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# Alcohol on College Campuses in North Dakota: Levels of Consumption, Gender, and Negative Consequences

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ALCOHOL ON COLLEGE CAMPUSES IN NORTH DAKOTA: LEVELS OF  
CONSUMPTION, GENDER, AND NEGATIVE CONSEQUENCES

by

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Bachelor of Science, University of Mary, 2002

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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

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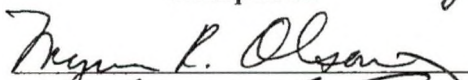
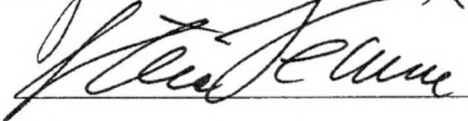
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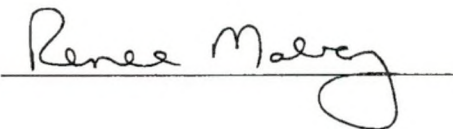
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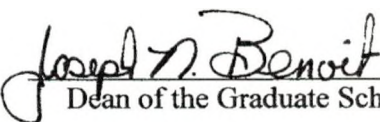
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This dissertation meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

  
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My initial motivation came from my children, David, Chaz, and Brock, who are my sweet angels from God. Please know that you three are the light of my life, my very soul. I need you to know that *you can* accomplish all that you desire, for in life the only boundaries are in your imagination.

Dedicated to my children:

David, Chaz, and Brock,

Everything I do, I do for you.

## ABSTRACT

It is common knowledge that many college students consume alcohol and/or binge drink. North Dakota colleges and universities are not immune to high levels of alcohol consumption, as they are among the leaders for binge drinking for people aged 18 to 25. Any number of reasons could explain this behavior, including new freedoms enjoyed by many 18 to 19-year olds; the aggressive marketing and glamorization of alcohol consumption by alcohol companies; and/or curiosity, rite of passage, peer pressure, or simply the desire to get drunk.

The purpose of this study was to investigate the relationships between levels of alcohol consumption by undergraduate students and grade level (freshmen, sophomores, juniors, or seniors), gender (male or female), grade point average, and the influences of parental expectations and rules. Additionally, levels of consumption and awareness of campus alcohol policies, enforcement of campus alcohol policies, awareness of prevention programs, place of residence (on or off campus), and suffering from negative consequences because of drinking were explored.

Results indicated that a majority of North Dakota undergraduate students continued to consume at high levels in spite of parental expectations and rules, suggesting that there is something about the overall campus environment that entices students to drink. There did not appear to be a relationship between consumption and students' awareness of campus alcohol policies or prevention programs; however, there appeared to be a relationship between consumption and the enforcement of campus policies, suggesting that the campus culture and environment could be contributing factors in student drinking.

The seriousness of alcohol consumption among college students cannot be understated. Results of the current study revealed that increased levels of alcohol consumption could cause negative consequences such as having a hangover, missing class, or doing poorly on an exam, which was not surprising. Additional findings indicated that more serious and potentially detrimental negative consequences such as damaging property, trouble with the police, arguing or fighting, and/or DUI are also possibilities after consuming large amounts of alcohol.

## CHAPTER I

### INTRODUCTION

#### Alcohol Consumption

##### *A National Perspective*

Whether it is a glass of wine with dinner or a cold beer on a hot summer's day, most Americans drink alcohol at least occasionally. It is common for alcohol to be available at a variety of functions including weddings, birthdays, and even funerals. Like many other activities, however, consumption of alcohol is best in moderation. Some people experience little difficulty with abstinence while others find it difficult, preferring to consume at higher levels. For instance, Hughes, Sathe, and Spagnola (2008) asserted that "alcohol is the most commonly abused substance in the United States" (p. 37).

According to Substance Abuse and Mental Health Services Administration (SAMHSA), approximately 126.8 million people, aged 12 or older, reported being current drinkers (2008). Binge drinkers, as stated by SAMHSA, consisted of 57.8 million people, aged 12 or older, which was comparable to a similar study conducted in 2006. Young adults aged 18 to 24 reported binge drinking at a rate of 41.8% and heavy drinking at a rate of 14.7%. Similarly, the Centers for Disease Control (CDC, 2007) reported that 65.8% of people aged 18 to 44 reported themselves as current drinkers. According to Johnston, O'Malley, Bachman, and Schulenberg (2008) and results from



the 2007 Monitoring the Future Study, 75.0% of those aged 21 to 22 reported themselves as current drinkers.

### *A Higher Education Perspective*

Countless drugs are consumed on college campuses but none with the frequency and high social tolerance as alcohol. Many students and administrators view college drinking as an expectation, part of the culture, and a “developmental rite of passage” (Presley, Meilman, & Leichliter, 2002, p. 83; Johnson, 2006, p. 1). For several years, college officials, administrators, and faculty believed that “if left alone, students would pass through these stages of alcohol involvement without great injury or harm” (Presley et al., 2002, p.83; supported by Jessor & Jessor, 1975). Consistent with this idea, Schulenberg and Maggs (2002) asserted that, while many students “experience negative consequences, most make it through their ‘prime drinking years’ with, in balance, more positive experiences with alcohol than negative ones” (p. 54).

Institutions of higher education (IHEs) have worked to inform and educate students, through prevention programs, on the hazards and effects of college drinking. For example, the American College Health Association developed a survey entitled *National College Health Assessment*, which was intended to investigate the “health needs and capacities of college students” as an attempt to create a healthy college campus (Hoban, 2007, p. 195). When asked about alcohol use, 40.5% reportedly consumed one to four drinks the last time they partied; 25.7% said they consumed five to eight drinks; and 12.3% admitted to the consumption of nine or more drinks the last time they partied (Hoban, 2007).

Alcohol challenges continue to plague IHEs, with many students participating in binge drinking in an average two-week period (Wechsler & Nelson, 2008). In the United States, college drinking is well documented with more than two-thirds (68.9%) of college students admitting to being current drinkers (Walters, 2004). The consumption that occurs on campus is massive with broad repercussions and according to Kapner (2003), “undermines the mission of higher education” (p. 2). Kapner (2003) further asserted that heavy drinking contributes to a “decline in grades, missing class, and falling behind in general” (p. 2). Consistent with this notion, Wechsler, Dowdall, Maenner, Gledhill-Hoyt, and Lee (1998) found that “frequent binge drinkers were eight or more times as likely to miss a class or fall behind in their schoolwork” (p. 63). Other consequences include but were not limited to, unintentional injuries to self or others, unsafe or unwanted sex (males and females), and criminal violations (Carson, Barling, & Turner, 2007; Dowdall & Wechsler, 2002; Parker & Auerhahn, 1998).

Secondhand effects of college drinking, defined as those negative consequences that occur because of someone else’s consumption, can be as serious as first-hand effects (Brower, 2008). For instance, more than three out of four students (78.8%) reported a minimum of one secondhand effect, according to Wechsler et al. (1998). Additionally, Wechsler and colleagues found that “60.6% of students had studying or sleep interrupted; 50.2% cared for a drunken student; and 28.6% were insulted or humiliated” (p. 63). Those institutions with higher levels of binge drinking tended to “experience more secondhand effects of alcohol use such as verbal, physical, sexual assaults, and property

damage than do students at schools where the rates are low” (Wechsler, Lee, Nelson, & Kuo, 2002b, p. 223).

Parker and Auerhahn (1998) found that “violent events are overwhelmingly more likely to be associated with the consumption of alcohol than any other substance” (p. 306). Whether students realize it or not, the effects of alcohol consumption and binge drinking on college campuses are far-reaching. Primary effects as a result of constant partying and binge drinking could leave a student with adverse health conditions, negative academic consequences, and “psychological, interpersonal, or behavioral consequences” (Dowdall & Wechsler, 2002, p. 15). Under the worst circumstances, students can be vulnerable to alcohol poisoning and/or death for themselves or someone they know.

Property damage on or near campus is an important element and secondhand effect of college drinking. For instance, Brower (2008) found that Madison, Wisconsin’s police department “allocates \$1.3 million each year toward the management of college student drinking-related problems” (p. 33). Similarly, Wechsler, Lee, Hall, Wagenaar, and Lee (2002a) reported a lowered quality of life for people living within one mile of a college or university, due to increased noise pollution, “vandalism, drunkenness, vomiting, and urination” which ultimately resulted in homes appraised at a lower socioeconomic level (p. 425).

It is clear that college drinking is a common and formidable problem in the United States, with more than two out of three students drinking (Borsari, Murphy, & Barnett 2007; Johnston, O’Malley, & Bachman, 2003). One primary reason does not appear to

explain the purpose behind college drinking; however, researchers tend to agree on a compilation of several potential reasons.

The overwhelming feeling of new freedoms and independence can cause incoming freshmen to choose unwisely regarding new friends and alcohol consumption. Another notion is that alcohol outlets repeatedly advertise sales on alcohol, which ultimately encourage consumption (Kuo, Wechsler, Greenberg, & Lee, 2003). Also, people who are over the legal drinking age frequently spend time with those who are under the legal drinking age. Students misperceive their peers alcohol use by taking for granted that they are drinking at higher rates than they actually are (Haines, 1996; Haines & Spear, 1996). A final notion is that adolescents and young adults drink out of “curiosity, enjoying the taste, rite of passage, peer pressure, to gain confidence, out of boredom, or simply to get drunk” (Johnson, 2006, p. 1).

Campus culture has changed tremendously over the years and students can “no longer be described as homogeneously as in years past” (Presley et al., 2002, p. 83; supported by Upcraft, 1999). At one time, only people of substantial wealth or those who received scholarships could afford to attend college; it was rare to see an African American or other minority person on campus (Presley et al., 2002). The traditional student now encompasses all people, including females, minorities, students with disabilities, single parents, grandparents, and/or those who switch careers mid-way through life (O’Malley & Johnston, 2002; Presley et al., 2002).

The relationship between consumption and the environment is “difficult to define because collegiality exists outside the traditional boundaries of the college campus”

(Presley et al., 2002, p. 83). Wechsler (2008) concluded that the “environment is the driving force that contributes to binge drinking on campus and those colleges with a drinking culture, few policies, and easily accessible alcohol, are most likely to have binge drinking” (p. 4).

### *A North Dakota Perspective*

The United States Census Bureau released its National and State population report at the end of 2008. Findings from this report as well as the North Dakota Department of Commerce found that North Dakota consists of roughly 641,481 people, which was an increase from 632,689 reported in 2003 (ND Department of Commerce, 2008). According to the North Dakota State Epidemiological Outcomes Workgroup (NDSEOW), this population concentration is 9.3 people per square mile as compared to the national population mass of 79.6 people per square mile. North Dakota holds 53 counties with 36 “designated as ‘frontier’ or fewer than six people per square mile” (NDSEOW, 2007, p. 5). The NDSEOW (2007) further reported that as of 2002, North Dakota had 373 incorporated communities with 51.0% containing fewer than 200 residents. The U.S. Census Bureau (2008) indicated that 91.6% of North Dakota’s population was white; American Indians accounted for 5.4% and African Americans reflected 1.0%. The remaining 2.0% consisted of people of Asian descent, Hispanic, persons reporting more than one race, and native Hawaiian.

Living in a state like North Dakota is something like a double-edged sword. First, its rural nature and smaller, close-knit communities provide a great place to raise a family. The low propensity for crime can give a false sense of security, as many people

believe it is okay to leave their doors and windows unlocked at night or during the middle of the afternoon. According to the State of North Dakota's Office of the Attorney General, Bureau of Criminal Investigations (NDOAG-BCI, 2008), there were 12,531 crime index offenses reported by local law enforcement agencies in 2007. Property crime represented the largest percentage of crime in North Dakota with 92.9% as compared to 75.1% national representation (USDOJ, 2006). In reference to violent crimes, North Dakota reported 7.1% in 2007, which paled in comparison to a national representation of 24.9% (USDOJ, 2006).

On the other hand, safe communities do not provide immunity from the challenges and effects of alcohol use. The North Dakota Department of Human Services, Division of Mental Health, and Substance Abuse Services administered a survey in 2008 entitled *ND Community Readiness Survey*. Its purpose was to gauge the alcohol-related perceptions and attitudes of North Dakota community members and key informants, who were defined as school counselors, family physicians, social workers, addiction counselors, prevention coordinators, and law enforcement.

Results indicated that 65.2% of community members believed that adult alcohol use was a mild to moderate problem in their community; 23.2% believed it was a serious problem; and 5.4% indicated it was not a problem. Key informants indicated that 58.0% believed that adult alcohol use was a mild to moderate problem in their community; 39.8% believed it was a serious problem; and just 0.5% indicated it was not a problem. Of interest is the large percentage difference in perception between community members, who believed that alcohol is a serious problem in their community (23.2%), and the

perception of key informants, who see daily the challenges of alcohol-related problems (39.8%).

Concerning alcohol use by minors, 45.3% of community members believed consumption was a mild to moderate problem while 41.3% believed it was a serious problem. More than half of key informants (62.2%) reported that alcohol use by youth was a serious problem, while 35.4% indicated that it was a mild to moderate problem in their community.

#### *A North Dakota Higher Education Perspective*

The Center for Science in the Public Interest (2008) suggested that students who began drinking in middle or high school were more likely to continue drinking alcohol in college. According to the CDC's *Youth Risk Behavior Survey* (YRBS, 2007), North Dakota has a battle on its hands. For example, North Dakota high school students, grades 9 to 12 indicated a 73.9% lifetime alcohol use compared to national findings of 75.0%. Equally as disturbing was the question pertaining to current alcohol use, with North Dakota students reporting 46.1% as compared to a national report of 44.7%. Regarding heavy drinking, North Dakota high school students accounted for 32.5% compared to a national account of 26.0%. Hughes et al. (2008) reported that North Dakota had the highest rate for underage binge drinking for those aged 12 to 20 with 28.5%.

As previously noted, those students who drank in high school are more likely to drink in college at the same or higher rates than those students who did not drink in high school. According to Hughes and colleagues (2008), North Dakota had the highest rates for binge drinking among those aged 18 to 25 with 56.5%. These numbers coincide with

the perceived risk of binge drinking where North Dakota was among the top seven states where those aged 12 or older believed that binge drinking was not risky (Hughes et al., 2008).

The North Dakota Higher Education Consortium for Substance Abuse Prevention (NDHECSAP) (Walton, 2005) administered the North Dakota Core (NDCORE) Alcohol and Drug Survey in 2003-2004 to a sample of enrolled undergraduate and graduate students at 11 institutions of higher education in North Dakota (Walton, 2005). Among other things, the survey evaluated the level of consumption as related to annual prevalence, 30-day prevalence, as well as North Dakota trends in college student drinking (Walton, 2005). To illustrate changes, a comparison to the 1994 NDCORE results was also included.

