

The effect of alcohol consumption on academic performance.

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ABSTRACT

Many adult college students enjoy drinking alcohol, but consumption of alcohol may have negative impacts on academic performance. The purpose of this study was to investigate whether alcohol consumption affects the academic performance of an adult college student participant in her thirties. A correlational study was completed in which three hypotheses were tested. Hypothesis #1 was if the amount of alcohol consumed increases, then academic performance will decrease. Hypothesis #2 was if the amount of alcohol consumed increases, then missed classes and poor grades will increase. Hypothesis #3 was if the amount of alcohol consumed increases, then academic motivation will decrease. The method used for all three hypotheses was quantitative. The amount of alcohol consumed by the participant was recorded each day over a two-week period. The participant's academic performance, missed classes, grades and academic motivation were rated on a scale each day. The results did not demonstrate a statistically significant correlation for any of the three hypotheses. The strongest hypothesis was #1 and therefore it was used for an experimental study. The experiment used a quantitative method to determine whether there is a causal relationship between alcohol consumption and academic performance. The results of the experiment showed that increasing alcohol consumption from having one to two beers does not produce a statistically significant decrease in academic performance. A limitation of the study is that it had a small sample size and consequently the results cannot be generalized or applied to a broader population.

1. Introduction

Alcohol consumption can be a risk for academic success and can provoke students' failure. Higher alcohol consumption contributes to poor academic performance and academic motivation. A previous study by Castaño-Perez and Calderon-Vallejo (2014) looked at the psychosocial impacts of alcohol consumption by university students. A cross-sectional, descriptive correlational method was used. The study utilized an

AUDIT scale (Alcohol Use Disorders Identification Test), which was developed by the World Health Organization (WHO) and approved by Londoño Colombian University (p. 740). This survey involves a series of questions related to sex, socio-economic status, marital status, family struggles, etc., as well as questions related to alcohol intake and consequences. The participants were 396 university students of both sexes who were between the ages of 15 and 49 years old (p. 740). The results of

Castaño-Perez and Calderon-Vallejo's study showed that higher consumption of alcohol or alcohol dependence has a statistically significant impact resulting in poor academic performance (16.4% for higher consumption and 52.2% for dependence) (p. 741). These findings back up hypothesis #1 in the present study that if the amount of alcohol consumed increases, then academic performance will decrease.

The results of Castaño-Perez and Calderon-Vallejo's study also showed that higher consumption of alcohol or alcohol dependence has a statistically significant impact resulting in class absences and delays (37.3% for higher consumption and 67.4% for dependence) (p. 741). These findings support hypothesis # 2 in the present study that if the amount of alcohol consumed increases, then missed classes and poor grades will increase.

Similarly, Gilbert (2014) looked at whether alcohol consumption contributes to lower academic motivation, resulting in poor academic success. The study utilized a method with three phases where students completed several questionnaires about their drinking behavior and academic motivation. Students completed an online baseline questionnaire in phase 1; 26 weekly online questionnaires in phase 2; and up to 24 monthly online questionnaires in phase 3 (p. 12). Their total participants were 847 students (304 males and 543 females) in phase 1; 415 students (149 males and 266 females between the ages of 16 to 21 and older) in phase 2 (p. 12). The results of the study concluded that participants who drink heavily or consume numerous drinks had a decrease in their academic motivation which led to them obtaining poor grades (p. 16). Gilbert's research has relevance for hypothesis #3 in the present study that if alcohol consumed increases, academic motivation will decrease.

Based on these prior studies on alcohol consumption and academic performance in students, we can expect that the amount of alcohol consumed will have an impact on the student's academic performance in this experiment.

2. Methods

2.1 Participants

One female participant in her thirties took part in this research. The participant was a student from Camosun College.

2.2 Correlational Study Methods

2.2.1 Materials

The materials used for this correlational study were alcoholic beverages. For all three hypotheses in the correlational study, Word document tables were used to record the total amount of alcohol consumed each day and ratings of academic performance.

2.2.2 Procedure

In one column of the Word document table, the type of alcohol consumed was recorded, such as beer, wine or cocktail. In another column, the quantity of each drink consumed was recorded. Alcohol volume (mL) and alcohol content percentage for each alcoholic drink was also recorded. To calculate the total amount of alcohol consumed, the volume of each alcoholic beverage consumed was multiplied by the alcohol percentage, and these amounts were added together to determine the total amount of alcohol consumed each day. Alcohol consumption was recorded each day for 12 consecutive days.

