

# Behavior of First Year College Students

**A Quantitative study of Depression and the Dependence of Alcohol and Cigarette**

**Smoking among First-Year College Students**

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**Research Methods**

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## ABSTRACT

*This is a quantitative study of depression, self-esteem, smoking and drinking behaviors among first year college students. The study results from a sample of 170 first year undergraduate students at the University of New Hampshire. Using the Center for Epidemiologic Studies Depression Scale, Rosenberg's Self-Esteem Scale, and the Short Alcohol Dependence Data (SADD) scale, results show that sex significantly predicts depression, even when controlling for self-esteem, alcohol scale scores, and smoking. Being female is associated with higher depression scores. When measuring self-esteem, results show that self-esteem is significantly associated with depression. Lower self-esteem is significantly associated with higher depression. Results also show that alcohol use significantly increases depression among males, but not females which indicates that other factors are perhaps associated with depression for females. Larger implications of this research suggest incorporating all academic standing students for more diverse results.*

## INTRODUCTION

Depression reflects a prolonged feeling of negative affect that is often found to be correlated with alcohol-related problems (Patock-Peckham & Morgan-Lopez, 2007) and to have a strong association with cigarette smoking behaviors (Vogal, Hurford, Smith & Cole, 2003). In the social science discipline little is known about alcohol and smoking dependency and its effect on depression. McChargue, Cohen, and Cook (2004) suggest that the adjustment to college in the first few years is strongly associated with depression. Individuals who are separated from their family and familiar social bonds may increase alcohol consumption and smoking rates to adjust to college life and fit in. Other research demonstrates that demographic variables such as poor academic performance and prior parental involvement with smoking and alcohol consumption will be more likely to be associated with depression (Vogal, Hurford, Smith & Cole, 2003). Since there has been a lot of focus on just males and their experiences with depression from nicotine and alcohol, it may also be of interest to consider how emotions of depression influence the

dependency among alcohol and smoking behaviors of college females as well. It is of importance to compare the experiences among males and females to see if alcohol and cigarette smoking correlate with depressive symptoms in a similar fashion.

While there has been some research done on depression, alcoholism and nicotine addiction and attachment, most literature has failed to touch on gender and attachment factors among first year college students. Due to findings that indicate the number of student drinkers has more than doubled in the last decade during the college years (Pullen, 1994), the investigation of factors contributing to the dependence of alcohol and smoking among first year college students is justified. Kelley, Thomas and Friedmann (2003) observed in a tobacco use survey of over 14,138 college students, that 38% of the women reported smoking cigarettes in the past year, and that of college women who do smoke, 28% initiated smoking in college. In a study of 21 female college smokers, 95% of the smokers also reported frequent heavy drinking (Kelley, Thomas & Friedmann, 2003). It is of importance to investigate whether there is a correlation between students who drink alcohol and smoke cigarettes. Similarly Beck et al (2008) found that 24% of male college students and 13% of females in the U.S meet clinical criteria for an alcohol use disorder. Little is known about the relationship between depressive symptoms and alcohol use and cigarette smoking among first year college students and how it corresponds to their genders. Research has suggested that increased depression during the first year of college has revealed to be an essential factor for smoking initiation among college students (Kenney & Holahan, 2008) as well as alcohol consumption (Pullen, 1994).

## **Purpose**

Although the results from prior research point to a relationship between self-medication, self-esteem and substance use, they are somewhat limited. Additionally, the researchers did not differentiate their results in terms of gender. Therefore, it is impossible to make a statement about whether or not alcohol and cigarette smoking affect males and females differently in regard to their propensity to act depressed. The aim of this present study is to expand upon and contribute to previous literature regarding depression by acquiring support for the presence of alcohol use and dependence of cigarette smoking among first year students who exhibit depressed behavior in college. This current study will investigate if there is a connection between those who drink and those who smoke in college. The influence of the dependence of alcohol and cigarette smoking on student's behavior will also be considered with respect to both genders.

