

## **Drink Beer for Cheer, Whiskey to get Frisky**

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### **Abstract**

Background: Alcohol is related to many intoxicated behaviors; some are perceived as good (e.g., being more social), but some can be harmful (e.g., increased aggression and sexual aggression). Is consuming certain alcoholic beverages related to alcohol-related negative consequences? College students experience a number of negative consequences that have social, academic, and personal impacts<sup>16</sup>. About 37% of white males under the age of 30 and 45% of white females under the age of 30 drink predominately beer whereas 23% of white males under the age of 30 and 34% of white females in the same age group do not have a preference<sup>9</sup>. There are observed differences between people who drink different types of alcohol. However, it is unclear if these preferences are also related to different alcohol-related negative consequences. Therefore, the purpose of the current study is to examine the relationship between alcohol type consumed and consequences experienced within 24 hours of consuming alcohol. Methods: This study is being conducted with a cross-sectional study given in person to potentially intoxicated individuals. The first phase is a field based study using evening data collections. The second phase is an online follow-up survey. Participants: The participants (n=232) are from a midsized Midwestern university. The subjects' age ranged from 18-29 with a mean 20.3 and a standard deviation of 1.6. They consisted of 90.9% Caucasian and 53.7% females. Results: Mixed drinks proved to be the beverage with the highest mean number of consequences; with gender taken into account, men who drank mixed drinks had significantly more consequences than women who did. Each beer, vodka, and mixed drinks were linked to 2 or 3 different consequences. Implications: People believe that certain alcohols influence how they act, but no study to date has actually put this question to the test. If beer makes a certain demographic of people act more sexually aggressive then steps should be put in place to make it less appealing to consume that specific alcohol through awareness at the very least. This study is designed to examine the relationship between the type of drink and intoxicated behavior.

**Key Words: Alcohol, Consequences, Intoxicated Behaviors**

### **1. Introduction**

While conventional wisdom (e.g., "liquor then beer in the clear") dictates methods for alcohol consumption that leads to fewer hangover symptoms and these methods are discussed on the hit TV show *How I Met Your Mother: The Perfect Cocktail*, actual data to support these claims are limited. The current study seeks to examine the negative consequences associated with the consumption of different alcohols in a naturalistic setting.

Alcohol on college campus is a big issue. According to CASA, in 2005, about 68% of college students drink alcohol, but the more dangerous number is that 40% of students reported binge drinking. In that same year, alcohol-related arrests made up 83% of total campus arrests. Moreover, the most secondary effects of college alcohol consumption are property damage and vandalism, fights, rape and other sexual violence and disruption to other students' quality of life. The qualitative damages consist of some of the following: campus property damage,

increase in security staff and counselors, lost tuition from dropouts and legal costs of suits against the college for liability<sup>15</sup>. In addition, there are about 1,800 alcohol-related college student deaths each year<sup>5</sup>.

Alcohol does not just hurt the person who drinks. Consequences are not just hangovers in which the drinker solely experiences them. There are secondhand effects; on high-binge drinking college campuses non-binge drinkers are more likely to experience these secondhand effects: twice as likely to be assaulted by someone who is intoxicated, three times more likely to have property damage, and three times more likely to have their sleep or study interrupted than those on low-binge drinking campuses<sup>19, 18, 17</sup>.

The prevalence of college students drinking has remained within the range of 65-70% for the past 12 years, however between 1993 and 2001, drinking habits of those who do drink have become riskier: 16% increase in the proportion of students reporting frequent binge drinking, a 25% increase in the proportion drinking 10 or more occasions in the past month, and a 26% increase in the proportion being intoxicated three or more times in the past month<sup>15</sup>.

There are impurities in alcohol called congeners; dark liquors have a higher concentration of congeners. These impurities lead to a more severe negative consequence like a hangover<sup>14</sup>. Specifically, in a laboratory study, participants who consumed bourbon had more hangover symptoms on the Acute Hangover Symptoms questionnaire than those who consumed vodka<sup>14</sup>.