Findings indicated that 87.0% of those North Dakota students surveyed used alcohol at least one time in the year prior to completing the survey, compared to 89.1% in 1994. The national representation of annual prevalence was 84.5% (CORE, 2005), which was lower than North Dakota students' admission of alcohol use in the year prior to completing the survey. The 30-day findings indicated that 75.6% of North Dakota students used alcohol at least one time in the 30 days prior to completing the survey, compared to 75.8% in 1994. In a ten-year span, reported alcohol use among North Dakota college students essentially remained the same. Regarding the national 30-day prevalence, 72.0% of students admitted to using alcohol in the 30 days prior to completing the survey (CORE, 2005).



Levels of consumption indicated that 24.8% drank alcohol one time per week in 2003-2004 and 22.7% drank alcohol one time per week in 1994. Of those who consumed three times per week, results indicated 18.3% for 2003-2004 and 12.8% for 1994. Binge drinking among North Dakota undergraduate and graduate students for both surveys was very high as results indicated 54.8% in 2003-2004 and 44.1% for 1994.

#### Purpose of the Study

The purpose of this study was to examine the relationships between levels of consumption and grade level, gender, grade point average, and the influences of parental expectations and rules. Other reasons related to consumption included student awareness of campus alcohol policies, the enforcement of campus alcohol policies, campus prevention programs, place of residence, and suffering from negative consequences because of drinking.

#### Research Questions

The following research questions directed this study:

1. What were the overall levels of consumption for North Dakota undergraduate students according to grade level?
2. What was the relationship between levels of consumption by grade level according to gender?
3. What was the relationship between levels of consumption and grade point average?
4. What was the relationship between levels of consumption and the influence of parental expectations and rules?

5. What was the relationship between levels of consumption, awareness of campus alcohol policies, enforcement of campus alcohol policies, and awareness of campus prevention programs?
6. What was the relationship between levels of consumption and place of residence?
7. What was the relationship between levels of consumption and suffering from negative consequences because of drinking?

#### Significance of the Study

As previously noted, North Dakota ranks among the highest for underage drinking, college drinking, binge drinking, and the misperception that binge drinking is not risky. The magnitude of alcohol consumption in North Dakota cannot be understated, as these behaviors can be generational, which increases the risk for all.

This study may point toward the need for the development of prevention programs that are more resolute in deterring high school consumption, changing alcohol perceptions of all North Dakotans, and encouraging college communities to be included in the overall college environment as well as part of the solution to decrease college drinking.

#### Delimitations

This study included participants of the NDHECSAP and NDCORE Drug and Alcohol Survey, which consisted of enrolled undergraduate students at IHEs in North Dakota during the fall semester in 2006. The primary focus was on the drinking behaviors of traditional undergraduate students, aged 18 to 25. Those participants aged

26-years and older as well as those whose enrollment status was graduate or other, were not included.

### Assumptions

While participation in the NDCORE Alcohol and Drug Survey was strictly voluntary and because participant names were not required, the researcher assumed honest answers. The researcher also assumed that the survey instrument accurately reflected the participants' behaviors.

### Definitions

The following definitions assist in a thorough understanding of college drinking and its repercussions.

**Binge drinking:** Refers to the consumption of five or more alcoholic drinks in a row for men and four drinks in a row for women (Hughes et al., 2008; Wechsler & Nelson, 2008).

**Crime index offenses:** Refers to total criminal activity including murder/non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny/theft, and motor vehicle theft (NDOAG-BCI, 2008).

**Drink:** Defined as a can or bottle of beer, a glass of wine or a wine cooler, a shot of liquor, or a mixed drink with alcohol in it (Hughes et al., 2008).

**Lifetime alcohol use:** Refers to at least one drink of alcohol on at least one day during a person's life (grades 9 to 12) (YRBS, 2007).

**Previous (past) month alcohol use:** Refers to the consumption of at least one drink in the past 30 days (Hughes et al. 2008).

Primary effects: Refers to those negative consequences that occur because of personal consumption of alcohol (e.g., hangover, academic challenges, drinking and driving, or risky sexual behavior, among others) (Brower, 2008).

Property crime: Refers to burglary, larceny/theft, and motor vehicle theft (NDOAG-BCI, 2008).

Secondhand effects: Refers to those negative consequences that occur because of others' consumption of alcohol (e.g., having sleep or studying interrupted, taking care of the intoxicated person, being criticized, among others) (Brower, 2008).

Violent index crimes: Refers to such violent criminal activity as murder, rape, robbery, and aggravated assault (NDOAG-BCI, 2008).

### Summary

Chapter I included an introduction to the literature, purpose of the study, research questions, significance of the study, delimitations, assumptions, and relevant definitions. Chapter II is composed of a more in-depth investigation pertaining to current literature that highlights the following: underage drinking, transitioning from high school to college, parental influence, reasons why students drink, alcohol consumption on college campuses, characteristics and behaviors of college drinkers, and levels of consumption and gender. Chapter II also considers alcohol and maturity, levels of consumption and place of residence, prevention and intervention programs, and potential negative consequences of drinking.

## CHAPTER II

### REVIEW OF THE LITERATURE

The consumption of alcohol and binge drinking occurred on college campuses long before Straus and Bacon conducted their seminal research in 1953. Numerous investigations documenting the hazards and effects of college drinking have occurred since then, and undergraduate students continue to drink and drink heavily. For some people, binge drinking on college campuses “stereotypically characterizes the college student lifestyle and the adverse health and developmental consequences” (Carson et al., 2007, p. 31). For others, college drinking is a normal phase that emerging adults pass through (Arnett, 2000), but eventually stop as adult responsibilities such as new careers, marriage, and parenthood become a reality (White, Fleming, Kim, Catalano, & McMorris, 2008). While longitudinal studies are rare, those who do not mature out of heavy drinking tend to have serious drinking-related problems over their lives (Chilcoat & Breslau, 1996).

This chapter offers a review of the literature as it pertained to underage drinking, transitioning from high school to college, parental influence, and insight as to why students drink. Other explored areas included college drinking, characteristics and behaviors of college drinkers, as well as differences in levels of consumption between males and females. The conclusion of the literature

review covers alcohol and maturity, potential negative consequences of drinking, levels of consumption and place of residence, and prevention and intervention programs.

### Underage Drinking

The minimum legal drinking age (MLDA) in all 50 states and the District of Columbia is 21; however, the mean age at which people begin drinking is approximately 15.6 years (USDOJ, 2008; SAMHSA, 2007). According to the CDC and *Youth Risk Behavior Survey* (CDC, 2008; YRBS, 2007), 27.4% of males and 20.0% of females took their first drink (other than a few sips) prior to the age of 13.

Many potential problems can accompany underage drinking, such as school problems (higher absence rate and/or poor grades), social problems, legal problems, as well as physical problems like hangovers and/or other illnesses. Additional consequences might include memory problems, inappropriate sexual activity, delay of normal growth and sexual development, suicide or homicide, alcohol-related car crashes, and/or other unintentional injuries to self or others (CDC, 2008).

As previously stated, 126.8 million people, aged 12 or older, reported being current drinkers in 2007 and roughly 57.8 million of those reported being binge drinkers (SAMHSA, 2008). For those underage drinkers, aged 12 to 20, more than half (53.4%) drank at someone else's home, and 30.3% drank in their own home (SAMHSA-NSDUH Report, August 2008). Specifically, those 13, 14,

and 20-year olds tended to drink in their own homes and 16 to 17-year olds were more likely to drink in someone else's home.

The 13 to 15 age can be a time when students receive more freedoms, based on trust by parents, but it can be a time of great peer influence as well. Those aged 16 to 17 years tend to have additional leniencies, such as a driver's license and a later curfew. It makes sense that students in this age group are more likely to drink at someone else's home because they are mobile. People aged 18 to 20 and living with parents reported having drunk in someone else's home instead of their own home. However, those who were not living with parents indicated that 42.9% drank in their own home as compared to 43.1% who drank in someone else's home (SAMHSA-NSDUH Report, August 2008).

The accessibility of alcohol was relatively easy, with approximately 30.6% of those aged 12 to 20 paying for the most recent alcohol they consumed, indicating that someone 21 or older agreed to purchase the alcohol on their behalf (SAMHSA-NSDUH Report, November 2008). Of those in the same age group, 69.4% drank free of charge; 26.4% received alcohol from a non-relative; and 14.6% received the alcohol from another underage person. Moreover, 5.9% received alcohol from a parent or guardian; 8.5% received alcohol from a relative aged 21 or older; and 3.9% took the alcohol from home without asking (SAMHSA-NSDUH Report, November 2008).

Underage alcohol consumption ranks among the highest of public health concerns in the United States and is a "major contributor to morbidity and

mortality in adolescents and young adults” (Wechsler, Kuo, Lee, Dowdall, 2000, p. 24). In a study centered on environmental factors, Wechsler et al. (2000) reported that underage students drank less often but consumed at higher rates per sitting and tended to drink off-campus, in a dormitory, and/or fraternity parties. Contributing factors to underage consumption included living in a fraternity or sorority, easy access to alcohol, and inexpensive drinks such as beer.

Wechsler et al. (2002b) reported in their underage college student drinking investigation that residential living arrangements played a significant role in the tendency to consume. For instance, those students who lived in a controlled setting such as a substance-free, on-campus residence hall, or off-campus with parents were less likely to binge drink. On the other hand, students who resided in a non-substance-free residence hall, off-campus without parents, or in a fraternity or sorority were more likely to binge drink.

#### Transitioning from High School to College

For a student making the transition from high school to college, the change can mean independence (Schulenberg & Maggs, 2002). No longer answering directly to parents, this can be an exhilarating yet emotional and unstable period because many are unsure of their future. Some may be nervous about leaving home for the first time, moving into a dormitory or campus apartment, possibly living with a roommate, and making new friends. Others may be anxious about registering for coursework, navigating campus, and taking classes from potentially intimidating college professors. Still others may be



overwhelmed when they read a lengthy syllabus for the first time. All of these are factors that can cause the initial college experience to be extremely angst-ridden. Quite often, a stable and secure high school and familial base is not enough to ward off the anxiety of stepping foot on a college campus for the first time.

Intended to be a stage of development and growth, the college years should be a time for young adults to find confidence and self-assurance in society. Students can develop a point-of-view that is separate from peers or influences and opinions of parents. When nurtured, the collegiate experience can contribute toward the development of independence and allow the cultivation of autonomy and positive self-esteem.

While most young adults relish their newfound autonomy, many of those same people do not understand that along with adulthood comes responsibility and making smart choices. Determining a major, enrolling in the right classes, and deciding whether to have a job are vital to graduating in a timely manner and moving on with life. Perhaps a more important challenge, however, is choosing friends and a social life that is conducive to a positive college experience.

Arnett (2005) described “emerging adulthood” as a phase separate from adolescence or adulthood, somewhere between 18 and 25; it is a “feeling of in-between, on the way to adulthood but not quite there” (p. 245). Research participants indicated that “intangible criteria, such as accepting responsibility for one’s self and making independent decisions” were markers of having reached adulthood compared to “more tangible responses such as finishing education,

marriage, and/or parenthood” (p. 245). Arnett (2005) further asserted that in recent years emerging adults have chosen to extend their education and training, thereby prolonging independence and freedoms enjoyed by many young adults. This is not to say that they do not want marriage and children; on the contrary, most intend to fulfill this goal in the future. They are merely recognizing the importance of thinking and caring for themselves prior to taking on additional responsibilities (Arnett, 2005).

The first year of college can be an exciting time for students to experiment with not only new ideas, but also new thrills that include alcohol (Walters, 2004). Exciting as it is, adolescents can be susceptible to a multitude of negative consequences. Kypri, McCarthy, Coe, and Brown (2004) found that substance use increased during the transition to college due to vulnerability, influences of society, and a decline in parental control. According to Talbott, Umstatted, Usdan, Martin, and Geiger (2009), students “transitioning from high school to college are at an increased risk for consuming greater amounts of alcohol and are subject to subsequent alcohol-related problems” (p. 471).

Many first-year college students experience a higher rate of risky behavior that includes alcohol consumption and binge drinking. Talbott, Martin, Usdan, Leeper, Umstatted, Cremeens, and Geiger (2008) reported that first semester college freshmen consumed an average of 5.26 drinks weekly (7.39 for men; 3.86 for women) and heavy drinkers consumed 9.0 drinks. It is vital that students adjust to new social settings, living arrangements, and academic requirements, as

the initial six weeks of the first year often dictate retention rates with one of every three first-year college student withdrawing by the end of second term (Talbot et al., 2008).

When investigating the transition into adulthood, White et al. (2008) studied levels of consumption and the influences of pro-alcohol peers and involvement in social activities such as religious participation and volunteer work. Results indicated that higher levels of consumption in the spring of 12<sup>th</sup> grade were indicative of stronger pro-alcohol peer influences upon arriving on college campus in the fall. A relationship between social involvement and post-high school drinking occurred primarily among those living away from home.

#### Parental Influence

Many parents attempt to control their children's alcohol consumption through regulation, monitoring, or tracking behaviors (Wetherill & Fromme, 2007). Research has suggested that strong parental influence affects the level of college drinking for many students (Borsari et al., 2007; White, McMorris, Catalano, Fleming, Haggerty, & Abbott, 2006). For example, the relative strength of a parental bond at college entrance negatively or positively affects consumption. A close father-son relationship is often negatively associated with drinking, while an implied approval of drinking by the mother results in higher negative consequences related to drinking (Borsari et al., 2007; Boyle & Boekeloo, 2006).

Bahr, Hoffmann, and Yang (2005) reported that parental attitudes and sibling use could indicate higher levels of consumption. For example, adolescents whose parents possess a high tolerance for alcohol use are 80.0% more likely to consume; those with a sibling who consumes are 71.0% more likely to consume. Additionally, Bahr and colleagues found that peer alcohol use is the strongest predictor of alcohol consumption among adolescents, suggesting that, “as the number of close friends who drink increases, the risk of binge drinking almost doubles” (p. 543).

Wetherill and Fromme (2007) studied participants in their last three months of high school as well as in their first semester at college. Those students who perceived that their parents were aware and cared about their levels of consumption tended to consume less alcohol overall as compared to those who believed parents were unaware of, or were not concerned about, their drinking behavior. Consistent with this idea, Abar and Turrisi (2008) utilized friend alcohol use as a mediator and found that parents who were close to their children were influential in friend selection while their children attended college and that students tended to choose friends who were low alcohol consumers.

