of the argument to sell alcohol is anecdotal, or isolated to a single university. The research previously mentioned does point to the possibility that alcohol sales can lower alcohol-related incidents on game day. However, the limitation with the study conducted by Howell, Barry, and Salaga (2015), as well as with most studies presented in this



literature review, is that they all analyze what happened at one university. To date, no one has empirically investigated the relationship between serving alcohol at college sporting events and alcohol-related deviant behaviors on a national scale.

The purpose of this study was to investigate the impact of alcohol sales within college football stadiums on deviant behaviors by patrons. Specifically, the study examined whether significant differences in the reported number of alcohol-related incidents and criminal offenses existed between collegiate football game days in which alcohol was sold at on-campus football venues compared to non-game days on campus. The study also examined whether significant differences in alcohol-related incidents, criminal offenses, and in-stadium criminal offenses existed between game days before and after the decision to sell alcohol at the institutions' on-campus football venue.

## **CHAPTER III**

### **METHODOLOGY**

#### **Drawing the Sample**

When creating the sample for this study, the population frame was determined by identifying all NCAA D-I schools that sell alcoholic beverages at home football games throughout the whole stadium. Malone (2015) found 34 schools that sell alcohol throughout their entire football stadium. A sample of 23 schools that sell alcohol at their on campus stadium according to the Malone article were selected. The other eleven schools from the study sold alcohol at off campus NFL stadiums. The reasoning for excluding off-campus venues was due to the possibility that the data would have produced multiple jurisdictions where alcohol related incidents could have occurred during game time skewing the data. An on-campus site allowed for a central hub to be defined where the stadium and the campus could produce significant findings related to in-game alcohol sales and its connection with alcohol-related deviant behaviors.

#### **Procedure**

**Acquiring police reports.** First, it was decided to use each institution's campus police jurisdiction. The Jeanne Clery Act mandates that schools disclose crime statistics and security policies annually (Carter, 2014). With this, it was found that campus police departments maintain yearly crime logs. Due to the relative ease of procuring these crime logs and the necessity to maintain consistency in the way that behavior was reported led to the decision to use campus police departments as the law enforcement agencies for the study.

In an effort to understand the trends in crime and alcohol related incidents on game day, this study focused on the three years before the sale of alcohol and three years after. For schools that began selling alcohol before the police departments kept adequate records for this study, four years' worth of recent data were used. From previous literature on the effects of banning alcohol from being brought into the stadium which utilized data from two years before and after its policy change (Spaite et al., 1990), it was decided to use three years of pre- and post-data to gain the best understanding of the post policy change effects.

With the schools for the sample identified, requests for crime logs were sent out (see Appendix A). The purpose of the email was to request daily crime log databases that outline the type and location of statute violations and criminal offenses at each individual institution for each year in the study. After several follow up calls and emails, a total of ten schools responded to the request for records.

**Data compilation** In the sample of schools from which data was received, eight schools were pre/post and two were for only game day/non-game day (see Appendix B). Of the 23 on-campus schools identified in the Malone (2015) study, only 16 began serving alcohol recently enough for pre- and post-alcohol sales crime logs to be obtained. Thus data was collected for 50% of that population. Two of those sixteen began selling alcohol in 2015 and their data would prove relatively insignificant due to the lack of it. Two of the schools used in the study began selling alcohol in 2014, and therefore only two years of data could be obtained for post alcohol sales. This still provided an excellent window into the trends in criminal activity following the policy change. Once records were obtained they were entered into an excel spreadsheet

The next step required identifying all home football game dates for the sample schools in the years used in the study. For each game date, a non-game day Saturday in the same semester

avoiding Thanksgiving break was also selected. Thus if a school had six home games, six non-game day Saturdays were also selected. Overall, 648 days were included in the study, and 5952 individual reports were reviewed. From this stage, individual reports were organized into five categories: (a) total number of reports (b) total number of criminal offenses (c) total number of alcohol related incidents (d) total number of in-stadium criminal offenses (e) total number of incidents such as car accidents, injuries, and false alarms. The typical school's data set would have had twelve different data sets; six sets for game day and six sets for the equivalent number of non-game day Saturdays.

From this stage, a master list was created. For the analysis of game day versus non-game day the only categories studied were total number of criminal offenses and total number of alcohol related incidents. For each year examined, the total for each category was divided by the number of games or non-game day Saturdays. This provided 53 game day and non-game day averages for each category.

The master list for examining the before and after effects of selling alcohol included the following three categories: (a) total number of crimes (b) alcohol related incidents (c) in-stadium criminal offenses. The totals for each of the eight institutions were included as well as the averages from all three categories for before and after the decision to sell alcohol. Once the master list for both research questions was compiled, it was coded for SPSS statistical analysis.