It is hypothesized that H1: depression will have a positive relationship with students who have low self-esteem, as levels of depression increase, levels of self-esteem will decrease. H2: Depression and alcohol dependence are positively correlated. H3: Cigarette smoking and alcohol consumption are positively correlated. In addition I hypothesize H4: that the relationship between depression and alcohol will not vary significantly by gender.

## LITERATURE REVIEW

### **Alcohol and Depression**

Alcohol use and abuse is viewed as a widespread concern for all college students (Pullen, 1994). The direct and indirect influences of dependence on alcohol and related problems through the pathway of depression are not entirely understood (Patock-

Peckham & Morgan-Lopez, 2007). One study proposed that alcohol may be used to disrupt negative self-evaluation processes due to alcohol interfering with the encoding of information of the self (Stephens & Curtin, 1995). Research suggests that the level of one's drinking is positively related with feelings of personal helplessness, powerlessness, and low self-esteem. Reports showing the correlation among college student's confidence and self-worth have generally been limited (Pullen, 1994). Because of the magnitude of alcohol abuse in college campuses, and the limited studies done with first year students, this new study will be conducted to determine if there is significance between alcohol consumption in regards to depressive symptoms, and low self-esteem.

Beck et al (2008) describes six social contexts in which drinking have been identified on college campuses. Drinking for peer acceptance where drinking is initiated to become part of a group, and drinking due to emotional pain where drinking is done to mediate negative thoughts or stressors (to get rid of depression, academic stress or personal/family problems), have both been of an important interest. Alcoholic individuals state they like to drink to relieve their feelings of depression (Beck et al, 2008) while other researchers also suggest that depression may cause or maintain alcohol problems in certain individuals (Stephens & Curtin, 1995). It's a cycle that once drinking occurs to relieve stress factors, anxiety and stress can reoccur to create more problems associated with depression once drinking has stopped. This research is targeted to see if those who are experiencing depressive symptoms are also engaging in alcohol consumption.

Why is alcohol such a prominent drug and associated with depression? For most alcoholic drinkers, the consumption of alcohol becomes the preferred way of dealing with unfavorable situations and negative feelings which can induce depression (Pullen, 1994). Suicide, which is now the third leading cause of death among students 15-24 years of age

(Pullen, 1994), is associated with individuals turning to alcohol to suppress their depressive emotions. Many college students use alcohol to deal with anxiety because of the belief that alcohol can produce relaxation (Pullen, 1994). Due to limited research, this present study will examine if there is a correlation between alcohol consumption and depression among first year students. It will look to see if there is a correlation between students who are depressed and may have low self-esteem and whether these individuals are participating in alcohol consumption.

### **Depressive Symptoms and Cigarette Smoking**

Kenny and Holahan (2008) suggest that depressive symptoms may be a significant risk factor for college cigarette smoking students. This type of relationship suggests that common predispositions such as low self-esteem can contribute to cigarette use. Their study proposes self-efficacy as a mechanism for smoking maintenance for college students. Their research states that depressive symptoms may be related to lower smoking self-efficacy (Kenny & Holahan, 2008). This is similar with Ridner (2005) who find's that depressive symptoms predict initiation and outcome of cigarette smoking. The social influence of friends and families can pressure the initiation of cigarette smokers (Ridner, 2005). This present study will examine the contexts in which first-year college students are choosing to initiate smoking. Smoking within social settings will be an area of interest.

Many theories propose a biological link between depression and smoking. Vogel, Hurford, Smith, & Cole (2003) propose that depression, which tends to create stress for individuals, and nicotine, a drug that stimulates dopamine release, can relieve those symptoms of stress and anxiety. They also suggest that constant exposure to tobacco

smoke may bring forth serotonin-related changes in the brain that cause increased depression when smoking is stopped. Similarly Kenney and Holahan (2008) found that students with depressive symptoms may turn to cigarette smoking as a form of self-medication with nicotine's mood-altering effects. There is little research done that concentrates on first year student's exposure to smoking and how it corresponds to drinking and depressive symptoms.