### Why Students Drink

Any combination of reasons and/or attitudes might explain why students begin drinking. For instance, students who had little independence while living with parents could be overwhelmed by the lack of parental control and new freedoms upon entering college. The notion that people over the legal drinking

age frequently spend time with those under the legal drinking age could be another reason, in addition to the idea that alcohol companies repeatedly market to the average college-age student, aged 18 to 24 (Kuo et al., 2003). Students also tend to misperceive the amount of alcohol consumed by their peers, as perception is typically far greater than actual consumption (Haines, 1996; Haines & Spear, 1996). Finally, adolescents and young adults might begin drinking out of “curiosity, enjoying the taste, rite of passage, peer pressure, to gain confidence, out of boredom, or simply to get drunk” (Johnson, 2006, p. 1).

Borsari et al. (2007) identified other potential reasons including “coping (relieve stress), alcohol expectancies (beliefs about effects of use), drinking motives (reasons for drinking), perceived norms (descriptive and injunctive norms), Greek membership (consistent association with heavy drinking), and drinking game participation (a means to quickly become intoxicated)” (p. 2,067). Borsari and colleagues further suggested that these mediators do not occur in a vacuum. Rather, they exist as part of a culture that encourages the use of alcohol at functions such as alumni-related gatherings, sporting events, and other social activities (Borsari et al., 2007; Rimal & Real, 2005).

Brower (2008) studied reasons for drinking among those who live on campus (living-learning) as compared to those who live off campus (non-living-learning) and found that the two most common reasons for consumption was to “celebrate a special occasion and because the alcohol was free or cheap” (p. 40). Drinking to get drunk emerged as the third most common reason, and to feel more

comfortable having sex was at the bottom of the list. As suspected, social situations were a bit intimidating for first-year students with one-third reportedly consuming alcohol to feel more comfortable in social circumstances and another 30.0% drank because everyone else did.

Kuo et al. (2003) studied the “alcohol environment surrounding college campuses” as related to students’ level of consumption and found that “alcohol specials, promotions, and advertisements were prevalent in alcohol outlets around college campuses” (p. 204). Consistent with these findings, Wechsler and Nelson (2008) reported that “...the environment, such as residential setting, low price, and high density of alcohol outlets, as well as the prevailing drinking rates on campus, are significantly related to the initiation of binge drinking in college” (p. 486).

Read, Wood, and Capone (2005) suggested that both active social influences and passive influences affect college drinking. Active social influences are those environmental factors that sway consumption one way or another. The overt offer of alcohol indicates a favorable atmosphere to drinking as opposed to no offer of alcohol (Read et al., 2005). Passive influences refer to the observing and “interpretation of drinking patterns of others as reinforcement of personal drinking and then altering behaviors in accordance” (p. 24). Defined as social modeling, this type of passive influence intensifies for undergraduate freshmen in particular (Read et al., 2005).

## Alcohol Consumption on College Campuses

Initially designed to provide a nationally representative picture of college student alcohol use, the “Harvard School of Public Health College Alcohol Study (CAS) began in 1992 and ended 14 years, four national surveys, and more than 80 publications later” (Wechsler & Nelson, 2008, p. 481). The primary goal was to investigate the types of drinking as well as subsequent negative consequences that occurred because of drinking (Wechsler & Nelson, 2008).

Researchers utilized binge drinking as the primary measure, which was defined as “the consumption of five or more drinks in a row for men and four or more drinks for women on one or more occasions during the two week period immediately before the survey” (Wechsler & Nelson, 2008, p. 481). Other measurements included alcohol in the past year; frequency of binge drinking; number of drinking occasions in the past 30 days; number of drunken occasions in the past 30 days; and the usual number of drinks on a drinking occasion. In each of the four surveys, the measures emerged as inter-related (Wechsler & Nelson, 2008).

Wechsler and Nelson (2008) found that few changes occurred in the rate of college student drinking between 1993 and 2001. While the rate of binge drinking remained stable at 44.0% between 1993 and 2001, there were increases in the number of abstainers. Researchers also noted that binge drinkers consumed 91.0% of all alcohol, and 68.0% of alcohol was consumed by frequent binge

drinkers. Moreover, one in four (23.0%) drank 10 or more times in a month, and three in 10 (29.0%) reported being intoxicated three or more times in a month.

The Core Alcohol and Drug Survey (CORE, 2005) assesses alcohol and drug use on college campuses across the United States. Data collected in 2005, from 33,379 undergraduate students encompassing 53 colleges and universities, indicated that 84.5% of students consumed alcohol in the year prior to taking the survey, and 72.8% consumed in the previous 30 days. The average number of drinks consumed per week by freshmen was 5.3; sophomores consumed an average of 5.5 drinks; juniors consumed an average of 6.2 drinks; and seniors consumed an average of 6.8 drinks per week. Correspondingly, 22.5% of freshmen, 23.4% of sophomores, 27.3% of juniors, and 31.3% of seniors reported being frequent binge drinkers. Regarding male and female level of consumption, 31.2% of males defined themselves as heavy drinkers, while 30.0% of females defined themselves as heavy drinkers. Male undergraduate, frequent heavy drinkers indicated 32.0% and female undergraduate, frequent heavy drinkers indicated 20.4%.

Various studies on the characteristics of college drinkers indicated that men tend to out-drink women (O'Malley & Johnston, 2002; Presley et al., 2002; Rhoads & Maggs, 2006; Wechsler et al., 2000). Wechsler and colleagues (2000) reported that Caucasian students were more likely to binge drink as compared to African-American or Asian students. Similarly, students attending IHEs in the West or South were less likely to binge drink as compared to students in the



Northeast. Additionally, involvement with Greek affiliation, involvement with athletics, and type of institution (two- or four-year) factored into consumption rates (Wechsler et al., 2000). For instance, athletes who were members of a fraternity or sorority tended to consume greater amounts of alcohol, primarily because of perceptions and expectations regarding drinking. Moreover, students who attended two-year IHE tended to consume more alcohol as compared to students attending four-year institutions (Presley et al., 2002).

Results of the 14-year long Harvard University College Alcohol Study found that living arrangements served as an important factor in the determination of consumption rates. For example, students living at home with parents tended to consume less while students living on campus in housing designated as substance free, had the lowest levels of consumption (Wechsler & Nelson, 2008). Wechsler and Nelson (2008) further indicated that, “students living off campus away from their parents and students living in fraternity or sorority houses had the highest rates of binge drinking” (p. 486). In addition, off-campus heavy drinking was “associated with disruptive behavior and with becoming a victim of an altercation” (p. 486).

The college campus environment can be defined as the area within one mile of the physical campus (Wechsler et al., 2002a). Several researchers found that the overall environment played a significant role in consumption rates (O’Malley & Johnston, 2002; Presley et al., 2002; Rhoads & Maggs, 2006; Wechsler et al., 2000; Wechsler & Nelson, 2008). For example, low or

promotional pricing, easy access, social settings, and density of alcohol outlets in relation to campus all contributed to binge drinking in college students (Presley et al., 2002; Wechsler & Nelson, 2008).

#### Alcohol Consumption on College Campuses in North Dakota

The North Dakota Higher Education Consortium for Substance Abuse Prevention (Walton, NDHECSAP, 2007) administered its North Dakota Alcohol and Drug (NDCORE) survey in the fall of 2006 to 11 institutions of higher education (IHEs) in North Dakota. Results indicated a 97.6% response rate that included 46.7% freshmen, 27.1% sophomore, 14.9% juniors, and 9.9% seniors. Age of respondents was reported as 18-years old (30.0%), 19-years old (25.3%), 20-years old (16.2%), 21-years old (10.3%), 22-years old (5.3%), 23-years old (2.5%), and 24-years old (1.9%). The majority of respondents were White (90.4%), Black (2.3%), and American Indian 2.2%. Other demographic information included gender (48.1% male and 51.9% female) and student residence (46.8% on-campus and 53.2% off-campus). The bulk of participants reported living in a house or apartment (55.2%), residence hall (41.8%), or fraternity/sorority (1.6%).

Responding to a 30-day drinking prevalence survey, participants reported that 73.2% consumed in the previous 30-days. Reported levels of consumption indicated that 21.7% consumed one to two times in the previous 30 days, while 21.1% consumed three to five times. Additionally, 14.9% drank six to nine times;

12.2% drank 10 to 19 times; and 2.5% admitted to consuming alcohol 20 to 29 times over the previous 30 days.

Regarding perceptions, 91.4% believed that their peers drank one or more times per week. Findings suggested that 3.7% believed the average student consumed twice per month while 27.2% believed their peers drank an average of once per week. Furthermore, 40.8% believed that their peers drank an average of three times per week; 13.4% believed that their counterpart drank five times per week; and 10.0% believed that the average North Dakota college student consumed alcohol every day. Self-reported consumption rates indicated that 35.5% did not consume during a normal academic week and 10.4% reported consuming one drink during a normal academic week. Heavy drinkers and every day drinkers indicated that 3.3% consumed 15 or more drinks during an average week, while an additional 3.3% admitted to the consumption of 20 or more drinks during a normal academic week.

Troublesome as it is, the self-reported rate of binge drinking revealed that 52.7% of students participated in binge drinking within two weeks of participating in the survey. Specifically, 47.3% reported not binge drinking, while 15.7% reported binge drinking one time. Moreover, 13.5% reported binge drinking two times; 15.7% admitted to binge drinking three to five times; 4.9% admitted to binge drinking six to nine times; and 2.9% of North Dakota undergraduate students admitted to binge drinking 10 or more times within two weeks of participating in the survey. Students' opinion about the availability of alcohol

revealed that 70.1% preferred alcohol to be available at parties they attended, while 29.9% indicated that they preferred not to have alcohol available.

#### Male and Female Levels of Consumption and Drinking Characteristics

Research suggested that males tend to consume more alcohol than females and are more likely to binge drink as compared to females (Borsari et al., 2007; O'Malley & Johnston, 2002). Findings of the SAMHSA-NSDUH (August, 2007) report indicated that “rates of alcohol use and alcohol dependence or abuse are higher among males as compared to females [sic] and males account for more treatment admissions for alcohol abuse than do females” (p. 1).

The idea of men being heavier consumers of alcohol than women may soon be outdated. When asked about their age of first use, 27.0% of women and 25.0% of men reported age 14 to 15 as the time of first use. Ages of first use remained the same among females and males through entrance to college, with 29.0% of women and 30.0% of men reporting 16 to 17 years as the time of first use. At 18 to 20 years of age, 17.0% of women and 17.0% of men reportedly took their first drink and 21 to 25 year olds indicated that 2.0% of women as well as 2.0% of men consumed for the first time (NDHESCAP, Walton, 2007).

The NDHESCAP study (Walton, 2007) reported that 17.0% of females and 15.0% of males reported binge drinking one time in the two weeks prior to participating in the study. Furthermore, 12.0% of females and 14.0% of males reported binge drinking two times, while 13.0% of females and 19.0% of males admitted to binge drinking three to five times in the two weeks prior to the survey.

Among heavier drinkers, 2.0% of females and 8.0% of males admitted to binge drinking 6-9 times in the two weeks prior to participating in the study. Overall findings suggested that women's ability to consume alcohol at the same level as men has increased; however, the ability to maintain drinking levels tended to decrease toward the end of the two-week period.

Young, Morales, McCabe, Boyd, and D'Arcy (2004) suggested in their research that women's inclination to "drink like a guy" lies in the perceived notion that the ability to do so provides a feeling of equality and proves their "(hetero) sexuality" (p. 239). The authors further asserted that, while male peers might view behavior as favorable or even impressive, such activity often leaves females "vulnerable to sexual assault and alcohol-related health problems" (p. 239).

While some females consumed more alcohol, which led to receiving positive attention from men (Young et al., 2004), they also experienced "fewer adverse effects, were less likely to miss a class, less likely to get into trouble with law enforcement, and less likely to overdose due to alcohol" (Piane & Safer, 2008, p. 67). This information is inconsistent with the NDHESCAP (Walton, 2007) study, which asserted that women tended to experience as many negative consequences as men.

Studies involving male drinking habits found that men tended to feel more socially connected when drinking as compared to women, which contributed to overall social satisfaction and sense of belonging (Murphy, Hoyne, Colby, &

Borsari, 2006; Murphy, McDevitt-Murphy, & Barnett, 2005). For example, Murphy et al. (2006) found that men often develop “drinking buddies” with whom drinking is a major factor of the socialization process. Part of this process includes the nurturing of relationships, through alcohol consumption, with men appearing to “receive significantly more types of support” (e.g., emotional and problem solving) than do women (Murphy et al., 2006, p. 116).

Alcohol seems to break down barriers for some men, as many are reserved, hesitant, and reluctant to self-disclose in same sex friendships. On the contrary, Murphy and colleagues (2006) reported that alcohol had no effect on women’s intimate relationships; rather, women tended to have closer relationships with both males and females in general.

#### Alcohol Consumption and Maturity

Various studies reported that alcohol consumption among college students tended to decline post-college, as adult responsibilities such as marriage, parenthood, and new careers develop (Presley et al., 2002; supported by Jessor & Jessor, 1975; Schulenberg & Maggs, 2002). Consistent with this premise, Colby, Colby, and Raymond (2009) found that participants characterized alcohol consumption in college as permissible because the years after college would be difficult, even “burdensome and tedious” (p. 17). Additionally, those surveyed indicated that drinking post-college would be irresponsible due to familial and career obligations.

Campbell and Demb (2008) examined the characteristics of college drinkers who matured out as compared to those who continued to drink heavily after college. Findings indicated that 78.9% of high-risk drinkers matured out while 21.1% did not but rather, continued drinking excessively. The authors noted that family history of alcoholism could be an explanation, as those who did not have a history were more likely to mature out compared to those whose families had a history of alcoholism.

In a follow-up study, Demb and Cambell (2009) reported that the utilization of a developmental lens could contribute to the knowledge of college high-risk drinkers who mature out as compared to those who continue to drink, which is consistent with the work of Schulenberg and Maggs, 2002. For example, those participants who matured out of college high-risk drinking tended to develop more appropriate alcohol consumption skills over time, whereas those who continued to display high-risk behaviors tended to consume at greater levels all four years of college and beyond. Those who defined themselves as adult high-risk drinkers tended to use alcohol for self-confidence and social coping (Demb & Campbell, 2009).

