

## **The Relationship between Blacking Out and Gulping Drinks with Behavior Changing Measures for Female College Students**

Dana Nocera  
Kinesiology and Health  
Miami University  
Oxford, Ohio 45056 USA

Faculty Advisor: Dr. Rose Marie Ward

### **Abstract**

Regardless of the institution, universities across today's nation are consistently affected by college student alcohol consumption. One concerning issue with college student alcohol consumption is the risky behaviors that result from drinking. A risky behavior of particular interest is the issue of "blacking out." Blacking out, also known as alcohol-involved anterograde amnesia, is defined as a portion of time when you have an inability to recall the past due to the intake of alcohol<sup>1</sup>. Female college students are at even more risk for blacking out because female college students experience more negative consequences from drinking when they consume the same amount of alcohol as men<sup>2</sup>. In addition, whereas female college students tend to experience more negative outcomes from drinking, men tend to experience more positive ones<sup>3</sup>. While engaging in alcohol consumption, many college students "gulp" drinks, meaning they drink quickly or chug. Although previous literature has shown that drinking alcohol does lead to blacking out, it is unknown if gulping drinks leads to blacking out more frequently. To replicate the previous literature, the current study sought to determine the drinking behaviors of college students with regards to blacking out. To extend the previous literature, the current study sought to examine the relationship between gulping drinks and blacking out, specifically for females. A total of 201 college females at a Midwestern university participated. Data for this study were collected via an online survey. On average, female college students reported drinking 1.96 ( $SD = 1.45$ ) days a week. On a typical drinking day, female college students reported drinking an average of 3.70 ( $SD = 2.41$ ) standard drinks. In addition, it was reported that the participants experienced a blackout an average of 1.81 ( $SD = 0.84$ ) times in the past year. It was also reported that 41.1% of the participants gulp drinks. A Chi-Square test of independence examined the relationship between blacking out and gulping drinks,  $\chi^2 (n=156, 3) = 21.25, p < .001$ . Participants who reported gulping drinks were also more likely to report a history of blacking out. Future intervention efforts could potentially use this information to tailor materials against gulping drinks. Messages could address the relationship between blacking out and gulping drinks.

**Keywords: Blackout, Gulping, Drinking**

### **1. Introduction**

Across today's nation, alcohol consumption at the collegiate level consistently raises issues, regardless of the institution. Research has indicated that each year, approximately 1,825 college students ranging from ages 18-24 die from excessive drinking<sup>4</sup>. Excessive alcohol consumption is a major issue across today's nation, as it is the third leading lifestyle-related cause of death<sup>5</sup>. This is especially an issue for college campuses because these institutions expend a large amount of money covering expenses that result in the misuse of alcohol. From alcohol related black outs alone, universities spend approximately \$500,000 per year on hospitalization procedures<sup>6</sup>. In addition, universities are forced to spend money to repair damage done by intoxicated students. Collegiate level alcohol

consumption is even more of an issue because the majority of college students are not 21 years old, making their actions illegal and puts them at risk for getting into legal trouble.

Previous literature has shown that females and males differ in their alcohol intake from week to week<sup>7</sup>. Research has consistently shown that males tend to drink more standard drinks on a single drinking occasion than females<sup>7</sup>. This is due to the difference between male and female body composition. Since males tend to have a higher tolerance for alcohol, they tend to consume more alcoholic beverages than females<sup>7</sup>. Female college students tend to experience more negative consequences from drinking when they consume the same amount of alcohol as men<sup>2</sup>. In addition, whereas female college students tend to experience more negative outcomes from drinking, men tend to experience more positive ones<sup>3</sup>. Because of the difference in tolerance between males and females, females are at a higher risk for alcohol related negative consequences, such as blacking out.

Blacking out is one of many alcohol associated risky behaviors. Blacking out, also known as alcohol-involved anterograde amnesia, is defined as a portion of time when you have an inability to recall the past due to the intake of alcohol<sup>1</sup>. Blacking out includes suffering from partial or complete memory loss during drinking events<sup>1</sup>. Alcohol-involved anterograde amnesia is a serious issue across the nation for many reasons, but one specific reason is because of the consequences that come along with it. For example, a previous study found that 38% of males and females had a fight while blacked out, 25% had vandalized property while blacked out, and 12.5% had operated a motor vehicle while blacked out<sup>8</sup>. Previous literature has shown that blacking out is correlated with a higher blood alcohol level than when blacking out does not occur<sup>9</sup>. This suggests that a high amount of alcohol needs to be consumed in order to reach the state of being blacked out. It is well known that blacking out is associated with heavy drinking<sup>1</sup>.