Past literature has predicted that depressive symptoms will positively relate to the number of cigarettes smoked each day (Kenney & Holahan, 2008). This relates to Lenz (2004) findings that indicate in a study of 1,000 selected undergraduates from a northeastern university, 49.3% of students identified stress as a motivation for smoking. This new study will include factors that contribute to students smoking levels and determine if there is a relationship among students who drink and those who smoke when it comes to depressive symptoms of first year students. The study will look at contexts in which students choose to smoke such as, a stress reliever, in social contexts, or in relationship to alcohol consumption.

## METHODS

### *Sample*

A random sample of 8 English first year writing undergraduate classrooms at the University of New Hampshire were included in the sample. 170 undergraduate college students (71 [41.76%] males and 99 [58.24%] females respectively) volunteered to participate in the study. Prior permission was obtained from university professors to survey classrooms and informed consent forms elaborated that participation is voluntary and can be terminated at any point throughout the process. The students were told not to

place their names on any of the materials to ensure their answers remained anonymous. They were also given debriefing sheets if they had any further questions about the study and its results. The students in these classes were given a survey at the beginning of each class period to complete and anonymously place in a box located at the front of the classroom. Each survey consisted of 90 quantitative questions. Due to New Hampshire's demographics it was expected that the majority of the sample would be females (n=99) and the remaining males (n=71). This study's unit of analysis is individuals.

### *Methodology*

This study had several null and alternative hypotheses. The First null hypothesis is that depression has no correlation with self esteem; the alternative hypothesis for this study, is as levels of depression increase, levels of self-esteem will decrease, That depression will positively correlate with students who have low self-esteem. The second null hypothesis is that there is no correlation among students who consume alcohol and have depressive symptoms; the alternative hypothesis for this study is depression and alcohol dependence are positively correlated. The third null hypothesis is that cigarette smoking and alcohol consumption have no relationship among college students; the alternative hypothesis for this study is cigarette smoking and alcohol consumption are positively correlated. And the final null hypothesis states that depression and alcohol consumption have no correlation when it comes to genders; the last alternative hypothesis states that the relationship between depression and alcohol consumption will not vary significantly by gender.

For the purposes of this study simple random sampling, a probability sampling measure, was used to recruit participants. First year students are the constant over time. Considering that freshman at the University of New Hampshire are required to take first-

year writing their first year at this college, randomly selecting first-year writing English classes was justified. This technique was chosen because I had access to the list of all freshman first-year writing classes offered during the fall semester and was able to successfully give each case an equal chance of being selected using a number generator. I first retrieved a list of all the first-year writing courses being offered in the Fall 2008 semester and numbered them 1-52. Next, a number generator was used to select 8 sections being offered, which I would then go in and survey each class. Having a probably sampling technique, such as simple random sampling, was a crucial choice because if done correctly it allows me to generalize my findings. I chose to select 8 classrooms since generally English classes are small with only 20-22 students in each class. Surveying 8 classrooms allowed me to get to my desired sample size. Also, my sample of interest, English students, allows students of all majors, socioeconomic status, races and genders to be representative in the sample.

#### *Variables and scales*

*Depression.* To test depression, depressive symptoms will be measured quantitatively using the 20-item Center for Epidemiologic Studies Scale (CES-D) (Patock-Peckham & Morgan-Lopez, 2007). Some sample items of the depression scale referred to, the extent to which one is fearful, lonely, sad, had crying spells, felt disliked, felt people were unfriendly, talked less than normal, felt that sleep was restless, had thought that their life was a failure, thought everything they did was an effort, could not keep their mind on tasks, and had feelings of depression. It is measured by a score of the total number of sociometric nominations received after completing the survey. Answers varied from 0 “not at all” to 3 “almost all the time.”

*Alcohol Dependency.* In order to measure the extent to which the students exhibit alcohol dependency, the 15-item Short Alcohol Dependence Data (SADD) self-reported questionnaire will be used quantitatively (Stephens & Curtin, 1995). Some sample items from this scale include, not being able to get the thought of drinking out of your head, worrying about where to drink and when to drink, drinking for the effects and not for the taste of the drink, drinking too much and not being able to tell when to stop drinking. The items were scaled from 0 “not at all” to 3 “almost all the time.”