Chilcoat and Breslau (1996) investigated whether adult roles such as marriage and parenthood influence rates of alcohol consumption. Results of the longitudinal study demonstrated that alcohol disorder symptoms increased for those who did not marry as well as for those who divorced. Becoming new parents appeared to lessen the likelihood of developing an alcohol disorder as

well. Simply put, stepping into adult roles such as parenthood and marriage tended to have a positive effect and reduced the likelihood of developing an alcohol disorder (Chilcoat & Breslau, 1996).

### Negative Consequences of Alcohol Consumption

The number of potential negative consequences related to alcohol consumption on college campuses is staggering. Repercussions range from physical consequences, driving under the influence (DUI), injuries, and/or death. According to Wechsler and associates (2002a), binge drinking or high-risk drinking is responsible for other negative consequences, including “academic challenges, antisocial behavior, health and psychosocial problems, high-risk sexual behaviors, as well as drinking and driving” (p. 223). Regarding the primary effects of drinking, the NDHECSAP study (Walton, 2007) reported that in the year prior to participating in the survey, 40.9% experienced a hangover more than once. Additionally, 10.4% drove under the influence more than one time, while 4.2% admitted to being arrested one time for driving under the influence.

Wechsler and Nelson (2008) asserted that heavy consumption of alcohol negatively influences many areas of the college student’s life, and includes but is not limited to, academic performance, social relationships, increased risky behaviors, and adverse health conditions. Binge drinking can also lead to unplanned sexual activity and/or failure to take the appropriate safety measures during sex, which often results in unplanned pregnancies and/or sexually transmitted diseases (Wechsler & Nelson, 2008).



Brower (2008) found that students who reside in a living-learning community (residence hall) tended to experience fewer alcohol-related primary effects as compared to students who do not reside in a living-learning community (i.e., off campus). According to the investigation, 55.5% of non-living-learning students experienced a hangover as compared to 47.5% of living-learning students. Regarding academic performance, 30.2% of non-living-learning students missed or performed poorly in class as compared to 24.1% of living-learning students. In all, students who resided in living-learning communities experienced fewer academic problems, fewer social problems, fewer personal health problems (e.g., passing out, hangovers, having unprotected sex), and were less likely to be ashamed of their behavior (Brower, 2008).

The scope of primary effects on college drinking is profound. For instance, Hingson, Heeren, Winter, and Wechsler (2005) reported that between 1998 and 2001, there was a 6.0% increase in alcohol-related deaths among college students. This information translates to approximately 1,600 alcohol-related deaths in 1998 to more than 1,700 (primarily traffic accidents) in 2001. Approximately 2.8 million, an increase from 1998, drove under the influence in 2001. Other primary effects included unprotected sex, which accounted for almost 500,000 and of those, 100,000 were too intoxicated to know whether they consented. Roughly 700,000 college students were reportedly assaulted by another college student, and approximately 97,000 students experienced sexual

assault or date rape in 2001 (Hingson et al., 2005). While these data sound excessive, Hingson and colleagues suspected that the numbers are low.

### *Secondhand Effects*

Wechsler et al. (2002a) compared an IHEs level of binge drinking, number of alcohol outlets, and secondhand effects experienced by neighborhoods within one mile of an institution. Results indicated that IHEs with high levels of consumption had more alcohol outlets near campus and thus, neighborhoods experienced higher levels of secondhand effects such as noise and other disturbances. Residents were also more likely to experience a lowered quality of life in addition to lowered appraised value on homes. On the other hand, IHEs with lowered levels of binge drinking experienced lowered levels of alcohol outlets and secondhand effects.

Brower (2008) reported that non-living-learning students experienced higher levels of secondhand effects as compared to those students residing in living-learning communities. For example, non-living-learning students reported that 23.6% had been harassed, insulted, or humiliated as compared to 21.1% of living-learning residents. In addition, 55.1% of non-living students reportedly “baby-sat” someone who was drunk as compared to 50.7% of living-learning residents (p. 44). Regarding unwanted sexual advances, 20.7% of non-living learning students compared to 18.3% of living-learning students indicated such behavior. Other secondhand effects, across the board, reported similar results suggesting that on-campus residential environments with on-site mentors and

responsible adults might help to lower the rate of negative consequences as related to alcohol consumption (Borsari et al., 2007).

The NDHECSAP study (Walton, 2007) indicated that North Dakota students suffered from secondhand effects as well. Negative consequences such as being criticized (22.3%), fighting or arguing (34.8%), doing something they later regretted (28.7%), and experiencing a memory loss (39.3%) were indicative of alcohol-related repercussions suffered as a result of others' drinking.

#### *Academic Performance*

Maintaining a good grade point average is vital to remaining in college and graduating with a college degree. An important element in the maintenance of a good grade point is not only studying and meeting the requirements of college professors, but also making smart choices involving alcohol consumption.

Logic would tell us that heavy drinking negatively influences academic performance in college. Wolaver (2002) studied college drinking, study hours, grade point average, and choice of major and found that overall grade point average declined due to increased hours spent partying and a decrease in hours studying. The author further asserted that students who are drinkers were more likely to choose business as a major compared to engineering.

Crosnoe and Riegle-Crumb (2007) worked from a life course perspective while studying academic achievement and drinking. Findings indicated that those who enrolled in more challenging courses, and whose high schools expected high levels of academic achievement, tended to consume less alcohol in high school.

On college campus, however, those levels tended to increase. Similarly, Rhoads and Maggs (2006) studied recent high school graduates' intentions to drink upon arriving on campus and reported that those students who valued academic goals planned to consume less during the first year of college as compared to those who did not value academic goals.

Paschall and Freisthler (2003) examined the effects of heavy college drinking on academic performance and found no association between consumption and grade point average, which was inconsistent with the NDHECSAP investigation (Walton, 2007). Results of the NDHECSAP study indicated that 54.6% of drinkers and heavy drinkers maintained an A average; 63.0% maintained a B average; and 71.6% maintained a C average, suggesting that higher levels of consumption may lead to a lowered grade point average.

### *Violence*

The association between alcohol consumption and aggression or violence is not new (Chilcoat & Breslau, 1996). Borders, Smucker-Barnwell, and Earleywine (2007) studied consumption as it relates to alcohol-related aggression. Borders and colleagues defined alcohol expectancies as a "drinker's learned beliefs regarding the effects of alcohol" and found that "alcohol-aggression expectancies and quantity of alcohol interacted to predict alcohol-related hostility and aggression" (p. 327). Regarding gender, Borders et al. (2007) reported that women were more likely to report aggression as compared to men.

Tremblay, Mihic, Graham, and Jelley (2007) investigated the relationship between drinking alcohol and aggression as a response to provocation. Findings indicated that intoxicated individuals tended to respond to provocation more assertively and aggressively than those who perceived themselves as sober. Similarly, Giancola (2002) studied alcohol-related aggression and college students and reported that indeed, the “consumption of alcohol facilitates aggressive behavior and increases the risk of being the victim of a violent act, particularly in heavy drinkers” (p. 129).

The NDHECSAP study (Walton, 2007) posed questions related to violence and found that 1.7% of college students received a citation for violence while 35.9% indicated that friends received a citation for violence. With regard to disorderly conduct, 2.6% of students indicated that they received a citation, while 46.6% indicated that someone they know received a citation for disorderly conduct.

#### *Unwanted Sexual Activity*

Unwanted sexual activity for both males and females is an unfortunate and all-too-common consequence of binge drinking. Regarding such behavior, the perpetrator is typically assumed to be male, and the victim is assumed to be female (Larimer, Lydum, Anderson, & Turner, 1999). Larimer et al. (1999) investigated prevalence of alcohol consumption and unwanted sexual activity for both males and females. Findings indicated that “men were as likely to report being the recipients of sexual coercion as were women” (p. 295). Specifically,

20.7% of men and 27.5% of women reported being recipients of one or more types of unwanted sexual contact; and 10.3% of men and 5.3% of women admitted being the instigator of unwanted sexual activity. Both males and females, “who were recipients of unwanted sexual activity, indicated high levels of drinking as well as more alcohol-related problems than those who had not had these experiences” (p. 305). Additionally, men were more likely to claim feelings of depression after such an encounter as compared to women.

Klein, Geaghan, and MacDonald (2007) investigated risk perceptions as related to alcohol consumption and unplanned sexual activity. Administration of the survey took place during the middle of the academic year and again four months later. The initial survey asked students to “estimate their risk of unplanned sex and alcohol consumption during the previous term” (p. 317). The second questionnaire asked students to report level of consumption and to indicate whether they had engaged in unplanned sex since the initial survey. Results indicated that indeed, students who consumed greater amounts of alcohol were aware of their increased risk of unplanned sexual activity but they were not motivated to change behaviors, as indicated by the follow-up questionnaire. While the authors acknowledged that “dispositional optimism” was unrelated to consumption, they asserted that students appeared to underestimate personal risk (p. 321).

Regarding the NDHECSAP study (Walton, 2007), approximately 4.0% admitted taking advantage of someone sexually one or more times, while 12.5%

believed they had been taken advantage of sexually one or more times. Reported differences between males and females were equally as profound. For instance, 9.0% of females perceived themselves as taken advantage of sexually one time, while just 2.0% of males admitted to taking advantage of someone sexually one time. Conversely, 2.0% of women said they took advantage of someone sexually one time, while 5.0% of men perceived themselves as taken advantage of sexually one time. Although this study did not clarify the circumstances under which such behavior took place, it does suggest that the perception of taking advantage of another sexually and believing themselves to have been taken advantage of is worthy of further research.

Oswalt, Cameron, and Koob (2005) studied sexual regret in college students and found that an overwhelming majority (71.9%) regretted their sexual behavior at least one time. Participants of the study indicated that regret stemmed from moral conflict (37.0%), alcohol-related decision (31.7%), differing intentions for a relationship (27.9%), lack of condom use (25.5%), feeling pressure to have sex (23%), and a desire to wait until marriage (15.4%). Both males and females admitted regret in the number of sexual partners that they had had.

## Living-Learning Programs

Longerbeam, Kurotsuchi-Inkelas, and Brower (2007) examined the overall effects of student housing and found that students who maintain residences in student dormitories or those instances where adults are present, tended to have a more positive experience as compared to those who do not. Especially in “psychosocial development, the enhancement of values development, tolerance, empathy, and positive self-esteem” were reportedly increased (p. 20). The authors also reported that those students who live in living-learning residences but do not participate in programs still benefit from the overall environment. Occupants described their residence hall as “more socially supportive and having a greater number of positive diversity interactions” (p. 26). Consistent with this idea, Bosari et al. (2007) suggested that “professional live-in residence hall staff members who have master’s degrees in college student development or higher education administration” could help in curbing alcohol consumption through “positive modeling and guidance” (p. 2,077).

Regarding living arrangements, participants of the NDHECSAP investigation (Walton, 2007) reported that 46.8% resided on-campus (e.g., residence hall) and 53.2% resided off-campus (e.g., house or apartment). The majority indicated that they lived with a roommate (56.7%); 15.8% said that they lived alone; 12.8% said that they lived with parents; 4.6% indicated that they lived with a spouse; and 4.7% said that they lived with children.



Brower (2008) studied the influence of living-learning programs on students' alcohol consumption and found that "those who lived in living-learning communities drank considerably less and suffered fewer consequences from their own and others' drinking" (p. 33). Additionally, Brower asserted that what works to decrease alcohol consumption rates on campus are "programs that create policies that set clear expectations for acceptable drinking limits and behaviors, coupled with the force of law to enforce these expectations" (p. 47).

#### Prevention and Intervention Programs

Borsari et al. (2007) suggested a set of moderators designed to "identify those students who are at the greatest risk for alcohol-related problems" (p. 2,070). For instance, Borsari and colleagues recommended the utilization of strategic screening, as students communicate with campus officials regarding problems such as academics, alcohol violations, and/or other challenges often faced by college students. Another option, according to Borsari and associates, was Internet screening and intervention. Completed online, this confidential and efficient method collects information from students that are related to level of consumption and behaviors.

Furthermore, Borsari et al. (2007) suggested the implementation of interventions as preventive techniques to college drinking. In this approach, students receive intervention in a supportive and nonjudgmental manner. Other suggestions included a social-norms marketing campaign, which posited that "heavy drinking is influenced by their misperception of other students drinking"

(p. 2,074). Additional recommendations included working to change the culture of college drinking, decreasing alcohol availability and increasing the price, strict enforcement of campus policies, as well as maintaining the current minimum legal drinking age (MLDA). Increased academic demands and volunteer work, increased adult presence, and alternatives to consumption are other alcohol-reduction options worthy of consideration.

Wechsler, Seibrig, Liu, and Ahl (2004) surveyed IHEs in pursuit of the most successful practices for the reduction of consumption on campus. Findings indicated that alcohol education campaigns and social norms campaigns were most successful, which is consistent with the suggestions of Borsari et al. (2007). Some IHEs restricted alcohol at campus-sponsored events and experienced limited success, finding instead that “schools that focused on demand reduction were less likely to ban alcohol use” (p. 159). The most common approaches to the Wechsler et al. (2004) investigation were that IHEs provided “counseling and treatment for those with alcohol challenges; provided education for incoming freshmen; providing alcohol-free residences; employment of a substance abuse professional; and restricting alcohol use at home athletic events” (p. 166).

### Summary

A review of the literature suggested that many students’ drinking behaviors and patterns are established under the minimum legal drinking age of 21 and prior to beginning college. While levels of consumption tended to increase for many students after arriving on campus, some research noted that

close familial and parental ties could be helpful in maintaining a more reasonable approach or total abstinence from drinking. It was also revealed that males usually drink at higher rates as compared to females and for different reasons. Although most students are likely to mature out of high levels of drinking, others may continue consuming at extremely high rates, which could cause them to suffer from the negative consequences associated with drinking such as DUI, injuries to self or others, and/or death. The literature also suggested that the likelihood of suffering from such repercussions tended to be lower if a student lived on campus under the supervision of a responsible adult. Chapter III outlines the methodology for this investigation, identification of participants, instrument, and research questions.

CHAPTER III  
METHODOLOGY  
Study Design

The North Dakota Higher Education Consortium for Substance Abuse Prevention (NDHECSAP), which is an initiative of the North Dakota University System (NDUS), conducted the North Dakota College Drinking NDCORE Survey in partnership with Southern Illinois University at Carbondale (SIUC), Core Institute in the fall of 2006. The “Core Alcohol and Drug Survey assesses the nature, scope, and consequences of alcohol and other drug use on college campuses” (CORE, 2005, p.1). The present study is a secondary analysis of the reported data.

