Controlling "What You're Supposed to Do in College": An Examination of Social Control and Differential Association on Binge Drinking Behaviors

Kaitland M. Byrd

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James E. Hawdon, Chair
Theodore D. Fuller
Anastasia S. Vogt Yuan

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ABSTRACT

This study examined the influence of social control and differential association on an individual's alcohol consumption. It was hypothesized that the four bonds of social control: attachment, involvement, commitment, and belief will decrease the likelihood of engaging in excessive drinking behaviors (Hirschi 1969). Hawdon's (1996) revised version of involvement that accounts for differences in the visibility of activities will be used instead of the traditional idea of involvement. This study compared the drinking behavior of college and non-college students. It was also hypothesized that having peer groups that engage in excessive drinking behaviors will influence the amount of alcohol that an individuals consume, because they are attempting to remain a part of that peer group (Sutherland 1947). This study used the Add Health[1] data set to tests these hypotheses.

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CHAPTER ONE: INTRODUCTION

Binge drinking by students is one of the top cited issues on college campuses, and recent research has shed light on what constitutes "binge drinking". Binge drinking is defined as having five or more drinks in one sitting for males and four or more drinks in one sitting for females (Wechsler and Wuethrich 2002). However, little research exists on the factors that lead students to binge drink. The proposed study aims to fill this gap in the literature.

The purpose of this study was to understand what types of social control factors affect drinking behaviors. Through an examination of this relationship, it becomes possible to understand what factors can reduce excessive drinking behavior, thereby possibly reducing the negative consequences that college students experience as a result of excessive alcohol use. This study compares college and non-college peers with respect to their levels of social control and peer association to determine if these factors have similar effects on drinking behaviors across these groups. This study used a sample of 18-22 year old adults from the National Longitudinal Study of Adolescent Health (Add Health) to examine the role that these factors play in determining the amount of alcohol that college and non-college peers consume. Add Health is a nationally representative sample and contains measures of social control and differential association, which could influence binge-drinking behaviors. This sample also makes it possible to compare the differences in alcohol consumption between college students and their non-college peers.

Research indicates that college students are more likely to binge drink than are their non-college peers. This study attempts to explain this difference by using social control theory and differential association. These theories are both used because testing multiple theories at one time makes it possible to gain a more complete picture of binge drinking. Hirschi's (1969) social control theory holds that the more one is bonded to society through their attachments, commitments, involvements and beliefs, the less likely she will engage in criminal behavior. Sutherland's (1947) differential association states that significant others provide a person with definitions in favor of and against deviant behavior. When the definitions in favor of the behavior become dominant the person will likely engage in the behavior (Sutherland 1947). By looking at both social control theory and differential association, the study investigated the level of social control, peer influence, and ultimately the drinking behavior of young adults.

This study's results influence several areas of research. First, this study provides an example of how multiple criminological theories can be integrated to understand dangerous behaviors and social issues confronting American society. By integrating social control theory and differential association, the project develops a more complete understanding of the multiple factors that lead to binge drinking. These insights have implications not only for drug and alcohol consumption, but they also result in a more predictive model of other deviant and criminal behaviors. Integrating these two leading criminological theories therefore can transform the study of crime and deviance.

This study also has practical implications. There have been numerous attempts to control college binge drinking. Most of these attempts have been ineffective. This is because these attempts have only focused on one aspect of binge drinking while ignoring other possible factors. It is likely that there is not enough information on why college students binge drink to develop an effective method. This study attempts to fulfill this gap. Findings from this study can lead to greater understanding of the factors that influence binge-drinking behaviors, which can assist college administrators with developing programs that effectively reduce excessive alcohol use. Second, many college students experience negative effects of alcohol either directly or indirectly. In some cases these negative effects can be deadly. Thus, by understanding why college students binge drink it becomes possible to find methods to promote student wellbeing and health and reduce the negative effects of college alcohol use. Finally, by promoting a healthier and more sober college student body, this research will help improve student performance and learning.

The anticipated results of this study is that there will be a significant difference in the amount of alcohol that college students consume compared to their non-college peers. The social control mechanisms that are being tested suggest that involvement will have the most significant impact on the drinking behavior of college students. Social control theory (Hirschi 1969) argues that the more bonded a person is to society the less likely they will engage in deviant behavior. Thus, it was predicted that the more a person is bonded to society through various activities, relationships, and obligations, the less likely a person will engage in excessive drinking behaviors (i.e., binge drinking) (Hirschi 1969). Differential association (Sutherland 1947) argues that peers will have a major influence on a person's behavior. Thus, it was also predicted that the drinking behavior of a person will closely resemble the drinking behaviors of his peers.

CHAPTER TWO: BINGE DRINKING

Binge drinking is defined for men as having five or more consecutive drinks in one sitting and for women as having four or more consecutive drinks in one sitting (Wechsler et al. 2000; Wechsler and Wuethrich 2002). Every year approximately fourteen hundred college students are killed and half a million are injured because of alcohol related accidents (Wechsler and Wuethrich 2002). The National Institute on Alcohol Abuse and Alcoholism (NIAAA) released a report in 2002 that estimated the role of alcohol in date rape, assaults, and unprotected sex. There are approximately 70,000 cases of date rape and sexual assault, and 600,000 cases of assault related to of excessive drinking behavior among college students (NIAAA 2002). In addition, excessive alcohol use is implicated in 400,000 cases of unprotected sex (NIAAA 2002).

Two out of five college students binge drink, and out of those, 23% are frequent binge drinkers that drink at high levels more than twice a week. The national average for the amount of students on campus that engaged in binge drinking behaviors in the past two weeks is approximately 44 percent. These rates vary across the nation, ranging from 1 percent to 83 percent of the students on a college campus. Half of freshmen college students will be exposed to their first binge drinking opportunity within the first week of being on campus (Labrie, Lamb, and Pedersen 2009; Tremblay et al. 2010; Wechsler et al. 2000; Wechsler and Wuethrich 2002).

Aside from the negative physical and emotion consequences related to binge drinking, 22.1 percent of students say that they have performed poorly on an assignment and 30.1 percent say that they have missed a class because of their drinking behaviors (Bulmer et al. 2010). Not every college student drinks, but 90 percent report experiencing the negative secondhand effects of excessive alcohol use. These negative secondhand effects include interrupted sleep and destruction of personal property as well as other factors. (Eshbaugh 2008). Many college students are in an environment where excessive alcohol use is pervasive. As a result of the near ubiquitous nature of excessive drinking, they are more likely to experience the negative consequences of excessive drinking behavior.

It is important to recognize that there is a difference between the drinking behaviors of college students and their peers who do not attend college. College students engage in excessive drinking behaviors, but tend to age out of these behaviors (White et al. 2005; White et al. 2008). The college environment provides an extended amount of time in a person's life that is generally

free from parental controls and is more tolerant of the experimentation of alcohol and other drugs (Wechsler and Wuethrich 2002; White et al. 2008). Additionally, increased freedom exists during this period of transition, and often results in the emergence of different sources of behavior that affect a person's alcohol consumption rates (Cooper et al. 2008; Labrie et al. 2009; Tremblay et al. 2010; Weitzman, Nelson, and Wechsler 2003).

One of the differences between college students' drinking behaviors and their non-college peers relates to the number of days a week that each group engages in excessive drinking behaviors. College students are more likely to drink from Thursday through Saturday while people that are not in college do not have the limitations of a college class schedule (Vander Ven 2011). Even though this would suggest that people that do not attend college would be more likely to drink excessively than people that attend college, this is not true. College students tend to drink more in one sitting even though they drink on the weekends. People that do not attend college may drink every day, but it is typically fewer drinks in one sitting (Vander Ven 2011; White et al. 2005). This can help explain why binge drinking is prevalent on college campuses.

Race and gender also help explain the drinking behavior of young adults. Paschall (2005) found that college attendance increases the likelihood of engaging in binge drinking for white students, but decreases the likelihood of engaging in binge drinking for black students (Cooper et al. 2008; Paschall et al. 2005; Vander Ven 2011). Women also tend to drink less alcohol than men (Wechsler et al. 2000; Wechsler and Wuethrich 2002), however this gap is beginning to close (Bulmer et al. 2010; LaBrie 2007; Vander Ven 2011).

CHAPTER THREE: POTENTIAL THEORETICAL PERSPECTIVES OF BINGE DRINKING

There are multiple theories that can explain why college students engage in high rates of binge drinking. After briefly introducing each of these, I will consider them in more detail. Theories that can potentially explain why college students binge drink include social control theory (Hirschi 1969) and differential association theory (Sutherland 1947).

Each of these theories offers specific insights into why college students binge drink but a single one cannot explain the patterns that occur. For instance social control theory would predict that college students have a higher level of commitment than their non-college peers, because they are in the process of furthering their education and have invested more time in this process. This would lead to the hypothesis that college students drink less, but college students tend to drink more. Combining multiple theories makes it possible to understand the patterns that are present in college drinking behavior.

Social Control Theory

Social control theory is based on the perspective that a person is bonded to society. These bonds can help determine the likelihood that a person will engage in delinquent behavior. When these bonds are weak or broken, a person is likely to engage in delinquent behavior. There are four elements of social bonds: attachment, commitment, involvement, and belief (Hirschi 1969). Instead of using the traditional definition of involvement this study will use the routine activities approach that accounts for the visibility of activities in reducing deviant behavior (Hawdon 1996; Osgood 1996).

Social control theory (Hischi 1969) states that everyone has the potential to be deviant. However, people do not engage in deviant behavior because they are bonded to society, and these bonds tie a person to the opinions of others and to the norms of society. Hirschi (1969) identifies four elements of the social bond: attachment, involvement, commitment, and belief. Attachment is the extent to which a person identifies with others; how much he values their opinions and how much he values the relationship. Hirschi (1969) primarily discusses a juvenile's attachment to his parents, but he can also be attached to other authority figures including teachers and religious leaders. Non-deviant peers can also promote the bond and limit involvement in deviant activities. Deviant activities would risk the relationships with those

others. In general, the higher the level of attachment to others that conform to societal norms, the lower the likelihood of engaging in deviant activities.

Commitment, according to Hirschi (1969), is that through the course of living in an organized society engaging in deviant behavior will jeopardize a person's ability to obtain a goal. Over time a person invests in a conventional line of behavior, such as an education or a career, in order to achieve a goal. The more value that is placed on achieving that goal, the greater the bond to society. Aspirations as well as objects and investments that have been collected over time also increase a person's bond to society. In general, the higher the level of commitment to conventional lines of behavior, the less likely a person will engage in deviant behavior because deviant behavior would jeopardize the investment that has been made in obtaining goals and aspirations (Hirschi 1969; Crettaci 2003).

Involvement, according to Hirschi (1969), is the extent to which people participate in conventional activities. The prediction that involvement is inversely related to deviant behavior is based on the insight that if engaging in conventional activities consumes a majority of a person's time, it will be difficult to find the opportunity to engage in deviant behavior. Hirschi (1969) found that involvement did not always decrease the likelihood of engaging in deviant activities, certain activities such as riding around in a car and other leisure activities increased the likelihood of being involved in deviant behavior.

Hawdon (1996) reconceptualizes involvement by using routine patterns of behavior to explain why some research on control theory has found that involvement can increase the likelihood of engaging in criminal behavior. By looking at the differences in the type of activities in which deviant and non-deviant peers engage, it is possible to look at the role that certain activities play in a person's ability to engage in deviant behavior. Everyone engages in behaviors that regularly place them under the control of others, but deviant youth are likely to restructure their activities to afford them more time and opportunity to engage in deviant acts.