The direct causes of blacking out are often associated with fast paced alcohol consumption<sup>1</sup>. This can include gulping drinks, or quickly chugging. College students, specifically, are more susceptible to gulping drinks because they often engage in pre-partying activities, such as games or events that require them to quickly consume their alcoholic beverage. A pre-party event, which can also be referred to as “pre-gaming,” is defined as “the consumption of alcohol prior to attending an event or activity (e.g., party, bar, concert) at which more alcohol may or may not be consumed”<sup>10</sup>. In addition, many college students feel pressured to finish their drinks while they are engaging in pre-partying activities because their peers are doing so<sup>1</sup>. Often times, alcohol consumption at the collegiate level takes place away from legal drinking environments, so those students who are underage feel pressured to drink their alcoholic beverages at a fast pace in order to reduce the risk of an authoritative figure stumbling upon their illegal actions<sup>1</sup>. Furthermore, pre-parties do not often last for a long period of time, so students feel the need to quickly consume their drinks in order to obtain the highest “buzz” possible<sup>1</sup>.

Because of the prevalence of blacking out, it is clear that methods need to be addressed to change college student’s drinking behaviors. One method for examining alcohol consumption is readiness to change. Readiness to change your alcohol consumption is commonly assessed using the Transtheoretical Model. The Transtheoretical Model is an intentional health behavior change model that is used to describe behavior, predict behavior, and build health behavior change interventions. According to the Transtheoretical Model<sup>11</sup>, there are five stages or readiness of change. The earliest stage, Precontemplation, is distinguished as not thinking about changing one’s behavior. People in this stage might even deny that they have a problem. The next stage, Contemplation, is when you think about changing your drinking behavior some time far in the future. The third stage, Preparation, is thinking about stopping your drinking behavior in the near future. The fourth stage, Action, consists of people who have recently changed their behavior. The last stage, Maintenance, consists of people who have changed their behavior long ago.

To replicate the previous literature, the current study sought to determine if blacking out is associated with gulping drinks. It sought to determine how often the participants black out and if the participants gulp drinks. By interpreting these results, the questions posed in this study can be answered. To extend the previous literature, the current study sought to examine females alone with regards to their blacking out and gulping behaviors. It also sought to determine college females’ readiness to change their drinking behaviors. By analyzing these results, it can be determined who future interventions should be tailored to. It is expected that blacking out is associated with gulping drinks, and that the more the person gulps drinks, the more they black out. It is also expected that the majority of females will not be ready to change their alcohol consumption behaviors. The current study had the following research questions: 1. Does gulping drinks play a role in blacking out, and 2. Are females willing to change their alcohol consumption behaviors.

## 2. Methods

### 2.1 Participants

The current study surveyed college females ( $n = 201$ ); most reported being Caucasian (93%). The students were from a Midwestern university, and the mean age was 20.39 ( $SD = 1.50$ ). Approximately 81.6% of those surveyed came from homes where their parents were still married. The participants also came from high-income families, with 19.4% having an income of above \$200,000. Most reported being completely heterosexual (93.5%).

### 2.2 Procedure

The authors' Institutional Review Board at Miami University approved all procedures before the start of the study. Data was collected via an online survey in the Spring of 2010. Participants were invited to take the survey by email via the snowball method. The survey used Prezza Checkbox via the university's firewall.

### 2.3 Measures

#### 2.3.1 alcohol consumption

Using standard measures in the alcohol literature, the survey provided the definition of a standard drink and asked the following questions: Have you ever had an alcoholic beverage to drink (more than a sip or taste)? (response options: yes or no); How old were you the first time you consumed an alcoholic beverage?; In a typical week, on how many days did you have at least one drink containing alcohol?; How many drinks do you have on a typical day when you are drinking? During the last 30 days, what is the highest number of drinks that you consumed on any one occasion?

#### 2.3.2 stages of change for drinking behavior

To determine the readiness to change, a single question was asked based on the Transtheoretical Model<sup>11</sup>. The question was: In the last month, have you had 4 or more drinks in a row (in a two hour time span)? The responses showed how ready the participant was to modify their drinking habits. "Yes, and I do not intend to stop drinking 4 or more drinks in a row" reflected Precontemplation. "Yes, but I intend to stop drinking 4 or more drinks in a row during the next 6 months" reflected Contemplation. "Yes, but I intend to stop drinking 4 or more drinks in a row in the next 30 days" reflects the Preparation stage. "No, but I have had 4 or more drinks in the past 6 months" reflects the Action stage. "No, and I have not had 4 or more drinks in a row in the past 6 months" reflects the Maintenance stage. "No, I have never had 4 or more drinks in a row" reflects someone who is not a binge drinker.

#### 2.3.3 blacking out and gulping behavior

With regards to blacking out, the survey asked the following question: How often during the last year have you been unable to remember what happened the night before because of your drinking? With regards to gulping drinks, the survey asked the following question: Do you gulp drinks (drink quickly or chug)?

## 3. Results

In a sample of females from a Midwestern mid-sized university, the drinking levels, blackout behaviors, and gulping drinks behavior of students were examined. Additionally, their readiness to change their behavior was observed. A Chi-Square test of independence examined the relationship between blacking out and gulping drinks for females. It was found that the relationship between blacking out and gulping drinks was statistically significant.