For hypothesis #1, academic performance was measured and recorded in a Word document table. This table included homework deadlines, practice quizzes and

the total grades from homework or quizzes for each class subject. Academic performance was rated on a scale from 0 to 10. Zero signified that academic performance was extremely poor; 2 was very poor; 4 was poor; 6 was good; 8 was very good; and 10 was extremely good. A rating was recorded for each day.

For hypothesis # 2, class attendance or absence and grades were recorded in another Word document table. This table included class name, missed/attended class, teacher's evaluation, and grades. A missed class was rated as -10 and an attended class was rated as +10. For grades, the ratings were -10 for poor grades, 0 for average grades, and +10 for good grades. The grades were based on teachers' evaluations and their marking criteria.

For hypothesis # 3, academic motivation was measured and recorded in another Word document table. The rating scale used was from 0 to 100, with 0 signifying no motivation toward academics. A rating of 25 meant low academic motivation, 50 meant medium academic motivation, 75 meant high academic motivation, and 100 meant extremely high motivation to perform academic tasks. For the three hypotheses, data was recorded for 12 consecutive days.

2.3 Experimental Study Methods

2.3.1 Materials

The materials used in the experimental study consisted of 18 bottles of Mexican imported beer (Sol, Dos Equis XX). The alcohol percent was 4.7%. A Word document table was used to record the number of beers consumed each day and ratings of academic performance.

2.3.2 Procedure

On experimental days, the participant consumed two bottles of beer in the evening.

On control days, the participant consumed one bottle of beer in the evening. The participant had a friend randomly assign a condition of consuming two beers (experimental) or one beer (control) every day for 12 days. The process for random assignment used 12 pieces of paper: six pieces stated "one beer" and six pieces stated "two beers". The papers were folded individually and put into a hat. The friend shook the hat and drew one paper out each day.

During the 12 days of this study, the consumption of alcohol occurred every evening around 6:00pm. The participant followed safety measures while consuming alcohol. She had a friend monitor her safety while she was drinking, and she did not drive after drinking. A positive drinking environment was essential for the participant's safety in this experiment.

The participant's academic performance was measured and recorded in a Word document table. This table included homework deadlines, practice quizzes and total grades from homework or quizzes for each class. Academic performance was rated on a scale from 0 to 10. Zero signified that academic performance was extremely poor; 2 was very poor; 4 was poor; 6 was good; 8 was very good; and 10 was extremely good. To lessen the chance of experimenter bias, the participant had a second friend who was unaware of the hypothesis and what condition the participant received each day review the participant's Word document table with the deadlines and grades for quizzes and homework. This friend rated the participant's academic performance each day. The ratings were compared to the total amount of alcohol consumed each day.

Table 1. Correlation coefficient (r) values from the Correlational Study, with number of trials (n) per correlation in brackets.

Hypothesis examined	r (n)
Alcohol Amount & Academic Performance	0.28 (12)
Alcohol Amount & Missed Classes	-0.08 (12)
Alcohol Amount & Academic Motivation	0.05 (12)

2.4 Statistical Methods

The level of statistical significance set in the correlational and experimental studies was a p value of 0.05.

3. Results

3.1 Correlational Study Results

The results of this correlational study determined that there was no statistically

significant correlations for the three hypotheses tested. For hypothesis #1, the results showed a r of 0.28 ($p = 0.41$). For hypothesis #2, the r was -0.08 ($p = 0.82$). For hypothesis #3, the r was 0.05 ($p = 0.88$). See Table 1 and Figure 1 for details on these correlations.

3.2 Experimental Study Results

The results of this experiment showed that there was no statistically significant

Figure 1. Scatterplot of alcohol amount and academic performance (Correlational study).