## Data Analysis

*Is there a statistically significant difference in the number of (a) criminal offenses and (b) alcohol related incidents reported on game days where alcohol was sold at on campus football venues compared to the number reported on non-game days?*

To analyze research question one, an independent samples t-test was run comparing the total average for game days against non-game day Saturdays for the categories of total number of criminal offenses and alcohol related incidents. A second independent samples t-test in which only post alcohol sales years were included compared the total average for game days against non-game day Saturdays for the categories of total number of criminal offenses and alcohol related incidents. The reason for using the total average for each category in both cases was to gain insight on the differences in game day and non-game day Saturdays on a national scale rather than per school basis.

*At schools where alcohol is sold at on-campus football venues, is there a statistically significant difference in the number of (a) criminal offenses, (b) alcohol related incidents, and (c) in-stadium criminal offenses recorded on game days compared to game days before alcohol was sold in the venue?*

For the second research question, a paired samples t-test was utilized. The three categories chosen for this test were: total number of criminal offenses, alcohol related incidents, and in-stadium criminal offenses. For each category, the overall pre- and post-three year averages from all eight schools were analyzed.

## CHAPTER IV

### RESULTS

#### Descriptive Statistics

In the first independent samples t-test run comparing the total average for game days against non-game day Saturdays for the categories of total number of criminal offenses and alcohol related incidents, there was a significant difference in the scores for criminal offenses on non-game day Saturdays ( $M=29.23$ ,  $SD=20.21$ ) and game days ( $M=49.60$ ,  $SD=37.00$ );  $t(104)=-3.519$ ,  $p = 0.001$ . In the case of alcohol related incidents, there was a significant difference in the scores on non-game day Saturdays ( $M=13.17$ ,  $SD=10.58$ ) and game days ( $M=26.74$ ,  $SD=25.34$ );  $t(104)=-3.597$ ,  $p = .000$ . These results suggest that game days do affect the average number of criminal offenses and alcohol related offenses. Specifically, the results suggest that on game days, both categories will increase.

**TABLE 1**

*Game Day Avg. versus Non-game Day Saturdays Avg.*

	Game Day			Non-game Day Saturdays			<i>t-test</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
Criminal Offenses	53	49.60	37.00	53	29.23	20.21	-3.519*
Alcohol Related Incidents	53	26.74	25.34	53	13.17	10.58	-3.597*

$p<.01$ .

*Note.*  $M$ =Mean.  $SD$ =Standard Deviation.

The second independent samples t-test in which only post alcohol sales years were included compared the total average for game days against non-game day Saturdays for the categories of total number of criminal offenses and alcohol related incidents. There was a significant difference in the scores for criminal offenses on non-game days ( $M=33.40$ ,  $SD=22.93$ ) and game days ( $M=46.20$ ,  $SD=28.02$ );  $t(58)=-1.936$ ,  $p = 0.058$ . In the case of alcohol related incidents, there was a significant difference in the scores on non-game day Saturdays ( $M=15.60$ ,  $SD=11.39$ ) and game days ( $M=24.77$ ,  $SD=18.12$ );  $t(58)=-2.346$ ,  $p = .022$ . These results suggest that alcohol sales do affect the average number of criminal offenses and alcohol related incidents on game days. Specifically, the results suggest that on game days where alcohol is sold, both categories will be statistically greater than non-game day Saturdays.

**TABLE 2**

*Post Decision to Sell Alcohol: Game Day Avg. versus Non-game Day Saturdays Avg.*

	Game Day			Non-game day Saturdays			<i>t-test</i>
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	
Criminal Offenses	30	46.20	28.02	30	33.40	22.93	-1.936*
Alcohol Related Incidents	30	24.77	18.12	30	15.60	11.39	-2.346*

\* $p \leq .05$ .

To answer research question two, a paired samples t-test was run comparing overall pre- and post-three year averages from all eight schools for the categories of total number of criminal offenses, alcohol related incidents, and in-stadium criminal offenses. There was not a significant difference in the scores for criminal offenses on game days before alcohol was sold ( $M=58.25$ ,  $SD=51.55$ ) and after alcohol was sold ( $M=47.33$ ,  $SD=31.32$ );  $t(7)=1.240$ ,  $p = 0.255$ . There was also not a significant difference in the scores for alcohol related incidents on game days before alcohol was sold ( $M=32.33$ ,  $SD=36.52$ ) and after alcohol was sold ( $M=24.48$ ,  $SD=19.78$ );  $t(7)=1.052$ ,  $p = 0.328$ . Lastly, there was also not a significant difference in the scores for in-stadium criminal offenses on game days before alcohol was sold ( $M=17.42$ ,  $SD=28.77$ ) and after alcohol was sold ( $M=7.92$ ,  $SD=9.59$ );  $t(7)=1.361$ ,  $p = 0.216$ . These results suggest that the sale of alcohol at on-campus football stadiums does not affect in a statistically significant way, the average number of criminal offenses, alcohol related incidents, and in-stadium criminal offenses.

