

## Eating in Response to Alcohol: Relationships with Vulnerable Emotions

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### Abstract

*This study examines the relationship between vulnerable emotions typically associated with masculinity and compensatory eating behaviors in response to alcohol consumption for college students. The increase in problematic behaviors such as binge drinking, associated compensatory exercise, and eating disorders during the college years predict lifetime physical and mental health concerns. Finding emotional or behavior predictors for these behaviors would allow clinicians to identify or prevent many of these problems. This study utilized the Compensatory Eating Behaviors Related to Alcohol Consumption Scale (CEBRACS) and the Masculine Behavior Scale (MBS) and found a significant positive relationship between college students' responses on the two scales as well as several of the subscales.*

**Keywords:** eating disorders, binge drinking, masculinity, alcohol

### 1. Introduction

#### 1.1 Alcohol and Health on Campus

Patterns and behaviors in regard to alcohol use and abuse develop during the college years as young people approach legal drinking age. Kelly-Weeder (2011) found that 63% of women and 83% of men on campus engaged in binge drinking. Undoubtedly, this time period intersects with co-occurring environmental changes that see young people lose protective factors that affect alcohol use and abuse such as changes in parental oversight, community norms, and peer behaviors. Boyle, LaBrie, Froidevaux, & Witkovic (2016), detail an example of these changing behaviors with respect to peers and social media use. This research demonstrates a positive relationship between the social media exposure of alcohol to college students and their drinking habits in the coming semesters. That is, greater exposure to alcohol use displayed in peers' social media predicted greater alcohol use for respondents in the future. Peer behavior and influence becomes even more problematic when coincident with other risk factors. For example, students who report higher levels of social anxiety also report more harmful drinking and alcohol-related consequences and fewer protective factors (Villarosa, Kison, Madson, & Zeigler-Hill, 2016). Changes in other protective factors such as norms and oversight are demonstrated in recreational activities that not only coincide with but feature alcohol such as drinking games. Merrill and Carey (2016) show that drinking games increase heavy drinking and harmful outcomes and may also cause college students to exaggerate alcohol consumption.

However, Merrill and Carey (2016) also show that college students' alcohol use increases disproportionately when paired with mental health concerns, potentially, to self-medicate or cope with the changing environment. These coping strategies extend into physical and health behaviors by co-occurring with alcohol use itself. Giles and Brennan (2014) show that college students are more likely to engage in physical activity as a health response to binge drinking instead of decreasing amounts of alcohol or instances of binge drinking. Similar compensatory exercise behaviors can be found associated with alcohol use across college campuses. Barry and Piazza-Gardner (2012) found highly active students and those participating in vigorous exercise are more likely to engage in binge drinking. The potential goals of these compensatory physical behaviors associated with alcohol such as calorie consumption, weight, or body shape are also affected by tendencies in eating for college students. While binge drinking and general alcohol use alone can increase calorie consumption, Sloan Kruger and Kruger (2015) found that food cravings increase for college students when drinking alcohol. Further, they found that junk food consumption increases and fruit or vegetable consumption decreased with alcohol.

While both genders reported unhealthy behaviors, males reported engaging in more unhealthy behaviors (Kritsotakis, et al., 2016). Lloyd-Richardson, et al. (2008) found that over half of college students report overeating or otherwise making unhealthy food choices after consuming alcohol. They also found significant changes in eating patterns before, during and after eating. A Heidelberg and Correia study (2009) found that even dieting correlated positively with alcohol use and problems related to alcohol. Altering eating habits with respect to alcohol consumption appears a consistent theme across campuses and poses some problematic implications. Barry, Whiteman, Piazza-Gardner and Jensen (2013) found that 39% of students reported restricting calories on days they planned to drink alcohol. Reasons for this calorie restriction included enhancing the effects of alcohol and avoiding weight gain. Both men and women supported these claims. Bryant, Darkes, and Rahal (2012) found that women engaged in diet-restricting behaviors to compensate for calories in alcohol and enhancing alcohol's effects more often than men. This diet restriction for enhancing the effects of alcohol was especially true for women who engaged in heavy drinking. "Drunkorexia" as it has been dubbed, is the term given for restricted eating habits with respect to alcohol consumption. Eisenberg and Fitz (2014) also found women more at risk for this condition, especially heavy drinkers, with their added weight-conscious motivations. In line with the peer behavior risk factor, those college students affiliated with fraternities and sororities demonstrate a propensity for "Drunkorexia" and associated behaviors (Ward, Galante, Trivedi & Kahrs, 2015).

