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Phil J. Dohn

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STUDENTS PERCEPTIONS OF ALCOHOL  
USE ON UNIVERSITY CAMPUSES

By

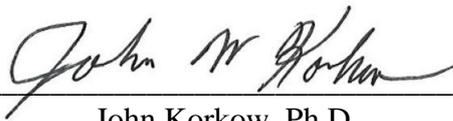
Phil Dohn

A Thesis Submitted in Partial Fulfillment  
Of the Requirements for the  
University Honors Program

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Department of Addiction Studies  
The University of South Dakota  
May 2021

The members of the Honors Thesis Committee appointed  
to examine the thesis of Phil Dohn  
find it satisfactory and recommend that it be accepted.



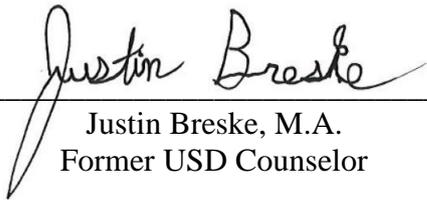
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## ABSTRACT

### Students Perceptions of Alcohol Use on University Campuses

Phil Dohn

Director: John Korkow, Ph.D.

*Background:* College students are faced with the problem of balancing between the freedom attained for the first time in life and living responsibly away from parents. Most of the students rely on colleges as the platform through which they undergo desired developmental changes.

*Aim:* The study aims to examine student's knowledge and attitudes towards the consumption of alcohol and policies developed by campuses.

*Methods:* The study employs meta-analysis technique in which data from several studies are combined. The method is used to determine the common effect especially because the effect size is consistent from a single study to another. The study collects data from research conducted among college students in the past decade.

*Results:* The study finding indicates that the majority of college students are aware of and understand the policies developed by the campuses. Half of the students who are aware of the regulations do not follow them. The majority of the students engage in drinking in social events because they emulate their peers and seek to attain sensation feeling.

*Conclusion:* It is evident that college drinking is a social problem that is rampant in colleges. The administration of campuses has rules that are not followed by the students. Sensation seeking and peer pressure rank among the most critical factors that lead to binge drinking on campuses.

**KEYWORDS:** Alcohol, College, University, Drinking, Student

## TABLE OF CONTENTS

|   |    |
|---|----|
| 1. Introduction.....                            | 1  |
| 2. Materials and Method.....                    | 5  |
| Table 2.1 Studies used in Research.....         | 8  |
| 3. Results.....                                 | 10 |
| 3.1 Phase One: Quantitative Results.....        | 10 |
| 3.1.1 Alcohol Use in Biopsychosocial Model..... | 11 |
| 3.1.2 Sensation Seeking Among Students.....     | 12 |
| 3.2 Phase Two: Qualitative Results.....         | 13 |
| 3.2.1 Alcohol Expectancies.....                 | 13 |
| 3.2.2 Peer Norms.....                           | 13 |
| 3.2.3 Gender Norms.....                         | 14 |
| 4. Discussions.....                             | 15 |
| 5. Conclusion.....                              | 19 |
| References.....                                 | 22 |

## *Students Perceptions of Alcohol Use on University Campuses*

### *1. Introduction*

College students are faced with the problem of balancing between the freedom attained for the first time in life and living responsibly away from parents. Most of the students rely on colleges as the platform through which they undergo desired developmental changes. According to Neighbors et al. (2007), young people in college tend to drink heavily compared to their peers out of college. Further, the study indicated that college students drink more significantly and more often than their peers. A report by the National Institute on Alcohol Abuse and Alcoholism (2020) showed that 53 percent of full-time college students drink alcohol in the US, with more than 13% participating in binge drinking. Similarly, a survey was conducted among 7000 college students in New England and the result determined that less than 5% of the students abstain from alcohol (Wechsler & McFadden, 2009). The study also determined that male students drink more than their female counterparts. Therefore, the studies above are clear indicators of high levels of alcohol consumption among college students.

