EXAMINING PERSONAL AND ENVIRONMENTAL FACTORS RELATED TO THE CO-
OCCURRENCE OF HEAVY EPISODIC DRINKING AND DISORDERED EATING
BEHAVIORS AMONG COLLEGE STUDENTS

by

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ABSTRACT

The co-occurrence of heavy episodic drinking (HED) and disordered eating behaviors (DEB) is both common and dangerous. Because of its’ high prevalence and subsequent link to negative health outcomes, these behaviors have attracted the recent attention of university administrators, researchers, and clinicians. Additionally, sexual objectification and self-objectification have become prominent issues in our society that are impossible to escape and are associated with many negative behaviors. To date, most campus programs do not target these behaviors within the context of a reciprocal relationship and no existing campus programs target these behaviors in light of objectification.

The main purpose of this study is to examine objectification-related personal and environmental factors associated with the co-occurrence of HED and DEBs in college students. The present study utilized a quantitative, cross-sectional design (n=667) and classroom survey research. Overall, 276 (41.4 percent) respondents reported being engaging in co-occurring HED and DEBs in the past month and a total of 97.9 percent (653 participants) of the sample reported experiencing sexual objectification within the past year. Alcohol outcome expectancies were the strongest predictor of co-occurrence of HED and DEBs (β=1.015; p<0.001; Odds ratio=2.759), objectification-related constructs were found to significantly predict co-occurrence as well. Further, body shame and expectancies partially mediated relationships between multiple variables under study. Lastly, media consumption significantly moderated the relationship between body shame and thinness and restricting expectancies. This study has promising
implications for health education practitioners, university administrators, and health policy experts and provides significant insight for future research. Coordinated efforts are needed to change the social and cultural environment on college campuses and to educate individuals about the potential effects of objectification on their physical, social, and emotional development in an attempt to increase healthy behaviors.
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<td>Disordered Eating Behavior</td>
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<td>Alcohol Expectancy Questionnaire</td>
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<td>Interpersonal Sexual Objectification Scale</td>
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ACKNOWLEDGEMENTS

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# CONTENTS

ABSTRACT ................................................................................................................................. ii

LIST OF ABBREVIATIONS ........................................................................................................ iv

ACKNOWLEDGEMENTS ........................................................................................................... vi

LIST OF TABLES ........................................................................................................................ xii

LIST OF FIGURES ..................................................................................................................... xiv

CHAPTER 1. INTRODUCTION ................................................................................................. 1
   a. Objectification Constructs ................................................................................................. 2
   b. Social Cognitive Theory ................................................................................................. 3
   c. Objectification Theory ................................................................................................. 3
   d. Addressing the Problem ............................................................................................... 4
   e. Purpose of the Study ..................................................................................................... 4
   f. Operational Definitions ................................................................................................. 5
   g. Significance of the Study .............................................................................................. 6
   h. Limitations .................................................................................................................... 7
   i. Delimitations .................................................................................................................. 8
   j. Research Questions ..................................................................................................... 8

CHAPTER 2. REVIEW OF LITERATURE .................................................................................. 10
   a. Heavy Episodic Drinking ............................................................................................. 13
   i. Prevalence ..................................................................................................................... 13
ii. Risk Factors .................................................................................................................. 14

iii. Negative Consequences .............................................................................................. 18

b. Disordered Eating Behaviors ......................................................................................... 21

i. Prevalence ....................................................................................................................... 21

ii. Risk Factors .................................................................................................................... 22

iii. Negative Consequences .............................................................................................. 24

c. Co-Occurrence of HED and DEB ................................................................................... 25

i. Prevalence ....................................................................................................................... 25

ii. Risk Factors .................................................................................................................... 26

iii. Negative Consequences .............................................................................................. 27

d. Theoretical Foundation .................................................................................................. 29

i. Social Cognitive Theory .................................................................................................. 29

ii. Social Cognitive Approaches to HED and DEB Behaviors ........................................ 29

e. Personal Factors ............................................................................................................ 31

i. Sexual Objectification ..................................................................................................... 31

ii. Self-Objectification ........................................................................................................ 35

iii. Body Shame .................................................................................................................. 38

iv. Alcohol Outcome Expectancies .................................................................................... 40

v. Thinness and Restricting Expectancies ........................................................................ 45

f. Environmental Factors .................................................................................................... 48

g. Media Consumption ........................................................................................................ 48

h. Conclusions ..................................................................................................................... 50