These changes in eating habits with respect to alcohol use are perhaps the most problematic in scope, magnitude, and correlating conditions. According to Rush, Curry, and Looney (2015), about 17% of college men and 19% college women demonstrate co-occurring disordered eating and binge drinking. Further, these students engage in more risky drinking behaviors and have more positive expectations in the outcomes of their behavior than their peers. Mikheeva and Tragesser (2016) suggest that these behaviors are predictable in the impulsivity and coping motives deriving from personality differences among students. Further signaling mental health concerns associated with these behaviors, of students engaging in compensatory eating behaviors in regard to alcohol, one fifth were found to have moderate levels of depression and a full one half demonstrated obsessive compulsive behaviors (Quick & Byrd-Bredbenner, 2013). Additionally, these compensatory eating behaviors have found to be a stronger predictor of psychological and behavioral symptoms than vigorous exercise (LePage, Crowther, Harrington, & Engler, 2008). Determining traits, characteristics, and predictors of these problematic behaviors would be an important step in the early identification of predispositions for mental health concerns.

## **1.2 Masculinity**

With the human brain's propensity for imitation, young people acquire gender roles very early on. Thoughts and behaviors associated with masculinity make up one of those possible gender roles. Masculinity as a social construct describes a set of attributes typically associated with boys or men. In establishing society's understanding of these roles, Snell (1989) found that both male and female subjects attributed traits such as restrictive emotionality, inhibited affection, success dedication, and exaggerated self-reliance as traits associated with males as opposed females. Young people pick up these traits associated with masculinity through social interaction and more explicit instruction. However, many of these can lead to problematic behavior patterns. For example, those displaying the construct of masculinity are unlikely to demonstrate expressive traits such as emotional openness. Snell (1980) had found restrictive emotionality and inhibited affection behavioral tendencies negatively correlated with expressive personality attributes. That is, in men and women, those who sought to conceal emotion and affection were unlikely to express thoughts or concerns. This can be problematic as demonstrated by Komiya, Glenn & Sherrod (2000), who found that emotional openness is a trait that predicts the seeking of mental health services when needed.

Additionally, their study displayed the converse in that those willing to reveal emotional experiences are unlikely to display restrictive emotionality or inhibited affection. These restrictive and inhibited traits make it less likely that a subject seeks services and less likely that a subject maintains those services. Snell (1989) also found that these traits of restrictive emotionality and inhibited affection decreased both men and women's willingness to reveal their emotional or painful experiences. The lifelong effects of these inhibited or repressive traits can be harmful to the individual and those the individual affects. Masculine traits such as restrictive emotionality, success preoccupation, and inhibited affection have shown to increase both men and women's vulnerability to the effects of stressful life experiences. That is, men and women suffering from higher stress due to recent experiences in their lives also demonstrated stronger associations with those masculine traits (Snell, Belk, & Hawkins, 1986).

To further support this gendered stress, Wong, Pituch, & Rochlen (2006), suggest that negative attitudes toward emotional expression and difficulty identifying feelings may account for a relationship that exists between restrictive emotionality and trait anxiety. Acts of expression and disclosure even seem to have gendered implications. Snell, Belk, Flowers, & Warren (1988) found that a subject's willingness to self-disclose strongly depended on the gender of the other person involved in the dialogue as well as the masculinity or femininity of the content associated with the topic. Additionally, although men and women reported a similar pattern of willingness to discuss their emotions with male friends, women were more willing than men to disclose their feelings to their female friends as well as spouses or lovers. (Snell, Belk, Flowers & Warren, 1988). In sum, strong associations with masculinity traits could make seeking help or services difficult or unlikely.

### **1.3 Hypothesis**

With the numerous physical and mental health concerns associated with increased alcohol use beginning in college, determining predictive behaviors, traits, or predispositions associated with future problematic alcohol behavior would allow clinicians, family members, and the community to identify early warning signs and even prevent these problematic behaviors. Thus, the purpose of this study was to identify relationships between alcohol behaviors and traits typically associated with masculinity. The prior research in the field of health behaviors associated with alcohol consumptions gives clues to an increase in these behaviors where high levels of masculine traits or behaviors may be found. For this study, the researchers hypothesized that significant relationship exists between compensatory eating behaviors with alcohol and traits and behaviors typically associated with masculinity.