The North Dakota State Board of Higher Education governs all institutions of higher education which consists of 11 public colleges and universities including two doctoral-granting institutions, two master’s-granting institutions, two universities that offer baccalaureate degrees and five campuses that offer associate and trade/technical degrees. Total headcount for NDUS for the fall of 2006 was 42,237, with student enrollment ranging from 605 undergraduate students at one institution to 12,834 students (including graduate students) at another institution (NDUS, 2008).

## Participants

Participants were identified through the coordination of each IHEs registrar, who determined undergraduate students enrolled in general education courses during the third week of fall semester in 2006. After the identification of potential classes and potential participants, instructors received letters asking for permission to distribute the survey during class. All students had the choice not to participate. Those who chose to participate signed a copy of the Informed Consent, which included a description of the research. In a continued effort to make participation voluntary and confidential, names or other possibly identifying information were not included.

Survey participants included undergraduate freshmen, sophomores, juniors, and seniors within NDUS. The study consisted of 3,729 participants that encompassed the following breakdown: Mayville State University (142), Williston State College (130), Valley City State University (265), North Dakota State College of Science (390), University of North Dakota (930), Minot State University – Bottineau (116), Bismarck State College (299), Minot State University (346), Lake Region State College (197), North Dakota State University (567), and Dickinson State University (347) (NDUS, 2008).

Administration of the survey took place on a Monday, Tuesday, or Wednesday of fall semester 2006, which allowed for increased attendance and response rate. Total North Dakota undergraduate student participation included freshmen 46.7% (1699), sophomores 27.1% (986), juniors 14.9% (542), and

seniors 9.9% (359). The traditional college student, aged 18 to 25, reported the majority of response (87.1%). In addition, 51.9% were female, and 53.2% lived off campus.

The majority of respondents were predominantly White (non-Hispanic) (90.4%). Other participants reported being Black (2.3%), American Indian/Alaskan Native (2.2%), Hispanic (2.1%), Asian/Pacific Islander (1.4%), and other (1.6%). Response rates between males and females were almost even, with females reporting 51.9% and males reporting 48.1%. After deleting those respondents who did not indicate grade level or age, total participants were 3,261, and the investigation produced a 97.6% response rate.

#### Survey Instrument

Developed specifically for North Dakota IHEs, the survey instrument consisted of three sections related to alcohol and drugs. Section 1 pertained to demographics, background characteristics, and perceptions of campus culture and policy related to alcohol and drugs. Section 2 referred to student attitudes, perceptions, and opinions on alcohol and drugs, and section 3 pertained to personal use and consequences of alcohol use (SIUC/Core Institute Executive Summary, 2006).

#### Research Questions

The following research questions directed the study:

1. What were the overall levels of consumption for North Dakota undergraduate students according to grade level?

2. What was the relationship between levels of consumption by grade level according to gender?
3. What was the relationship between levels of consumption and grade point average?
4. What was the relationship between levels of consumption and the influence of parental expectations and rules?
5. What was the relationship between levels of consumption, awareness of campus alcohol policies, enforcement of campus alcohol policies, and awareness of campus prevention programs?
6. What was the relationship between levels of consumption and place of residence?
7. What was the relationship between levels of consumption and suffering from negative consequences because of drinking?

#### Permissions

In the winter of 2009, NDHECSAP Executive Director, Dr. Karin L. Walton, granted permission to conduct a secondary analysis of the North Dakota Core (NDCORE) Alcohol and Drug Survey of 2006. The Institutional Review Board (IRB) at the University of North Dakota (UND) granted permission to conduct the investigation in March 2009 (IRB-200903-261).

## CHAPTER IV

### RESULTS AND ANALYSES

This study examined the levels of alcohol consumption among North Dakota undergraduate students according to grade level, gender, and grade point average. Other examined factors related to consumption included the influences of parents, awareness of campus alcohol policies, enforcement of alcohol policies, awareness of prevention programs, place of residence, and suffering from negative consequences because of drinking.

This chapter contains the analyses and results of a secondary study that utilized data collected through NDHECSAP (Walton, 2007) and the North Dakota College Drinking NDCORE Survey that was administered to all IHEs in North Dakota during the third week of fall semester in 2006. Statistical analyses included descriptive statistics on the frequency of consumption by students. Crosstabulations that compared levels of consumption and grade level, gender, grade point average, and the influences of parental expectations and parental rules were also conducted. Additionally, comparisons between consumption and awareness and enforcement of campus alcohol policies, awareness of campus prevention programs, place of residence (i.e., living on or off campus), and suffering from negative consequences because of drinking were completed. Multivariate analysis of variance



(MANOVA) including Wilkes' Lambda and Chi-Square was used.

The following definitions defined a drinker as pertained to this study. A non-drinker (ND) is defined as someone who did not consume alcohol in the previous year; an occasional drinker (OD) consumed between one and six times in the previous year; a drinker (D) consumed between one time per month and one time per week in the previous year; and a heavy drinker (HD) consumed between three times per week and up to every day during the previous year. For reporting purposes, levels of consumption for drinkers and heavy drinkers have been combined.

Frequencies were generated on overall levels of consumption for the previous year as well as 30 days prior to participating in the study. Results indicated that 68.8% of undergraduate students were drinkers or heavy drinkers the previous year as compared to 52.3% for the 30 days prior to participating in the study.

Table 1. Percentages and Frequencies for the College Respondents (N = 3,223).

Level of Consumption	Year Prior	30 Days Prior
Non-Drinker	14.8% 476	26.1% 826
Occasional Drinker	16.3% 531	21.6% 684
Drinker	47.5% 1,532	48.9% 1,547
Heavy Drinker	21.3% 684	3.4% 107

Research Question 1: What were the overall levels of consumption for undergraduate students according to grade level?

While the information in Table 1 provided the overall levels of consumption, research question 1 focused on student consumption according to grade level. The variables used to answer this question were self-reported levels of consumption and grade level (freshmen, sophomore, junior, or senior). Frequencies indicated that 62.6% of freshmen were drinkers and heavy drinkers; 68.9% of sophomores were drinkers or heavy drinkers; 79.9% of juniors were drinkers or heavy drinkers; and 82.6% of seniors were drinkers or heavy drinkers. Results are provided in Table 2.

Table 2. Percentages and Frequencies of Drinkers according to Grade Level (N=3,223).

Level of Consumption	Fr	So	Jr	Sr
Non-Drinker	19.5% 304	13.2% 116	8.7% 42	4.7% 14
Occasional Drinker	18.0% 281	17.9% 157	11.3% 55	12.8% 38
Drinker	44.2% 691	47.9% 421	53.2% 258	54.4% 162
Heavy Drinker	18.4% 286	21.0% 184	26.7% 130	28.2% 84

Research Question 2: What was the relationship between levels of consumption according to gender by grade level?

As the overall level of students consumption according to grade level has been provided, differences in consumption among males and females by grade

level are considered. The variables used to answer research question 2 were levels of consumption, gender (male or female), and grade level (freshmen, sophomore, junior, or senior). Crosstabulations reported the level of consumption for males by grade level. Results indicated that 57.2 % of freshmen males were drinkers and heavy drinkers, 68.7% of sophomore males were drinkers or heavy drinkers; 82.0% of junior males were drinkers or heavy drinkers; and 82.9% of senior males were drinkers or heavy drinkers. The levels of consumption among males increased as grade levels increased.

The Chi-Square to test the relationship between males' level of consumption by grade level was significant (Chi-Square = 73.7,  $df = 9$ ,  $p < .001$ ) indicating a relationship between males level of consumption and grade level. (Table 3).

Table 3. Percentages and Frequency of Consumption for Males by Grade Level (N=1,433).

Grade Level	ND	OD	D	HD
Freshmen	20.4% 154	22.5% 170	34.7% 262	22.5% 170
Sophomores	12.4% 44	18.9% 67	40.0% 142	28.7% 102
Juniors	9.3% 18	8.8% 17	42.8% 83	39.2% 76
Seniors	5.5% 7	11.7% 15	43.8% 56	39.1% 50

For females, crosstabulations indicated that 52.8% of freshmen females were drinkers or heavy drinkers, 56.9% of sophomore females were drinkers or

heavy drinkers; 65.1% of junior females were drinkers or heavy drinkers; and 65.5% of senior females were drinkers or heavy drinkers. The levels of consumption increased among females as grade levels increased.

The Chi-Square to test the relationship between females' level of consumption by grade level was significant (Chi-Square = 35.6,  $df = 9$ ,  $p < .001$ ) indicating a relationship between females level of consumption and grade level. (Table 4).

Research question 2 pertained to levels of consumption according to gender (male or female) and by grade level (freshmen, sophomore, junior, or senior). Findings indicated that males tended to consume at increasingly higher levels as compared to females by grade level. Table 5 provides the results.

Table 4. Percentages and Frequency of Consumption for Females by Grade Level (N = 1,553).

Grade Level	ND	OD	D	HD
Freshmen	18.2% 124	29.0% 198	38.1% 260	14.7% 100
Sophomores	13.2% 61	29.9% 138	42.4% 196	14.5% 67
Juniors	8.5% 22	26.4% 68	47.7% 123	17.4% 45
Seniors	3.3% 5	31.1% 47	47.0% 71	18.5% 28

Table 5. Percentages of Consumption for Drinkers and Non-Drinkers by Grade Level (N = 1,831).

Grade Level	Males	Females
Freshmen	57.2%	52.8%
Sophomore	68.7%	56.9%
Junior	82.0%	65.1%
Senior	82.9%	65.5%

Research Question 3: What was the relationship between levels of consumption and grade point average?

The variables used to answer research question 3 were levels of consumption and grade point average (“A” average, “B” average, “C” average, or “D” average student). Crosstabulations indicated that 54.6% of “A” average students were drinkers or heavy drinkers; 63.0% of “B” average students were drinkers or heavy drinkers; and 71.6% of “C” average students were drinkers or heavy drinkers. This information suggests that with increased levels of consumption grade point average is likely to decline.

The Chi-Square to test the relationship between levels of consumption and grade point average was significant (Chi-Square = 59.6,  $df = 9$ ,  $p < .001$ ) indicating a relationship between level of consumption and grade point average. (Table 6).

Table 6. Percentages and Frequency of Consumption as Compared to Grade Point Average (N = 3,097).

Grade Point Average	ND	OD	D	HD
“A” Average	19.1% 193	26.3% 266	37.7% 382	16.9% 171
“B” Average	13.0% 212	23.9% 390	41.1% 671	21.9% 358
“C” Average	9.2% 40	19.3% 84	43.6% 190	28.0% 122

Research Question 4: What was the relationship between levels of consumption and the influence of parental expectations and rules?

The variables used to answer research question 4 were levels of consumption, parental expectations, and parental rules. Crosstabulations for levels and consumption and parental expectations indicated that 28.5% of drinkers and 16.7% of heavy drinkers considered parental expectations very effective; 53.6% of drinkers and 54.9% of heavy drinkers considered parental expectations somewhat effective, and 17.9% of drinkers and 28.3% of heavy drinkers considered parental expectations ineffective.

The Chi-Square to test the relationship between levels of consumption and parental expectations was significant (Chi-Square = 376.9,  $df = 6$ ,  $p < .001$ ) indicating a relationship between levels of consumption and parental expectations. Table 7 provides the results.

In relation to research question 4, the categorical variables of levels of consumption and parental rules were also analyzed. Crosstabulations for levels of

consumption and parental rules indicated that 20.5% of drinkers and 13.7% of heavy drinkers considered parental rules very effective; 52.9% of drinkers and 48.2% of heavy drinkers considered parental rules somewhat effective; and 26.6% of drinkers and 38.1% heavy drinkers considered parental rules ineffective.

Table 7. Percentages and Frequency of Consumption as Compared to Parental Expectations (N = 3,070).

Parental Expectations	ND	OD	D	HD
Very Effective	67.2% 293	46.1% 345	28.5% 350	16.7% 110
Somewhat Effective	22.9% 100	41.7% 312	53.6% 659	54.9% 361
Not Effective	9.9% 43	12.2% 91	17.9% 220	28.3% 186

The Chi-Square to test the relationship between levels of consumption and parental rules was significant (Chi-Square = 343.2,  $df = 6$ ,  $p < .001$ ) indicating a relationship between students' level of consumption and parental rules. (Table 8).

Research Question 5: What was the relationship between levels of consumption, awareness of campus alcohol policies, enforcement of campus alcohol policies, and awareness of campus prevention programs?

The variables used to answer research question 5 were levels of consumption, awareness of campus alcohol policies, enforcement of campus alcohol policies, and awareness of campus prevention programs. Crosstabulations indicated that 91.3% of drinkers and 87.8% of heavy drinkers were aware of campus alcohol policies; 0.3% of drinkers and 0.6% heavy drinkers not aware of

policies; and 8.4% of drinkers and 11.6% of heavy drinkers did not know if a campus alcohol policy existed.

Table 8. Percentages and Frequency of Consumption as Compared to Parental Rules (N = 2,974).

Parental Rules	ND	OD	D	HD
Very Effective	57.6% 242	38.8% 283	20.5% 243	13.7% 87
Somewhat Effective	27.1% 114	41.8% 305	52.9% 629	48.2% 307
Not Effective	15.2% 64	19.3% 141	26.6% 316	38.1% 243

The Chi-Square to test the relationship between levels of consumption and awareness of campus alcohol policies was not significant (Chi-Square = 15.19,  $df = 6, p = .019$ ) indicating that there is no evidence of a relationship between student levels of consumption and awareness of campus alcohol policies.

(Table 9).

Table 9. Percentages and Frequency of Consumption as Compared to the Awareness of Campus Alcohol Policies (N = 3,164).

Awareness	ND	OD	D	HD
Yes	86.8% 407	90.9% 699	91.3% 1,147	87.8% 588
No	1.3% 6	0.5% 4	0.3% 4	0.6% 4
Don't Know	11.9% 56	8.6% 66	8.4% 105	11.6% 78



In relation to research question 5, the categorical variables level of consumption and enforcement of campus alcohol policies were analyzed. Crosstabulations indicated that 70.2% of drinkers and 66.1% of heavy drinkers believed campus alcohol policies were enforced; 4.2% of drinkers and 4.3% of heavy drinkers believed policies were not enforced; and 25.6% of drinkers and 29.5% of heavy drinkers did not know if alcohol policies were enforced.

The Chi-Square to test the relationship between levels of consumption and enforcement of campus alcohol policies was significant (Chi-Square = 43.0,  $df = 6, p < .001$ ) indicating a relationship between levels of consumption and enforcement of campus alcohol policies. (Table 10).