**TABLE 3**

*Game Day Pre-Alcohol Sales versus Post-Alcohol Sales*

	<u>Pre Alcohol Avg.</u>		<u>Post Alcohol Avg.</u>		<i>n</i>	<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Criminal Offenses	58.25	51.55	47.33	31.32	8	1.240
Alcohol Related Incidents	32.33	36.52	24.48	19.78	8	1.052
In-Stadium Criminal Offenses	17.42	28.77	7.92	9.59	8	1.361

\* $p<.05$



## **CHAPTER V**

### **DISCUSSION**

#### **Game Day versus Non-game Day**

The results from the two independent samples t-tests used to answer research question one produced significant findings that suggested that game days produced higher averages of criminal offenses and alcohol related incidents than non-game day Saturdays. Also, once pre-alcohol sales years were taken out, the numbers did not increase. The t-test that included all game day versus non-game day Saturday averages produced means of 49.60 (game day) and 29.23 (non-game day) for criminal offenses and 26.74 (game day) and 13.17 (non-game day) for alcohol related incidents. The statistical findings support previous research (Lindo, Siminski, & Swensen, 2016; Rees & Schnepel, 2009) that showed increases in rapes and alcohol related crimes on game days. The results also support what was found by Merlo, Hong, & Cottler, (2010) at the University of Florida over a two year period. They found that the average number of alcohol-related arrests on game days was significantly higher than control Saturdays and holiday averages (Merlo et al., 2010). It is important to note that the arrest records are for game days where alcohol is not sold.

Where this study's findings build significantly upon previous research is that in both t-tests there is a game day versus non-game day comparison that is representative of the national landscape. Additionally, in the second t-test (see Table 2), the significance is that the comparison of game day versus non-game day Saturdays is only for years in which alcohol is sold at each institutions on-campus football stadium. During those years, all game day versus non-game day

averages produced means of 46.20 (game day) and 33.40 (non-game day) for criminal offenses and 24.77 (game day) and 15.60 (non-game day) for alcohol related incidents. In comparing the two t-tests, the gap between the means for game day versus non-game day Saturdays decreases once years not containing alcohol sales were taken out. This suggests that after alcohol was introduced the means still remained consistently higher for game days, but that they do not increase further. This evidence make the case that alcohol sales cannot be statistically labeled as the sole reason that criminal offenses and alcohol related incidents are higher on game days when compared to non-game day Saturdays. The significance of this is that it contradicts the assumption that alcohol sales will cause increased criminal activity on game day.

### **Effect of Selling Alcohol**

Expanding upon the suggested significance that the sale of alcohol will not increase criminal activity on game days any further; a paired samples t-test was utilized comparing the total number of criminal offenses, alcohol related incidents, and in-stadium criminal offenses for the overall pre- and post-alcohol sales three year averages from all eight schools that data was collected for. During game days where alcohol was sold at on-campus football stadiums the means produced were: 58.25 (pre-sale) and 47.33 (post-sale) for criminal offenses, 32.33 (pre-sale) and 24.48 (post-sale) for alcohol related incidents, and 17.42 (pre-sale) and 7.92 (post-sale) for in-stadium criminal offenses. The means for each test decrease after alcohol sales are introduced, however there was no statistical evidence to support the claim that alcohol sales reduces the number of criminal offenses, alcohol related incidents, and in-stadium offenses on game days where alcohol is sold at on campus football stadiums. What this does indicate though, is that there is no statistical evidence to support that on a national scale criminal offenses, alcohol

related incidents, and in-stadium offenses increase on game days where alcohol is sold at on campus football stadiums.

This finding builds upon a study done by Howell, Barry, and Salaga (2015), which analyzed and compared the number of in-venue alcohol-related incidents for twenty home football contests over three seasons at a power-five university. The study found that in the two years in which alcohol was not allowed, there were more alcohol related incidents than in the year in which it was allowed. The differences are that the current study is representative of the national landscape and includes an aggregate average from all eight schools analyzed. While the outcomes did not produce significant results, it did show a decrease in the mean scores for each category which was in agreement with the study done by Howell, Barry, and Salaga (2015).

## **Conclusion**

This study fills the void in the current research that administrators need in order to make a sound decision for their institution regarding the sale of alcohol at their on-campus football stadium. Currently there is contradicting data regarding consumption on game days with Woodyard and Hallam (2010) suggesting alcohol consumption was greatest on a typical in-semester weekend, followed by celebratory events (holidays, tailgating for football) with the greatest number of students to report not drinking (51.86%) came during nonconference football games (Woodyard & Hallam, 2010). This contradicts Neal and Fromme's (2007) finding from the University of Texas at Austin that alcohol consumption is higher on both home and away game Saturdays than on non-game Saturdays. It was also has been found that at a large students consume high risk amounts of alcohol on game days (Glassman et al., 2012). The glaring issue with these studies is that they each only examine one individual institution and the boundary of their significance is limited for decision makers.