## **2. Methods**

### **2.1 Participants**

Participants in this study attended a Midwestern public university in 2015. This university is situated adjacent to a metropolitan area and serves around 18,000 students from urban, suburban, and rural areas. The participants in this particular study were voluntary participants from the Department of Teacher Education. These undergraduate students ranged from sophomore to senior in class were all future teacher candidates in the early childhood, middle childhood or adult/young adult pre-service teacher programs. No compensation was provided for participation, and 91 students originally volunteered to take part in the study. Of those 91 students, 69 scores were analyzed in the study, while 22 students left at least one question unanswered in the measurement instruments and were not included in the final analysis. Thus, the total number of participants in the study was N=69.

### **2.2 Design**

The research design of this study was non-experimental and correlational as it examined the relationship between compensatory eating behaviors and agreement with masculine norms. The variables in this study consisted of two instruments – Compensatory Eating Behaviors in Response to Alcohol Consumption (CEBRACS) and the Masculine Behavior Scale (MBS). A correlational design was appropriate for this study as the researchers sought to find a link between traits associated with masculinity and compensatory behaviors in response to alcohol. The purpose of a correlational study is to establish whether two or more variables are related. In the correlational research method, the research examines the differences and similarities between the two characteristics of the study group (Williams, 2007). In this study, a correlational design was implemented to discover the difference or similarity between the participants' CEBRACS and MBS total and subscale scores. The correlational design does not provide direct evidence of causal relationships, but the design can provide a heightened understanding of variables investigated in order to facilitate future research.

### **2.3 Materials and Procedures**

The participants in this anonymous study came from one of three undergraduate pre-service teacher education programs; early childhood, middle childhood, or adult/young adult. These participants volunteered for this study in the spring of 2015 while enrolled in one of five online sections of a course on inclusion practices for students with disabilities. This course was required for all pre-service teacher education candidates regardless of program or intended age range. This ensured all undergraduate teacher education candidates had access to participation. The study was administered as a Qualtrix survey through a link accessible to all students who had the option to access consent information and volunteer to take the instruments used in this study. Candidates opted to complete the online questionnaires independently and anonymously to each other, the researchers, and course instructors.

## 2.4 Measures

The Compensatory Eating and Behaviors in Response to Alcohol Consumption Scale (CEBRACS) is a questionnaire designed to evaluate compensatory behaviors that reduce calories consumed or augment the psychoactive effects of alcohol consumption. The CEBRACS consists of 36 items on a Likert-type scale. It is designed to ask respondents to rate qualitative responses for three time periods; before drinking, while under the effects of alcohol (during drinking), and after the effects of alcohol have worn off (after drinking). Each of the three time period sections of the CEBRACS assesses for compensatory behaviors in response to calories consumed from alcohol drinking (Rahal et al., 2012). The item responses include compensatory behaviors such as missing or skipping meals or days of eating, eating low-fat or low-calorie food, exercising, vomiting, and taking diet pills, diuretics, or laxatives. Item responses are randomly ordered under each time period section. The items ask respondents questions such as “In the past 3 months, I have eaten less than usual while I was drinking because I wanted to feel the effects of the alcohol faster” (Rahal et al., 2012). The CEBRACS provides a 5-point Likert scale for responses including 1-Never, 2-Rarely, 3-Sometimes, 4-Often and 5-Almost all the time. The latest iteration of the CEBRACS has demonstrated internal consistency and reliability for all subscales, which included effects of alcohol, vomiting, dieting and exercise and restriction of calories. Reliability ranged from .79 to .95 of all subscales using a factor analysis (Rahal et al., 2012).

The Masculine Behavior Scale (MBS) is a self-report instrument that measures the extent to which people engage in behaviors that are stereotypically attributed to males. Four behavioral tendencies are measured including restrictive emotionality, inhibited affection, success dedication and exaggerated self-reliance. The MBS asks respondents how much they agree or disagree with statements written for each of the four tendencies. Subjects are to respond to each of the 20 items on the four behavioral subscales identified, with each subscale having five items to answer. The MBS provides a 5-point Likert scale for responses: *agree* (+2), *slightly agree* (+1), *neither agree nor disagree* (0), *slightly disagree* (-1) and *disagree* (-2). The items ask respondents questions such as, “I don’t often admit that I have emotional feelings” (Snell, 1989). Subscale scores are calculated by adding the responses of the items of each subscale. Scores range from -10 to +10, with negative scores indicating that subjects described themselves as not engaging in stereotypical masculine behaviors. Positive scores indicated subjects who described themselves as engaging in stereotypical masculine behaviors. The MBS has demonstrated internal consistencies of all four subscales. Reliability for subscales averaged as .84 and .61 on test-retest coefficients. This indicated that the items for the four behavioral subscales were internally consistent across time (Snell, 1989).