College campuses in the United States have developed a culture of binge drinking with a report by Iconis (2014) noting that from the 45.5% of students who participate in binge drinking, about 20% are frequent drinkers. Excessive consumption of alcohol has several consequences for the students either directly or indirectly. Externality effect of high alcohol intake is witnessed among the students and the institution as a whole (Kassel, Jackson & Unrod, 2000). A study conducted by Wechsler et al. (2003) indicated that several programs have been initiated to deal with the problem of alcohol in colleges. However, the effectiveness of the programs is not

supported by empirical studies such as those by Wechsler et al. and O'Malley & Johnston. For example, Wechsler et al. (2003) determined that there is no support for the effectiveness of social norms marketing programs. Currently, what exists is evidence that supports an increase in alcohol consumption among college students. Therefore, scholars are expected to identify factors that contribute to alcohol consumption within the college environment.

Scholars such as Wechsler et al. (2003) have focused their theories around patterns of alcohol consumption and rates of drinking among college students. Several studies have been conducted among diverse campuses aimed at determining similar levels of drinking rates among the college students (Wechsler et al., 2003; O'Malley & Johnston, 2002). Little attention has been paid on the factors that result in the individual consumption of alcohol. A research by Popvoska (2012) highlights the various variables are associated with the development of multivariate models. This research identified the inclination by various studies towards the social, individual, and biological factors associated with alcohol abuse and consumption (Popovska, 2012). Hence, additional research is required to identify some of the direct factors associated with alcohol consumption among college students.

The main aim of the study is to determine the relationship between alcohol consumption in college and the biopsychosocial framework. The framework constitutes factors that have a unique contribution to the consumption of alcohol. The factors include sensation seeking, perceived social norms, gender, and alcohol expectancies (Marshall, Roberts, Donnelly & Rutledge, 2011). The variables above were selected based on previous studies that determined their relationship to alcohol consumption. Other models such as meditational studies will be conducted to determine the peer norms and consumption of alcohol. The models were used to

determine the factors that have an impact on alcohol consumption and the level to which they impact the consumption of alcohol.

According to Marshall et al. (2011), consumption of alcohol among campus students is an integrated practice. The majority of students who engage in the consumption of alcohol did not believe in calls for restrictions. However, the behavior was controlled by the students who engaged in what they considered as appropriate social behavior (Marshall et al., 2011). Further, the study determined that students were open towards measures that would regulate the levels of alcohol available on the campus. Such measures included limiting the sale of alcohol on campus. Therefore, other scholars sought to establish the reasons behind the perceptions shown above.

Zuckerman (2004) determined that sensation seeking is one of the traits that influence the perception of alcohol consumption. Sensation seeking has high genetic and neurobiological contents that lead an individual into actions that are risky in nature. The study determined a moderate positive relationship between sensation seeking and the use of alcohol among students (Zuckerman, 2004). Further, the study determined that men show higher levels of sensation-seeking compared to women across different age groups. Moreover, Zuckerman (2004) findings indicated that biological and psychosocial factors play a role in terms of projecting sensation-seeking behavior. College provides an environment where this behavior can be propagated.

Alcohol consumption in college is also defined by gender with various reports such as Popovska (2012) and Koebler (2013) presenting varying results. According to Popovska (2012), men report higher rates or levels of alcohol consumption compared to women. However, Koebler (2013) indicates that while previous studies showed men averaged 14 drinks per week compared to 7 drinks per week for women, recent

studies indicate women might be exceeding the weekly limits; 60% of men exceed weekly limits compared to 64% of women. However, the reports are a result of the differences between the maximum limit for men and women. Scholars have indicated that the differences above are explained by psychosocial and biological differences between men and women (Zuckerman, 2004). Blood alcohol levels play an important role in explaining the biological differences. Women get intoxicated faster than men on a similar quantity of alcohol (Hoeksema & Hilt, 2006). Further, the impact and effect of alcohol consumption vary between men and women due to differences in body mass index and the average size of the body. However, scholars have determined that even after controlling the factors such as weight, amount of alcohol, and the time taken to consume, blood alcohol concentration remains to be an important factor (Hoeksema & Hilt, 2006). As such, differences in gender play an important role in the metabolization of alcohol and leave women to be highly vulnerable.