i. Gaps in the Field .............................................................................................................. 50
CHAPTER 3. METHODOLOGY .................................................................................. 51
a. Institutional Review Board Approval ............................................................. 51
b. Assessment Battery Development ................................................................ 52
c. Survey Measures ............................................................................................ 54
i. Demographic Variables .................................................................................. 54
ii. Alcohol Use ..................................................................................................... 54
iii. Disordered Eating Behaviors ......................................................................... 55
iv. Media Consumption ...................................................................................... 55
v. Sexual Objectification .................................................................................... 56
vi. Self-Objectification ....................................................................................... 56
vii. Body Shame .................................................................................................. 57
viii. Alcohol Outcome Expectancies ................................................................... 58
ix. Thinness and Restricting Expectancies .......................................................... 58
d. Participant Recruitment .................................................................................. 59
e. Survey Completion ........................................................................................... 60
f. Participant Population .................................................................................... 61
g. Participant Protections .................................................................................... 63
h. Analysis Overview .......................................................................................... 64
i. Reliability .......................................................................................................... 64
j. Research Questions .......................................................................................... 64
k. Data Cleaning .................................................................................................. 73
i. New Variables .................................................................................................. 73
ii. Missing Data ................................................................................................... 74
LIST OF TABLES

1. Summary of Survey Instruments (3.1)................................................................. 53
2. Demographic and Personal Characteristics of Study Sample (4.1)...................... 77
3. School-Related Characteristics of Study Sample (4.2)........................................... 78
4. Self-Reported Health & Weight Status of Study Sample (4.3) ............................. 79
5. Cronbach’s Alphas for Study Scales (4.4)............................................................ 80
6. Summary of Exploratory Factory Analysis Results for Objectification-Related Alcohol Outcome Expectancies (4.5) .................................................................................. 81
7. Heavy Episodic Drinking and Disordered Eating Behavior Prevalence (4.6).......... 83
8. EDE-Q Subscale Mean Scores (4.7)......................................................................... 83
9. Distribution of Global Total Disordered Eating Behavior Scores (4.8) .................. 84
10. Co-Occurrence Prevalence (4.9)............................................................................ 84
11. Chi-Square Correlations–Demographics and Co-Occurrence (4.10) ................. 86
12. Univariate Relationships between Independent and Moderating Variables (4.11) .... 88
13. Continuous Univariate Predictors of Co-Occurrence (4.12)................................. 89
14. Results of RQ3 Multivariate Binary Logistic Regression (4.13).............................. 90
15. RQ4 Mediated Linear Regression–Body Shame (4.14) ........................................... 92
16. RQ5 Mediated Linear Regression–Body Shame (4.15) ........................................... 94
17. RQ6 Mediated Logistic Regression–Alcohol Outcome Expectancies (4.16).......... 97
18. RQ7 Mediated Logistic Regression–Thinness and Restricting Expectancies (4.17)...

19. RQ9 Moderated Linear Regression–Media Consumption (4.18) ....................... 101
LIST OF FIGURES

1. Crosstabulation of Heavy Episodic Drinking and Disordered Eating Behaviors (4.1)....85
2. Mediated Regression Diagram–Body Shame (4.2) .............................................. 91
3. Mediated Regression Diagram–Body Shame (4.3) .............................................. 93
4. Mediated Regression Diagram–Alcohol Outcome Expectancies (4.4) ................. 95
5. Mediated Regression Diagram–Thinness and Restricting Expectancies (4.5) ....... 98
6. Moderated Linear Regression Diagram–Media Consumption (4.6) ................... 100
7. Moderated Linear Regression Diagram–Media Consumption (4.7) ................... 102
CHAPTER 1

INTRODUCTION

Heavy episodic drinking (HED) and disordered eating behaviors (DEBs) have become tremendous health issues in our nation, and more specifically, have become two of the most serious health issues on college campuses (Kelly-Weeder, 2011). Because of their high prevalence and subsequent link to alcohol abuse, obesity, and eating disorders, these behaviors have attracted the attention of university administrators, researchers, and clinicians, although most campus programs do not target these behaviors within the context of a reciprocal relationship (Keel et al., 2003; National Institute on Alcohol Abuse and Alcoholism, 2007; Burke, Creemens, Vail-Smith, & Woolsey, 2010; Giles, Champion, Sutfin, McCoy, & Wagoner, 2009).