Table 10. Percentages and Frequency of Consumption as Compared to the Enforcement of Campus Alcohol Policies (N = 3,141).

Enforcement	ND	OD	D	HD
Yes	54.6% 254	63.0% 481	70.2% 874	66.1% 441
No	8.4% 39	6.4% 49	4.2% 52	4.3% 29
Don't Know	37.0% 172	30.6% 234	25.6% 319	29.5% 197

In relation to research question 5, the categorical variables levels of consumption and awareness of campus prevention programs were analyzed. Crosstabulations reported that 43.8% of drinkers and 42.3% of heavy drinkers were aware of campus prevention programs; 2.5% of drinkers and 0.8% of heavy drinkers were not aware of campus prevention programs; and 53.8% of drinkers

and 56.9% of heavy drinkers did not know if a campus prevention program existed.

The Chi-Square to test the relationship between levels of consumption and awareness of campus prevention programs was not significant (Chi-Square = 8.06,  $df = 6$ ,  $p > .234$ ) indicating that there is no evidence of a relationship between levels of consumption and awareness of campus prevention programs.

(Table 11).

Table 11. Percentages and Frequency of Consumption as Compared to the Awareness of Campus Prevention Programs (N = 3,135).

Prevention Programs	ND	OD	D	HD
Yes	43.0% 199	42.6% 323	43.8% 547	42.3% 281
No	1.7% 8	2.0% 15	2.5% 31	0.8% 5
Don't Know	55.3% 256	55.4% 420	53.8% 672	56.9% 378

Research Question 6: What was the relationship between levels of consumption and place of residence?

The variables used to answer research question 6 were levels of consumption and place of residence (on campus or off campus). Crosstabulations indicated that 46.2% of drinkers and 37.6% of heavy drinkers lived on campus as compared to 53.8% of drinkers and 62.4% of heavy drinkers who lived off campus.

The Chi-Square to test the relationship between levels of consumption and

living on or off campus was significant (Chi-Square = 83.2,  $df = 3$ ,  $p < .001$ ) suggesting that drinkers and heavy drinkers consume more alcohol when living off campus as compared to living on campus. (Table 12).

Table 12. Percentages and Frequency of Consumption as Compared to Place of Residence (N = 2,940).

Place of Residence	ND	OD	D	HD
On Campus	63.8% 278	54.6% 389	46.2% 541	37.6% 233
Off Campus	36.2% 158	45.4% 323	53.8% 631	62.4% 387

Research Question 7: What was the relationship between level of consumption and suffering from negative consequences because of drinking?

The variables used to answer research question 7 were levels of consumption and negative consequences. A one-way multivariate analysis of variance (MANOVA) was conducted to compare the effect of alcohol consumption and suffering from negative consequences because of drinking. Findings indicated a significant relationship between level of consumption and suffering from negative consequences because of drinking (Wilks' Lambda = .521,  $F(57, 8,075) = 34.6$ ,  $p < .001$ ).

Increased levels of alcohol consumption can cause a number of negative consequences for a drinker so it is not surprising that some suffer from repercussions such as having a hangover, poor test score, became nauseated or vomited, or missed class. Ramifications like these can be serious and naturally, an administrator or faculty member should be concerned if a student presents on-

going and habitual negative patterns associated with drinking.

On the other hand, drinking-related behaviors such as damaging property, trouble with police, argued or fought, and/or DUI all imply a potential victim and/or damage to the public, which should be of tremendous concern to college officials, administrators, and faculty members alike. Victims of alcohol-related problems are not only the drinker but also an innocent bystander, who happens to be in the wrong place at the wrong time; property can also be damaged. For example, level of consumption and the negative consequence “damaged property” showed a significant relationship for drinkers ( $M = 1.15$ ) and heavy drinkers ( $M = 1.38$ ). An analysis of variance showed that the effect of alcohol and “damaged property” was significant for drinkers and heavy drinkers ( $F (40.4)$ ,  $df = 3$ ,  $p < .001$ ). Additionally, level of consumption and the negative consequence “in trouble with police” showed a significant relationship for drinkers ( $M = 1.31$ ) and heavy drinkers ( $M = 1.60$ ). An analysis of variance showed that the effect of alcohol and “in trouble with police” was significant for drinkers and heavy drinkers ( $F (72.5)$ ,  $df = 3$ ,  $p < .001$ ). Level of consumption and the consequence “argued or fought” revealed a significant relationship for drinkers ( $M = 1.99$ ) and heavy drinkers ( $M = 2.61$ ). An analysis of variance showed that the effect of alcohol and “argued or fought” was significant for drinkers and heavy drinkers ( $F (171.0)$ ,  $df = 3$ ,  $p < .001$ ). Level of consumption and the consequence “driving under the influence” showed a significant relationship for drinkers ( $M = 2.16$ ) and heavy drinkers ( $M = 3.29$ ). An analysis

of variance showed that the effect of alcohol and “driving under the influence” was significant for drinkers and heavy drinkers ( $F(267.3)$ ,  $df = 3$ ,  $p < .001$ ).

Even though the individual repercussions of alcohol consumption can be serious or even deadly, such outcomes are ultimately the choice of the drinker. Just as a smoker knows that smoking can cause cancer, a drinker knows that drinking can have negative consequences. This researcher suggests that when the overall well-being and safety of the public is in jeopardy college administrators, faculty, and policy makers should be prepared to make important decisions that place student and the public’s safety as a top priority.

Since the one-way MANOVA test comparing levels of consumption and suffering from negative consequences because of drinking was statistically significant, a follow-up test on paired comparisons between a non-drinker and a heavy drinker (1-4) was conducted. Newton and Rudestam’s (1999) *Your Statistical Consultant* was used as a guide for the interpretation of results.

According to Newton and Rudestam (1999), statistical significance is the “ability to place confidence in the decision to *generalize* the findings from a sample to the population” (p. 68). While statistical significance is important, the focus of this paper is on practical significance or the applicability of findings on the real world.

Newton and Rudestam (1999) asserted that an effect size could be defined according to the strength of the relationship between two variables. In other words, the “effect of one variable on another may represent a relationship that is

strong, weak, or somewhere in between” (p. 73). Based on this premise, Jacob Cohen suggested that an “effect size index” would be useful in “differentiating between means and to serve as an adjustment for differences in scales and permit comparisons” (p. 73). Cohen recommended that a small effect size is .20, a medium effect size is .50, and a large effect size is .80. A large effect size of .80 was used for the interpretation of this study’s results.

The results of paired comparisons were not surprising because increased levels of consumption tend to produce more repercussions for a drinker. Therefore, it was to be expected that a heavy drinker would experience a hangover, receive a poor test score, become nauseated or vomited, or miss class. However, the areas of greatest concern are related to those victims other than the drinker.

Under normal circumstances, college students do not get into trouble with police, that is, until alcohol becomes a problem and/or partying gets out of control. Findings of the paired comparisons indicated that a non-drinker ( $M = 1.04$ ) was less likely to get in trouble with police as compared to a heavy drinker ( $M = 1.62$ ). Differences between the two means were large and had practical significance at 0.80, indicating that a heavy drinker may be more likely to get in trouble with police. Being in trouble with law enforcement could involve literally any situation that may or may not include a victim other than the drinker.

When partying and drinking get out of control, situations can be embellished and cause the drinking “mind” to over-interpret circumstances.

Tempers rage and oftentimes, arguments and fighting ensue. Findings of the paired comparisons indicated that a non-drinker ( $M = 1.06$ ) was less likely to argue or fight as compared to a heavy drinker ( $M = 2.57$ ). Differences between the two means were large and had practical significance at 1.17, indicating that a heavy drinker is more likely to argue or fight after increased levels of alcohol consumption.

The hazards of driving under the influence (DUI) can be detrimental and have permanent affects on innocent people. Findings of the paired comparisons indicated that a non-drinker ( $M = 1.06$ ) was less likely to drive under the influence of alcohol as compared to a heavy drinker ( $M = 3.28$ ). Differences between the two means was large and had practical significance at 1.38, indicating that a heavy drinker is more likely to get behind the wheel and drive under the influence of alcohol, potentially putting the personal safety and lives of others at risk.

Other negative consequences such as missing class, having been criticized, had a memory loss, and regretted action were also practically significant but the significance was applicable to the drinker only. As previously stated, a drinker chooses to consume at high levels and ultimately places him or herself at risk by doing so.

Table 13. Levels of Consumption as Compared to Suffering from Negative Consequences because of Drinking.

Negative Consequence	ND/M	OD/M	D/M	HD/M	F	<i>p</i>
Had a hangover	1.13	2.00	3.59	4.57	632.5	< .001
Poor test score	1.11	1.21	1.60	2.19	117.3	< .001
In trouble with police	1.04	1.11	1.31	1.62	72.5	< .001
Damaged property	1.03	1.02	1.15	1.40	40.4	< .001
Argued or fought	1.06	1.39	1.99	2.57	171.0	< .001
Nauseated or vomited	1.12	1.69	2.59	3.24	287.4	< .001
Driving under the influence (DUI)	1.06	1.38	2.16	3.29	267.3	< .001
Missed class	1.07	1.26	1.84	2.51	156.7	< .001
Been criticized	1.12	1.39	1.81	2.46	120.4	< .001
Thought I had a problem	1.05	1.04	1.20	1.57	58.1	< .001
Had a memory loss	1.08	1.27	1.86	2.62	175.6	< .001
Later regretted action	1.10	1.41	2.02	2.71	178.7	< .001
Arrested for DUI	1.03	1.01	1.03	1.08	5.5	< .001
Taken advantage of sexually	1.04	1.11	1.24	1.57	47.1	< .001
Taken advantage of someone sexually	1.02	1.04	1.07	1.23	18.9	< .001
Tried to stop drinking	1.03	1.03	1.10	1.22	17.1	< .001
Considered suicide	1.04	1.07	1.09	1.16	5.0	< .001
Attempted suicide	1.03	1.02	1.02	1.06	2.7	< .001
Been hurt or injured	1.06	1.15	1.34	1.70	59.6	< .001

ND/M = Non-Drinker Mean; OD/M= Occasional Drinker Mean; D/M= Drinker Mean; HD/M= Heavy Drinker Mean

Scale: 1 = Never experienced a negative consequence; 2 = Experienced a negative consequence one time; 3 = Experienced a negative consequence two times; 4 = Experienced a negative consequence three to five times; 5 = Experienced a negative consequence six to nine times; 6 = Experienced a negative consequence ten or more times.



Table 14. Paired Comparisons of Levels of Consumption and Suffering from Negative Consequences because of Drinking.

Negative Consequence	ND/M	HD/M	Effect Size
Had a hangover	1.13	4.57	1.85
Poor test score	1.11	2.19	0.96
Trouble with police	1.04	1.62	0.80
Damaged property	1.03	1.40	0.58
Argued or fought	1.06	2.57	1.17
Nauseated or vomited	1.11	3.20	1.44
DUI	1.06	3.28	1.38
Missed class	1.07	2.52	1.11
Been criticized	1.11	2.41	1.01
Had a problem	1.04	1.60	0.67
Had a memory loss	1.07	2.61	1.15
Regretted action	1.09	2.70	1.20
Arrested for DUI	1.03	1.09	0.18
Taken Adv of sexually	1.04	1.55	0.63
Taken Adv of someone	1.02	1.23	0.40
Tried to stop drinking	1.02	1.25	0.41
Considered suicide	1.03	1.17	0.26
Attempted suicide	1.03	1.07	0.13
Been hurt or injured	1.05	1.72	0.75

### Summary

This chapter presented the results and analyses of a study that utilized data from the NDHECSAP (Walton, 2007) and NDCORE Survey conducted during the fall semester in 2006. Findings indicated that the majority of North Dakota undergraduate college students consumed alcohol at increasingly higher levels according to grade level with males tending to drink at higher levels as compared to females. Levels of consumption appeared to have a negative effect on grade point average. While most participants reported respect for parental expectations and rules, they continued to drink at high levels and suffered from negative consequences. Chapter V provides a summary of results, makes recommendations, and offers suggestions for future research.

## CHAPTER V

### SUMMARY OF FINDINGS, RECOMMENDATIONS, AND CONCLUSION

This study examined the levels of alcohol consumption among undergraduate students at IHEs in North Dakota. The purpose of this study was to determine whether there is a relationship between levels of consumption and grade level, gender, grade point average, parental influences, awareness of campus alcohol policies, enforcement of campus alcohol policies, awareness of campus prevention programs, place of residence, and fallout from negative consequences because of drinking.

From the early research of Straus and Bacon (1953) to more recent research (CORE, 2005; Hoban, 2007; Johnston et al., 2008; Presley et al., 2002; SAMHSA, 2008, Schulenberg & Maggs, 2002; Wechsler & Nelson, 2008), college drinking in the United States is well documented. Whether it was during the time of Straus and Bacon or more recently, one constant remains: College students continue to consume large amounts of alcohol.

As previously noted, North Dakota had the highest rates for binge drinking among traditional college students, aged 18 to 25, with 56.5% (Hughes et al., 2008) which makes North Dakota particularly vulnerable to the hazards and potentially dangerous effects of alcohol consumption. For instance, Schultz and Neighbors (2007) examined alcohol consumption among college students of rural as opposed to urban backgrounds along with perceived social drinking norms. Findings indicated that “students who came from

smaller towns and subsequently smaller high school graduating classes, reported greater quantity and frequency of alcohol consumption in college” (p. 263). Furthermore, those students from rural communities reported heavier levels of consumption, but this relationship was independent of perceived drinking norms. The authors suggested that “differences likely exist in perceived norms as a function of population density in high school, but students quickly form perceptions of campus-specific norms after arriving at college” (p. 264). This information could be a beginning in the quest to discover why North Dakotans maintain among the highest levels of consumption in the United States.

#### Levels of Consumption

##### *Grade Level*

According to the YRBS (2007), many students begin drinking in middle or high school and in turn, bring those behaviors to college. Findings of the present study are consistent with this theme, which suggested that the majority of North Dakota entering freshmen did drink in high school. Results also revealed that levels of alcohol consumption increased consistently through all grade levels (freshmen, sophomore, junior, and senior).

##### *Gender and Grade Level*

Numerous investigations reported that males tend to consume alcohol at higher rates as compared to females (Borsari et al., 2007; NDHESCAP, 2005; O’Malley & Johnston, 2002; SAMHSA, 2008). This is consistent with the findings of

the current investigation, which indicated that males consumed at increasingly higher levels as compared to females, according to grade levels.