Consequently, other researchers view alcohol consumption among college students as normative behavior. Agostinelli, Brown, and Miller (1995) conducted reviews on perceived peer norms and the impact it has on the drinking behavior of an individual. The study determined that the perception that excessive alcohol drinking is due to the influence of peers is normative and embraced within the college environment. Additional findings included up to 70 percent of the students as lacking an accurate understanding of levels of alcohol consumption and tend to perceive that their level of consumption falls below that of their peers (Agostinelli et al., 1995). On the other hand, cognitive factors are also known to influence the decision of students to consume alcohol. One cognitive factor is the belief about the effect of alcohol. The level of alcohol consumption is reliant on the outcome that an individual expects.

This study focuses on determining the relationship between the predictor variable and the outcome of use. The predictor variables include sensation seeking, alcohol expectancies, perceived peer norms, and gender. The outcome measure that is used in the study is the consumption of alcohol. The measure of the level of consumption will be based on the use of multiple regression and correlation studies. This study contributes to a number of stakeholder groups that include policymakers, students, and society as a whole. The study fills the knowledge gap that exists in terms of levels of alcohol consumption and factors that contribute towards it.

## *2. Materials and Method*

This research was exploratory in nature relying on a mix of studies with the aim of determining the college students' perceptions of alcohol use in university campuses. The study started by meta-synthesis of different qualitative and quantitative studies in phases. Each phase of research had its primary purposes hence the clear separation through headings and subheadings.

The research engaged in the basic form of the literature search to exhaustively determine studies that highlight perception and norms among college students. The search methods that were employed include ancestry and descendancy approach, computer searches, and engaging other active researchers (Mullen, 2009). The data collected ranged within a ten-year period dating back to the year 2009.

The selection of studies was based on different criteria. Within each study, it was expected that participants must have been university students. Further, stem questions were used in the search. The questions were those that primarily touched on the question under research. However, other studies were found to focus on norm interventions hence this study elected to use their baseline data.

Through the study, it was determined that perceived peer pressure is associated with personal use of the drink (Tavolacci et al., 2013). However, other scholars have also indicated the effects of alcohol-related problems as a driver of peer-supported drinking (Pedersen, Larimer, & Lee, 2010). Further, certain studies such as Borsari and Carey (2011) suggested that there is a strong link between alcohol use and perceived norms; however, they were omitted from the meta-study because of the variables they used in presenting the perceived norms. Therefore, it is proper to state that lost data, the difference in research questions, and the difference in baseline were the main elements employed in selecting or dropping a study from this research.

The process of conducting a literature review led the researcher into analyzing more than thirty published articles and reports. From the analysis, it was determined that a total of 20 studies were relevant and could be included in this meta-study (Agostinelli et al., 1995; Baer, 2002; Borsari, B., & Carey, 2001; Fromme & D'Amico, 2000; Kassel et al., 2000; Krieger et al., 2018; Marshall et al., 2011; Mullen, 2009; Neighbors et al., 2007; Nolen-Hoeksema & Hilt, 2006; O'Malley & Johnston, 2002; Pedersen et al., 2010; Popovska, 2012; Tavolacci et al., 2013; Wechsler & McFadden, 2009; Wechsler et al., 2003; Zuckerman, 1994).

This study sought to establish self-discrepancies that were divided into drinking estimates and personal approval or the use of alcohol. The studies highlighted in this analysis conducted up to 100 different tests using injunctive and descriptive methodologies. Further, it is estimated that the studies received more than 53000 responses from the study samples. The studies were concerned with providing the required statistical information. The variables under the hypothesis were coded to determine the relationships, strength, and direction of effects. Other predictors such as gender and age of the students were properly coded. However, the size of the campus

was not an important factor in determining whether campus would be part of the study or not. The reference groups that were used in this research were analyzed and judged based on a Likert Scale rating. Further, different questions used were rated based on the same criteria and the outcome recorded using Spearman-Brown effective reliability (Custard et al., 2010).