Current research suggests that college students represent the population with the highest percentage of problem drinkers (Piazza-Gardner & Barry, 2012) with 42.8% of college students reporting binge drinking in the past month (Core Institute, 2013). Concurrently, approximately one-fifth of college students have had an ED at some point in their lives, and only 25% of these students report receiving treatment, while many cases go unreported (National Eating Disorder Association, 2006; APA, 2006). This association extends beyond those clinically diagnosed with an ED to include those with less severe DEBs (Krahn, Kurth, Gomberg, & Drewnowski, 2005), which includes a range of behaviors from simple dieting to clinical EDs (APA, 2006).
The co-occurrence of DEBs and HED is both common and dangerous. Short-term consequences include higher risk of sexual assault, alcohol poisoning, cognitive difficulties, or losing consciousness, while long-term consequences can include liver, stomach, and heart problems and even death (Burke et al., 2010; NIAAA, 2005; University of Missouri – Columbia, 2011).

A recent press release revealed that excessive drinking in the United States cost about $224 billion, or $1.90 per drink, in 2006 (Centers for Disease Control and Prevention, 2014). Most of these costs were due to lost productivity, including reduced earnings among excessive drinkers as well as deaths due to excessive drinking among working age adults. While EDs cost much less than excessive drinking, annual costs average close to $4 billion, with individual costs averaging approximately $100,000 for treatment including therapy and medical monitoring (Hudson, Hiripi, Pope, & Kessler, 2007).

**Objectification Constructs**

Sexual objectification (SO) refers to the cultural and interpersonal experiences in which the female body is construed primarily as an object that exists for the pleasure and use of others, to be inspected and evaluated (Fredrickson & Roberts, 1997). Self-objectification refers to the act of consistently measuring oneself with cultural standards of beauty and is a consequence of living in a sexually objectifying culture (Fredrickson & Roberts, 1997). Self-objectification often results in body shame, which is when women evaluate themselves in relation to these cultural standards of beauty and come up short (Fredrickson & Roberts, 1997). In recent years, sexual objectification has become prominently associated with negative health outcomes in women, such as depression, eating disorders, and sexual dysfunction, through related factors of self-objectification and body shame. However, sexual objectification is no longer thought to only
negatively affect women; recent literature has shown that sexual objectification extends its’ reach to men as well (Thompson & Stice, 2001; Murnen, Smolak, Mills, & Good, 2003).

**Social Cognitive Theory**

According to Bandura (1986), human functioning is the result of the constant, dynamic interaction among personal, behavioral, and environmental factors, a term known as *reciprocal determinism*. This concept is the underlying framework of Social Cognitive Theory (SCT). Bandura (1999) describes individuals as functioning as contributors to their own motivation, behavior, and development within a network of reciprocally interacting influences. Within the last few decades, SCT has guided most research on college student drinking and has led to a number of promising intervention strategies that target theoretically relevant variables (Marlatt & Gordon, 1985; Longbaugh & Morgenstern, 1999; Larimer & Cronce, 2002). National public health entities, such as NIAAA (2010) have continued to call for a social learning approach to understand drinking behaviors and help design alcohol interventions. Similarly, recent reviews of scientific literature on DEBs have called for research to take a multi-dimensional approach to this issue as well as create prevention and education approaches that examine associated personal and environmental factors (Tiggemann, 2013).

**Objectification Theory**

A recent development in feminist psychology has been the articulation of Objectification Theory by Fredrickson and Roberts (1997), which provides a framework for understanding the experiences of women in a culture that sexualizes the female body. Objectification Theory postulates that many women are sexually objectified and treated as an object to be valued for its use by others. Currently, objectification constructs have only been examined within the
framework of Objectification Theory, a theory derived from feminism and psychology theories and used mainly in providing implications for clinical practitioners providing therapy to clients.

**Addressing the Problem**

Within the last few years, “drunkorexia” has become a popular phenomenon on college campuses and has provided a platform to examine the co-occurrence of DEBs and HED among college campuses across the United States. Drunkorexia, a combination of DEBs and alcohol dependency, joins a list of ED “diagnoses” not recognized by the medical community. While this idea of drunkorexia is prevalent outside of the college population, college is the time period in which most individuals begin to practice these co-occurring behaviors (Burke et al., 2010) and there is a tremendous need to better understand this co-occurrence in order to offer insight into decreasing and even preventing these concomitant hazardous health behaviors. While research suggests that these dangerous behaviors co-occur, no known existing campus programs target these behaviors simultaneously. By examining the co-occurrence of these behaviors within the context of objectification, this study may potentially provide further insight into this relationship and promote the development of interventions targeting co-occurrence and objectification-related predictors.