It is necessary to differentiate between the types of routine patterns in which people engage. Determining the visibility and instrumentality of a pattern of behavior makes it possible to differentiate between types of behavior. Visibility is determined by how much the pattern of behavior involves supervision by adults or other authority figures such as the police. For instance, being involved in a sports team means that a person is under the supervision of coaches on a near-daily basis, this is a high level of visibility (Hawdon 1996; Hawdon 1999). This

visibility affords a person less opportunity to engage in deviant behavior because of the amount of supervision he or she faces. Another example of this relationship is watching television, which typically occurs in private and is unlikely to be subject to adult supervision. As a result, a person who routinely watches television has more opportunity to engage in deviant acts because of the lack of supervision (Hawdon 1996; Hawdon 1999).

The instrumentality of a pattern of behavior directly and indirectly increases social control. Instrumental routine patterns are focused on achieving a conventionally valued goal. These activities are focused on some type of public good because of this the activity is closely monitored by adults (Hawdon 1996). Participants in instrumental routines are likely to monitor the behavior of other participants because deviant behavior would jeopardize the group's goals. When behavior occurs that could jeopardize the goal of the group other members of the group can enact sanctions on the individual that violates the goal (Hawdon 1996; Hawdon, 1999). Noninstrumental activities are often done in private with no supervision.

Belief, according to Hirschi (1969), is the extent that people consider norms, specifically the law, as legitimate. Beliefs do not cause delinquency. Instead delinquency is caused by a lack of belief. The lack of belief results in a state of normlessness that increases the likelihood of engaging in deviant behavior (Hirschi 1969).

All of the bonds of social control are interrelated. "The person who is attached to conventional people is, for example, more likely to be involved in conventional activities and to accept conventional notions of desirable conduct" (Hirschi 1969, 27). Commitment and involvement are related because the higher the level of commitment to achieving a goal the more likely there will be a high level of involvement in activities that make that goal possible. (Hirschi 1969). Attachment is related to belief because the higher the level of attachment the more likely there will be a high level of respect for rules that are laid down by significant others (Hirschi 1969).

In most cases social control theory has a strong ability to predict the likelihood of a person engaging in deviant behavior (Bachman et al. 2002; Costello and Vowell 1999; Crettaci 2003; Foshee and Bauman 1992; Junger and Marshall 1997; Krohn and Massey 1980; Payne and Salotti 2007). Control theory applies to alcohol use because the transitional aspects of the college environment change the level of control that a college student has in their daily life. College students still have the same level of belief and a high level of commitment and attachment to

their parents, school, and pro-social activities (Bachman et al. 2002; Wechsler and Wuethrich 2002). However, they have more time and opportunity to engage in deviant behavior because they are no longer under the constant supervision of parents, teachers, and coaches. Numerous studies have noted the differences in alcohol consumption between college students and their non-college peers (for evidence of this difference see Crawford and Novak 2006; White et al. 2008; White and Jackson 2004; Vander Ven 2011; Wechsler and Wuethrich 2002).

It could be argued that people that do not attend college are likely to have routine patterns that are highly visible, making it difficult to find the opportunity to engage in deviant behavior (see Hawdon 1996; Hawdon 1999). College students have more opportunities to engage in deviant behavior because of the type of activities that they engage in. The routine activities approach slightly differs from Hirschi's (1969) idea of involvement. Not all conventional activities have the same influence on deviant behavior. Some activities promote deviant behavior because they are not visible to adults and they increase the level of interaction with deviant peers (Osgood 1996). The routine activities approach has been supported by numerous studies (Barnes et al. 2007; Hawdon 1996; Hawdon 1999; Novak and Crawford 2010; Osgood 1996; Osgood and Anderson 2004).

Differential Association

Differential Association looks at the role of peers in a person's decision to engage in deviant behavior. Reference groups provide an individual with definitions that are either in favor or against deviant behavior. When the definitions to engage in the behavior become dominant, a person will likely conform to the definitions that her reference group has offered in order to remain part of that group (Sutherland 1947).

Differential association (Sutherland 1947) is based on the assumption that a person will engage in deviant behavior when the situation is appropriate. What is deemed appropriate is based on how a person defines it. Sutherland (1947) outlined nine propositions to explain how a person determines what is an appropriate course of action. The first proposition is that criminal behavior is learned. This means that a person must learn how to engage in deviant behavior. The second proposition is that the process of communication, through interaction, facilitates the learning process. In most cases this communication is verbal but can include other forms of communication (Sutherland 1947).

The third proposition is that a majority of the learning process occurs within the context of intimate personal groups. The fourth proposition is when a person learns what is deviant this includes how to engage in the behavior as well as the direction of attitudes, rationalizations, and motives. The fifth proposition is the direction, either favorable or unfavorable, of these motives comes from definitions of the legal codes. The sixth and main principle of differential association is that when favorable definitions to engage in deviant behavior become dominant, over unfavorable definitions, a person will engage in deviant behavior. This can explain deviant and anti-deviant behavior. A person becomes deviant when they are exposed to a group that supports a deviant culture more than they are exposed to a group that supports anti-deviant behavior. A person that does not engage in deviant behavior is exposed to a higher rate of definitions against deviant behavior (Sutherland 1947).

The seventh proposition is differential associations can vary in frequency, priority, intensity, and duration. Deviant behavior can vary across a person's lifetime, based on the situation that she is in. The eighth proposition is that the learning process of deviant behavior follows the same mechanisms as all other types of learning. This means that a person does not only learn how to engage in deviant behavior by imitating the behaviors that she has observed directly. The ninth proposition is that deviant behavior is a way of obtaining goals and expressing one's needs; however, non-deviant behavior is also a means of obtaining the same goals and needs. Therefore, the desire to fulfill one's needs is not an adequate explanation for engaging in deviant behavior because there are non-deviant behaviors that achieve the same thing (Sutherland 1947).

There have been numerous studies that support the association between a person's drinking behavior and the drinking behavior of his peers (Bosari and Carey 2006; Northcote 2011; Vander Ven 2011; Ward and Gryczynski 2009; Wells 2010; Wechsler and Wuethrich 2002; White and Jackson 2004; White et al. 2006; White et al. 2008; Yanovitzky et al. 2006). Neighbors (2008) found a positive association between perceived approval of friends regarding excessive alcohol use and a person's approval of alcohol use. This relationship did not apply to the perceived approval of a typical student and a person's own behavior (Neighbors et al. 2008). "Behaviors considered acceptable or unacceptable seem to be socially defined and enforced through one's interaction with others on campus" (Rabow and Duncan-Schill 1995: 60). Differential association has also been supported in studies that look at other forms of substance

abuse (Miller 2010; Neff and Waite 2007; Reed and Rountree 1997) and stalking (Fox, Noble, and Akers 2011).

Theory Application

Each of these theories- social control, routine activities, and differential association- explain part of the reason why college students binge drink at higher levels than their non-college age peers. Despite the ability of these theories to explain why college students binge drink, as well as the difference in the drinking behavior of college students and their same-age peers that do not attend college, alone they are all limited in their power to explain much of what is known about binge drinking. This study will use multiple theories to explain why college student binge drink at higher rates than their non-college peers.

Social control theory (Hirschi 1969) explains why college students have higher levels of commitment regarding binge drinking than non-college students. Hawdon's (1996) routine activities approach to involvement explains that people that do not attend college are less likely to engage in binge drinking, because they are more bonded to society through types of involvement that are highly visible (Carter, Brandon, and Goldman 2010; Hawdon 1996; Hawdon 1999). Differential association (Sutherland 1947) accounts for the significant association between a person's drinking behaviors and the drinking behavior of his reference group (Bosari and Carey 2006; Neighbors et al. 2008; Northcote 2011; Rabow and Duncan-Schill 1995; Vander Ven 2011; Ward and Gryczynski 2009; Wells 2010; Wechsler and Wuethrich 2002; White and Jackson 2004; White et al. 2006; White et al. 2008; Yanovitzky et al. 2006).

Alone each of these theories is able to explain a small portion of the differences in binge drinking between college and non-college age peers, but each theory also has weaknesses that can be negated by using multiple theories. Social control theory recognizes the influence of free time, involvement, on increasing the likelihood of engagement in deviant activities (Hirschi 1969). The more a person is involved in structured, visible activities the less likely she will be to engage in deviant behavior (Hawdon 1996). White (2008) found that college students that lived on campus and were involved in volunteering and religious activities were less likely to engage in binge drinking when compared to college students still living at home and non-college students (White et al. 2008). This explains why colleges have placed a large emphasis on

programming that provides an alcohol-free alternative to weekend activities and spring break (Wechsler and Wuethrich 2002). This type of involvement also affects the type of peers that a person associates with by making her less likely to associate with those who define binge drinking favorable and more likely to be exposed to definitions that are unfavorable toward binge drinking (Lee et al. 2010; White et al 2008). Having a prevalence of definitions that are against engaging in binge drinking will reduce the likelihood that a person will engage in the behavior because it would go against the norms of that reference group (Lee et al. 2010; Sutherland 1947; Wechsler and Wuethrich 2002; White et al. 2008; Vander Ven 2011).

Social control and differential association both support the idea that association with deviant peers will increase the likelihood that a person engages in deviant behavior. Barnes (2007) found that the amount of time spent with parents does not negate the influence of peers on deviant behavior. This suggests that peer and family time are opposite forms of social control (Barnes et al. 2007). Peer and parent interaction represent the strongest predictors for deviant behavior when routine behaviors such as work, household activities, and television are included in the model (Barnes et al. 2007). This suggests that differential association can account for a large percent of the young adult drinking behavior.

Despite the level of attachment to one's parents, college students that do not live at home spend more time interacting with their peers. Barnes (2007) found that peers interaction, when significantly higher than parental interaction, would influence the likelihood that the person will engage in deviant behavior (Barnes et al. 2007; Sutherland 1947). This contradicts the idea that attachment is carried with a person at all times (Hirschi 1969). The level of attachment during the time a person is at college needs to be investigated at greater length in order to explain why college students engage in high rates of binge drinking despite their high levels of attachment. It is possible that this is a shortcoming of social control theory and differential association offers a more accurate explanation of why this occurs.

Sutherland (1947) explains that the intensity of attachment with others explains how influential those significant others will be when a person in confronted with definitions in favor of alcohol use. The role of parents as a buffer for peer influence changes when a person transitions to college, because parents are no longer a daily presence in the person's life. The intensity of parental influence may decrease when a person goes to college. Peers will become more influential because of the constant interaction that college students have with their peers.

When a person's peers provide him with definitions in favor of binge drinking he is likely to conform to the behavior because these pro-alcohol definitions outweigh the anti-alcohol definitions (Baer 1994; Carter et al. 2010; Crawford and Novak 2006; Rabow and Duncan-Schill 1995; Ward and Gryczynski 2009, White and Jackson 2004; White et al 2008).