Consequently, each hypothesis test and information for the predictor variable were recorded. The basis of analyzing the data was mean differences shown through the ratings used by the study. The study relied upon Mullen's (1989) Advanced BASIC analytic database management. Under this technique significance level is shown by Z value. Other predictors include the Fisher scale as an indicator of effect size and standard normal deviate. Therefore, the study elements were analyzed based on adequate methodologies as indicated above.

The study methodology also tested the validity of the studies employed. The validity of the research was ensured through a continuous and comprehensive review of each study. The decision to use or not use a certain term was based on proper search terms and inclusion of the ideal criteria for the study. The study team included investigators and judges with extensive knowledge of research methodology and social science research.

*Table 2.1 Studies used in Research*

| <b>Author</b>  | <b>Aim</b>  | <b>Methodology</b>  | <b>Sample</b>   | <b>Appraisal</b> |
|--|---|---|---|------------------|
| Hittner, J. B., & Swickert, R. (2006)  | The study was conducted to determine the relationship between sensation seeking and alcohol consumption               | Meta-analysis technique was employed where a number of studies were used to attain the objective of the study                           | The research relied upon 61 studies   | Weak             |
| Popovska, A. V. (2012)   | The study sought to determine the effects of different factors on perceived peer norms on alcohol consumption.        | The study used a survey methodology and studied individual predictor variables. Regression analysis was used to determine relationships | 186 undergraduate students drawn from University of Maryland, College Park                  | Strong           |
| Tavolacci, M. P., Ladner, J., Grigioni, S., Richard, L., Villet, H., & Dechelotte, P. (2013) | The study aimed to determine prevalence and association of perceived stress, behavioral addiction and substance abuse | The cross-sectional study methodology was used  | University students' volunteers in France were served with self-administered questionnaires | Weak             |
| Wechsler, H., Nelson, T. E., Lee, J. E., Seibring, M., Lewis, C., & Keeling, R. P. (2003).   | The study was concerned with establishing the differences between reality and perception.                             | The study conducted a survey and relied upon statistical regression model to analyze the data   | The study was conducted in 37 colleges that used social norms                               | Strong           |
| Agostinelli, G., Brown, J. M., & Miller, W. R. (1995)  | The normative study was concerned with determining the feedback on alcohol consumption among heavy drinking students  | The study came up with self-regulating model and used a survey to determine its practical application                                   | The study used a sample of 568 students   | Weak             |

|  |  |   |  |        |
|--|--|---|--|--------|
| Baer, J. S. (2002)   | The study objective was to determine individual differences in terms of the rate of drinking problem among college students              | The study was quantitative in nature and employed sampling technique                      | Samples were developed among different colleges in the United States     | Weak   |
| Borsari, B., & Carey, K. B. (2001).  | The study was concerned with determining the relationship between peer pressure and consumption of alcohol                               | The study applied descriptive study technique using samples                               | Samples were drawn from different US universities                        | Weak   |
| Fromme, K., & D'Amico, E. J. (2000)  | The study was conducted to measure adolescent consumption levels and the expectancy in terms of effects of the high level of usage       | The study employed a survey methodology where questionnaires were used in collecting data | The study included adolescents aged between 13 years and 17 years        | Strong |
| Kassel, J. D., Jackson, S. I., & Unrod, M. (2000)                            | The study sought to determine the role of negative mood regulation on negative alcohol behavior.   | The study employed quantitative methods and conducted a survey                            | The study involved 136 respondents                                       | Weak   |
| Marshall, B. L., Roberts, K. J., Donnelly, J. W., & Rutledge, I. N. (2011)   | The study was concerned with environmental strategies employed by universities and colleges in a bid to reduce alcohol                   | The study employed a survey technique   | The sample drawn include 422 freshmen students                           | Strong |
| Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007) | The study was set to determine the effect of social norms, drinking motives, expectancies, demographics on levels of alcohol consumption | The study employed a survey technique   | A total of 818 first-year undergraduate students were used in the study. | Strong |

|   |  |   |   |        |
|---|--|---|---|--------|
| O'Malley, P. M., & Johnston, L. D. (2002) | The study provided information on the extent of drug use in the United States                            | The study made use of secondary data    | Different reports were analyzed to come up with conclusive data | Strong |
| Wechsler, H., & McFadden, M. (1979)       | The study sought to establish the extent of alcohol use in New England                                   | The study used descriptive statistics   | A total of 7000 college students were surveyed in the study.    | Weak   |
| Nolen-Hoeksema, S., & Hilt, L. (2006)     | The study was concerned with determining the factors behind gender differences in consumption of alcohol | The study used the meta-study technique | Analysis of recently published scholarly articles               | Strong |