**Purpose of the Study**

The main purpose of this study is to examine objectification-related personal and environmental factors associated with the co-occurrence of HED and DEBs in college students. The current study will examine five personal factors (sexual objectification, self-objectification, body shame, alcohol expectancies, and thinness and restricting expectancies) and one environmental factor (media consumption). This study will also investigate how these personal and environmental factors interact with one another.
Operational Definitions

*Alcohol Outcome Expectancies:* the cognitive, affective, or behavioral outcomes an individual expects to occur due to drinking (Leigh, 1989)

*Body Shame:* emotions that occur when individuals evaluate themselves relative to internalized or cultural ideals and fail to meet these ideals (Fredrickson & Roberts, 1997)

*Disordered Eating Behaviors:* the full spectrum of eating-related problems from simple dieting to clinical eating disorders; includes chronic restrained eating, compulsive eating and habitual dieting as well as irregular, chaotic eating patterns where hunger and satiety are ignored (American Psychiatric Association, 2006)

*Heavy Episodic Drinking:* consumption of five or more drinks in a row for men and four or more drinks for women at least one time within the past 2 weeks (National Institute on Alcohol Abuse and Alcoholism, 2004)

*Self-Objectification:* the act of consistently measuring oneself with cultural standards of beauty and is a consequence of living in a sexually objectifying culture (Fredrickson & Roberts, 1997)

*Sexual Objectification:* cultural and interpersonal experiences in which the body is construed primarily as an object that exists for the pleasure and use of others, to be inspected and evaluated (Fredrickson & Roberts, 1997)

*Thinness and Restricting Expectancies:* expectancies that dieting and thinness lead to overgeneralized life improvement (Hohlstein, Smith, & Atlas, 1998)
Significance of Study

While a fair amount of research has been done linking DEBs to sexual objectification, little research has been done with HED, and none specifically targeting HED or the co-occurrence of HED and DEBs. Although researchers have called for a multi-dimensional approach to examining both HED and DEBs, little research has been conducted on predictors of these co-occurring behaviors, especially using a multi-dimensional framework like SCT. There is a crucial need to address these risky health behaviors in light of objectification and to better understand how these factors influence one another. Findings from this study could provide a deeper understanding of the scope of both sexual and self-objectification within the college environment and offer insight into decreasing and even preventing these concomitant hazardous health behaviors.

The results of this study hold the potential to significantly benefit the field of Public Health/Health Education and Promotion. Informing students about the connections between sexual objectification experiences and unhealthy behaviors, such as HED and DEBs, could help students feel less badly about the existence of their own difficulties and see them in a contextual light (Carr & Szymanski, 2011; Moradi & Huang, 2008). Providing students with knowledge and skills needed to understand how sexual objectification experiences contribute to their present unhealthy behaviors may decrease the shame associated with these difficulties and enable them to work more productively on reducing or eliminating unhealthy behaviors. Additionally, campus programs incorporating a theoretical framework such as SCT and targeting expectancies and objectification-related constructs such as self-objectification and body shame could help individuals challenge their own internalization of unachievable standards of beauty.
These theoretically-based programs could also hold the potential to decrease the shame associated with not being capable of living up to the “ideal” standard of attractiveness, ultimately lessening the impact that sexual objectification experiences have on rates of HED and DEBs. Educating students on sexual objectification could potentially bring awareness not only to individual experiences of being objectified, but also to the influence of and individual experiences of objectifying others. This awareness, coupled with the promotion of environmental change strategies such as participating in a Take Back the Night rally, getting involved in educational initiatives that inform others about the harmful effects of sexual objectification, or writing a letter to a company that objects to using sexual objectification to sell products, could increase self-efficacy, personal control, and sense of empowerment (Worell & Remer, 2003); thereby decreasing rates of sexual objectification and related behaviors in students across college campuses nationwide.

Lastly, the topic of sexual objectification and its’ related constructs should be included in college health courses. This research could help further provide evidence of the need for inclusion of this topic at the collegiate level and could help evoke a conversation surrounding the addition of this material to college health textbooks.