It is also well researched that criminal activity is higher on college football game days than non-game days (Lindo, Siminski, & Swensen, 2016; Merlo et al., 2010; Rees & Schnepel, 2009). Again though; there is a hole in the research, and that is that to date no research has explored the effects of selling alcohol at on-campus football stadiums on game day criminal activity. The current study fills both holes by taking a sample that is representative of the national landscape of schools that have chosen to sell alcohol at their on-campus football stadium. The implications of the findings suggest that even with the knowledge that there is higher consumption of alcohol on college football game days (Glassman et al., 2007; Glassman et al., 2010; Glassman et al., 2011; Glassman et al., 2012; Haun, et al., 2007; Merlo et al., 2011; Neal & Fromme, 2007), and that criminal activity and alcohol related incidents do increase on game days (Lindo, Siminski, & Swensen, 2016; Merlo et al., 2010; Rees & Schnepel, 2009); administrators can use this study's findings to aid their decision to sell alcohol off of the suggested evidence that on a national scale criminal offenses, alcohol related incidents, and in-stadium offenses do not increase after alcohol sales are implemented at on-campus football stadiums.

It was not surprising to see that means went down following the sale of alcohol, but it was interesting that none of the paired samples t-tests produced any statistical significance. The results for both research question one and two suggest that if administrators choose to sell alcohol for financial reasons and in-game experience enhancement (Conelly, 2015; Schools eye, 2014; Tracy, 2015), then they can do so with the knowledge that based off of this sample which is representative of the national population of schools that sell alcohol at their on-campus football stadiums; criminal offenses, alcohol related incidents, and in-stadium offenses will not increase. However, the results of this study do not support the decision for administrators to use

alcohol sales as an ESP tactic (Neighbors et al., 2007) with the end result being to lower criminal activity. Lastly, it is important to note that while the data are representative of the national landscape, it does not make certain that each individual school will see similar results after they begin to sell alcohol at their on-campus football stadium.

### **Future Studies**

To build upon this current study, it would be prudent to add the remaining schools that have the potential for a pre/post-test. Also, adding post alcohol sale years to the current schools would only enhance administrator's abilities to see what the 3, 5 and 10 year trends look like after schools begin to sell alcohol at their on-campus football stadium. Another wrinkle to this study would be to include attendance figures, weather data, geographical information, and school demographics in the analysis with the hopes of teasing out factors affecting criminal activity on college football game days. Also, a comparison of like universities that do not sell alcohol at their on campus football stadiums to the current schools in this study would give administrators a better understanding of the college landscape and if selling alcohol is the right decision for their school.

Lastly, since revenue and fan experience are big question marks when it comes to alcohol sales (Conelly, 2015; Murphy, 2015; Schools eye, 2014; Tracy, 2015; Wilson, 2014), it would be interesting to pair the current findings on criminal activity with revenue generated and fan experience satisfaction to find out if it was a wise decision on a national scale to sell alcohol. For instance, by taking the accumulated revenue averages for three years pre- and post-alcohol sales along with a survey on current fan experience and comparing it to whether criminal activity levels changed would be a strong indicator of if it was a wise decision to sell alcohol. This could be done for all schools and then aggregate averages could be taken as they were in this study.

## **APPENDIX A: LETTER TO CAMPUS POLICE DEPARTMENTS**

Dear \_\_\_\_\_,

How are you? My name is Archer Bane and I am a graduate student at The University of North Carolina at Chapel-Hill and I am conducting a research project examining alcohol-related incidents on college campuses. I have browsed through your website (enter campus PD website) and have been unable to find daily crime log databases that outline the type and location of statute violations and criminal offenses at (enter University).

If at all possible, could you please send me the official (enter University) daily crime logs from (begin date – end date) (if possible in Microsoft Excel format)? Your assistance would be greatly appreciated. Please don't hesitate to let me know if you have any questions or concerns.

Thanks in advance for your time,

Archer Bane

## APPENDIX B: SAMPLE SCHOOLS

**TABLE 4**

*Sample Schools*

School	Enrollment	Power 5 vs. Group of 5	Overall Win %	Location
A	25,177	Group of 5	.393	Midwest
B	16,912	Group of 5	.575	Midwest
C	51,147	Power 5	.568	Midwest
D	19,934	Group of 5	.554	West
E	36,486	Group of 5	.430	South
F	11,643	Group of 5	.477	South
G	15,224	Power 5	.579	Northeast
H	20,381	Group of 5	.586	Midwest
I	29,175	Power 5	.596	South
J	20,171	Group of 5	.473	South

(Regions and divisions, 2015; Sports Reference LLC., n.d.)

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