### 3. Results

#### 3.1 Phase One: Quantitative Results

The study results provide an outcome for more than 100 tests. Based on the outcome of the study, the researchers deduced that it was necessary to have unweighted analyses since there was an inordinate discontinuity in the size of the sample employed. For example, Krieger et al (2018) had an extremely large sample compared to the rest of the studies used in the meta-study (n=34565). This means that any weighting based on sample size would have led to certain discrepancies in the study. The study results were given based on what the previous researchers had determined.

High consumption of alcohol among college students has been cited as one of the biggest problems that nations have to deal with (Marshall et al., 2011). In some countries, for instance Denmark, the creation of policies on alcohol consumption in colleges is a new phenomenon. This is an indication of how the problem has been neglected and has led to a widespread effect on the students and the campuses. Data

has shown that a large number of college students in the country and around the world engage in high levels of alcohol consumption. A survey was conducted among 7000 college students in New England and the result determined that less than 5% of the students abstain from alcohol (Wechsler & McFadden, 2009). Therefore, the numbers are direct indicators of the problem that society must deal with.

Different forms of studies have been conducted and have shown that college drinking is a problem across the country. Krieger, Young, Anthenien and Neighbors (2018) determined that drinking patterns have changed over time and binge drinking levels have remained high. The study estimates binge drinking to be between 30% and 40% (Krieger et al., 2018). The study was not conducted on a standalone basis. A number of other studies were conducted to determine the trend. The sources of information for the study included College Alcohol Survey (CAS), Monitoring the Future (MTF), and the National Household Survey on Drug Abuse (NHSDA). The studies were used in the above survey because they had national coverage. The studies sampled a huge number of college students, relied on repeated series, and probabilistic samples (Krieger et al., 2018). Therefore, information gathered from the studies is reliable for the purpose of this research.

### *3.1.1 Alcohol Use in Biopsychosocial Model*

Scholars have faulted previous studies on college drinking because they focused on rates of drinking and did not consider factors that influence alcohol consumption. Further, any study that would consider the factors would only study one or two variables that are not based on a given theory. However, there are a large number of factors that influence the consumption of alcohol among college students (Wechsler et al., 2003; O'Malley & Johnston, 2002). For example, studies above have shown that some of the factors include family background, social context, personality

traits, and student demographics. O'Malley and Johnston (2002) included studies that covered the United State's college population over a period of two decades. The study determined that the main factors that influence alcohol consumption include sensation seeking, impulsivity, neocriticism, and extraversion. The factors have an impact on the amount of alcohol consumed among students.

### *3.1.2 Sensation Seeking Among Students*

According to Baer (2002), sensation seeking is one of the individual risk factors for the consumption of alcohol among students. The theory is defined as a multidimensional personality trait that involves a range of intense sensational experiences. It means that an individual is willing to take social, physical and psychological risks to gain the needed sensation (Zuckerman, 2004). The main components of sensation seeking include thrill and adventure seeking, experience-seeking, disinhibition, and boredom susceptibility.

Sensation seeking is associated with drinking behavior. Zuckerman (2004) studied the association between risk-taking and personality traits among college students. In the study, risk-taking elements included smoking, use of illicit drugs, gambling, reckless behavior, and sexual overindulgence. The study determined that sensation seeking is positively associated with the use of alcohol, smoking, risky sexual behavior and use of illicit substances. The data analyzed indicated that drinking and sensation-seeking correlation stood at 0.25 ( $p < 0.001$ ) for males and 0.43 for females ( $p < 0.001$ ) (Zuckerman, 2004).