#### *Grade Point Average*

This study investigated whether there is a relationship between levels of consumption and grade point average. Results indicated that as levels of consumption increased, grade point average tended to decrease. One possible explanation for a lowered grade point average might be that alcohol consumption negatively influences the amount of time spent studying.

#### *Influence of Parental Expectations and Rules*

In the current study, the relationship between levels of consumption and parental expectations and parental rules was examined. Findings indicated that while students tended to respect parental expectations and rules (Borsari et al., 2007; White et al., 2006) they continued to consume at high levels. This suggests that there is something in the overall college environment and culture that entices students to drink (Abar & Turrisi, 2008; Wetherill & Fromme, 2007).

#### *Awareness of Campus Alcohol Policies, Enforcement of Alcohol Policies, and Awareness of Campus Prevention Programs*

This study investigated the relationship between levels of consumption and awareness of campus alcohol policies, enforcement of alcohol policies, and awareness of campus prevention programs. Results indicated that while students were aware of campus policy regarding consumption and even asserted that policies were enforced, they continued to consume alcohol at excessive rates. This suggests that there is something about the overall culture and environment of college campus that entices

and ultimately causes students to drink at extreme levels, which is consistent with the research of Borsari et al. (2007), Presley et al. (2002), Schulenberg and Maggs (2002), Wechsler (2008), Wechsler et al. (2000), Wechsler et al. (2002a), and Wechsler & Nelson (2008).

#### *Place of Residence*

The present study examined the relationship between levels of consumption and living on or off campus. Findings indicated that students consumed at lower levels while living on campus as compared to those who lived off campus, which is consistent with the research of Brower (2008).

#### *Negative Consequences*

Negative consequences can be serious and potentially life-threatening situations that occur because of drinking. In the present study, the relationship between levels of consumption and negative consequences was examined. Findings indicated that there is a relationship between levels of consumption and negative consequences, consistent with the research of Brower (2008) and Wechsler et al. (2002a).

North Dakota college students are not immune from suffering the negative consequences associated with drinking. While personal repercussions such as having a hangover, receiving a poor test score, becoming nauseated or vomited, and/or missing class are common effects of drinking, they usually affect the drinker only and not the people around them.

Conversely, negative consequences such as having trouble with the police, damaging property, arguing or fighting, DUI, been criticized, having a memory loss, and/or regretting actions could imply that there was a potential victim because in these situations, someone else was involved. When students who have been drinking get into trouble with police, there can be increased law enforcement personnel hours, extra costs for the repair and/or replacement of damaged property, and ultimately increased insurance premiums for the property owner. If legal charges are filed, there could be court costs, attorneys' fees, and administrative fees (filing of paperwork), among others. As the fees and expenses are absorbed by the county's judicial network, those fees are eventually recovered through the increase of taxes. Simply put, the taxpayer is harmed through damaged property or other altercations, again through increased insurance premiums, and sooner or later in the form of increased taxes. All because someone decided to get drunk.

As levels of consumption increase, tempers can also rise. It is common for some college students to solve problems through arguing or fighting. As this occurs, people often become seriously injured and find themselves in the emergency room seeking treatment. Some college students have health insurance through their parents but others do not have health insurance. Instead, they are solely responsible for themselves. When a student is attached to his or her parent's medical insurance and he or she has a serious altercation requiring medical attention, premiums often increase, which can be a financial hardship for parents. For those students who do not have medical insurance from parents or the university, they are obliged to pay the

medical bill in full. If a student requires surgery or other major medical treatment, this financial obligation can ruin credit or at the very least, prove to be a major obstacle to obtaining credit. All because someone decided to get drunk.

The most serious and potentially life threatening of the negative consequences are driving under the influence (DUI). Many college students may be under the misconception that driving a vehicle is a right and that they are *entitled* to drive. Driving a motor vehicle is a privilege and not one to be taken lightly. Automobiles, vehicles, cars, motorcycles, all-terrain vehicles (ATV's), or any other form of motorized transportation can be a deadly weapon, much like a gun, and with it, comes a great deal of responsibility.

According to North Dakota's Office of the Attorney General (2009), there were 111 traffic fatalities in 2007 and more than half (57.6% or 64) were alcohol related. Additionally, one-fourth (24.9%) of adults arrested in 2007 were arrested for DUI while an overall 40.0% of all arrests in 2007 were alcohol-related. More shocking was that "in 2006, 1 in 3 DUI convictions was for a second or subsequent offense, and 119 people were convicted of their 4<sup>th</sup> DUI in seven years" (p. 1). Equally as disturbing are the findings of the *ND Community Readiness Survey* which indicated that half of the respondents (49.9%) believed "that the contribution of drug and alcohol use to crashes was only a 'minor to moderate' problem in the community, while 34.7% believed it to be a 'serious' problem" (NDOAG, 2009, p. 1). Other alcohol-related perceptions of North Dakota community members indicated that 32.2% believed that drinking among teenagers is acceptable, while 96.7% believed

there should be penalties for those who provide alcohol. This can be compared to 66.8% who believed the “law should prohibit [parents] giving alcohol to their own children” (NDOAG, 2009, p. 1).

Thanks to prevention and educational campaigns in North Dakota and across the United States, the hazards of driving under the influence of alcohol are understood. A drinker should have a firm understanding of the potential negative effects associated with drinking and driving. This researcher wonders why then, North Dakota has such high rates of drinking and driving under the influence? Could it be that, overall, North Dakota residents have a *perception* problem as it relates to alcohol?

#### Recommendations

While the influences of students’ perception of alcohol and peers were not explored in this study, they could offer potential explanations for increased consumption among students. Perceptions regarding alcohol consumption carry tremendous weight for students, which are likely to influence personal drinking habits, often increasing consumption accordingly (Borsari & Carey, 2001; Borsari et al., 2007; Crawford & Novak, 2007; Rimal & Real, 2005). According to Hill, Emery, Harden, Mendle, and Turkheimer (2008), association with “substance using peers is one of the strongest predictors of adolescent alcohol use...adolescents who consume are more likely to choose friends who also consume” (p. 81).

The gravity of alcohol consumption on college campuses throughout North Dakota cannot be understated. In order to gain control over the seriousness of



drinking, alcohol prevention efforts should begin as children enter their school years. A fully comprehensive, age-appropriate curriculum that depicts the potential negative consequences should be incorporated into kindergarten to grade 12 classroom in North Dakota.

Similar to the requirements of student loan education, alcohol education should be a requirement for entering college freshmen and again each year until a student graduates from or withdraws from college. In doing so, students would be reminded of the potential repercussions associated with drinking which might aid in reducing the overall consumption in North Dakota.

Moreover, a special curriculum detailing the potential health hazards and repercussions should be outlined especially for women. Due to “physiological differences” in women, such as “body weight, fat-to-water ratios, and the rate of metabolic activities, women achieve intoxication more quickly than men, resulting in higher blood alcohol levels” in reference to the same amount of alcohol (Kelly-Weeder, 2008, p. 578; supported by Ham & Hope, 2003). Such excessive consumption “places these women at increased risk for long-term complications associated with alcohol use” (Kelly-Weeder, 2008, p. 577; NDCORE 2005 & 2007). Consistent with this, the Journal of the National Cancer Institute (2009) suggested that even a “low to moderate alcohol consumption among women is associated with a statistically significant increase in cancer risk” (p. 1).

## Future Research

The current study revealed that the overall environment and campus culture entices some students to consume alcohol at alarmingly high rates. Environmental correlates included access to alcohol, inexpensive alcohol, type of alcohol (beer), venues for drinking (off-campus parties), and/or distance between campus and the drinking establishment (Wechsler et al., 2000). Perhaps a direction for future studies in college drinking might include a study on North Dakota IHEs' overall cultures and environments. Questions to explore include attitudes, assumptions, expectations, and perceptions of drinking, as well as the positive and negative influences of peers. By starting with students' attitudes, assumptions, expectations, and perceptions, researchers might gain insight into the root causes of extreme college drinking in North Dakota. Such information could be helpful to the incorporation of prevention programs that really work in reducing alcohol consumption on college campuses in North Dakota.

To be effective in the reduction of college drinking, prevention programs must capture the attention of students. Marketing and advertising programs that highlight real college drinking statistics in North Dakota including overall levels of consumption, mortality rates, DUIs, firsthand college-related negative effects, and secondhand college-related negative effects should be disseminated to students throughout North Dakota.

Well-established prevention programs could also be utilized as a resource for finding things to do instead of drinking, to learn "no" tactics, and to develop positive

relationships that have nothing to do with alcohol consumption. In order to determine whether the current prevention programs are useful, a more thorough investigation into the awareness and effectiveness of prevention programs should occur with changes incorporated appropriately. The IHEs in North Dakota have a responsibility to keep students safe, which includes informing them of the hazards and effects of drinking.

While the current study did not ask questions related to religiosity, some of the literature indicated that those students with a connection to religion and/or spirituality tended to consume less overall as compared to those who did not have a connection (Bahr & Hoffmann, 2008; Galen & Rogers, 2004; Nelms, Hutchins, Hutchins, & Pursley, 2007). Bahr and Hoffmann (2008) indicated that those who were religious tended to drink less “even after controlling for peer use and attachment to parents” (p. 765). Nelms et al. (2007) examined the connection between spirituality and health risks of college students. Results indicated that students with a “spiritual connection tended to make healthier choices and “experienced better health outcomes” (p. 249). Studying the spiritual and/or religious connections of students could potentially assist in the reduction of college drinking in North Dakota.

#### Conclusion

Alcohol consumption has been and continues to be a serious problem in North Dakota and unfortunately, students bring drinking behaviors to college campus, with most students consuming at higher levels as grade levels increase. If North Dakota is to see a reduction in alcohol consumption on campus, parents, educators, college

administrators, faculty members, and other professionals need to be fully committed to the incorporation of prevention programs that really work. A fully comprehensive curriculum-based prevention program that is incorporated into North Dakota's educational system could help in raising awareness, changing perceptions, and ultimately reducing the overall levels of consumption on college campuses in North Dakota.

## REFERENCES

- Abar, C., & Turrisi, R. (2008). How important are parents during the college years: A longitudinal perspective of indirect influences parents yield on their college teens' alcohol use. *Addictive Behaviors, 33*, 1360-1368.
- Arnett, J. J. (2005). The developmental context of substance use in emerging adulthood. *Journal of Drug Issues, 35*(2), 235-253.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*, 469-480.
- Bahr, S. J., & Hoffmann, J. P. (2008). Religiosity, peers, and adolescent drug use. *Journal of Drug Issues, 38*(3), 743-769.
- Bahr, S. J., Hoffmann, J. P. & Yang, X. (2005). Parental and peer influences on the risk of adolescent drug use. *The Journal of Primary Prevention, 26*(6), 529-551.
- Borders, A., Smucker-Barnwell, S., & Earleywine, M. (2007). Alcohol-aggression expectancies and dispositional rumination moderate the effect of alcohol consumption on alcohol-related aggression and hostility. *Aggressive Behavior, 33*, 327-338.
- Borsari, B., Murphy, J. G., & Barnett, N. P. (2007). Predictors of alcohol use during the first year of college: Implications for prevention. *Addictive Behaviors, 32*, 2062-2086.

- Borsari, B. & Carey, K. B. (2001). Peer influences on college drinking: A review of the research. *Journal of Substance Abuse, 13*, 391-424.
- Boyle, J. R. & Boekeloo, B. O. (2006). Perceived parental approval of drinking and its impact on problem drinking behavior among first-year college students. *Journal of American College Health, 54(4)*, 238-244.
- Brower, A. M. (2008). More like a home than a hotel: The impact of living-learning programs on college high-risk drinking. *Journal of College and University Student Housing, 35(1)*, 32-49.
- Campbell, C. M., & Demb, A. (2008). College high risk drinkers: Who matures out? And who persists as adults? *Journal of Alcohol and Drug Education, 52(1)*, 19-47.
- Carson, J., Barling, J., & Turner, N. (2007). Group alcohol climate, alcohol consumption, and student performance. *Group Dynamics: Theory, Research, and Practice, 11(1)*, 31-41.
- Center for Science in the Public Interest. (December 2008). *Binge Drinking on College Campuses*. Retrieved March 20, 2009, from <http://www.cspinet.org/booze/collfact1.htm>
- Centers for Disease Control and Prevention, *Quick stats underage drinking*. (2008). Retrieved March 26, 2009, from [http://www.cdc.gov/alcohol/quickstats/underage\\_drinking.htm](http://www.cdc.gov/alcohol/quickstats/underage_drinking.htm)

- Centers for Disease Control and Prevention, National Center for Health Statistics, Health, United States. (2007). With Chartbook on Trends in the Health of Americans. Hyattsville, MD: 2007. Library of Congress Catalog Number 76-641496. Retrieved March 18, 2009 from <http://www.cdc.gov/nchs/data/hus/hus07.pdf#068>
- Centers for Disease Control and Prevention, *Youth risk behavior surveillance system (YRBS)*. (2007). Retrieved March 21, 2009, from <http://www.cdc.gov/HealthyYouth/yrbs.index.htm>
- Chilcoat, H. D., & Breslau, N. (1996). Alcohol disorders in young adulthood: Effects of transitions into adult roles. *Journal of Health and Social Behavior*, 37(4), 339-349.
- Colby, S. M., Colby, J. J., & Raymond, G. A. (2009). College versus the real world: Student perceptions and implications for understanding heavy drinking among college students. *Addictive Behaviors*, 34, 17-27.
- Core Institute (2005). *Alcohol and Drug Surveys*. Carbondale, IL: Core Institute, Center for Alcohol and Other Drug Studies. Retrieved April 23, 2009, from [http://www.siu.edu/departments/coreinst/public\\_html/](http://www.siu.edu/departments/coreinst/public_html/)
- Crawford, L. A., & Novak, K. B. (2007). Resisting peer pressure: Characteristics associated with other-self discrepancies in college students' levels of alcohol consumption. *Journal of Alcohol and Drug Education*, 51(1), 35-50.