Differential association says that deviant behavior occurs when favorable definitions to engage in deviant behavior outweigh definitions against deviant behavior. Even though Sutherland (1947) says that the definitions must come from within close groups, he also says that learning these definitions follows the same mechanisms as any other form of learning (also see Akers 1991). Drinking on college campuses is seen as part of the college culture. When college students believe that drinking is acceptable and expected on campus they have higher rates of binge drinking than students that do not have similar beliefs (Crawford and Novak 2006; Crawford and Novak 2010). Hirschi (1969) states that the absence of belief in the law increases the likelihood that a person will engage in deviant behavior. The college environment reflects the presence of a different set of norms that are not held by society as a whole. College students consume alcohol throughout their time at college, with freshmen consuming high levels of alcohol, despite the minimum legal drinking age of 21 (Wechsler and Wuethrich 2002).

The difference in belief potentially explains part of the difference in the drinking behavior of college and non-college age peers. Non-college age peers are emerged in mainstream society that has laws and norms regarding alcohol use. College students are in a transitional period of life and are exposed to the norms on campus that are typically in favor of excessive alcohol use (Crawford and Novak 2010; Wechsler and Wuethrich 2002).

Social control theory focused on the deviant behavior of juveniles (Hirschi 1969). One weakness of this theory is that the types of attachments and involvements will be different for adults, especially adults that are married and have children. Involvement in highly visible activities reduces the likelihood of engaging in deviant behavior (Hawdon 1996). Household activities are seen as low visibility activities and have little effect on the deviant behavior of adolescents (Barnes et al. 2007). This revised model accounts for people that have children or spouses.

Religion also plays a role in how likely a person is to engage in excessive drinking behaviors throughout his life (Amoateng and Bahr 1986; Bachman et al 2002; Crettaci 2003; Wells 2010). When high school students frequently attend religious services and see as an

important aspect of their lives they are less likely to engage in excessive drinking behaviors. The frequency of attendance in different types of religious activities are combined to form a religiosity variable (Crettaci 2003). One caveat to this is that as a person transitions through different phases of life, for instance college, religion may remain important even though frequency of attendance decreases. After high school graduation religious attendance began to steadily decrease over time but the importance of religion increased (Bachman et al. 2002). Alcohol use appears normative among young adults. This limits the amount of control religion can have on a person's behavior. When a person maintained a high frequency of attendance and commitment to religion he had a lower frequency of drinking than a person with a lower level of religiosity (Amoateng and Bahr 1986; Bachman et al 2002; Crettaci 2003; Wells 2010). Religion acts as a form of involvement based on the frequency of attending religious services.

Research Predictions

Social control theory argues that the more bonded a person is to society the less likely they will engage in deviant behavior. Thus, it is predicted that the more a person is bonded to society through various activities, relationships, and obligations, the less likely a person will engage in excessive drinking behaviors (i.e., binge drinking). The exception to this is when an individual's peers engage in high rates of binge drinking, then the respondent will be more likely to engage in similar behaviors.

H_1: The more involvement that a person has to society the less likely he will be to engage in excessive alcohol use (social control).

H_2: The higher level of attachment that a person has to either his parents or spouse the less likely he will be to engage in excessive drinking behaviors (social control).

H_3: A person's drinking behavior will be likely to increase if they are associated with peers that support excessive drinking behaviors (differential association).

H_4: College students will drink more than their non-college peers because they have lower overall levels of social control and higher levels of differential association.

CHAPTER FOUR: METHODS

This study analyzed one wave of a nationally representative longitudinal study of people from early adolescence to early adulthood for factors that influence binge drinking attitudes and behaviors. This chapter describes the dataset and variables that was included in this study. Additionally, the analyses that was conducted using the data are also described.

Data and Sample

This study examined the influence of social control and the media on alcohol use through secondary data analysis of The National Longitudinal Study of Adolescent Health (Add Health). Add Health is a nationally representative sample of adolescents in 7-12 grades that was conducted in four waves, three of which are publicly available for analysis and were examined in this study. The first wave was collected during the 1994-95 school year. Data was collected for approximately 6,500 people. This cohort was followed through young adulthood, with the most recent wave was collected in 2008. The data were collected through a series of interviews relating to the respondent's health-related attitudes and behaviors. A total of 4,882 respondents matriculated through the first three waves of the Add Health data collection, and completed the third wave. The proposed study will only analyze the in-home data from the third wave. Data for the third wave was collected in 2001 and 2002 when the respondents were between age 18 and 26.

Measures

Alcohol use. The third wave includes a section specifically on the respondent's attitudes and engagement in binge drinking behaviors. I looked at binge drinking behaviors, as well as overall drinking behaviors. Respondents were asked about their own binge-drinking behaviors via the question: "during the past two weeks, how many times did you have five or more drinks on a single occasion, for example, in the same evening"? If the respondent has had five or more drinks in a single sitting during the past two weeks then they will be coded as a binge drinker. People that have not engaged in binge drinking will be coded as not binge drinkers.

To measure typical alcohol consumption I used the question "think of all the times you have had a drink during the past 12 months. How many drinks did you usually have each time?" For this questions the results ranged from 1 to 18 drinks. This question was recoded into an ordinal variable with three levels. The levels are 0 drinks coded as 0, 1 to 4 drinks coded as 1, and 5 or more drinks coded as 2.

College status. I measured college status as two indicator variables. The first variable has 0 being non-college and 1 representing currently attending college. The questions "Are you currently attending regular school? If you are enrolled but on school break or vacation, count this as attending" and "Is this a high school, a two-year college, a four-year college, or a graduate school" was used to determine which category a person falls into for this variable. It also makes it possible to limit the scope of this study to those that are attending a two or four year university. The second variable will be 0 for non-college and 1 for college degree. The question "What degrees or diplomas have you received?" was used to differentiate between people that have completed college and those that haven't when neither are currently attending school.

Social control. I measured four different types of control: commitment, involvement, belief, and attachment. Each of these bonds formed its own index that was used to test the role of social control in determining a person's decision to engage in binge drinking.

Commitment was not measured in this sample because of a limitation with the dataset.

Involvement includes religion, education, employment, children, and other activities. This study used a refined measure of involvement that accounts for the visibility and instrumentality of different activities. This is because research has shown that not all activities offer the same level of social control, this is consistent with the routine activities approach to involvement (Barnes et al. 2007; Hawdon 1996; Hawdon 1999; Novak and Crawford 2010; Osgood 1996; Osgood and Anderson 2004). There are two main types of involvement that were analyzed in this study. The first is institutional involvement that includes structured activities such as religion, education, employment, and child-care. The second is leisure activities that were analyzed based on the visibility of each activity.

The religion scale was based off the questions: "many churches, synagogues, and other places of worship have special activities for young adults—such as Bible classes, retreats, youth

groups, or choir. In the past 12 months, how often have you taken part in such activities"; and "in the past 12 months, how often did you attend religious services?" This scale is a modified version of previous research using the Add health dataset (Cretacci 2003).

The education involvement scale was measured by the question "how many hours a week do you spend in school or a vocational program?" The employment scale was based on the question "how many hours a week do you usually spend at work?" The children scale was based on the sum of two questions: "on the average, how many hours per week do you spend taking care of the children in your household who are less than six years old by feeding, bathing, or dressing them"; and "on the average, how many hours per week do you spend taking care of these children by carrying them, walking with them, or playing with them?" This scale is limited because there is not a similar set of questions that look at the amount of time that parents spend with children over age six. These questions were entered separately to determine the number of hours per week that a person engages in institutional activities. All of these activities tend to have a high level of visibility therefore increasing the amount of social control that involvement in these activities offers.

The other activities scale was based on the amount of time each week that a person engages in exercise, hobbies, and household activities. All of these activities are time consuming, but have varying degrees of visibility and instrumentality. Since each question groups numerous activities together it is difficult to differentiate between high and low visibility and instrumentality. For this study I assume that these activities have low visibility and instrumentality. These questions are: "in the past seven days, how many times did you engage in a hobby such as working on a collection, playing cards or board games, arts and crafts, drama, playing a musical instrument or singing with a group, or shopping just for fun?" "In the past seven days, how many times did you do housework, such as cleaning, cooking, or laundry?" "In the past seven days, how many times did you bicycle, skateboard, dance, hike, hunt, or do yard work?" And "In the past seven days, how many times did you roller blade, roller skate, downhill ski, snow board, play racquet sports, or do aerobics?" All of these questions are coded on a 0 to 7 or more times a week scale.

In the past seven days, "how many times did you participate in strenuous team sports such as football, soccer, basketball, lacrosse, rugby, field hockey, or ice hockey?" This question is coded on a 0 to 7 or more times a week scale. Team sports are highly visible, are closely

monitored by adults, and involve direct interaction with groups of people in order for the team to be successful. Therefore involvement in structured team sports should increase the level of social control because the activity is highly visible and has a high level of instrumentality (Hawdon 1996). In the past seven days, "how many times did you participate in individual sports such as running, wrestling, swimming, cross-country skiing, cycle racing, or martial arts?" This question is coded on a 0 to 7 or more times a week scale. Although individual sports do not have the same high level of instrumentality that team sports have they are highly visible because they are still observed and coached by adults. These two questions were included separately to measure involvement.

As is common in similar studies (Cretacci 2003), attachment was based on a person's attachment to her parents. The parental scale was based on a series of questions about how close a person feels to her parents (based on a combination of biological, step, and current residential) and the relationship that they have. These questions include: "how close do you feel to your mother/father", "do you enjoy doing things with his mother/father," and "most of the time he/she is warm and loving towards you?" These questions were recoded to be 1: strongly disagree, 2: disagree, 3: neither disagree nor agree, 4: agree, 5: strongly agree. The Cronbach's alpha for this scale is .948. Adding the responses together on all of the questions created this scale.

Belief is based on how a person views binge drinking. This scale is based on a series of 11 questions that examines how positive or negative it would be if a person engages in binge drinking (See Appendix A for specific questions). These questions were indexed to create this variable. The Cronbach's alpha for this index was .918. The variables were recoded so that a higher score on the index represented a higher level of belief.

Differential Association. I measured the similarity between an individual and his peers by comparing the amount of binge drinking that they engage in. The question that was used to look at pro-alcohol influence is "of your three best friends, how many drink alcohol at least once a month." The question that was used to assess the definition that are favorable to binge drinking are "my close friends would disapprove of my binge drinking." This question was coded on a 1 to 5 scale with 1 being strongly agree and 5 being strongly disagree.

Control variables. Several control variables were included in the analyses. These variables include the race, gender, marital status, and parental education. Race was coded as an indicator variable. Add Health has coded race as 0 and 1 for four questions that address race. White is coded as a 1 with 0 representing everyone else in the sample. This is the same code for black, Asian or Pacific Islander, and American Indian or Native American. Gender was coded as an indicator variable with 0 representing females and 1 representing males. Marital status was based on if a person is married or not? This scale also included people that are living in a marriage-like relationship. This was coded as an indicator variable, with 0 representing people that are not married or are not in a marriage like relationship.

Analytic Strategies

This study used factor analysis to construct scales for the different components of social control, and reliability analyses will indicate the strength of each scale. A bivariate analysis was used to identify differences between people who attended college and those that did not on various measures. A binary logistic regression was ran with each block of variables entered in sequence to identify the influence of various factors on people's binge drinking behaviors. An ordered logistic regression was ran with all of the variables entered in the same order to identify what factors influence overall drinking behaviors. These regression models were ran twice, the first time looked at college students and the second only looked at non-college students.