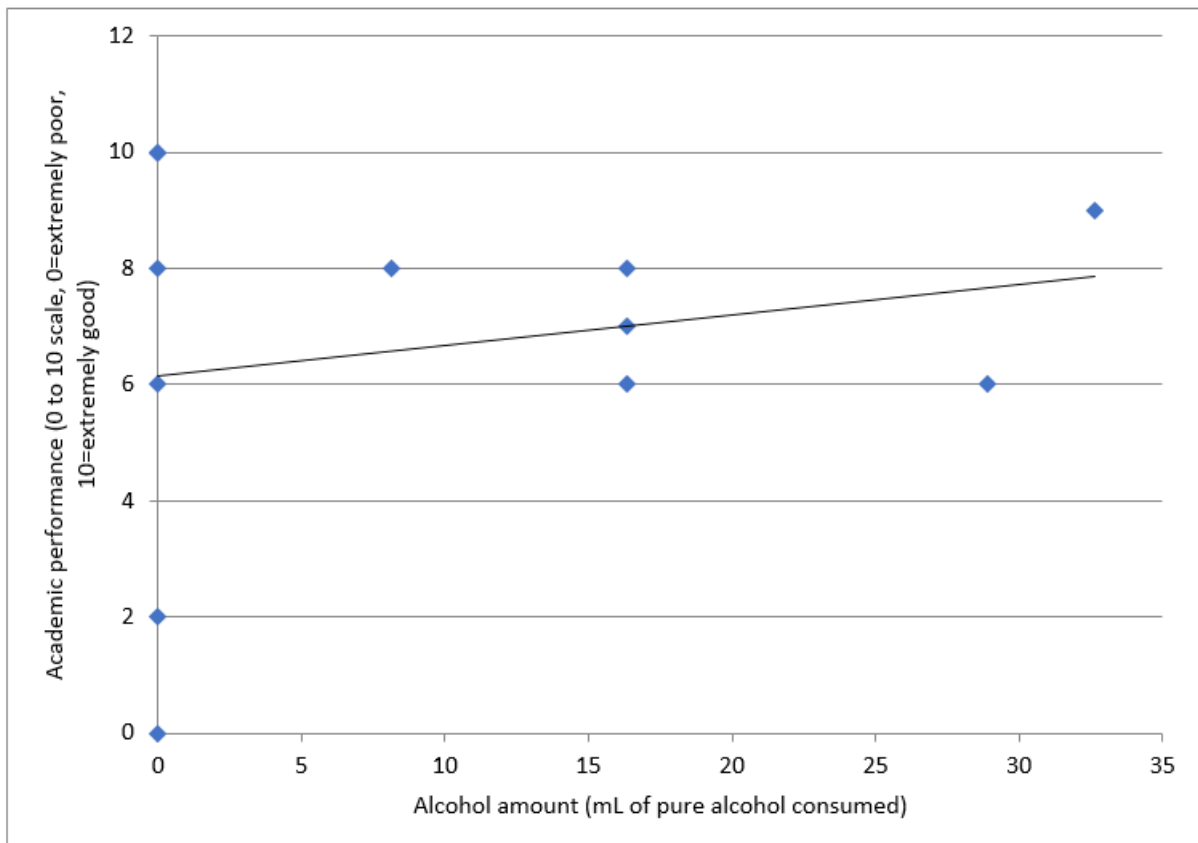


Table 2. Descriptive statistics on academic performance for alcohol amount conditions (Experimental study).

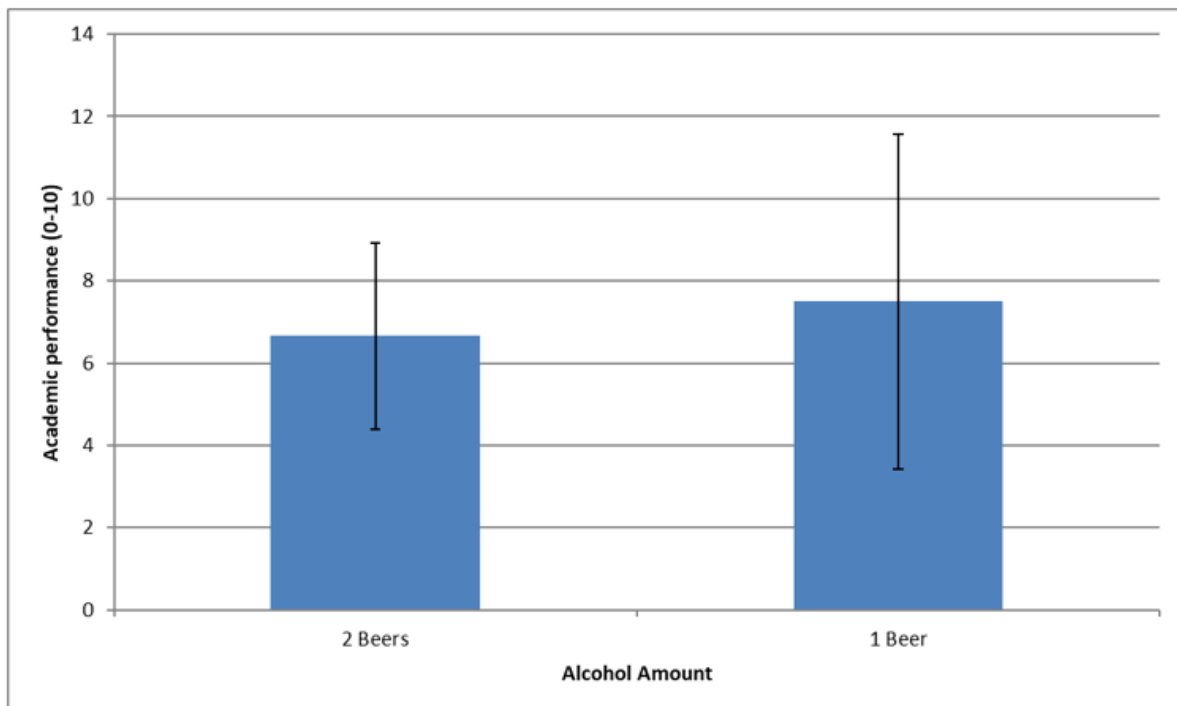
Condition			
Two Beers	Mean	6.7	
	S.D.	2.2	
	N.	6	
One Beer	Mean	7.5	
	S.D.	3.9	
	N.	6	