*Self-Esteem.* In order to measure self-esteem of students the Rosenberg’s Self Esteem Scale will be used. It consists of 10 statements related to overall feelings of self-worth or self-acceptance. The items are answered on a four-point scale ranging from 0 “not at all” to 3 “almost all the time.” Sample items from this scale include, at times I think I am no good, I wish I could have more respect for myself, I feel I do not have much to be proud of, and at times I feel like I am a failure.

*Parent’s alcohol dependency.* To test the dependency of alcohol of students’ parents, the Children of Alcoholics Screening Test (CAST) (Pullen, 1994) will be used. It consists of statements related to overall feelings towards parents’ use of alcohol. Sample items from this scale include, I have felt that one of my parents has had a drinking problem, I have argued with a parent when he/she was drinking, I felt like running away from home due to a parents drinking, I wish that my parent would stop drinking, I resent my parents drinking, I felt like I made my parents drink, and I took on more responsibilities at home due to a parents drinking. The items are answered on a four-point scale ranging from 0 “not at all” to 3 “almost all the time.”

*Cigarette Smoking.* To test cigarette smoking among students I made up my own 8-item scale. I will be asking the participants questions regarding their smoking habits.

Questions include statements such as, I smoke cigarettes, I smoke cigarettes when drinking alcohol, I smoke cigarettes to relieve stress, and I smoke cigarettes in social situations. Responses are measured by a score of the total number of sociometric nominations received after completing the survey, 0 “not at all” to 3 “almost all the time.”

Using pre-existing scales allowed my findings to already be subjected to reliability and validity. By using a probability sampling technique, it allows my sample to be representative of the larger freshman population at UNH. I was able to use some scales that were offered in the pre-existing literature I read, but other scales I needed to find on my own so that they would better tie into what I was researching. The majority of the scales I used I was pleased with, except, the Children of Alcoholics Screening Test (CAST). This scale was too long and did not give me the results and response rate I was looking for.

### *Limitations*

One limitation of this study is that cause and effect can not be established between drinking, cigarette smoking and depression. This is only a cross-sectional study and it does not allow for interpretations of causal influence. There is also a recall bias of past experiences of participants. It is hard to know if participants are truthful answering each question since the length of the survey was rather long. Another limitation was that there were not have enough participants who were smokers (n=51) out of the 170 participants. I would have liked to have a shorter scale for parental alcohol use that could generate a better response rate. Although I had spent quite some time on the design of my survey and making sure I had important questions that were pertinent to my research hypotheses, and included unambiguous questions; It wasn't until after data analysis that I thought up

several questions that I wished I had included in my surveys. Future research is needed to extend my findings by including college students of all ages.

## RESULTS

Using the statistical program Small Stata, I was able to examine the correlations between alcohol consumption, self-esteem, depression and cigarette smoking. I was also able to look at these variables between genders. To look at each relationship I conducted statistical tests to find out if the variables had an association with each other.

### *Sample*

The sample size consisted of 170 undergraduate college students at UNH. First-year college students accounted for 98.82% of the participants (n=168); and second-year college students accounted for 1.18% of the participants (n=2). Declared smokers who have smoked in their lifetime comprised 1/3 of the sample (n=51) and non-smokers comprised 2/3 of the sample (n=119). Of the participants who are smokers, 29.4% are involved in either a club or sport on campus (n=15) and 70.6% are not involved in either a club or sport on campus (n=36).