CHAPTER FIVE: RESULTS

Whole Sample

Descriptives

Table 1 reports the relevant descriptive statistics for the whole sample. Thirty-two percent of the sample binge drink. The average person in the sample consumes alcohol moderately. Sixty-nine percent of the sample is white, 25 percent is black, 5 percent is American Indian, and 5 percent is Asian. Men comprise 44 percent of the sample, and 25 percent of the whole sample is married. The average level of parental education for the whole sample is some sort of vocational or trade school after graduation from high school. The average person in the sample has one best friend that binge drink. For the sample, the average amount of time spent involved in outdoor activities is approximately an hour per week. The average amount of time spent watching television for the sample is 13 hours per week. The average amount of time spent at work is 24 hours per week. The average person spent 3 hours involved in religious activities per week.

- Table 1 about here -

Binge Drinking Behavior

Three models examine the influence of social control and differential association variables on a persons' likelihood of binge drinking. Table 2 shows the logistic regression model predicting the likelihood of binge drinking for the whole sample (n=1692). Model 1 contains the background factors and explains 15.3 percent of the variance in the likelihood of binge drinking. Parental education (b=.068, $p<.01$) and being male (b=1.024, $p<.001$) significantly increases the likelihood of binge drinking. Being black (b=-1.233, $p<.001$), Asian (b=-.653, $p<.05$), and married (b=-.504, $p<.001$) significantly decreases the likelihood of binge drinking.

- Table 2 about here -

Model 2 adds the behavior of the respondent's friends to the baseline model. Including these variables increases the overall explained variance to 28.8 percent, the differential association variables explain 13.5 percent of the variance in the likelihood of binge drinking. As predicted, the binge drinking behavior of a person's three best friends significantly influences the person's own binge drinking behavior (b=.642, $p<.001$). This supports the hypothesis that a person is more likely to binge drink if their closest friends binge drink. The control variables that

were significant in the baseline model remain significant in this model, except for Asian that is no longer significant.

Model 3 adds the social control variables to test the ability of this theory to explain the likelihood of binge drinking for the whole sample. This model explains 32.6 percent of the overall variance and the social control variables explain 3.8 percent of the variance in a person's likelihood of binge drinking. The number of hours per week a person spends watching television (b=.012, $p<.01$) and engaging in outdoor activities such as biking and skateboarding (b=.087, $p<.01$) significantly increases the likelihood of binge drinking. This supports the hypothesis that activities that have a low level of visibility and instrumentality will increase the likelihood of binge drinking, as explained by the routine activities revision to social control theory. Religiosity (b=-.120, $p<.001$) significantly decreases the likelihood of binge drinking. This supports previous research that religious involvement decreases alcohol use (Amoateng and Bahr 1986; Bachman et al 2002; Crettaci 2003; Wells 2010). It also supports the routine activities approach that activities high in visibility decrease deviant behavior (Hawdon 1996). Overall, the original conception of social control theory is weakly supported because involvement and attachment did not decrease binge drinking behavior.

Overall Drinking Behavior

Table 3 shows the ordered logistic regression results for predicting the overall drinking behavior of the whole sample (n=1712). The background characteristics, differential association variables and social control variables explain 25.2 percent of the variance in the overall drinking behavior of the whole sample.

- Table 3 about here -

Black (b=-.825, $p<.001$), Asian (b=-.667, $p<.001$), and people that were married (b=-.522, $p<.001$) were less likely to drink alcohol compared to whites and people that were not married. People that were currently in college (b=.325, $p<.01$) and that had parents with higher levels of education (b=.048, $p<.05$) were more likely to have higher levels of alcohol consumption than their non-college peers and people whose parents had lower levels of education. Gender is not related to level of alcohol consumption in this model.

The drinking behavior of a person's three best friends (b=.477, $p<.001$) and the respondent's friend's attitudes regarding alcohol use (b=.081, $p<.05$) significantly increase the

likelihood that a person will consume more alcohol than someone whose peers did not drink or held negative views on alcohol use. This supports differential association's argument that the drinking behavior of a person's peer group influences a person's own drinking behavior.

Religiosity (b=-.116, $p<.001$) decreases the likelihood that a person will consume more alcohol than someone who is less involved in religious activities. This supports previous findings that religiosity will decrease alcohol use (Cretacci 2003, Wells 2010). A person that is more accepting of binge drinking (b=-.013, $p<.05$) is less likely to consume more alcohol. This is contrary to expectation that belief in the acceptability of binge drinking will increase the likelihood of binge drinking. The more hours per week a person spends at work (b=.008, $p<.01$) and watching television (b=.009, $p<.05$) increases the likelihood that a person will consume more alcohol. This offers partial support for the influence of social control theory on overall drinking consumption. The increase in drinking behavior based on the amount of time a person spends watching television supports the routine activities approach that activities with a low level of visibility and instrumentality will increase drinking behavior (Hawdon 1996, 1999). The increase related to amount of time a person spends at work contradicts this theory. Work is a visible and instrumental activity so based on the theory it should decrease drinking behavior but the findings show that it is having the opposite effect.

College Sample

Descriptives

Table 4 shows the descriptive statistics for the variables in the model for college students only. Thirty-five percent of the college sample binge drink. The average person in the sample consumes alcohol moderately. Seventy-two percent of the sample is white, 23 percent is black, 3 percent is American Indian, and 6 percent is Asian. Men comprise 41 percent of the sample, and 13 percent of the college-student sample is married. The average level of parental education for the college student sample is some college. The average person in the sample has one best friend that binge drinks. The average level of attachment to parents is 5, meaning that most respondents reported a low level of attachment to their parents. For the sample, the average amount of time spent involved in aerobic activities and team sports is approximately an hour, and the average amount of time spent engaged in hobbies is 3 hours per week.

- Table 4 about here -

Binge Drinking Behavior

Three models examine the influence of social control and differential association variable on a college student's likelihood of binge drinking. Table 5 shows the logistic regression model predicting the likelihood of binge drinking for the sample of college students (n=768). Model 1 contains the background factors and predicts 17.5 percent of the variance in the likelihood of binge drinking. Being male (b=1.185, $p<.001$) significantly increases the likelihood of binge drinking while being black (b=-1.245, $p<.001$) and being Asian (b=-1.098, $p<.01$) significantly decreases the likelihood of binge drinking.

- Table 5 about here -

Model 2 adds the differential association variable and explains 17.6 percent of the variance in binge drinking; overall 35.1 percent of the variance in binge drinking is explained. As predicted, the binge drinking behavior of a person's three best friends significantly influences that person's own binge drinking behavior (b=.016, $p<.001$). This supports the hypothesis that a person will be more likely to binge drink if his or her closest friends binge drink. The control variables that were significant in the baseline model remain significant in Model 2, with the

exception of Asian. Being an American Indian significantly decreases the likelihood of binge drinking (b=-1.657, $p<.01$) once the differential association variable is added to the model.

Model 3 adds the social control variables to the model. This model explains 43.0 percent of the variance in binge drinking; the social control variables explain 7.9 percent of the variance in binge drinking. The number of hours per week a person spends at work (b=.014, $p<.05$), engaging in team sports (b=.140, $p<.05$), and engaging in aerobic activities (b=1.60, $p<.05$) significantly increases the likelihood of binge drinking. That hours spent watching TV and engaging in aerobic activities increases binge drinking supports the hypothesis that activities that have a low level of visibility and instrumentality will increase the likelihood of binge drinking, as explained by the routine activities revisions to social control theory However, the positive relations between binge drinking and being involved in team sports does not. Contradicting the predictions of control theory, parental attachment (b=.052, $p<.01$) increases the likelihood of binge drinking for college students. Religiosity (b=-.174, $p<.001$) significantly decreases the likelihood of binge drinking, thereby supporting previous research (Amoateng and Bahr 1986; Bachman et al 2002; Crettaci 2003; Wells 2010).

Overall Drinking Behavior

Table 6 shows the ordered logistic regression results predicting the overall drinking behavior of the sample of college students (n=797). The background characteristics, differential association variables and social control variables explain 33.7 percent of the variance in the overall drinking behavior of the college sample.

- Table 6 about here -

Blacks (b=-.460, $p<.05$) and Asians (b=-.735, $p<.05$) are less likely to drink alcohol than are whites. Men (b=.411, $p<.01$) are more likely to have higher levels of alcohol consumption than are women. As predicted by differential association theory, the drinking behavior of a person's three best friends (b=.528, $p<.001$) significantly increases the likelihood that a person consumes alcohol

Religiosity (b=-.178, $p<.001$) and hours per week a person spends engaging in hobbies (b=-.074, $p<.05$) decrease the likelihood that a person consumes alcohol. Parental attachment (b=.032, $p<.05$) and hours per week a person spends engaging in team sports (b=.115, $p<.05$) increases alcohol consumption. These findings refute the influence of social controls on overall

drinking consumption. Parental attachment and hours per week engaging in team sports should decrease the likelihood of drinking if social control theory is to be supported.

Non-College Sample

Descriptives

Table 4 shows the descriptive statistics for the variables in the model for non-college students only. In this sample, 30 percent binge drink. The average person in the sample consumes alcohol moderately. Sixty-six percent of the sample is white, 27 percent is black, 6 percent is American Indian, and 4 percent is Asian. Men are 47 percent and married individuals are 37 percent. The average level of parental education for the college student sample is a high school diploma or equivalent. The average person in the sample had one best friend who binge drinks. For the sample, the average amount of time spent involved in biking and at school is approximately an hour; the average amount of time spent at work is 29 hours per week; the average amount of time spent watching television is 14 hours per week; and, the average amount of time spent engaged in religious activities is 3 hours per week.

- Table 4 about here -

Binge Drinking Behavior

Three models examine the influence of social control and differential association variables on a non-college students' likelihood of binge drinking. Table 7 shows the logistic regression model predicting the likelihood of binge drinking for the sample of non-college students (n=924). Model 1 contains the background factors and predicts 15.0 percent of the variance in binge drinking. Men (b=.898, p<.001) are significantly more likely than women to binge drink, and blacks (b=-1.214, p<.001) and married persons (b=-.674, p<.001) are significantly less likely to binge drink than are non-blacks and those who are not married, respectively.

- Table 7 about here -

Model 2, which adds the differential association variables, explains 25.1 percent of the overall variance, the differential association variables explain 10.1 percent of the variance in binge drinking. As predicted, the binge drinking behavior of a person's three best friends significantly influences that person's own binge drinking behavior (b=.555, p<.001). This supports the hypothesis that a person will be more likely to binge drink if their closest friends binge drink.

Model 3 adds the social control variables to the Model 2, and the revised model accounts for 2.3 percent of the variance in binge drinking, as a whole the model explains 27.4 percent of the variance. The number of hours per week a person spends watching television (b=.013, $p<.05$) and engaging in outdoor activities (b=.097, $p<.05$) significantly increases the likelihood of binge drinking, which supports the revision to control theory concerning the controlling influence of visible and instrumental activities.

Overall Drinking Behavior

Table 8 shows the ordered logistic regression results predicting the overall drinking behavior of the sample of non-college students (n=914). The background characteristics, differential association variables and social control variables explain 23.8 percent of the variance in the overall drinking behavior of the sample of non-college students.

- Table 8 about here -

Blacks (b=-1.131, $p<.001$) and Asians (b=-.901, $p<.01$) are less likely to drink alcohol than are whites. Married persons (b=-.672, $p<.001$) consume less alcohol than do those who are not married . People whose parents have a higher level of education (b=.104, $p<.001$) are more likely to consume a lot of alcohol than do those whose parents have a lower level of education.