Consequently, the results above are not unique. A number of research have been conducted on risk-taking and sensation-seeking to focus on alcohol. The outcome has shown that there is a strong relationship between the two factors. Further, Zuckerman (2004) determined that a higher desire for sensation leads to a

higher frequency of alcohol consumption among students. The same results were determined in studies conducted outside the college environment.

### *3.2 Phase Two: Qualitative Results*

#### *3.2.1 Alcohol Expectancies*

The effects of alcohol consumption are due to socio-cultural and pharmacological factors (Popovska, 2012). Research has shown that one's behavior is affected by the belief that they have consumed alcohol. Such beliefs end up affecting the level of alcohol that is consumed by the individual. The belief is known as alcohol expectancy and it is defined as beliefs that an individual holds in terms of how alcohol affects their behavior, moods and emotions (Fromme & D'Amico, 2000). Hence, it is important to determine the effect of such expectations on the level of alcohol consumed.

Various studies have provided a number of theories on alcohol expectancies and consumption of alcohol. The theories are divided into three and they include expectancy theory, self-perception framework, and social learning perspective. Several scholars have used social learning theory as the basis of studying alcohol expectancy and levels of consumption. In this study, the main area of concern is the social learning theory. The theory suggests that social and cognitive components have an impact on alcohol expectancies.

#### *3.2.2 Peer Norms*

The normative theory has been fronted as one of the elements that explain the consumption of alcohol among college students. In a college environment, drinking is normative where most of the students end up conforming to peer pressure to use alcohol. The desire to belong to a given group of students pushes the students into

drinking. According to Borsari and Carey (2001), common misconceptions on actual alcohol consumption and attitudes related to alcohol consumption among peers lead to the perception that excessive consumption of alcohol is normative and is taken up within the college environment. Therefore, scholars are expected to conduct further studies and determine the actual scientific position.

### *3.2.3 Gender Norms*

Gender plays a multifaceted role in alcohol consumption. Research has shown that both biological and psychosocial factors play an important role in the consumption of alcohol. However, scholars continue to study the actual role that the factors play in the act of alcohol consumption (Nolen-Hoeksema & Hilt, 2006). Further, research by Popovska, (2012) showed that race affects the amount of alcohol consumed by an individual. White males in college were found to have the highest prevalence rate compared to other races. The difference in rates meant that the consequences vary too.

The consequences of alcohol vary between male and female consumers. A study conducted by Nolen-Hoeksema and Hilt (2006) indicated that women are likely to develop alcohol-related disorders faster than men when exposed to similar levels of alcohol. Further, women are more likely to experience severe physical impacts such as abuse and higher mortality rates. Therefore, there is a need to study different social categories of people to determine the impact of alcohol use. Moreover, (Brhel (2020) noted that while male students have a higher chance of being arrested due to excessive drinking, their female counterparts record more disinterest in academic work and are more likely to use alcohol to improve their mental wellbeing. Higher cases of injuries are recorded for both genders with almost 600,000 college students recording alcohol-related injuries annually, with 1,700 incidents recorded as fatal (Iconis, 2014). The

differing consequences of alcohol were linked to the varying brain functions between men and women.

#### *4. Discussions*

The study purposed to determine the effect of certain hypothesized variables on the perception of college students towards alcohol. The study was conceptualized through behavioral models and data collected through secondary sources. A meta-study or analysis of empirical studies was conducted. In this chapter, the main areas of concern include discussion of the main outcomes of the study, implication of future research, and the shortcomings of the study.

Based on the studies put together under this meta-analysis, it is evident that the majority of respondents belonged to the male and female gender category (more than 76%). More than half of the students had attained the legal age and were eligible to drink. Further, the majority of the students resided within the institutions or around college premises. The studies determined that there was a correlation between Greek membership of the students and heavy drinking ( $r = 0.20$ ). The number of times that a student engaged in drinking was directly related to their affiliation to a given grouping ( $r = 0.30$ ).