A Pearson's correlation analysis was run to test two of my hypotheses. For hypothesis 1, that depression will be correlated with low self-esteem of first-year College students and second for hypothesis 2, cigarette smoking will be correlated with students who consume alcohol. The correlation analysis test indicates that there is a statistically significant relationship between depression and low self-esteem ( $p < .001$ ). This indicates that low self-esteem is a significant predictor of depression. For each variable such as "depression and "self-esteem," I needed to tabulate each question provided in each scale within the survey to make a composite variable for that whole scale. Since the depression

scale had 20 questions, each individual question was given a name and all those names were combined to make the depression composite variable (M= 16.105, SD= 8.04). This same procedure was done for all other variables. The “self-esteem” variable was made from a 10 question scale (M= 6.05, SD= 4.97). When asked if participants considered themselves a person of worth the majority (48.82%) of the total sample reported with a low self-esteem answer- “not at all,” and (37.06%) reported “occasionally.” Participants reported similarly for the depression scale when asked if they had been bothered by things that usually don’t bother them. The majority (61.18%) of the total sample stated “occasionally.” These tabulation findings also go along with the Pearson’s correlation analysis that self-esteem is a significant predictor of depression.

This correlation analysis was first made by generating each independent variable. To create the “alcohol” composite variable, all the questions within the alcohol dependency scale were tabulated and then summed for a history of the overall composite variable (M= 4.65, SD= 4.69). The same procedure was done for the composite variable “smoking,” (M= 1.80, SD= 4.11), and “parent alc” (M= 3.47, SD=9.02). The Pearson’s correlation analysis also indicates that there is a significant correlation between alcohol consumption and cigarette use ( $p < .001$ ). When asked if participants smoke in relation to alcohol, social situations with friends, and to relieve stress, the majority of students responded to smoking alongside alcohol. Within the sample of smokers (n=51) a total of 98.03% of participants (n=50) stated either “occasionally” or above to smoking with alcohol. Specifically, 24% of participants (n=12) stated “almost all the time,” 18% of participants (n=9) stated “frequently” and the remaining 54% of participants (n=27) stated “occasionally” to smoking in relation to alcohol. Table 1 indicates the levels of significance for all independent variables as well as the correlation coefficients.

**Table 1: Depression, Self-Esteem, Alcohol and Smoking Correlation Analysis (N=170)**

	Depression	Self-Esteem	Alcohol	Parent	Smoking
Depression	1.0000				
Self-Esteem	0.7297 0.0000**	1.0000			
Alcohol	0.1669 0.0296*	0.1365 0.0760	1.0000		
Parent Alc	0.1347 0.0799	0.1440 0.0609	0.0850 0.2702	1.0000	
Smoking	0.0060 0.9382	0.0355 0.6457	0.5254 0.0000**	0.1808 0.0183	1.0000

Note: \* p< .05, \*\* p<.01

The correlation analysis test indicates that alcohol consumption is statistically significant with depression. Alcohol is a significant predictor of depression with a significance level of (.0296, p<.05). Parental alcohol consumption is not significantly correlated with student’s depression levels (p>.05). This analysis also indicates that cigarette smoking was not significantly related to depression with a significance level of (.9382, p>.05).

A regression analysis test was then run to assess the effects of multiple independent variables (gender, self-esteem, alcohol, and smoking) on a single dependant variable (depression). I chose this specific test to analyze my hypotheses because it runs several different tests within the same analysis. Table 2 located below shows the regression analysis for depression, gender, self-esteem, alcohol consumption and smoking.

**Table 2: Regression Analysis of Gender, Depression, Self-esteem, Alcohol and Smoking  
N=170**

Source	SS	df	MS	Number of obs = 170		
Model	6321.09151	4	1580.27288	F( 4, 165) =	56.57	
Residual	4609.0026	165	27.9333491	Prob > F =	0.0000	
				R-squared =	0.5783	
				Adj R-squared =	0.5681	
Total	10930.0941	169	64.6751131	Root MSE =	5.2852	

  

depression	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
gender	<b>3.169679</b>	.8327036	3.81	<b>0.000</b>	1.525551	4.813806
selfesteem	<b>1.13122</b>	.0829642	13.64	<b>0.000</b>	.9674117	1.295028
alcohol	<b>.2304544</b>	.103447	2.23	<b>0.027</b>	.026204	.4347048
smoking	-.1408679	.1163173	-1.21	0.228	-.3705301	.0887943
_cons	6.594902	.8775336	7.52	0.000	4.86226	8.327545