The drinking behavior of a person's three best friends (b=.489, $p<.001$) significantly increases the likelihood that a person consumes more alcohol than someone whose peers do not drink. This supports the differential association hypothesis that a person's drinking behavior is influenced by the drinking behavior of that person's peer group.

Religiosity (b=-.064, $p<.05$) and hours per week a person spends at school (b=-.029, $p<.01$) decrease the likelihood that a person consumes more alcohol than someone who is less involved in religious activities or spends less time at school. Hours per week a person spends at work (b=.007, $p<.05$) increases the likelihood that a person consumes alcohol . These findings offer partial support for the influence of social control theory on overall drinking consumption. While religious involvement and spending and spending time at school increases the visibility and instrumentality of a person's activities and therefore would be predicted to decrease alcohol consumption, the finding that spending time at work increases alcohol consumption contradicts the predicted relationship.

CHAPTER 6: DISCUSSION

This study examined the differences in the drinking behavior among college students and their non-college peers. Additionally, this study examined the applicability of social control and differential association to account for differences in drinking behaviors. This chapter discusses the findings, limitations, and implications from this study. First the findings are broken down by social characteristics, differential association variables, and social control variables. Second, college students are compared to non-college students. Third, the limitations of the current study are presented. Lastly, the implications of this study's findings are discussed in relation to future research and suggestions for developing a program that can reduce the negative consequences of binge drinking on college campuses.

Differential Association

Differential association was partially supported in this study. Sutherland's (1947) differential association argues that deviant behavior is learned, like other types of behavior, and this learning occurs through interactions with significant others. Specifically, peers and other significant others provide a person with definitions that are either in favor of or against a behavior. When the definitions to engage in the behavior become dominant, a person will choose to engage in the behavior.

This study used two variables to test this theory. The drinking behavior of the respondent's three best friends was used to test the influence of behavior and the respondent's perceptions of their best friends' attitudes regarding binge drinking was used to test the influence of attitudes. The drinking behavior of the three best friends had a significant impact on a person's drinking behavior and binge drinking behavior for both college and non-college students. A person's drinking behavior tends to closely resemble peers' drinking behavior. This supports previous research that peer behavior plays a major role in determining individual behavior (Bosari and Carey 2006; Northcote 2011; Vander Ven 2011; Ward and Gryczynski 2009; Wells 2010; Wechsler and Wuethrich 2002; White and Jackson 2004; White et al. 2006; White et al. 2008; Yanovitzky et al. 2006) and clearly supports differential association theory.

There was no support for the influence of peer attitudes regarding drinking on a person's drinking behavior. This contradicts previous findings that perceived attitudes regarding excessive drinking influence a person's own drinking behavior (Neighbors 2008). There are several

potential reasons for this finding. First, the questions are based on the respondents' perception of their friends' attitudes regarding alcohol use. The perceptions of peer attitudes and actual peer attitudes may be different. Second, the behavior variable is worded, as "of your three best friends" while the attitude variable is "my close friends". The difference in wording could be getting a different set of friends. The attitude variable may have a larger scope of friends than the behavior variables. Thus, these items are looking at two different groups that may have conflicting views on alcohol use.

Despite the lack of support for the role of attitudes in determining a person's behavior, the hypothesis is still supported that a person's drinking behavior will closely resemble the drinking behavior of that person's peer group. This was true for both college and non-college students. This suggests that while the college environment is unique in some ways, peers significantly influence the behavior of eighteen to twenty-two year olds, as differential association would predict.

Social Control

Hirschi's (1969) social control theory examines the role of attachment, involvement, commitment, and belief in controlling a person's drinking behavior. According to the theory, a person that is bonded to society via these elements will be less likely to engage in deviant behavior. The routine activities approach to social control reconceptualizes involvement to account for the visibility and instrumentality of activities in reducing deviant behavior (Hawdon 1996; Osgood 1996).

Social control theory is based on the concept that higher levels of social bond will decrease the likelihood that a person will engage in deviant behavior. This study found weak mixed results for social control. Commitment was not directly tested. Since numerous studies using High School students that test control theory use the student's expectation of attending college as a measure of commitment, it could be argued that whether a person attended college or not taps the concept of commitment, with attending college representing a higher level of commitment because of the amount of time and energy that is invested in a college education. However there was not a significant difference in the drinking behavior of the two groups. Moreover, making this assumption for non-High School students can be problematic. While aspirations to attend college undoubtedly measures commitment to education among High

School students, it is questionable assumption to argue that college students are more committed to their education than non-college students are to their jobs. Thus, ultimately, this thesis did not test the influence of commitment on drinking behaviors, and, even if we accept the questionable assumption and argue that the models included a measure of commitment, we would need to conclude that it does not influence drinking behavior.

Attachment was tested by looking at how highly students valued the opinions of their parents. According to Hirschi (1969) high levels of attachment will decrease the likelihood of engaging in deviant behavior because deviant behavior can jeopardize the relationship that a person has with significant others. Parental attachment was only significant for college students. Instead of decreasing alcohol use, however, higher levels of attachment increased the likelihood that a person would binge drink. Even though college students are attached to their parents, their parents have little influence over their behavior while they are at college. This supports previous research (Barnes et al. 2007) that even though students who are attached to their parents, peers play a larger role in determining their behavior. Based upon Hirschi's (1969) logic, excessive alcohol use might be perceived by college students as not jeopardizing their relationship with their parents. A possible reason for this is because excessive drinking might not be considered deviant because it is a common part of American culture.

Parental attachment increased the likelihood that college students would engage in binge drinking. Based on Hirschi's logic then excessive alcohol use would not jeopardize the relationships that a person has with their parents. Excessive drinking is not considered to be deviant because it is a common part of American culture. Watching the way adults drink alcohol and learning the permissive attitudes regarding alcohol use that parents hold, adolescents learn that alcohol is used in a celebratory and fun context (Otten et al. 2008; Peterson et al. 1994). These attitudes are then carried with a person when they go to college. Even though college students are attached to their parents that does not reduce the likelihood that they will engage in excessive drinking because alcohol norms are permissive of excessive drinking behaviors.

The routine activities approach to involvement is conceptualized as activities that have a high level of visibility and instrumentality will decrease the likelihood of engaging in deviant activities. Visibility means that adults or authority figures supervise the activity giving a person less opportunity to engage in deviant behavior. Instrumentality is focused on engaging in an activity in order to achieve a traditionally valued goal (Hawdon 1996, 1999). This study offers

some support for this approach. The amount of involvement in aerobic activities, outdoor activities, and watching television all fall into the low visibility and low instrumentality category. These activities all increased the likelihood of alcohol use. However, the amount of time spent involved in team sports should decrease the likelihood of engaging in deviant activities because team sports are supervised by adults and team members should keep each other in check in order to achieve the shared goal of winning. The amount of time spent in team sports increased the likelihood of drinking for college students. This supports previous research that involvement in team sports increases the occurrence of binge drinking (Gossbard et al. 2009; Mays et al. 2010). This relationship could be caused by the peer influence that is dominant on sports teams as well as the amount of alcohol advertisements that are targeted at sporting events (Nelson and Wechsler 2001).

For non-college students the amount of time spent at work increased the likelihood of drinking while the amount of time spent at school and engaged in hobbies decreased the likelihood of drinking. This both supports and contradicts the routine activities approach. Work and school are highly visible and highly instrumental activities; they should both decrease the likelihood of overall drinking. Hobbies are a low visibility and low instrumentality activity that should increase the likelihood of overall drinking. However this measure is not specific enough to provide a strong test of the routine activities approach. School was the only activity that supported the routine activities approach. Alcohol consumption is not a deviant behavior for people over age 21. It is legal and socially acceptable, therefore the routine activities approach would not apply to moderate consumption for those over age 21(Hawdon 1996, 1999). However, binge drinking is considered deviant so excessive drinking should be reduced by involvement in routine activities.

Overall social control theory had weak support. This research did not support the hypothesis that attachment will decrease excessive drinking behaviors. However there was some support for the hypothesis that activities with a low level of visibility and instrumentality will increase excessive drinking behaviors. The measures that were used to test involvement are problematic because they group multiple activities together and there is not enough information to determine the visibility and instrumentality of all of the activities in each group.

Social control was originally operationalized using a high school sample (Hirchi 1969). This study used 18-22 year olds. Although social control theory explains the variance in deviant

behavior among high school students, it may not be applicable for older populations. College students and their non-college peers are not immersed in the same family and school structure as high school students. Although commitment, involvement, attachment, and belief may still influence older populations, these concepts need to operationalized in a different way to account for the changes in life, family, and work that occur after graduation from high school.

Social control may have weak applications to binge drinking because of how normalized this behavior is in the media and popular culture. Social control is based on the premise that the more bonded a person is to society the less likely they will be to engage in deviant behavior. Alcohol is more acceptable than other measures of delinquency such as illegal drug use. Popular culture has made alcohol use visible in everyday life through advertisements on television and at sporting events. It is possible that people who are bonded to society have more accepting views of excessive alcohol use because of how it is portrayed in the media. In this case being bonded would increase the likelihood of engaging in excessive alcohol use. In cases where there are mixed messages regarding the pros and cons of excessive alcohol use, peers become influential in determining what type of drinking behavior is acceptable.

Social Characteristics

The findings among the social characteristic variables supported previous research that there are racial and gender differences in the amount of alcohol that college student's drink (Bulmer et al. 2010; Cooper et al. 2008; LaBrie 2007; Paschall et al. 2005; Vander Ven 2011; Wechsler et al. 2000; Wechsler and Wuethrich 2002). Black college students drank less than white college students. Men were more likely to drink more and to binge drink more than women. Being married decreased the likelihood that a person would drink.

This study found mixed results regarding the role of religiosity and drinking behaviors. Higher levels of religiosity significantly decreased overall drinking behavior among college and non-college students. However, higher levels of religiosity increased the likelihood of binge drinking for college students. Previous research supports that high levels of religious involvement decrease overall drinking behavior for both college and non-college students (Amoateng and Bahr 1986; Bachman et al 2002; Crettaci 2003; Wells 2010). However this study found that religiosity increases instead of decreasing the likelihood of binge drinking for college students. This finding contradicts previous research on the relationship between religiosity and

binge drinking (Vander Ven 2011). Peer groups play a large role in determining a persons' drinking behavior. Involvement in religious activities may only reduce excessive drinking behavior if a person's peer group holds similar beliefs and levels of involvement in religious activities.

College Students

The differences in the overall drinking behaviors of college students and their non-college peers supports the hypothesis that college students will drink more and the combination of social control and differential association can explain more of the variance in the behavior of college students.

The overall drinking behavior of college students and their non-college peers is explained in similar ways by the social characteristics and differential association variables. The main difference comes when the social control factors are added to the model. Being black and Asian compared to white significantly decreases overall drinking. Higher rates of religiosity decrease overall drinking, but not binge drinking, while the drinking behavior of the peer group increases overall drinking behavior and binge drinking. These factors are the same for both groups. Men drink more compared to women, but this difference is not significant for non-college students. Being married decreases overall drinking for non-college students, but not college students. The low number of college students compared to non-college students who are married can explain this difference. Parental education increased overall drinking for non-college students but did not affect the drinking behavior of college students.