The findings above are in line with several studies that were part of the meta-study. Some of the studies that showed similar outcomes include (Agostinelli et al., 1995; Baer, 2002; Borsari & Carey, 2001; Fromme & D'Amico, 2000). The studies concluded that there was an association between heavy drinking in college and involvement with Greek life. This occurrence can be explained as part of alcohol consumption due to peer influence under certain social groupings. From the above data, evidence suggests that around 60 percent indicated that they engage in heavy

drinking each week and only 7 percent indicated that they did not engage in any form of drinking. The studies indicated that average numbers showed that each student consumed four drinks within a social environment. The extreme levels reported included around 15 forms of drinks within one social context.

Further, the studies indicated that there are no significant differences in levels of alcohol consumption between drinkers below the age of 21 years and above 21 years. The studies relied on the personal drinking index and determined that there was no group mean the difference in consumption of alcohol. Therefore, this study concluded that there is no difference between student's drinking based on their age. The level of alcohol consumption is different based on other factors other than age.

The measure of alcohol consumed by students within the college environment was measured. The method used in determining the amount included the use of the quantity frequency index. The index is made up of assigned weights dedicated to student's frequency of drinking and the usual number of drinks that they take within social environments. The study determined that men have a higher drinking index in comparison to their female counterparts ( $r = .17$ ). The finding corroborates with the findings of other scholars including Fromme and D'Amico, 2000; Kassel, Jackson and Unrod, 2000; Krieger et al., 2018. Scholars have made attempts to provide an explanation for the differences based on gender. According to Nolen and Hilt (2006) the differences are attributed to body sizes and metabolic differences between men and women. Even though the measure of alcohol consumption was provided above, this study notes that the quantity frequency index cannot be used as a direct measure of the actual volume of drinks consumed by the respondents. The reason for such a disclaimer is based on the principles of weighting. The measures that scholars used in

different studies required that scholars should approximate the quantity and frequency of their consumption in public and private environments.

The studies aimed at determining the elements of heavy drinking among college students. The measure applied in determining rates of heavy drinking included CAS measures and other levels of gender participants shown in the previous paragraph. The Wechsler's definition of heavy drinkers was employed by a number of studies such as Fromme and D'Amico, 2000; Kassel, Jackson and Unrod, 2000; Krieger et al., 2018 and it was determined that 56% of the respondents could not be categorized as heavy drinkers. The measure provided by Wechsler (2008) indicates that heavy drinking requires a man to drink five or more drinks on a single occasion. For women, the bar is lower requiring that an individual woman is expected to consume four or above drinks within a single event. This study had a large percentage of heavy drinkers compared to individual studies conducted by other scholars. It is important to conduct further tests to determine whether the difference is significant. However, past epidemiological studies conformed to the outcome of this study which set heavy drinking levels between 38% and 44% (O'Malley & Johnston, 2002). The most recent survey that was conducted by Wechsler and Nelson (2008) indicate that 44.4% is the most ideal rate to determine and categorize a heavy drinker. Therefore, the study also sought to establish the outcome of heavy drinking in terms of consequences.

According to Larimer and Cronce (2002), most researchers have focused their studies on rates of drinking and have not deeply delved into other indicators of drinking. Consequences make up part of indicators of alcohol consumption among college students. The studies used in this research approached the issue of the consequences of drinking through a question. The studies created twelve questions

related to the consequences of alcohol consumption. The study was concerned with determining the behavior of the sample population. The reports gathered indicated that certain alcohol-related behaviors are more common than others. The students indicated that in most instances they have experienced the effect of a hangover after consuming alcohol (70%). A minority of the student respondents indicated that they have at least lost their consciousness once after drinking (30%). The number of students who engaged in unplanned sex or sex without protection was determined to fall below 30%. The meta-study indicated a higher rate of engaging in unplanned and unprotected sex compared to other studies such as Wechsler and Nelson (2008). However, it is proper to highlight the fact that the difference in levels of prevalence cannot be analyzed based on statistical significance.