It was found that on average, female college students reported drinking an average of 1.96 ( $SD = 1.44$ ) days a week. It was also found that on average, female college students reported drinking 1.96 ( $SD = 1.45$ ) days a week. On a typical drinking day, female college students reported drinking an average of 3.70 ( $SD = 2.41$ ) standard drinks. The

participants also reported that in the last 30 days, their average peak-drinking occasion consisted of 6.39 ( $SD = 4.24$ ) drinks in a row.

In addition, it was reported that the participants experienced a blackout an average of 1.81 ( $SD = 0.84$ ) times in the past year. It was also reported that 41.1% of the participants gulp drinks. A Chi-Square test of independence examined the relationship between blacking out and gulping drinks,  $\chi^2(n=156, 3) = 21.25, p < .001$ , meaning that the relationship between blacking out and gulping drinks is significant.

It was also found that the majority of the participants were at the Precontemplation stage for readiness to change. Approximately 41.2% of the participants indicated that they have practiced behaviors that reflect binge drinking and do not intend to stop binge drinking.

## 4. Discussion

This study was designed to show the relationship between gulping drinks and blacking out for female college students. Whereas previous studies have looked at gulping drinks and blacking out, this study sought to extend the previous literature by looking specifically at female college students as well as by looking at their readiness to change their alcohol consumption behavior. This study is unique because few studies have used the Transtheoretical Model to look at college students' readiness to change their behavior.

In analyzing the data and results, it can be seen that our findings are consistent with the previous literature. College students who reported gulping drinks were also more likely to have a history of blacking out. The relationship between gulping drinks and blacking out was found to be statistically significant. It furthered previous literature by finding that most of the female college students who participated in the study had reported binge drinking in the last month and had no intention of changing their behavior.

As in any study, there were limitations. Since the method of the study was a survey, the students might not have answered the questions truthfully in fear of getting into legal trouble. Additionally, the students might not have correctly remembered the answers to the questions, so the data might not have been accurate. The survey took participants from a homogenous background. They were mostly all the same race and ethnicity. This limited the study because it did not make for a variety of participants, so the data could have been skewed.

Overall, this study imitated and extended previous literature. It showed that female college students who reported gulping drinks also had a history of blacking out. Also, it showed that most female college students are not ready to change their drinking behavior. Because of the results, future interventions could be tailored to female college students. Future intervention efforts could potentially use this information to tailor materials against gulping drinks. Messages could address the relationship between blacking out and gulping drinks. Future interventions could also target college students' unwillingness to change their drinking behaviors. It is important to understand these results in order to decrease the negative consequences that alcohol brings, such as death. These results can help lessen the issue of alcohol consumption amongst college students.

## 5. Acknowledgements

The author wishes to express their appreciation to Dr. Rose Marie Ward, the Undergraduate Presentation Award at Miami University, the Office for the Advancement of Research and Scholarship at Miami University, and Miami University's Kinesiology and Health Department.

## 6. Cite References

### 6.1 References

1. LaBrie, J. W., Hummer, J., Kenney, S., Lac, A., & Pedersen, E. (2011). Identifying factors that increase the likelihood for alcohol-induced blackouts in the prepartying context. *Journal of Substance Use & Misuse, 46*, 992-1002.
2. Sugarman, D. E., DeMartini, K. S., & Carey, K. B. (2009). Are women at greater risk? An examination of alcohol-related consequences and gender. *The American Journal on Addictions, 18*, 194-197.

3. Owen, J., Fincham, F. D., & Moore, J. (2011). Short-term prospective study of hooking up among college students. *Archives of Sexual Behavior, 40*, 331-341.
4. Hingson, R. W., Zha, W., & Weitzman, E. R. (2009). Magnitude of and trends in alcohol-related mortality and morbidity among U. S. college students ages 18-24, 1998-2005. *Journal of Studies on Alcohol and Drugs Supplement, 16*, 12-20.
5. Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual cases of death in the United States. *The Journal of the American Medical Association, 291(10)*: 1238-1245.
6. Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. M. (2012). The work and social adjustment scale: a simple measure of impairment in functioning. *The British Journal of Psychiatry, 180*, 461-464.
7. Hummer, J. F., LaBrie, J. W., Lac, A., Sessoms, A., & Gail, J. (2012). Estimates and influences of reflective opposite-sex norms on alcohol use among high-risk sample of college students: Exploring Greek-affiliation and gender effects. *Addictive Behaviors, 37*, 596-604.
8. White, A. M., Signer, M. L., Kraus, C. L., & Swartzwelder, H. S. (2004). Experiential aspects of alcohol-induced blackouts among college students. *American Journal of Drug and Alcohol Abuse, 30(1)*, 205-224.
9. Perry, P. J., Argo, T. R., Barnett, M. J., Liesveld, J. L., Liskow, B., Hernan, J. M., ... Brabson, M. A. (2006). The association of alcohol-induced blackouts and grayouts to blood alcohol concentrations. *Journal of Forensic Science, 51(4)*: 896-899.
10. Pedersen, E. R., & LaBrie, J. W. (2007). Partying before the party: Examining "prepartying" behavior among college students. *Journal of American College Health, 56*, 237-245.
11. Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice, 19*, 276-288.