The main differences between the two groups come when the social control variables are added into the model. Attachment increases overall drinking for college students but does not affect the drinking behavior of non-college students. Amount of time spent playing team sports increases overall drinking behavior for college students while hobbies decrease overall drinking behavior. Non-college students' drinking behavior was predicted by amount of time spent at school and work. Amount of time spent at work increased the amount of alcohol consumed while amount of time spent at school decreased alcohol consumption. Non-college students are not attending two or four-year college but they may be in vocational school or graduate school. This could account for the influence of amount of time spent at school even though this is the non-

college group. Amount of time spent at school did not affect the drinking behavior of college students.

Unfortunately, it is impossible to determine why the influence of parental attachment was positive in this sample, but it there are some plausible explanations for this surprising result. Differences in parental attachment may be influenced by different parenting styles or the role that parental alcohol use has on determining a person's drinking behavior. Involving children in parental alcohol use at an early age results in a higher likelihood of engaging in excessive drinking behavior later in life (Peterson et al 1994). Parenting styles may also explain the difference in drinking behavior between college and non-college students. College students are typically from a higher social class than non-college students, and middle class parents are more likely to engage in social drinking and have higher levels of involvement with their children. Given this, it is possible that college students would be more likely to be exposed to their parents drinking behavior at an earlier age (Otten et al. 2008; Peterson et al. 1994).

Another perplexing finding is the positive relationship between working and drinking. Based on the logic of social control theory, work should reduce the likelihood of engaging in excessive drinking. However, this study found that it increased excessive drinking behaviors. This may be explained because having a job provides income that can be spent on alcohol. It also exposes people to their colleagues at work that may hold positive views on excessive drinking behaviors. Amount of time spent at work may increase a person's stress level resulting in higher rates of alcohol consumption as a coping mechanism.

Limitations

The first limitation was the inability to test commitment in this study because the Add Health dataset did not have any appropriate questions that could be used to test this aspect of social control. It was assumed that those in college could be assumed as being more committed, this follows the original conceptualization of commitment. However, there was not a difference between the groups in terms of their drinking. Moreover, this assumption may not be valid. Students may not be more committed to their education than a non-student is to his or her job. Nevertheless, we do not have a good measure of commitment, and the one variable that could be argued taps the concept fails to offer support for Hirschi's theory.

Belief was adapted to examine a person's attitudes regarding the acceptability of excessive alcohol use. This strays from Hirschi's original conceptualization that a lack of belief in the legitimacy of norms and laws leads to delinquency. This change could explain why belief did not have a significant influence on predicting the drinking behavior of the sample. The limitations that are caused by belief and commitment may account for some of the weaknesses in social control theory being able to account for the variance in drinking behavior.

The second limitation in this study was that differential association is based on peer influence. To test this theory adequately there needs to be data from the respondent and the respondent's peers. This would make it possible to compare the drinking behavior and attitudes of people within a peer group. This would make it possible to further test differential association instead of testing the respondents' perceptions of the drinking behavior and attitudes of their peer group. This would further test differential association instead of testing the respondents' perceptions of the drinking behavior and attitudes of their peer group (Aseltine 1995; Zhang and Messner 2000).

The third limitation in this study was that minorities are overrepresented in the college sample. Since minorities drink less than white college students this could explain why there was not a significant difference between the binge drinking behavior of college students and their non-college peers.

Implications

The present study tested the ability of social control and differential association to explain the drinking behavior of eighteen to twenty-two year old college students and their non-college peers. This study found that the drinking behavior of peer groups significantly predicts the overall drinking behaviors and binge drinking behaviors of both college and non-college students. Surprisingly, most forms of social control increased the likelihood of binge drinking for both college and non-college students, instead of reducing the likelihood of binge drinking. Social control factors had little impact on the overall drinking behavior of these two groups. The results for overall drinking were mixed with social control factors both increasing and decreasing the likelihood of engaging in higher rates of overall drinking.

This research is important because it compares people in the same age group. Although there are differences between these two groups, binge drinking and peer influence are consistent

across both groups. Peers appear to have the most consistent influence on a person's drinking behavior. In order to reduce binge drinking as well as overall drinking behavior, especially on college campuses, universities need to develop programs that target peer groups. Social control factors such as involvement reflect colleges' attempt to create alcohol- free weekend activities. However this study found that most forms of social control actually increase or do not affect binge drinking. In order to reduce binge drinking on college campus, alcohol-free programs are not enough. These programs still highlight peer involvement. Having an alcohol free program as an alternative to excessive drinking is not going to effect students that are involved in peer groups that engage in excessive drinking behavior.

Eliminating binge drinking on college campuses does not seem feasible because excessive alcohol use occurs throughout the eighteen to twenty-two year old population, both on and off campus. Instead colleges should focus efforts on educating students about safe drinking practices such as drinking water while drinking alcohol, having a designated driver, and limiting the overall number of drinks that are consumed in one sitting. This may help reduce the negative consequences that college students experience because of excessive drinking.

The lack of a significant difference between the binge drinking behaviors of college and non-college students suggests that the college environment is not the only factor that leads to excessive drinking behaviors. The sample was restricted to eighteen to twenty-two year olds. The legal drinking age is twenty-one, yet most of the sample engaged in some form of drinking behavior.

Future research needs to explore the drinking behavior of non-college age peers. Binge drinking is typically seen as a college problem but this study found that there are not significant differences in binge drinking behavior, but in the variables that explain why each group binge drinks. Despite these differences, peer behaviors are consistently the strongest predictor of a person's binge drinking and overall drinking behavior. Future quantitative and qualitative research can explore the differences in the reasons why college students and non-college peers binge drink at similar levels. Higher levels of statistical analysis should be done to determine the role that specific college environments play in drinking behavior as well as the actual similarities between the drinking behaviors of people within the same peer group.

Future research should focus on the long-term drinking patterns of these two groups to explore the long-term effects caused by binge drinking. There is a gap in the literature regarding

the long-term patterns and effects of binge drinking. Understanding why and how excessive drinking behaviors change over time makes it possible to develop a program that could effectively change excessive drinking behavior.

This study also supports the need for an integrated theory regarding alcohol use. Peers influence a person's behavior both in and out of the college culture. However the other social control factors had mixed support. One theory cannot adequately explain the variance in deviant behavior. This research also suggests that young adults are still vulnerable to the same influences despite the college environment. Focusing efforts of binge drinking among college students does not adequately address the problem of excessive alcohol use among eighteen to twenty-two year olds.

Conclusion

This study empirically tested the ability of social control and differential association to explain the differences in the binge drinking and overall drinking behavior of college students and their non-college peers. Although there are not significant differences in the actual drinking behavior of these two groups, the variance in behavior is explained in different ways. Although the extent to which social control factors explain alcohol use between the two groups varies considerably, peer influence is consistent across all groups.

This study did not find significant differences in the binge drinking behavior of college students and their non-college peers. However college students had higher overall rates of drinking than their non-college peers. Most reduction efforts are aimed at reducing the behavior of college students, but binge drinking does not appear to be a problem that is confined to college students. Instead of focusing efforts on alcohol-free events, schools should educate their students about safer drinking practices.

REFERENCES

Akers, Ronald L. 1991, "Self-Control as a General Theory of Crime." *Journal of Quantitative Criminology* 7: 201-211.

Amoateng, Acheampong Y. and Stephen J. Bahr. 1986. "Religion, Family, and Adolescent Drug Use." *Sociological Perspectives* 29(1): 53-76.

Aseltine Jr., Robert H. 1995. "A Reconsideration of Parental and Peer Influences on Adolescent Deviance." *Journal of Health and Social Behavior* 36(2): 103-121.

Bachman, Jerald G., Patrick M. O'Malley, John E. Schulenberg, Lloyd D. Johnston, Alison L. Bryant, and Alicia C. Merline. 2002. *The Decline of Substance Abuse in Young Adulthood*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers

Baer, John S. 1994. "Effects of College Residence on Perceived Norms for Alcohol Consumption: An Examination of the First Year in College." *Psychology of Addictive Behaviors* 8(1): 43-50.

Barnes, Grace M., Joseph H. Hoffman, John W. Welte, Michael P. Farrell, and Barbara A. Dintcheff. 2007. "Adolescents' Time Use: Effects on Substance Use, Delinquency, and Sexual Activity." *Journal of Youth and Adolescents* 36(5): 697-710.

Becker, Howard S. 1963. *Outsiders: Studies in the Sociology of Deviance*. Glencoe: The Free Press.

Benningfield, Margaret M., Elisa M. Trucco, Paul J. Barreira, and Shelly F. Greenfield. 2009. "Treatment of Alcohol Intoxication at University Health Services: Examining Clinical Characteristics, Drinking Patterns, and Adherence with Referral." *Journal of Alcohol and Drug Education* 53(1): 54-68.

Blanton, Hart and Charlene Christie. 2003. "Deviance Regulation: A Theory of Action and Identity." *Review of General Psychology* 7(2): 115-149.

Booth, Jeb A., Amy Farrell, and Sean P. Varrano. 2008. "Social Control, Serious Delinquency, and Risky Behavior: A Gendered Analysis." *Crime and Delinquency* 54(3): 423-456.

Bosari, Brian and Kate B. Carey. 2006. "How the Quality of Peer Relationships Influences College Alcohol Use." *Drug and Alcohol Review* 25(4): 361-370.

Bulmer, Sandra M., Syed Irfan, Raymond Mugno, Barbara Barton, and Louise Ackerman. 2010. "Trends in Alcohol Consumption Among Undergraduate Students at a Northeastern Public University, 2002-2008." *Journal of American College Health* 58(4): 383-390.

Campo, Shelly and Kenzie A. Cameron. 2006. "Differential Effects of Exposure to Social Norms Campaigns: A Cause for Concern." *Health Communication* 19(3): 209-219.

Cooper, M. Lynne, Jennifer L. Krull, V. Bede Agocha, Mindy E. Flanagan, Holly K. Orcutt, Shelly Grabe, Kurt H. Dermen, and Maudette Jackson. 208. "Motivational Pathways to Alcohol Use and Abuse Among Black and White Adolescents. *Journal of Abnormal Psychology* 117(3): 485-501.

Costello, Barbra J. and Paul R. Vowell. 199. "Testing Control Theory and Differential Association: A Reanalysis of the Richmond Youth Project Data." *Criminology* 37(4): 815-840.

Crawford, Lizabeth A. and Katherine B. Novak. 2010. "Beliefs about Alcohol and the College Experience as Moderators of the Effects of Perceived Drinking Norms on Student Alcohol Use." *Journal of Alcohol and Drug Education* 54(3): 69-86.

Crawford, Lizabeth A. and Katherine B. Novak. 2006. "Alcohol Abuse as a Rite of Passage: The Effect of Beliefs about Alcohol and the College Experience on Undergraduates' Drinking Behaviors." *Journal of Drug Education* 36(3): 193-211.

Cretacci, Michael A. 2003. "Religion and Social Control: An Application of a Modified Social Bond on Violence." *Criminal Justice Review* 28(2): 254-277.

Durkheim, Emile. 1951 [1897]. *Suicide*. New York, NY: Free Press.

Durkin, Keith F., Timothy W. Wolfe, and Daniel W. Phillips, III. 1996. "College Students' Use of Fraudulent Identification to Obtain Alcohol: An Exploratory Analysis." *Journal of Alcohol and Drug Education* 41(2): 92-104.