This regression analysis indicates several interesting findings. To begin with the variable gender, we can notice that sex does significantly predict depression, even when controlling for self-esteem, alcohol scale scores and smoking ( $p < .001$ ). Being female is associated with higher depression scores. The variable self-esteem is also significantly associated with depression ( $p < .001$ ). Lower self-esteem is significantly associated with higher depression. Every one-unit increase in negative self-esteem increases depression by 1.13 units, even when controlling for other variables. Alcohol scale scores are also significantly associated with depression ( $.027, p < .05$ ). Consuming more alcohol is associated with higher depression. Every one-unit increase in alcohol scale scores is associated with a .23 unit increase in depression. What this regression analysis also reveals is that smoking is not significantly associated with depression ( $p > .05$ ).

*Alcohol Predicting Depression for Males and Females*

As the Pearson’s correlation analysis findings support that alcohol is a significant predictor of depression, it was of interest to determine if this is the case for both males

and females. My research hypothesis states the relationship between alcohol consumption and depression will not vary significantly by gender. I ran two separate Regression analyses for both males and females in respects to alcohol being a significant predictor of depression. Refer to table 3 and 4 Located below.

**Table 3: Hierarchical Regression Alcohol Predicting Depression for Males: N=170**

Source	SS	df	MS	Number of obs = 71		
Model	2116.43316	2	1058.21658	F( 2, 68)	=	43.79
Residual	1643.42599	68	24.1680293	Prob > F	=	0.0000
				R-squared	=	0.5629
				Adj R-squared	=	0.5500
Total	3759.85915	70	53.7122736	Root MSE	=	4.9161

  

depression	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
selfesteem	<b>1.06378</b>	.1293634	8.22	<b>0.000**</b>	.8056392	1.321921
alcohol	<b>.3381123</b>	.1418848	2.38	<b>0.020*</b>	.0549856	.621239
_cons	6.080719	1.088739	5.59	0.000	3.908175	8.253264

Note: p< .05\*, p< .01\*\*

**Table 4: Hierarchical Regression Alcohol Predicting Depression for Males: N=170**

Source	SS	df	MS	Number of obs = 99		
Model	3611.72924	2	1805.86462	F( 2, 96)	=	58.75
Residual	2950.77581	96	30.7372481	Prob > F	=	0.0000
				R-squared	=	0.5504
				Adj R-squared	=	0.5410
Total	6562.50505	98	66.9643373	Root MSE	=	5.5441

  

depression	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
selfesteem	1.16308	.1087296	10.70	0.000*	.947253	1.378906
alcohol	.0802237	.1140428	0.70	0.483	-.1461495	.3065969
_cons	9.973416	.9739566	10.24	0.000	8.040127	11.9067

Note: p< .01\*

Table 3 indicates that alcohol use is a significant predictor of depression for males, even when controlling for self-esteem (.020, p<.05). Every one unit increase in alcohol scale scores increases depression scores by .338 units for males. Table 4 indicates that alcohol scale scores are not significantly predictive of depression scores for

females, even when controlling for self-esteem (.483,  $p > .05$ ). Concluding both table 3 and table 4, alcohol use significantly increases depression among males, but not females, even when controlling for self-esteem. These two tables' fail to support my hypothesis that states, the relationship between alcohol consumption and depression will not vary significantly by gender. Depression is associated with the increase in alcohol consumption among males, but table 4 indicates that other factors are perhaps associated with depression for females, not including alcohol consumption.

To sum up the general findings, depression does have a correlation with students who have low-self esteem. Depression also corresponds with students who experience dependence towards alcohol. Regression analyses show alcohol use is a significant predictor of depression for males even when controlling for other variables. Cigarette smoking is positively correlated with students who consume alcohol. Lastly, my fourth hypothesis was discredited since depression is not associated with the dependence of alcohol among genders similarly. In fact, the relationship between alcohol consumption and depression does vary significantly by gender. Alcohol use significantly predicts depression among males but not females even when controlling for other variables.