The main assumption of this study was that sensation seeking is correlated to the amount of alcohol consumed by the students. The research question used in determining studies that fall into this meta-analysis involved sensation seeking as a factor that drives alcohol consumption. However, according to a number of studies analyzed in this research there is no significant relationship between sensation seeking and the amount of alcohol consumed. Individual studies have reported the existence of small to the medium correlation between the levels of alcohol consumed and sensation seeking (Wechsler & Nelson, 2008). However, the nature of studies used in the analysis varied in terms of how the respondents were sampled. The above difference may be considered to be one of the reasons behind the differences. Zuckerman (2000) sought to determine sensation seeking and the risk factors associated with drinking and determined a positive correlation ( $r = 0.25$ ) among the men and women ( $r = 0.43$ ). Hittner and Swickert (2006) conducted a study on sensation seeking and alcohol use. Using the meta-analysis technique, the study

determined that there is a moderate relationship between sensation seeking and consumption of alcohol ( $r = .263$ ) (Hittner & Swickert, 2006).

Further, there was a need to determine the effects of different sensation seeking components. Using categorical moderator analysis, it was determined that there were stronger effect sizes between white and Caucasian males. It was also determined that sensation seeking was assumed to influence drinking based on psychosocial and biological measures. The example used in the study relates to a student who moves to an environment that promotes alcohol consumption because they would wish to attain certain sensation levels. Therefore, alcohol consumption is linked to sensation-seeking and peer pressure. This study is in line with the outcome of Zuckerman (2000) who determined that sensation seeking is responsible for 2.05 percent variance in consumption of alcohol. Zuckerman engaged in a multivariate study in which five gender predictors and risk factors were analyzed.

##### *5. Conclusion*

The outcome of the study is based on a combination of quantitative and qualitative elements. The study examined the predictors of alcohol consumption and how they relate to the consequences of alcohol consumption. The variables were selected through the application of biological and psychological elements. The study was based on the assumption that there is a relationship between peer norms and individual drinking. The study determined that there was no significant relationship between sensation seeking and alcohol consumption. However, it was determined that peer norms have an effect on the level of alcohol consumption by college students. The study used outcomes of peer-reviewed publications on the same topic area.

Regression models used in the previous studies were analyzed and it was determined that sensation seeking does not have a direct effect on the level of alcohol consumed.

Further, this study contends that biological and psychological elements or models offered a proper framework for investigating different sets of variables concerned with levels of college drinking. The complexity of empirical studies was based on the multiple-perspective analysis. The study looked at the social and biological factors and the ways through which they influence the levels of alcohol consumption. However, the main shortfall of this study is that it did not allow for statistical testing of the empirical studies. It means that the inherent shortfalls associated with each study used in the meta-analysis were transferred into this study. Studies used supported the multiple element analysis techniques used in this study, however, for the purposes of future studies it is advisable that certain variances that affect student drinking should be analyzed on a stand-alone basis.

In summary, the study determined variables that act as the determinants of alcohol use among college students. The variables were selected through biological and psychological frameworks established based on empirical studies. Peer norms and alcohol expectancies were confirmed to impact the level of drinking among students. However, there was no sufficient evidence to show the relationship between sensation seeking and the level of alcohol consumed by college students. Furthermore, the study established unique gender disparities in the level of consumption and tolerance of alcohol. It is an indicator that women consume less amount of alcohol compared to men because of the differences in their tolerance levels. The study used biological and psychological elements in the investigation of the variables. It provided for multiple perspective analysis of complex variables in the subject under research.

The study used the meta-analysis method hence it had certain inherent limitations. The meta-analysis form of study has been subject to criticism due to certain shortfalls that include the inclusion of poor-quality studies, failure to deal with bias in publication, and heterogeneity in the studies used in the research. The limitations above can lead to faulty results hence can be misleading when important policies and practices are developed from the study. The study ensured that each of the limitations aspects were addressed before the data was analyzed and important conclusions were reached. Therefore, the researcher relied upon their previous knowledge of the subject matter in the collection, recording, and analysis of the data. The quality of the sources used and the criteria for acceptance of a source was important in the entire process. Hence, the outcome of the study is highly reliable.

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