Esbaugh, Elaine M. 2008. "Factors that Predict Self-Perceived Problem Drinking Among College Students." *Journal of Alcohol and Drug Education* 52(3): 72-88.

Foshee, Vangie and Karl E. Bauman. 1992. "Parental and Peer Characteristics as Modifiers of the Bond-Behavior Relationship: An Elaboration of Control Theory. *Journal of Health and Social Behavior* 33(1): 66-76.

Fox, Kathleen A., Matt R. Nobles, and Ronald L. Akers. 2011. "Is Stalking a Learned Phenomenon? An Empirical Test of Social Learning Theory." *Journal of Criminal Justice* 39(5): 39-47.

Goffman, Erving. 1959. *Presentation of Self in Everyday Life*. Garden City, NY: Anchor Books.

Gotham, Heather J., Kenneth J. Sher, and Phillip K. Wood. 1997. "Predicting Stability and Change in Frequency of Intoxication from the College Years to Beyond: Individual-Difference and Role Transition Variables." *Journal of Abnormal Psychology* 106(4): 619-629.

Granfield, Robert. 2005. "Alcohol Use in College: Limitations on the Transformation of Social Norms." *Addiction Research and Therapy* 13(3): 281-292.

Grossbard, Joel, Justin Hummer, Joseph LaBrie, Eric Pederson, Clayton Neighbors. 2009. "Is Substance Use a Team Sport? Attraction to Team, Perceived Norms, and Alcohol and Marijuana Use Among Male and Female Intercollegiate Athletes." *Journal of Applied Sport Psychology* 21(3): 247-261.

Harris, Kathleen Mullan. 2009. The National Longitudinal Study of Adolescent Health (Add Health), Waves I & II, 1994–1996; Wave III, 2001–2002; Wave IV, 2007-2009 [machine-readable data file and documentation]. Chapel Hill, NC: Carolina Population Center, University of North Carolina at Chapel Hill.

Hawdon, James E. 1996. "Deviant Lifestyles: The Social Control of Daily Routines." *Youth and Society* 28(2): 162-188.

Hawdon, James E. 1999. "Daily Routines and Crime: Using Routine Activities as Measures of Hirschi's Involvement." *Youth and Society* 30(4): 395-415.

Hirschi, Travis. 1969. *Causes of Delinquency*. Berkley, CA: University of California Press.

Jennings, Mary A. and John Gunther. 2000. "Juvenile Delinquency in Search of a Practice Model: Family Health, Differential Association, and Social Control." *Journal of Family Social Work* 5(1): 75-89.

Junger, Marianne and Ineke Haen Marshall. 1997. "The Interethnic Generalizability of Social Control Theory: An Empirical Test." *Journal of Research in Crime and Delinquency* 34(1): 79-112.

Krohn, Marvin D. and James L. Massey. 1980. "Social Control and Delinquent Behavior: An Examination of the Elements of the Social Bond." *The Sociological Quarterly* 21(2): 529-544.

Labouvie, Erich and Marsha E. Bates. 2002. "Reasons for Alcohol Use in Young Adulthood: Validation of a Three-Dimensional Measure." *Journal of Studies on Alcohol* 63(2): 145-155.

Labrie, Joseph W., Andrea Rodrigues, Jason Schiffman, and Summer Tawalbeh. 2007. "Early Alcohol Initiation Increases Risk Related to Drinking Among College Students." *Journal of Child & Adolescent Substance Abuse* 17(2): 125-141.

Labrie, Joseph W., Tony Lamb, and Eric Pedersen. 2009. "Changes in Drinking Patterns Across the Transition to College Among First-Year College Males." *Journal of Child & Adolescent Substance Abuse* 18(1): 1-15.

Lee, Christine M., Megan E. Patrick, Clayton Neighbors, Melissa A. Lewis, Sean J. Tollison, and Mary E. Larimer. 2010. "Exploring the Role of Positive and Negative Consequences in Understanding Perceptions and Evaluations of Individual Drinking Events." *Addictive Behaviors* 35: 764-770.

Matsueda, Ross L. and Karen Heimer. 1987. "Race, Family Structure, and Delinquency: A Test of Differential Association and Social Control Theories." *American Sociological Review* 52(6): 826-840.

Mays, Darren, Lara DePadilla, Nancy J. Thompson, Howard I. Kushner, Michael Windle. 2010. "Sports Participation and Problem Alcohol Use: A Multi-Wave National Sample of Adolescents." *American Journal of Prevenative Medicine* 38(5): 491-498.

National Institute on Alcohol Abuse and Alcoholism. 2002. *A Call to Action: Changing the Culture of Drinking at U.S. Colleges*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism.

Neighbors, Clayton, Roisin M. O'Connor, Melissa A. Lewis, Neharika Chawla, Christine M. Lee, and Nicole Fossos. 2008. "The Relative Impact of Injunctive Norms on College Student Drinking: The Role of Reference Groups." *Psychology of Addictive Behaviors* 22(4): 576-581.

Nelson, T F. and Henry Wechsler. 2001. "Alcohol and College Athletes." *Medicine and Science in Sports and Exercise* 33(1): 43-47.

Novak, Katherine B. and Lizabeth A. Crawford. 2010. "Routine Activities as Determinants of Gender Differences in Delinquency." *Journal of Criminal Justice* 38(5): 913-920.

Osgood, D. Wayne and Amy L. Anderson. 2004. "Unstructured Socializing and Rates of Delinquency." *Criminology* 42(3): 519-549.

Osgood, D. Wayne, Janet K. Wilson, Patrick M. O'Malley, Jerald G. Bachman, and Lloyd D. Johnston. 1996. "Routine Activities and Individual Deviant Behavior." *American Sociological Review* 61(4): 635-655.

Otten, Roy, Carmen S. van der Zwaluw, Haske van der Vorst, and Rutger C.M.E. Engles. 2008. "Partner Effects and Bidirectional Parent-Child Effects in Family Alcohol Use. *European Addiction Research* 14:106-112.

Payne, Allison A. and Steven Salotti. "A Comparative Analysis of Social Learning and Social Control Theories in the Prediction of College Crime." *Deviant Behavior* 28(6): 553-573.

Paschall, Mallie J., Melina Bersamin, and Robert L. Flewelling. 2005. "Racial/Ethnic Differences in the Association between College Attendance and Heavy Alcohol Use: A National Study." *Journal of Studies on Alcohol* 66(2): 266-274.

Peterson, Peggy L., J. David Hawkins, Robert D. Abbott, and Richard F. Catalano. 1994. "Disentangling the Effects of Parental Drinking, Family Management, and Parental Alcohol Norms on Current Drinking by Black and White Adolescents." *Journal of Research on Adolescence* 4(2): 203-227.

Peralta, Robert L. 2008. "Alcohol Allows You to not be Yourself." *Journal of Drug Issues* 38(2): 373-400.

Rabow, J. and Marilyn Duncan-Schill, 1995. "Drinking Among College Students." *Journal of Alcohol and Drug Education* 40(3):52-64.

Reed, Mark D. and Pamela Wilcox Rountree. 1997. "Peer Pressure and Adolescent Substance Use." *Journal of Qualitative Criminology* 13(2): 143-180.

Seaman, Barrett. 2005. *Binge*. Hoboken, NJ: John Wiley & Sons, Inc.

Sutherland, Edwin H. 1947. *Principles of Criminology*. New York, NY: Lippincott.

Sutherland, Edwin H. and Donald R. Cressey. 1966. *Principles of Criminology*. Philadelphia, PA, NY: Lippincott.

Sutherland, Edwin H. and Donald R. Cressey. 1978. *Criminology*. New York, NY: Lippincott.

Tremblay, Paul F., Kathryn Graham, Samantha Wells, Roma Harris, Roseanne Pulford, and Sharon E. Roberts. 2010. "When Do First-Year College Students Drink Most During the Academic Year? An Internet-Based Study of Daily and Weekly Drinking." *Journal of American College Health* 58(5): 401-411.

Vander Ven, Thomas. 2011. *Getting Wasted*. New York: New York University Press.

Ward, Brian W. and Jan Gryczynski. 2009. "Social Learning Theory and the Effects of Living Arrangement on Heavy Alcohol Use: Results from a National Study of College Students." *Journal of Studies on Alcohol and Drugs* 70(3): 364-372.

Weitzman, Elissa R., Toben F. Nelson, and Henry Wechsler. 2003. "Taking Up Binge Drinking in College: The Influences of Person, Social Group, and Environment." *Journal of Adolescent Health* 32(1): 26-35.

Wells, Gayle M. 2010. "The Effect of Religiosity and Campus Alcohol Culture on Collegiate Alcohol Consumption." *Journal of American College Health* 58(4): 295-304.

Wechsler, Henry and Bernice Wuethrich. 2002. *Dying to Drink*. Emmaus, PA: Rodale Inc.

Wechsler, Henry, Jae E. Lee, Meichun Kuo, and Hang Lee. "College Binge Drinking in the 1990's: A Continuing Problem: Results of the Harvard School of Public Health 1999 College Alcohol Study." *Journal of American College Health* 48(5): 199-210.

White, Helene R., Barbara J. McMorris, Richard Catalano, Charles B. Fleming, Kevin P. Haggerty, and Richard D. Abbott. 2006. "Increases in Alcohol and Marijuana Use During the Transition Out of High School Into Emerging Adulthood: The Effects of Leaving Home, Going to College, and High School Protective Factors." *Journal of Studies on Alcohol* 67(6): 810-822.

White, Helene R., Charles B. Fleming, Min Juang Kim, Richard F, Catalano, and Barbara J. McMorris. 2008. "Identifying Two Potential Mechanisms for Changes in Alcohol Use Among College-Attending and Non-College-Attending Emerging Adults." *Developmental Psychology* 44(6): 1625-1639.

White, Helen R., Erich W. Labouvie, and Vasiliki Papadaratsakis. 2005. "Change in Substance Use During the Transition to Adulthood: A Comparison of College Students and Their Noncollege Age Peers." *Journal of Drug Issues* 35(2): 281-306.

White, Helene R. and Kristina Jackson. 2004. "Social and Psychological Influences on Emerging Adult Drinking Behavior." *Alcohol Research and Health* 28(4): 182-190.

Yanovitzky, Itzhak and Jo Stryker. 2001. "Mass Media, Social Norms and Health Promotion Efforts." *Communication Research* 28(2): 203-239.

Yanovitzky, Itzhak, Lea P. Stewart, and Linda C. Lederman. 2006. "Social Distance, Perceived Drinking by Peers, and Alcohol Use by College Students." *Health Communication* 19(1): 1-10.

Zhang, Lening and Steven F. Messner. 2000. "The Effects of Alternative Measures of Delinquent Peers of Self-Reported Delinquency." *Journal of Research in Crime and Delinquency* 37(3): 323-337.