## DISCUSSION

Students entering college can face great changes in their social environment. Some students are living away from home and are free from direct parental supervision. Experimenting with alcohol and cigarette smoking at this age group represents a significant danger for dependence and depressive symptoms. As expected, higher total depression scores from the CESD scale were associated with participants drinking and perceptions of drinking. More specifically, this study found a significant relationship between drinking and certain aspects of depression among males. Male participants had a

significant association between alcohol consumptions and high depression scores. These findings correlate with Beck et al (2008) findings that indicated more men than women, 24% respectively of college men meet clinical criteria for an alcohol use disorder. As expected, when a regression analysis test was run, low-self esteem is positively correlated with higher levels of depressive symptoms. Recent research has noted that the level of one's self-esteem is positively related with feelings of personal helplessness, powerlessness, and feelings of depression (Pullen, 1994). It was interesting to see that some of my findings were corresponding with the results of previous researchers. Although my findings are limited by the lack of a clinically depressed sample, they support a reinforcement that may underlie the development and maintenance of some coexisting alcoholic and depressive symptoms. Kenny and Holahan's (2008) Findings also support the hypotheses that depression is related to low self-esteem and that alcohol consumption is correlated with cigarette use. Kenny and Holahan (2008) suggest that depressive symptoms may be a significant risk factor for college drinking students. This relationship suggests that common dispositions such as low self-esteem can contribute to alcohol use of depressed students.

My research question's wanted to examine the relationship alcohol consumption and cigarette smoking had on depressive symptoms of college first year-students. I wanted to explore the correlation several independent variables had on depression. First, looking at how depression correlated with self-esteem helped me understand and develop other research questions. I wanted to know if alcohol consumption had a significant relationship with depressive symptoms of college students since alcohol is known as a widespread social problem among the college-age population (Pullen, 1994.) Once I thought more into this question, I then decided to explore if alcohol consumptions and its

relationship with depression varies significantly by gender. I hypothesized that the correlation will not vary significantly by gender, but my hypothesis was not supported by my findings. There has been little research done on just females with respects to alcohol consumption and depression so I wasn't surprised that my findings did not match my hypothesis. Previous literature regarding males and alcohol and depression show that alcohol is a significant predictor of depression (Stephens & Curtin, 1995). Further research needs to be done to explore depression among females and other factors that are perhaps associated with depression for females.

My hypothesis that states cigarette smoking is positively correlated with students who consume alcohol was supported by my results. Stephens & Curtin (1995) proposed that alcohol may be used to disrupt the thought processes due to alcohol interfering with the encoding of information, and this could be a reason that more students are likely to smoke cigarettes in relation to alcohol than alone. I was pleased with my overall research questions and hypothesis and I was happy to see that not all of the hypotheses were supported by my findings. It allows me to think more about my research questions and propose new ones if further research will be completed.

### *Weaknesses*

Although my research questions and hypothesis were broad I was able to see the process of having a topic, developing a research question and hypotheses to go along with it, and whether my results will support or not support my original hypotheses. I would like to create more in-depth hypotheses if I would continue with this research. I was surprised to see that a majority of my hypotheses were supported once the data was analyzed. The weakness of this study is that it is a cross-sectional study and its biggest limitation is time. If given more time, I feel as though I could have chosen better scales

after pre-testing my survey, shorten the length of the survey, and had more time to really understand all the findings and results. This study only had (n=51) student smokers and if I was to do this study over, I would try to find a larger student smoking sample along with more student drinkers. I am not entirely confident in the ability to generalize my findings to other colleges, or academic standing students, other than just freshman students at UNH.

### *Future Research*

This study is looking at the relationship between alcohol consumption and cigarette smoking in relation to depressive symptoms. While this study's sampling technique limits the generalizability to other college-aged students, these findings can still be beneficial in the correlation between depression and behaviors of college students, and prevention programs in schools. Furthermore, the generation of similar findings from replications of this study with different age groups would enhance the external validity of the findings. Investigations in the future should concentrate on obtaining a random sample of students from universities throughout the United States, or even within one state. This will enable researchers to determine differences which might exist as a result of geographical location. While this research study is concerning cross-sectional data, future studies that involve longitudinal research may help to validate findings.

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