People do not drink one alcoholic beverage their entire life in fact they don't even drink solely one beverage for an entire drinking occasion. There are clear distinctions between what men and women drink; about 37% of white males under the age of 30 and 45% of white females under the age of 30 drink predominately beer whereas 23% of white males under the age of 30 and 34% of white females in the same age group do not have a preference<sup>9</sup>. As men get older they tend to drink more spirits and wine and drink less beer, while women drink less cider and spirits and more wine as they get older<sup>11</sup>.

According to Westermaas et al., people expect to have more positive consequences than negative ones and the most common intoxicated behaviors found were increased positive social dimensions with second being emotional liability: verbally aggressive, crying, telling secrets, and being apologetic. The least common behaviors were antisocial ones. There was found to be a gender distinction when engaging in antisocial behaviors while intoxicated; men engaged in antisocial behaviors more than women<sup>20</sup>.

Many studies look at negative or positive consequences of drinking. However, it has not extensively been studied how individual alcohol types are related to intoxicated behaviors. Current studies have not looked at the differences between many different types of alcohols. Other studies have looked at the difference between two liquors in regard to specific consequences.

There are many observed alcohol-related consequences. Studies have looked at the following: hangovers, nausea and vomiting, regretted actions, missed classes, driving intoxicated, poor academic performance, arguments and fights, memory loss, sexual misconduct, injuries, etc. Many validation scales measure these consequences and many more in different ways.

Alcohol consumption is related to many consequences. Studies have looked at the following: hangovers, nausea and vomiting, regretted actions, missed classes, driving intoxicated, poor academic performance, arguments and fights, memory loss, sexual misconduct, injuries, etc. For example, it is estimated that 1,800 college students die each year from alcohol-related injuries<sup>8</sup>. More than 97,000 students will be victims of an alcohol-involved sexual assault<sup>7</sup>. Alcohol related consequences have financial, social, academic, and cultural costs<sup>4</sup>. The current study hopes to extend the literature by examining alcohol related consequences following the consumption of different alcohol types.

Is consuming certain alcoholic beverages related to alcohol-related negative consequences? This study looks at how the subjects acted while intoxicated after drinking certain alcoholic beverages. This is a comprehensive look into highly endorsed alcohol types and the relationship with negative consequences. Differences in hangover symptoms or alcohol-related consequences might be due to alcohols being made from different ingredients vodka from potatoes, beer from barley and hops, and rum from sugarcane.

## 2. Methods

### 2.1 Participants

The participants are 232 students from a midsized Midwestern university. Approximately 91% reported being Caucasian and 54% reported being female. All academic years were represented: 18% freshman, 22% sophomore, 25% junior, 30% senior, 3% super senior, and 1% graduate students. The subjects' ages ranged from 18 to 29 ( $M = 20.3$ ,  $SD = 1.6$ ).

### 2.2 Procedure

All procedures were approved by Human Subjects IRB.

This study consisted of two phases. The first phase was a field based study using evening data collections to potentially intoxicated individuals. The field surveys were conducted by interviewing the subjects and recording their responses. All participants were provided the definition of a standard drink. Potential participants were approached in the bar district of a mid-sized town in which the university is located. All field interviews occurred between 10:00 p.m. and 1:30 a.m. across all days of the week for four weeks during the fall and spring semester.

The second phase was an online follow-up survey housed by Qualtrics. This follow-up survey was offered through an email invitation the day after the night-time drinking occasion. On completion of the second phase each participant was entered into a drawing to win one of ten \$50 gift cards. These surveys are a part of a larger breathalyzer study.

### 2.3 Measures

This study uses **Rutgers' Alcohol Problem Index** (RAPI)<sup>21</sup>. This is a 23-item measure of alcohol-related consequences. The RAPI measure was adjusted to be a scale for a 24 hour period instead of a year. Example consequences from the measure are: "Not able to do your homework or study for a test;" "Went to work or school high or drunk;" and "Passed out or fainted suddenly." Internal consistency is high ( $\alpha=.91$ ). The scale mean for the number of consequences is 3.3 ( $SD=5.6$ ).