## 3. Results

Participants took the Compensatory Eating and Behaviors in Response to Alcohol Consumption Scale (CEBRACS) to determine the frequency and intensity of their behaviors associated with alcohol in a number of different areas including in relation to when alcohol was consumed as well as diet and exercise decisions. The descriptive statistics for the results of the CEBRACS subscales are shown in Table 1 below.

**Table 1**  
**Descriptive statistics for CEBRACS subscales**

	Mean	Std. Dev	Min.	Max.
Before	6.985	2.3978	6.0	18.0
During	7.971	2.2226	7.0	20.0
After	7.985	2.1038	7.0	18.0
Alcohol Effects	8.188	3.3836	7.0	23.0
Bulimia	6.188	0.6008	6.0	9.0
Diet and Exercise	7.579	3.3755	6.0	25.0
Restriction	2.188	0.6008	2.0	5.0

N=69.

Participants also took the Masculine Behavior Scale (MBS) to determine their association with emotions and behaviors typically associated with masculinity. The descriptive statistics for the results of the MBS subscales are shown in Table 2 below.

Table 2

Descriptive statistics for MBS subscales					
Mean	Std. Dev	Min.	Max.		
Success Dedication		6.632	3.3473	-5.0	10.0
Restrictive Emotionality		-1.304	4.9328	-10.0	10.0
Exaggerated Control		1.434	3.5706	-6.0	9.0
Inhibited Affection		-5.478	4.3134	-10.0	5.0

N=69.

Correlation analyses were used to determine the strength of relationship between the two instruments used. This analysis revealed moderate and small correlations for the MBS subscales measuring *restrictive emotionality* and *exaggerated self-reliance and control* in relation to each of the CEBRACS questionnaire subscales.

### 3.1 Restrictive Emotionality

A moderate, positive correlation,  $r = 0.350$  with  $p < .05$ , was found between the MBS subscale measuring restrictive emotionality and the CEBRACS subscale measuring compensatory eating behaviors before a drinking episode. A small, positive correlation,  $r = 0.296$  with  $p < 0.05$ , was found between the MBS subscale restrictive emotionality and the CEBRACS subscale measuring compensatory eating behaviors during alcohol intake. Additionally, a small positive correlation was discovered between the MBS subscale restrictive emotionality and the CEBRACS subscale measure the desire to feel alcohol effects,  $r = 0.299$  with  $p < 0.05$ . The relationship between the MBS subscale restrictive emotionality and the CEBRACS subscale measuring compensatory behaviors in diet and exercise also was found to be a small positive correlation,  $r = 0.295$  with  $p < 0.05$ .

### 3.2 Exaggerated Control

A small, positive relationship was identified between the MBS subscale measuring exaggerated self-reliance and control with intent to restrict calories before a drinking episode,  $r = 0.243$  with  $p < 0.05$ . In addition, a small, positive relationship was found between exaggerated self-reliance and control with the CEBRACS subscale measuring desire to feel alcohol effects,  $r = 0.308$  with  $p < 0.05$ . A moderate relationship  $r = 0.243$  with  $p < 0.05$  was found between self-reliance and intent to restrict caloric intake before drinking alcohol and intent to restrict during alcohol intake,  $r = 0.26$  with  $p < 0.05$ . In addition, a small, positive relationship was found between the MBS subscale measuring exaggerated self-reliance and control when related to the CEBRACS subscale measure intent to restrict caloric intake,  $r = 0.304$  with  $p < 0.05$ . These correlation scores,  $r$ , and the  $p$ -values for selected subscales of the MBS with each subscale of the CEBRACS as well as the correlation and  $p$ -value for the full scales are shown in Table 3 below.