**Limitations**

There are several limitations that are inherent as a part of this study, including the use of self-report (Sharma & Petosa, 2012, p.120) and convenience sampling techniques (Isaac & Michael, 1995), the cross-sectional nature, the use of only two major constructs of a broad theoretical model that seeks to provide explanations for all human phenomena (Bandura, 1986), and the examination of a single university, which limits generalizability (Lynch, 1982). However, the methodology described in chapter 3 attempted to minimize the impact of these
limitations. These limitations will be addressed and discussed further in Chapter 5 of this document.

**Delimitations**

The parameters of this study consisted of students at a large public university in the southeastern United States. The study employed quantitative research methods and analyses to examine the personal and environmental factors related to the co-occurrence of HED and DEBs using SPSS for IBM Statistics, Version 21 (IBM Corp, 2012). Participants were currently enrolled in the fall of 2014 at The University of Alabama and between the ages of 18 and 24 to be eligible to take part in this study.

**Research Questions**

The following research questions will be used to guide this study:

1) What is the prevalence of heavy episodic drinking, disordered eating behaviors, and their co-occurrence among college students?

2) What are the relationships between sexual objectification (continuous), self-objectification (continuous), body shame (continuous), alcohol outcome expectancies (continuous), thinness and restricting expectancies (continuous), and media consumption (continuous)?

3) Do sexual objectification, self-objectification, body shame, alcohol outcome expectancies, thinness and restricting expectancies, and media consumption predict the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

4) Does body shame mediate the relationship between self-objectification and alcohol outcome expectancies among college students?
5) Does body shame mediate the relationship between self-objectification and thinness and restricting expectancies among college students?

6) Do alcohol outcome expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

7) Do thinness and restricting expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

8) Does media consumption moderate the relationship between body shame and alcohol outcome expectancies among college students?

9) Does media consumption moderate the relationship between body shame and thinness and restricting expectancies among college students?
CHAPTER 2
REVIEW OF LITERATURE

Alcohol consumption is an important risk factor and cause of death globally (Rehm et al., 2009). Of all deaths worldwide, 3.8% are alcohol-related (World Health Organization, 2014). Alcohol drinking has been implicated in the incidence of and mortality from many diseases and conditions, such as alcohol dependence, various types of cancer, diabetes mellitus, cardiovascular diseases, neuropsychiatric disorders, unintentional injuries, homicide, and suicide (Rehm et al., 2009; Rehm et al., 2011).

The term, “heavy episodic drinking” describes the consumption of five or more drinks in a row for men and four or more drinks for women at least one time within the past 2 weeks (NIAAA, 2004) and this term is used synonymously with the term “binge drinking” by researchers to describe a pattern of heavy drinking over a relatively short period of time (Courtney & Polich, 2009). A “drink” refers to 12-ounces of beer, six-ounces of wine or 1.5 ounces of distilled spirits (NIAAA, 2004).

In 2014, the World Health Organization (WHO) reported that 16.9% of Americans reported HED in the past 30 days, with 24.5% of those who drink reporting HED. In fact, the United States now has the second-highest per capita alcohol consumption, second highest rates of HED, and the lowest rate of lifetime abstention from alcohol use among all WHO regions (WHO, 2014). While trends in alcohol use nationwide have been relatively stable since 1990, prevalence rates of HED on college campuses is much higher than national prevalence, making
these stable rates a severe problem. HED has become a tremendous health issue in our nation, and specifically on college campuses. (Substance Abuse and Mental Health Services Administration, 2014).

The concept of HED has been discussed in the literature in two divergent ways: one as an excessive drinking event and the other as an indicator of alcohol-related problems. The excessive drinking event is the way by which the average person interprets HED as intoxication. The second way of interpreting HED is through alcohol-related problems, which is a more commonly utilized concept within the research community (Lange et al., 2002).

Negative outcomes due to HED are found to be physical, legal, academic, interpersonal, and sexual in nature (Wechsler et al., 1994). More specifically, heavy alcohol use poses a serious health threat and heavy episodic drinkers are more likely than non-heavy episodic drinkers to engage in unplanned sexual activity, to damage property, and to experience a number of alcohol-related problems such as vomiting, hangovers, blackouts, and even alcohol poisoning (Leppel, 2006; Mallet, Lee, Neighbors, Larimer, & Turrisi, 2006). Alcohol has been linked to an estimated 1,700 deaths, 599,000 injuries, 696,000 physical assaults, and 97,000 sexual assaults each year in the US among students 18-24 years of age (Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2005). This same study also suggested that there are also an estimated 2.8 million intoxicated student drivers. Unfortunately, HED is not the only unhealthy behavior in which college students engage.