APPENDIX A: Tables

Table 1. Descriptives of the Whole Sample

	Whole Sample	
Variables	Mean	SD
Dependent Variables		
Currently Binge Drinks	.32	.47
Overall Drinking	.99	.75
Personal characteristics		
White	.69	.46
Black	.25	.44
American Indian	.05	.21
Asian Pacific Islander	.05	.21
Male	.44	.50
Married	.25	.43
Parents' education level	5.73	2.32
Friendship and differential association		
Drinking behaviors of friends	.88	1.18
Perceptions of friends' drinking behaviors	.68	2.11
Social Control		
Parental Attachment	4.40	4.70
Belief	5.41	6.40
Religiosity	3.05	12.24
Hrs/Wk at Work	24.09	19.32
Hrs/WK at School	7.75	11.13
Hrs/Wk doing Housework	4.39	2.31
Hrs/Wk doing Hobbies	2.71	2.32
Hrs/Wk Watching Television	12.60	13.53
Hrs/Wk Biking	1.33	1.91
Hrs/Wk Aerobics	.59	1.40
Hrs/Wk Team Sports	.53	1.33
Hrs/Wk Individual Sports	.70	1.50
Hrs/Wk with Children Under 6	15.70	44.11

Table 2. Binge Drinking Behavior of the Whole Sample

Variables	Model 1	Model 2	Model 3
Personal characteristics			
Black	-1.233***	-1.031***	-.910***
American Indian	.127	-.005	.024
Asian Pacific Islander	-.653*	-.516	-.571*
Male	1.024***	.720***	.586***
Married	-.504***	-.425**	-.504
Parents' education level	.068**	.052*	.060*
Currently in College	.051	.063	.275
Friendship and differential association			
Drinking behaviors of friends		.642***	.597***
Perceptions of friends' drinking behaviors		.015	.009
Social Control			
Parental Attachment			.024
Belief			.002
Religiosity			-.120***
Hrs/Wk at Work			.005
Hrs/WK at School			-.005
Hrs/Wk doing Housework			-.009
Hrs/Wk doing Hobbies			-.044
Hrs/Wk Watching Television			.012**
Hrs/Wk Biking			.087**
Hrs/Wk Aerobics			.050
Hrs/Wk Team Sports			.058
Hrs/Wk Individual Sports			.048
Hrs/Wk with Children Under 6			-.002
Constant	-1.270	-1.776	-1.884
Pseduo-R^2	.153	.288	.326
Log Likelihood	1980.662	1781.786	1722.273

*p<.05; **p<.01; ***p<.001. N=1692
Logistic Coefficients are shown in the table

Table 3. Overall Drinking Behavior of the Whole Sample

Variables	Model 1
Personal characteristics	
Black	-.825***
American Indian	.106
Asian Pacific Islander	-.667*
Male	.142
Married	-.522***
Parents' education level	.048*
Friendship and differential association	
Drinking behaviors of friends	.477***
Perceptions of friends' drinking behaviors	.081*
Social Control	
Parental Attachment	.012
Belief	-.013*
Religiosity	-.116***
Hrs/Wk at Work	.008**
Hrs/WK at School	.000
Hrs/Wk doing Housework	.008
Hrs/Wk doing Hobbies	-.035
Hrs/Wk Watching Television	.009*
Hrs/Wk Biking	-.010
Hrs/Wk Aerobics	.072
Hrs/Wk Team Sports	.063
Hrs/Wk Individual Sports	.012
Hrs/Wk with Children Under 6	.001
Pseduo-R^2	.252
Log Likelihood	3232.059
Intercept (OrdDrink=0)	-.648**
Intercept (OrdDrink=1)	1.690***

*p<.05; **p<.01; ***p<.001. N=1712

Table 4. Descriptives of College and Non-College Students

	College Respondents		Non-College Respondents		Means Test
Variables	Mean	SD	Mean	SD	NCR-CR
Dependent Variables					
Currently Binge Drinks	.35	.48	.30	.46	-.05
Overall Drinking	1.05	.71	.95	.78	.11***
Personal characteristics					
White	.72	.45	.66	.47	-.05**
Black	.23	.42	.27	.45	.04*
American Indian	.03	.18	.06	.25	.03***
Asian Pacific Islander	.06	.23	.04	.19	-.02**
Male	.41	.49	.47	.50	.06**
Married	.13	.34	.34	.47	.21***
Parents' education level	6.45	2.15	5.13	2.28	-1.32***
Friendship and differential association					
Drinking behaviors of friends	.89	1.19	.86	1.17	-.03***
Perceptions of friends' drinking behaviors	.85	2.35	.54	1.88	-.30***
Social Control					
Parental Attachment	4.66	4.69	4.19	4.68	.48*
Belief	5.91	11.86	5.03	12.54	-.88
Religiosity	3.53	8.07	2.65	8.07	-.88***
Hrs/Wk at Work	18.16	16.22	29.00	20.25	10.84***
Hrs/WK at School	16.50	11.16	1.39	6.16	-14.11***
Hrs/Wk doing Housework	4.40	2.24	4.47	2.40	.18
Hrs/Wk doing Hobbies	2.99	2.26	2.47	2.40	-.51***
Hrs/Wk Watching Television	10.81	12.43	14.06	14.23	3.25***
Hrs/Wk Biking	1.38	1.93	1.28	1.89	-.10
Hrs/Wk Aerobics	.71	1.45	.48	1.35	-.23***
Hrs/Wk Team Sports	.62	1.42	.45	1.24	-.16***
Hrs/Wk Individual Sports	.86	1.57	.58	1.43	-.28***
Hrs/Wk with Children Under 6	7.01	29.94	22.88	53.50	15.87***

*p<.05; **p<.01; ***p<.001.

Table 5. Binge Drinking Behavior of College Students

Variables	Model 1	Model 2	Model 3
Personal characteristics			
Black	-1.245***	-.914***	-.731***
American Indian	-1.150	-1.657***	-1.625***
Asian Pacific Islander	-1.098***	-.600	-.639
Male	1.185***	.841***	.795***
Married	-.121	-.117	-.463
Parents' education level	.077	.028	.051
Friendship and differential association			
Drinking behaviors of friends		.769***	.725***
Perceptions of friends' drinking behaviors		.016	-.076
Social Control			
Parental Attachment			.052**
Belief			.022
Religiosity			-.174***
Hrs/Wk at Work			.014*
Hrs/WK at School			-.001
Hrs/Wk doing Housework			.016
Hrs/Wk doing Hobbies			-.078
Hrs/Wk Watching Television			.009
Hrs/Wk Biking			.094
Hrs/Wk Aerobics			.160*
Hrs/Wk Team Sports			.140*
Hrs/Wk Individual Sports			.000
Hrs/Wk with Children Under 6			-.002
Constant	-1.061	-1.756	-2.134
Pseduo-R^2	.175	.351	.430
Log Likelihood	922.098	769.243	732.301

*p<.05; **p<.01; ***p<.001. N=768

Logistic Coefficients are shown in the table

Table 6. Overall Drinking Behavior of College Students

Variables	Model 1
Personal characteristics	
Black	-.460*
American Indian	.354
Asian Pacific Islander	-.735*
Male	.411**
Married	-.278
Parents' education level	.029
Friendship and differential association	
Drinking behaviors of friends	.528***
Perceptions of friends' drinking behaviors	.082
Social Control	
Parental Attachment	.032*
Belief	-.011
Religiosity	-.178***
Hrs/Wk at Work	.008
Hrs/WK at School	.008
Hrs/Wk doing Housework	-.021
Hrs/Wk doing Hobbies	-.074*
Hrs/Wk Watching Television	.011
Hrs/Wk Biking	.021
Hrs/Wk Aerobics	.060
Hrs/Wk Team Sports	.115*
Hrs/Wk Individual Sports	-.032
Hrs/Wk with Children Under 6	.000
Pseduo-R^2	.337
Log Likelihood	1376.023
Intercept (OrdDrink=0)	-1.698***
Intercept (OrdDrink=1)	1.184***

*p<.05; **p<.01; ***p<.001. N=797

Table 7. Binge Drinking Behavior of Non-College Students

Variables	Model 1	Model 2	Model 3
Personal characteristics			
Black	-1.214***	-.1.084***	-.1.054***
American Indian	.507	.479	.401
Asian Pacific Islander	-.118	-.317	-.445
Male	.898***	.625***	.443***
Married	-.674***	-.585*	-.528**
Parents' education level	.057	.059	.056
Friendship and differential association			
Drinking behaviors of friends		.555***	.523***
Perceptions of friends' drinking behaviors		.005	.044
Social Control			
Parental Attachment			.007
Belief			-.008
Religiosity			-.045
Hrs/Wk at Work			-.001
Hrs/WK at School			-.017
Hrs/Wk doing Housework			-.030
Hrs/Wk doing Hobbies			-.021
Hrs/Wk Watching Television			.013*
Hrs/Wk Biking			.097*
Hrs/Wk Aerobics			-.048
Hrs/Wk Team Sports			-.052
Hrs/Wk Individual Sports			.080
Hrs/Wk with Children Under 6			-.004
Constant	-1.142	-1.644	-1.463
Pseduo-R^2	.150	.251	.274
Log Likelihood	1044.972	967.429	948.756

*p<.05; **p<.01; ***p<.001. N=924

Logistic Coefficients are shown in the table

Table 8. Overall Drinking Behavior of Non College Students

Variables	Model 1
Personal characteristics	
Black	-1.131***
American Indian	-.011
Asian Pacific Islander	-.901**
Male	-.064
Married	-.672***
Parents' education level	.104***
Friendship and differential association	
Drinking behaviors of friends	.489***
Perceptions of friends' drinking behaviors	.060
Social Control	
Parental Attachment	.002
Belief	-.011
Religiosity	-.064*
Hrs/Wk at Work	.007*
Hrs/WK at School	-.029**
Hrs/Wk doing Housework	.022
Hrs/Wk doing Hobbies	-.005
Hrs/Wk Watching Television	.007
Hrs/Wk Biking	-.039
Hrs/Wk Aerobics	-.079
Hrs/Wk Team Sports	.003
Hrs/Wk Individual Sports	.098
Hrs/Wk with Children Under 6	.001
Pseduo-R^2	.238
Log Likelihood	1771.511
Intercept (OrdDrink=0)	-.349
Intercept (OrdDrink=1)	1.710***

*p<.05; **p<.01; ***p<.001. N=914

APPENDIX B: Variables

Binge Drinking as Belief Index:

Variable	Code	Recoded
How positive or negative would it be if you had more fun as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if people thought you were an alcoholic as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if you could relax better as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if your close friends thought you were cool as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if it were easier for you to socialize as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if you got sick and had hangovers as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if you damages your health as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if you lost your inhibitions as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be	1-very positive, 2-slightly	1-very negative, 2-

if it were easier for you to meet new people as a result of binge drinking?	positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positive or negative would it be if you tended to lose control of yourself as a result of binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
How positively or negatively do you feel about your engaging in binge drinking?	1-very positive, 2-slightly positive, 3-neither positive nor negative, 4-slightly negative 5-very negative	1-very negative, 2-slightly negative, 3-neither positive nor negative, 4-slightly positive, 5-very positive
If you thought about going out and binge drinking (even if you don't currently do this), how excited would you feel?	1-very excited, 2-moderately excited, 3-slightly excited, 4-not at all excited	1- not at all excited, 2-slightly excited, 3-moderately excited, 4-very excited
If you thought about going out and binge drinking (even if you don't currently do this), how pleased would you feel?	1-very pleased, 2-moderately pleased, 3-slightly pleased, 4-not at all pleased	1- not at all pleased, 2-slightly pleased, 3-moderately pleased, 4-very pleased
If you thought about going out and binge drinking (even if you don't currently do this), how aroused or "pumped up" would you feel?	1-very aroused, 2-moderately aroused, 3-slightly aroused, 4-not at all aroused	1- not at all aroused, 2-slightly aroused, 3-moderately aroused, 4-very aroused