### 2.4 Questions

#### 2.4.1 response options

During the field interviews, participants were asked what types of alcohol that they primarily consumed. Their choices were: beer, vodka, mixed drinks, wine, Champaign, whiskey, rum, and other. All answers or no answers could be endorsed. The three highest endorsed items were beer, vodka, and mixed drinks.

For phase two, the participants were asked to check the responses that happened to them the day of their most recent drinking occasion if it occurred at all. The response options are whether or not the consequences below happened to them during or as a result of that drinking occasion.

"RUTGERS ALCOHOL PROBLEM INDEX  
RAPI (23-item version)

Different things happen to people while they are drinking ALCOHOL or because of their ALCOHOL drinking. Several of these things are listed below. Indicate whether each of these things happened to you WITHIN THE LAST 24 HOURS.

## HOW MANY TIMES HAS THIS HAPPENED TO YOU WHILE YOU WERE DRINKING OR BECAUSE OF YOUR DRINKING DURING THE LAST 24 HOURS?

1. Not able to do your homework or study for a test
2. Got into fights with other people (friends, relatives, strangers)
3. Missed out on other things because you spent too much money on alcohol
4. Went to work or school high or drunk
5. Caused shame or embarrassment to someone
6. Neglected your responsibilities
7. Relatives avoided you
8. Felt that you needed more alcohol than you used to in order to get the same effect
9. Tried to control your drinking (tried to drink only at certain times of the day or in certain places, that is, tried to change your pattern of drinking)
10. Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking
11. Noticed a change in your personality
12. Felt that you had a problem with alcohol
13. Missed a day (or part of a day) of school or work
14. Wanted to stop drinking but couldn't
15. Suddenly found yourself in a place that you could not remember getting to
16. Passed out or fainted suddenly
17. Had a fight, argument or bad feeling with a friend
18. Had a fight, argument or bad feeling with a family member
19. Kept drinking when you promised yourself not to
20. Felt you were going crazy
21. Had a bad time
22. Felt physically or psychologically dependent on alcohol
23. Was told by a friend, neighbor or relative to stop or cut down drinking<sup>21</sup>

### 3. Results

There was no significant difference between whether the subjects drank beer or not and the number of consequences they experienced. Moreover, mixed drinks showed no significant difference between whether the subjects drank mixed drinks or not and the number of consequences.

However, there is a significant difference between those who drank vodka and those who didn't and the number of consequences they experienced,  $F(3, 195) = 4.2, p = .024$ . There is significant results between Consequence 6 (neglected responsibilities)  $F(3, 199) = 11.5, p = .029$  and 9 (Tried to control drinking habits)  $F(3, 198) = 13.4, p = .041$  and the participants that drank beer. Similarly, there is a relationship between those who drank vodka and consequences from Consequence 5 (Caused shame or embarrassment to someone)  $F(3, 199) = 25.0, p = .016$  and 17 (Had a fight, argument or bad feeling with a friend)  $F(3, 198) = 20.3, p = .014$ . Additionally, those who drank mixed drinks showed a relationship to consequences from Consequence 4 (went to work or school drunk)  $F(3, 199) = 20.1, p = .019$ , 15 (suddenly found yourself in a place that you could not remember getting to)  $F(3, 198) = 30.5, p = .006$  and 19 (Kept drinking when you promised yourself not to)  $F(3, 199) = 17.7, p = .016$ .

There is no significant relationship between gender and beer drinkers in regards to number of consequences. Similarly, there was no significant relationship between gender and the number of consequences of vodka drinkers. However, there is a relationship between gender and number of consequences of participants who drank mixed drinks,  $F(3, 193) = 3.11, p = .037$ . There is a relationship between gender with those who drank mixed drinks and question 2 (got into fights with other people),  $F(3, 197) = 3.4, p = .03$ .

### 4. Discussion

This study has shown that there is a relationship between individual alcohols and certain negative consequences. It was hypothesized that there would be a significant difference between alcohol types, however, it was not speculated that mix drinks would have a significant relationship with negative consequences. This begs the question if this is a

result of the unknown amount of liquor in the mixed drink or the large amounts that can be consumed very quickly without tasting the alcohol. Further studies will have to look to answer that question.