Holding similar weight in impact on the United States, up to 24 million individuals of all ages and genders in the US suffer from an eating disorder (Renfrew Center Foundation for Eating Disorders, 2003), with only 1 in 10 men and women with eating disorders receiving treatment and only one-third of those who receive treatment receiving treatment at a specialized
facility (Noordenbox, 2002). However, eating disorders have the highest mortality rate of any mental illness (Sullivan, 1995), although many deaths from eating disorders go unreported because those who suffer may ultimately die of heart failure, organ failure, malnutrition, or suicide (Crow et al., 2009).

While approximately one-fifth of college students reported having DEBs at some point in their lives, only 25% of these students report receiving treatment (NEDA, 2006). DEBs have been defined as including the full spectrum of eating-related problems from simple dieting to clinical eating disorders, such as anorexia nervosa and bulimia nervosa (APA, 2006). DEBs also include chronic restrained eating, compulsive eating and habitual dieting as well as irregular, chaotic eating patterns where physical hunger and satiety are often ignored (APA, 2006). These DEBs may cause an individual to feel tired and depressed, report decreased mental functioning and concentration, and can lead to malnutrition with risk to bone health, physical growth, and brain development (NEDA, 2014). DEBs and eating disorders are significant concerns because of their associations with depression, obesity, functional impairment, psychiatric disorders, adverse health outcomes, and propensity for suicide (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011; Presnell et al., 2009).

The co-occurrence of DEB and alcohol misuse has been noted in numerous research studies (Franko et al., 2005; Dansky, Brewerton, & Kilpatrick, 2000; O’Brien & Vincent, 2003; National Center on Addiction and Substance Abuse at Columbia University, 2001; Krahn, Kurth, Gomberg, & Drewnowski, 2004). Research supports the notion that women who show patterns of restrictive eating and/or tendencies towards dieting also show greater alcohol consumption (Brant, Kiezebrink, King, & Blundell, 2010; Higgs & Eskenazi, 2007; Khaylis, Trockel, & Taylor, 2009; Krahn et al., 2004; Stewart, Angelopoulos, Baker, & Boland, 2000). Throughout
the literature, positive relationships have been noted between dieting severity and HED (Krahn et al., 2004, Stewart et al., 2000).

Popular media coined the term “drunkorexia” in 2008 to describe the practice of restricting calories so more alcohol can be consumed without gaining weight (CBS News, 2008; Kershaw, 2008). Drunkorexia has been defined as “bingeing or skipping meals in order to either compensate for alcohol calories consumed later at night, or to get drunk faster” (Cofsky, 2012). Drunkorexia joins a list of eating disorder “diagnoses” not recognized by the medical community and while this idea of drunkorexia is prevalent outside of the college population, this is the time period in which most individuals begin to practice these co-occurring behaviors (Burke et al., 2010) and there is a tremendous need to better understand this co-occurrence in order to offer insight into decreasing and even preventing these concomitant hazardous health behaviors.

**Heavy Episodic Drinking**

*Prevalence*

In 2012, nearly three-fourths of college students reported alcohol use in the past month (SAMHSA; 2012). However, while alcohol use and misuse is a problem in college students, the main factor contributing to the seriousness of alcohol-related issues among college students is the frequent involvement in HED (Yu & Shackett, 2001).

HED is an enduring health concern on college campuses. Nationwide surveys conducted with college students found average HED rates to be 42% to 44% (Core Institute, 2013; Wechsler et al., 2002). Between 1993 and 2001, the prevalence of frequent binge drinking (3 or more times in the past two weeks) increased from 19.7% to 22.8% (Wechsler et al., 2002) and a more recent national study revealed that alcohol use has remained consistent or increased slightly from 2010 to 2012 (Core Institute, 2013). Additionally, the percentage of students that reported
drinking on ten or more occasions in the past 30 days increased from 18.1% to 22.6% and students who reported being drunk three or more times in the past 30 days increased from 23.4% to 29.4% (Wechsler et al., 2002). Research also shows that students who are heavy episodic drinkers binge more frequently today than in the past (Ford, 2007). Despite increased education and prevention efforts over the past two decades, alcohol misuse rates do not appear to have changed substantially (Burke et al., 2010).