difference between academic performance in the experimental condition (two beers consumed) versus the control condition (one beer consumed). The mean academic performance rating was 6.7 for the experimental condition versus 7.5 for the control condition ($p = 0.66$). See Table 2 and Figure 2 for a summary of the descriptive statistics.

4. Discussion

This research consisted of two types of studies: a correlational study and an experimental study. The correlational study included three hypotheses: increasing alcohol consumption will decrease academic performance (hypothesis #1); increasing alcohol consumption will increase missed classes and poor grades (hypothesis #2); and increasing alcohol consumption will decrease academic motivation (hypothesis #3). The results of the correlational study were not statistically significant for any of

Figure 2. Bar graph of average ($\pm$ 95% C.I.) academic performance across alcohol amount conditions (Experimental study).



the three hypotheses. The strongest correlation was hypothesis #1, which was used for the experimental study.

Hypothesis #1 investigated in the experimental study was that if the amount of alcohol consumed increases, then academic performance will decrease. The hypothesis was not supported as there was not a statistically significant causal effect of alcohol consumption on academic performance.

While this study did not find a statistically significant correlational or causal relationship between alcohol consumption and academic performance, this is in contrast to previous research findings which did show that higher alcohol consumption can impact academic performance. In the study from Castano-Perez and Calderon-Vallejo (2014), their results showed that high alcohol consumption and alcohol dependence can have a harmful effect on academic performance (16.4% when alcohol is consumed in higher doses and 52.2% when there is dependence) (p.741). Similarly, Gilbert's (2014) study showed that higher alcohol consumption is associated with lower academic motivation, which results in lower grades.

Unlike the previous studies, the type of alcohol consumed in the present study was mostly beer with an alcohol content of 4.7% rather than other types of liquor with a higher alcohol content. Furthermore, the participant only consumed one or two drinks each day, as opposed to consuming a higher amount of alcohol like in the previous studies. These differences could explain why the results in this study were not statistically significant despite the large number of trials. The difference between one beer and two beers with low alcohol content is minimal in comparison to the impacts of heavier alcohol consumption. In

this study, consuming two beers resulted in slightly lower academic performance than consuming one beer, but it was not enough of a difference to be statistically significant.

This study had some limitations, particularly the number of participants in the study as it included only one participant. Castaño-Perez and Calderon-Vallejo (2014) had 396 participants of both sexes aged from 15 through 49 for their study (p. 740). Gilbert's (2014) study had 415 participants of both sexes with ages ranging from 16 to 21 and older (p. 12). With only one participant, this study cannot be used to generalize to a broader group of people. Another limitation is that the alcohol used in the experimental study was limited to beer and did not include other kinds of alcohol, as discussed above. Consequently, the results cannot be generalized to other types of alcohol. Lastly, the setting of this study was limited to drinking alcohol at home. As people might consume more alcohol in places such as at bars or pubs, in comparison to at home, the results of the study may not be applicable to drinking that occurs in a wider variety of settings.

In conclusion, the hypotheses for this study that increased alcohol consumption will decrease academic performance were not supported. Future studies should include a larger sample size, a wider variety of alcohol types, and a higher amount of alcohol consumed.

References

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