Many of the alcohols that were looked at showed no significant data. However, like Rohsenow et al.'s study there is a difference between some alcohols; they found a difference between bourbon and vodka in regards to hangovers. Rohsenow et al. did not look at other consequences in comparison to both bourbon and vodka<sup>14</sup>. Rohsenow et al.'s study was conducted in a laboratory setting while the current study was conducted in a naturalistic setting. Though this allows for more variables, it also allows for more applicable results. Grant et al. looked at the consequences of drinking, but with no distinction between alcohol types<sup>6</sup>. A major difference in their study compared with the current study is that they examined the relationship between consequences and BAL.

A major result of this study was finding the significant difference between genders. Males experienced more consequences when drinking mixed drinks and vodka. In regards to mixed drinks, there was a difference of 5 consequences that males experienced over females on average. This trend of males experiencing more consequences than females is also shown in Westermaas et al.<sup>20</sup>. Brown et al. found a difference in expectancy of alcohol on gender. Males were more likely to expect aggressive arousal, while females expected pleasurable changes<sup>1</sup>. Females were found by Read et al. to be more linked to more rapid accessing of social enhancement expectancies. However, among men, heavier drinking was related with more rapid accessing of social enhancement expectancies<sup>13</sup>. Many studies have shown differences in male and females in regards to drinking and behavior; the current study is no exception.

Many studies have looked at consequences some positive<sup>2</sup> and even created a validation tool to measure positive consequences<sup>3</sup>, but even more examine negative consequences. It was found that the larger dosages of alcohol was related to an increase risk of harm<sup>10</sup>. They also found that American college students were at the greatest population risk of negative consequence after only two drinks for men and women combined.

RAPI is the index that is used for the current study<sup>21</sup>. It is a 23-item negative consequence index. There are other indices that look at both positive and negative consequences<sup>20</sup>. Many indices measure negative consequences however. This is because it is more sought after to determine if and how alcohol is a problem like College Alcohol Problem Scale (CAPS)<sup>12</sup> or the Drinking Problem Index<sup>5</sup>. Many of the consequences of these scales overlap. RAPI for this study had an internal consistency of  $\alpha=.91$ . This means that the answers that were given were similarly chosen throughout the entire scale.

In contrast to the current study, which has shown that certain alcoholic beverages are related to certain consequences; another study found no large or consistent differences between different alcoholic beverages and alcohol-related harm. They did find minor differences and agree that there is a distinction<sup>11</sup>.

#### 4.1 Limitations

The sample size of the subjects that took either survey was not large, but was even smaller for those who took the follow-up survey. People were allowed to take the survey as many times as they were out. It was found that in large groups of people if one person was willing to take the field survey the others would participate too. The population at this midsized Midwestern University is mainly Caucasian so there was not a large variance in ethnicity. All the results from the survey were self-reported and coupled with subjects' intoxication impairing memory, results could be incomplete. All field surveys and consequently follow-up surveys were centered around students who went in town to the bars. Moreover, the subjects did not solely drink the alcohols in question, most drank several liquors and/or beer, wine, and/or champagne.

This study should be performed in a laboratory setting to determine more in depth the physiological consequences of specific alcohols. In addition, this study should be conducted with subjects who only drank one type of alcohol and record the consequences throughout the drinking occasion to determine if the alcohol in question is truly related to the consequences.

This study has shown a significant relationship between not only types of alcohol (vodka and beer) but also with mixed drinks and consequences. With further study, this information can be used to help people curb their negative consequences that are linked to certain alcohols. This could help reduce the negative consequences of informed people.

#### 4.2 Implications

The results have shown a difference in not only two types of alcohol beer and vodka, but also in how the alcohol is served. Mixed drinks showed higher levels of consequences than vodka. This could be because people do not realize

how much they are drink in combination with the taste of alcohol being masked by the fruity or highly sugared mixer. This study is helpful to those who want to cut back on the consequences they encounter on any drinking occasion. They have an idea now about certain risks of drinking certain beverages. Further studies need to look into the other liquors and alcohols to determine their relationship to certain consequences. In order to curb consequences people must know what increases their risk of having those consequences.

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