Risk Factors

A wide variety of demographic factors have been associated with HED among college students. Individual factors include genetic vulnerabilities and familial factors, addictive personality traits, specific beliefs about alcohol, religiosity, prior drinking history, peers, and family. Environmental factors include the social scene (presence of a Greek system, importance of athletics on campus, two-year versus four-year institutions, and substance-free residence halls and campuses) as well as physical properties of the campus (commuter versus non-commuter, school size, location), alcohol pricing, and outlet density and drinking venues (NIAAA, 2005).

Heavy episodic drinkers are more likely to be male (CDC, 2012), Caucasian (NIAAA, 2010), young (CDC, 2012), freshman (NIAAA, 2010), athletes (Wechsler, 2008), and members of fraternities or sororities (CDC, 2012; NIAAA, 2010; Wechsler, 2008). Numerous studies report that males are more likely to engage in binge drinking. According to Ham and Hope (2003), about 31% of college men consume greater than 21 drinks per week as opposed to 19% of college women who consume greater than 14 drinks per week. Ham and Hope (2003) identified that Anglo American men had the highest risk for problematic drinking. Anglo American students have the highest rates of HED followed by Hispanic American and followed by African American and Asian American who had the lowest rates of HED.
The first year in college represents a social and developmental milestone for all college students, and presents a transition so difficult to negotiate that about one-third of first-year students fail to enroll for their second year of college (Upcraft, 2000). These first year college students have been identified as a high-risk population for engaging in HED (Larimer & Cronce, 2002). In a study by Larimer and Cronce (2002), researchers found that freshmen are the most vulnerable to experience serious alcohol related problems in their first few months of school, a time during which they are likely to engage in high-risk drinking behaviors. Several studies have reported an increase in frequency and quantity of alcohol consumption among first year college students (NIAAA, 2010; Bishop, Weisgram, Holleque, Lund, & Wheeler-Anderson, 2005; Grekin & Sher, 2006; Weitzman, Nelson, & Wechsler, 2003). Factors associated with this increase in alcohol consumption include heightened academic standards encountered by first year students, college campus social norms that promote alcohol use, and a sharp decline in parental supervision during the transition to college life (Wechsler & Nelson, 2008; Baer, 2002; Baer & Bray, 1999; Schulenburg & Maggs, 2002; Schulenburg et al., 2001). Additionally, first year students comprise the majority of party attendees at dorms and Greek houses where HED is common on Thursday, Friday, and Saturday nights (Del Boca, Darkes, Greenbaum, & Goldman, 2004; Harford, Wechsler, & Seibring, 2002; Burke et al., 2010).

Studies also show that students who drink excessively value socializing, attending parties, and athletics more highly than those who do not. These students value religion, community service, and academics less highly than students who do not engage in HED (Wechsler et al., 1995). Research has suggested that college students’ level of involvement and performance in academics is associated with drinking behavior (McCabe, 2002; Thombs, 2000). Lower grade point average (GPA) has been associated with alcohol consumption (Singleton,
students missing classes and submitting late assignments due to drinking has been found to be a significant risk factor for frequent and HED (McCabe, 2002; Thombs, 2000).

While some researchers have found no significant association between students housing arrangements (e.g., living with parents vs. roommates, on-campus vs. off-campus) and excessive drinking (Lo & Globetti, 1993; Schall, Weede, & Maltzmas, 1991), more current research has found that living arrangements are a significant predictor of HED (Presley et al., 1996; Weitzman et al., 2003). Research shows those living on-campus report higher numbers of HED episodes than those living off-campus, and commuter students who live at home are more likely to be lighter drinkers than students who live on campus (Wechsler et al., 1994, 2000). On-campus residents who drank the most lived in a fraternity or sorority house (Presley et al., 2002; Wechsler et al., 2000).

College students belonging to fraternities and sororities tend to view alcohol as a vehicle to friendship, social activity and sexuality more than nonmembers (Borsari & Carey, 1999; Wilder, Hoyt, Surbeck, Wilder, & Carney, 1986). Members of Greek organizations tend to drink heavily and more frequently and experience more alcohol related negative consequences than nonmembers (CDC, 2010; NIAAA, 2010; Wechsler & Nelson, 2008; Alva, 1998; Borsari & Carey, 1999; Caron, Moskey, & Hovey, 2004; Cashin, Presley, & Meilman, 1998; McCabe et al., 2005; Meilman, Leichliter, & Presley, 1999; Presley et al., 2002; Weschler, Kuh, & Davenport, 1996; Wechsler, 2001). McCabe et al. (2005) found that, compared with nonmembers, significantly more fraternity and sorority members (70% of men and 50% of women) engaged in HED.