- Crosnoe, R., & Riegle-Crumb, C. (2007, *September*). A life course model of education and alcohol use. *Journal of Health and Social Behavior*, 48(r), 267-282.
- Demb, A., & Campbell, C. M. (2009). A new lens for identifying potential adult persistent problem drinkers during college. *Journal of College Student Development*, 50(1), 1-18.
- Dowdall, G. W., & Wechsler, H. (2002). Studying college alcohol use: Widening the lens, sharpening the focus. *Journal of Studies on Alcohol*, Supple. 14, 63(2), 14-22.
- Galen, L. W., & Rogers, W. M. (2004). Religiosity, alcohol expectancies, drinking motives and their interaction to the prediction of drinking among college students. *Journal of Studies on Alcohol*, 65(4), p. 469-483.
- Giancola, P. R. (2002). Alcohol-related aggression during the college years: Theories, risk factors, and policy implications. *Journal of Studies on Alcohol*, Supple. 14, 63(2), 129-139.
- Haines, M. P. (1996). A social norms approach to preventing binge drinking at colleges and universities, Newton, MA: Higher Education Center for Alcohol and Other Drug Prevention, Department of Education.
- Haines, M. P., & Spear, S. F. (1996). Changing the perception of the norm: A strategy to decrease binge drinking among college students. *Journal of American College Health*, 45, 134-140.



- Ham, L. S., & Hope, D. A. (2003). College students and problematic drinking: A review of the literature. *Clinical Psychology Review, 23*, 719-759.
- Hill, J., Emery, R. E., Harden, K. P., Mendle, J., & Turkheimer, E. (2008). Alcohol use in adolescent twins and affiliation with substance using peers. *Journal of Abnormal Child Psychology, 36*, 81-94.
- Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2001. *Annual Review of Public Health, 26*, 259-279.
- Hoban, M. (2007). American college health association national college health assessment spring 2006 reference group data report (abridged). *Journal of American College Health, 55*(4), 195-206.
- Hughes, A., Sathe, N., & Spagnola, K. (2008). *State Estimates of Substance Use from the 2005–2006 National Surveys on Drug Use and Health* (DHHS Publication No. SMA 08-4311, NSDUH Series H-33). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.
- Jessor, R., & Jessor, S. L. (1975). Adolescent development and the onset of drinking. *Journal of Studies on Alcohol, 36*, 27-51.
- Johnson, K. D. (2006). Office of Community Oriented Policing Services (COPS) United States Department of Justice. *Underage drinking*. Retrieved August 24, 2008, from <http://www.cops.usdoj.gov/Default.asp?Item=1695>

- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2008). *Monitoring the future national survey results on drug use, 1975-2007. Volume II: College students and adults ages 19-45* (NIH Publication No. 08-6418B). Bethesda, MD: National Institute on Drug Abuse.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2003). *Monitoring the future national survey results on drug use, 1975-2002. Volume II: College students and adults ages 19-40*. (NIH Publication No. 03-5376. Bethesda, MD: National Institute on Drug Abuse.
- Journal of the National Cancer Institute (2009, February 26). Million women study shows even moderate alcohol consumption associated with increased cancer risk. *Science Daily*. Retrieved May 22, 2009, from <http://www.sciencedaily.com/releases/2009/02/090224163555.htm>
- Kapner, D. A. (2003). Alcohol and other drugs on campus: The scope of the problem. U.S. Department of Education, Office of Safe and Drug-Free Schools, Higher Education Center for Alcohol and Other Drug Abuse and Violence. Retrieved August 18, 2008 from <http://www.higheredcenter.org/services/publications/alcohol-and-other-drugs-campus-scope-problem>
- Kelly-Weeder, S. (2008). Binge drinking in college-aged women: Framing a gender-specific prevention strategy. *Journal of the American Academy of Nurse Practitioners, 20*(12), 577-584.

- Klein, W., Geaghan, T., MacDonald, T. (2007). Unplanned sexual activity as a consequence of alcohol use: A prospective study of risk perceptions and alcohol use among college freshmen. *Journal of American College Health, 56(3)*, 317-323.
- Kuo, M., Wechsler, H., Greenberg, P., & Lee, H. (2003). The marketing of alcohol to college students: The role of low prices and special promotions. *American Journal of Preventive Medicine, 25(3)*, 204-211.
- Kypri, K., McCarthy, D., Coe, M. & Brown, S. (2004). Transition to independent living and substance involvement. *Journal of Child and Adolescent Substance Abuse, 13*, 85-100.
- Larimer, M. E., Lydum, A. R., Anderson, B. K., & Turner, A. P. (1999). Male and female recipients of unwanted sexual contact in a college student sample: Prevalence rates, alcohol use and depression symptoms. *Sex Roles, 40(314)*, 295-308.
- Longerbeam, S. D., Kurotsuchi-Inkelas, K., & Brower, A. M. (2007). Secondhand benefits: Student outcomes in residence halls with living-learning programs. *Journal of College and University Student Housing, 34(2)*, 20-28.
- Murphy, J. G., Hoyne, C. K., Colby, S. M., & Borsari, B. (2006). Alcohol consumption, alcohol-related problems, and quality of life among college students. *Journal of College Student Development, 47(1)*, 110-121.

- Murphy, J. G., McDevitt-Murphy, M. E., & Barnett, N. (2005). Drink and be merry? Gender, life satisfaction, and alcohol consumption among college students. *Psychology of Addictive Behaviors, 30*, 184-191.
- Nelms, L. W., Hutchins, E., Hutchins, D., & Pursley, R. J. (2007). Spirituality and the health of college students. *Journal of Religion and Health, 46*(2), p. 249-265.
- North Dakota Community Readiness Survey Results. (2008). *Alcohol and other drugs in North Dakota: A community readiness survey to gauge perceptions of alcohol and other drug use*. The North Dakota Department of Human Services, Division of Mental Health and Substance Abuse Services. Retrieved March 23, 2009 from <http://www.nd.gov/dhs/info/pubs/docs/mhsa/alcohol-drug-report-2008.pdf>
- North Dakota State Epidemiological Outcomes Workgroup (NDSEOW). (March 2007). *Alcohol, tobacco, and illicit drug consumption and consequences in North Dakota: The North Dakota epidemiological profile*. Retrieved August 18, 2008 from <http://www.nd.gov/dhs/info/pubs/docs/mhsa/2007-03-nd-epidemiological-profile.pdf>
- O'Malley, P. M., & Johnston, L. D. (2002). Epidemiology of alcohol and other drug use among American college students. *Journal of Studies on Alcohol, (Suppl. 14)*, 23-29.
- Oswalt, S. B., Cameron, K. A., Koob, J. J. (2005). Sexual regret in college students. *Archives of Sexual Behavior, 34*(6), 663-669.

- Parker, R. N., & Auerhahn, K. (1998). Alcohol, Drugs, and Violence. *Annual Review of Sociology, 24*, 291-311.
- Paschall, M. J., & Freisthler, B. (2003). Does heavy drinking affect academic performance in college? Findings from a prospective study of high achievers. *Journal of Studies on Alcohol, 64(4)*, 515-523.
- Piane, G., & Safer, A. (2008). Drinking behaviors, expectancies and perceived social norms among diverse college women. *Journal of Alcohol and Drug Education, 52(1)*, 67-75.
- Presley, C. A., Meilman, P. W., & Leichter, J. S. (2002). College factors that influence drinking. *Journal of Studies on Alcohol, (Suppl. 14)*, 82-90.
- Read, J. P., Wood, M. D., & Capone, C. (2005). A prospective investigation of relations between social influences and alcohol involvement during the transition into college. *Journal of Studies on Alcohol, 66(1)*, 23-42.
- Rhoads, B. L., & Maggs, J. L. (2006). Do academic and social goals predict planned alcohol use among college-bound high school graduates? *Journal of Youth and Adolescence, 35(6)*, 913-923.
- Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A test of the theory of normative social behavior. *Communication Research, 32(3)*, 389-414.
- Schulenberg, J. E., & Maggs, J. L., (2002). A developmental perspective on alcohol use and heavy drinking during adolescence and the transition to young adulthood. *Journal of Studies on Alcohol, (Suppl. 14)*, 63, 54-70.

- Schultz, C. G., & Neighbors, C. (2007). Perceived norms and alcohol consumption: Differences between college students from rural and urban high schools. *Journal of American College Health, 56*(3), 261-264.
- State of North Dakota (2008). North Dakota Department of Commerce. *North Dakota population increases*. Retrieved March 21, 2009, from <http://www.commerce.nd.gov/news/detail.asp?newsID=249>
- State of North Dakota (2008). Office of Attorney General, Bureau of Criminal Investigation (OAG-BCI). *Crime in North Dakota, 2007*. Retrieved March 23, 2009 from <http://www.ag.state.nd.us/Reports/BCIReports/CrimeHomicide/Crime07.pdf>
- Straus, R., & Bacon, S. D. (1953). *Drinking in college*. New Haven: Yale University Press.
- Substance Abuse and Mental Health Services Administration, Office of Applied Studies (2008). *Results from the 2007 national survey on drug use and health: National findings* (NSDUH Series H-34, DHHS Publication No. SMA 08-4343). Rockville, MD.
- Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Applied Studies (OAS). (November 20, 2008). *The NSDUH Report: Underage alcohol use: Where do young people get alcohol?* Rockville, MD.
- Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Applied Studies (OAS). (August 28, 2008). *The NSDUH Report: Underage alcohol use: Where do young people drink?* Rockville, MD.

Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Applied Studies (OAS). (August 2, 2007). *The NSDUH Report: Gender differences in alcohol use and alcohol dependence or abuse: 2004 and 2005*. Rockville, MD.

Substance Abuse and Mental Health Services Administration. (2007). *Results from the 2006 national survey on drug use and health: National findings* (Office of Applied Studies, NSDUH Series H-32, DHHS Publication No. SMA 07-4293). Rockville, MD.

Talbott, L. L., Umstadd, M. R., Usdan, S. L., Martin, R. J., & Geiger, B. F. (2009). Validation of the college alcohol problem scale – revised (CAPS-r) for use with non-adjudicated first-year students. *Addictive Behaviors*, 34, p. 471-473.

Talbott, L. L., Martin, R. J., Usdan, S. L., Leeper, J. D., Umstadd, M. R., Cremeens, J. L. & Geiger, B. F. (2008). Drinking likelihood, alcohol problems, and peer influence among first-year college students. *American Journal of Drug and Alcohol Abuse*, 34, 433-440.

Tremblay, P. F., Mihic, L., Graham, K., & Jolley, J. (2007). Role of motivation to respond to provocation, the social environment, and trait aggression in alcohol-related aggression. *Aggressive Behavior*, 33, 389-411.

United States Census Bureau. (2007). *State and county quick facts: North Dakota*. Retrieved March 23, 2009. from

- United States Department of Justice (USDOJ). (2008). Office of Community Oriented Policing Services. *Underage drinking*. Retrieved August 24, 2008 from <http://www.cops.usdoj.gov/Default.asp?Item=1695>
- United States Department of Justice (USDOJ). (2006). *Criminal victimization in the United States, 2006 statistical tables: National crime victimization survey*. Retrieved March 23, 2009, from <http://www.ojp.gov/bjs/pub/pdf/cvus06.pdf>
- Upcraft, M. L. (1999). Today's first year students and alcohol. Paper prepared for the National Advisory Council on Alcohol Abuse and Alcoholism Subcommittee on College Drinking, Panel 1: Contexts and Consequences, National Institute on Alcohol Abuse and Alcoholism, Washington, DC.
- Walters, J. P. (2004). *The challenge in higher education: Confronting and reducing substance abuse on campus*. Retrieved September 5, 2007, from [http://www.whitehousedrugpolicy.gov/publications/challenge\\_higher\\_ed/challenge\\_higher\\_ed.pdf](http://www.whitehousedrugpolicy.gov/publications/challenge_higher_ed/challenge_higher_ed.pdf)
- Walton, K. (2007). North Dakota Higher Education Consortium for Substance Abuse Prevention (NDHECSAP). Results of the 2006 North Dakota Core (NDCORE) Alcohol and Drug Survey conducted in partnership with Southern Illinois University Carbondale Core Institute (SIUC/Core Institute).
- Walton, K. (2005). North Dakota Higher Education Consortium for Substance Abuse Prevention (NDHECSAP). Results of the 2003-2004 North Dakota Core (NDCORE) Alcohol and Drug Survey conducted in partnership with Southern Illinois University Carbondale Core Institute (SUIC/Core Institute).



- Wechsler, H. (2008, August 18). Binge drinking most affected by environment. *Alcoholism & Drug Abuse Weekly*, 20(32), 4-7.
- Wechsler, H., & Nelson, T. F. (2008). What we have learned from the Harvard school of public health college alcohol study: Focusing attention on college student alcohol consumption and the environmental conditions that promote it. *Journal of Studies on Alcohol and Drugs*, 69(4), 481-498.
- Wechsler, H., Seibring, M., Liu, I-C., & Ahl, M. (2004). Colleges respond to student binge drinking: Reducing student demand or limiting access. *Journal of American College Health*, 52(4), 159-167.
- Wechsler, H., Lee, J. E., Hall, J., Wagenaar, A. C., & Lee, H. (2002a). Secondhand effects of student alcohol use reported by neighbors of colleges: The role of alcohol outlets. *Social Science and Medicine*, 55, 425-435.
- Wechsler, H., Lee, J. E., Nelson, T. F., & Kuo, M. (2002b). Underage college students' drinking behavior, access to alcohol, and the influence of deterrence policies: Findings from the Harvard school of public health college alcohol study. *Journal of American College Health*, 50(5), 223-235.
- Wechsler, H., Kuo, M., Lee, H., Dowdall, G. W. (2000). Environmental correlates of underage alcohol use and related problems of college students. *American Journal of Preventive Medicine*, 19(1), 24-29.

- Wechsler, H., Dowdall, G. W., Maenner, G., Gledhill-Hoyt, J., & Lee, H. (1998). Changes in binge drinking and related problems among American college students between 1993 and 1997: Results of the Harvard School of public health college alcohol study. *Journal of American College Health, 47*, 57-68.
- Wetherill, R. R., & Fromme, K. (2007). Perceived awareness and caring influences alcohol use by high school and college students. *Psychology of Addictive Behaviors, 21*(2), 147-154.
- White, H. R., Fleming, C. B., Kim, M. J., Catalano, R. F., & McMorris, B. J. (2008). Identifying two potential mechanisms for changes in alcohol use among college-attending and non-college attending emerging adults. *Developmental Psychology, 44*(6), 1,625-31,639.
- White, H. R., McMorris, B. J., Catalano, R. F., Fleming, C. B., Haggerty, K. P., & Abbott, R. D. (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), 810-823.
- Wolaver, A. M. (2002). Effects of heavy drinking in college on study effort, grade point average, and major choice. *Contemporary Economic Policy, 20*(4), 415-428.
- Young, A. M., Morales, M., McCabe, S. E., Boyd, C. J., & D'Arcy, H. (2004). Drinking like a guy: Frequent binge drinking among undergraduate women. *Substance Use and Misuse, 40*, 239-265.