Table 3

Correlation between CEBRACS and MBS

CEBRACS scales	Restrictive Emotionality (MBS)		Exaggerated Control (MBS)	
	$r$	$p$ -value	$r$	$p$ -value
Before	0.350**	0.0032	0.243*	0.0443
During	0.296*	0.0137	0.261*	0.0303
After	0.149	0.2193	0.132	0.2796
Alcohol Effects	0.299*	0.0127	0.308**	0.0099
Bulimia	-0.035	0.7756	0.085	0.4893
Diet and Exercise	0.259*	0.0317	0.110	0.3658
Restriction	0.109	0.3729	0.304*	0.0111
Full Instrument				
CEBRACS and MBS	0.313**	0.0089		

N=69.\* $p < .05$ \*\* $p < .01$

#### **4. Discussion**

Food preferences are often established early in life, but as students move through adolescence and make the transition to independent living while attending college, these changing dietary habits play an important role for personal health (Deshpande, Basil & Basil, 2009). The changing norms of a new environment introduce new habits for food and, perhaps for the first time, alcohol. The changing schedules, norms, dietary habits, and access to alcohol create a potential for weight gain. In order to avoid gaining, many students engage in unhealthy eating behavior without knowledge of their potential impact on health or mental health. These behaviors related to food, exercise, and alcohol that are established in college become in-grained and replicated throughout adulthood. The U.S. National Institute on Alcohol Abuse found that about 1,825 college students between 18 and 24 die from alcohol-related injuries every year. The risk of dangerous driving, risky sexual behavior or aggressive behavior increases with alcohol intake and intoxication. As students avoid eating to feel drunker faster, the odds of over intoxication increase. According to Rush, Curry & Looney (2015), binge drinking rates correlate with disordered eating, 17.1% of males and 19% of females were characterized by co-occurring rates of disordered eating and binge drinking. Additional worrisome findings suggest that those exhibiting disordered eating also engaged in higher rates of binge drinking, demonstrating a special need for intervention (Rush, Curry & Looney, 2015).

Research has shown that college students have elevated rates of alcohol use and problematic eating behaviors (Heidelberg & Correia, 2009), and Giles & Brennan (2014), have already established that young adults are often reluctant to reduce alcohol consumption and instead try to compensate for excessive drinking with some healthy behaviors like exercise and some unhealthy behaviors like limited food intake. However, little research has investigated the correlation between these unhealthy compensatory eating behaviors and traits, behaviors, or predispositions that may predict such activity. This study supported the hypothesis of a relationship between traits associated with masculinity and compensatory eating behaviors with a positive correlation between participants' scores on the MBS and CEBRACS. Restrictive emotionality as a subscale of the MBS correlated positively with before drinking, during drinking, intent for effects, and use of diet and exercise as subscales of the CEBRACS. Exaggerated self-control correlated positively with before drinking, during drinking, intent for effects, and caloric restriction. The results of this study suggest that students engaging in disordered eating habits in response to alcohol consumption might be driven by mechanisms that also reinforce masculinity, such as restrictive emotionality and exaggerated self-control. That is, the predispositions or socialization that brought on compensatory behaviors in regard to alcohol during the college years may also have enhanced or brought on traits and behaviors associated with masculinity.

These predispositions may serve as early intervention indicators for compensatory eating and other problematic behavior following further research. Additionally, the type of compensatory behavior a student engages in following an episode of drinking may be indicative of a different mental health need. For example, fasting as a compensatory behavior is associated with more significant psychological and behavioral symptoms than vigorous exercise (LePage, Crowther, Harrington & Engler, 2008). Creating a larger checklist of warning sign behaviors such as this or general predispositions would allow clinicians, resident advisors, friends, family, and primary care physicians to create additional protective factors for those at risk for such behaviors. The connection between compensatory eating and masculinity is often overlooked, as disordered eating is associated with women and femininity, but this study demonstrates that women are not immune to association with masculine ideals such as restrictive emotionality and exaggerated self-control. Investigating predictors for compensatory eating behaviors is imperative because, college-aged women are more likely than men to engage in limiting food intake before alcohol consumption due to heightened weight control motivations and weight control motivation is greatest among heavy-drinking women thus they should be the primary target for intervention (Eisenberg & Fitz, 2014).

##### **4.1 Future Research**

This study was limited by the small convenience sample of education majors on a college campus. This study should be expanded to other samples to more closely represent college students as a whole including other majors and other universities across the country. Future study should also include other measures of masculinity and other social constructs to determine additional predictors for predispositions that could lead to problematic behavior with alcohol. Further, prevention and intervention efforts in regard to problematic behavior with alcohol on campus and with young people should be studied to determine the effectiveness of identifying and addressing early warning signs.

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