Many members of Greek organizations share a common belief that higher levels of drinking are a norm and Greek organization leaders often encourage these “normative” drinking
practices as a means to popularity (Wechsler, 2008; Larimer, Irvine, Kilmer, & Marlatt, 1997). The leaders of Greek organizations set high levels of drinking norms and thus experience more alcohol related negative consequences from drinking than average members. However, some research suggests that heavy drinking associated with Greek organizations does not persist after college years indicating the fact that this behavior could be a product of environment (Cashin et al., 1998; Sher, Bartholow, & Nands, 2001).

Similar to Greek organizations, studies have shown that college students involved in “drinking games” were more likely to drink heavily and experience more alcohol related problems (Pedersen & LaBrie, 2006; Newman, Crawford, & Nellis, 1991; Green & Grider, 1990). Drinking games are social interaction games in college campuses that are described as competitions between individuals with rules intended to ensure consumption of large amounts of alcohol in a short period of time (Borsari, 2004). College students who participated in drinking games consistently reported greater levels of drinking and drinking-related problems (Pedersen & LaBrie, 2006). Researchers have demonstrated that drinking games are more of a problem for light to moderate drinkers than heavy drinkers (Wechsler, 2005; Kenney, LaBrie, & Hummer, 2014).

Athletes, like Greek members, are considered a high-risk college group for problem alcohol use and negative consequences (Larimer & Cronce, 2002; Meilman et al., 1999). Several studies have reported the association between athletics and problematic drinking (Turrisi, Mallet, Mastroleo, & Larimer, 2006; Hildebrand, Johnson, & Bogle, 2001; Leichliter, Meilman, Presley, & Cashin, 1998; Nelson & Wechsler, 2001; Wechsler, Fulop, Padilla, Lee, & Patrick, 1997). Compared to non-athletes, students involved in high school or college athletics are more likely to engage in HED and alcohol-related risk behaviors (Turrisi et al., 2006; Hildebrand et
al., 2001; Leichliter et al., 1998; Nelson & Wechsler, 2001; Wechsler, Davenport, Dowdall, Grossman, & Zanakos, 1997). Length of participation in sports has been associated with alcohol related risk behaviors, with increased length of participation increasing the chances of more drinking (Turrisi et al., 2006; Leichliter et al. 1998; Meilman et al. 1999; Nattiv & Puffer, 1991; Wechsler et al., 1997).

Gender differences and hierarchical differences were seen as the level of involvement in athletics increased from non participant to participant to team leader. Male athletes tend to drink more than female athletes. Male and female leaders of athletic teams were found to drink more and experience more alcohol related negative consequences than other members of the same team (Hildebrand et al., 2001; Leichliter et al., 1998). Underlying motives for athlete alcohol consumption have been difficult to determine (Turrisi et al., 2006), resulting in few interventions developed to specifically target HED among athletes (Turrisi et al., 2006).

Many challenges face researchers working with Greek-affiliated members, student athletes, and other high-risk college students. These challenges include strong ingrained alcohol use traditions, low concern about personal drinking habits, low motivation to modify behavior, outright resistance to change, difficulty in gaining access to the populations, and various unsupported policies being implemented by institutions in an attempt to curb alcohol-related problem behavior (Turrisi et al., 2006). Regardless, these are college subpopulations that are at high risk and in need of further research attention.

**Negative Consequences**

Wechsler and colleagues (2002) found that there was greater media attention to alcohol related tragedies among college students following the publication of their College Alcohol Study results such as deaths in a variety of circumstances; acute alcohol poisonings, falls,
drowning, automobile collisions, fires, and hypothermia resulting from exposure. Hingson et al. (2002) in their study reported that more than 2 million college students aged 18-24 were driving after drinking; more than 3 million were passengers in motor vehicles with drinking drivers; over one half million were injured because of drinking; and 1,400 die from alcohol related unintentional injuries, most sustained in alcohol related traffic crashes.

Associations between alcohol use and unintentional injuries, motor-vehicle crashes, and violent aggressive behavior have long been noted. However, recent analyses indicate that younger people experience greater likelihood of alcohol related injuries when they drink and an increased probability of motor vehicle crashes after drinking (Hingson et al., 2002). National Youth Risk Behavior Survey (YRBS) data has also shown that underage youth who engage in HED are approximately eleven times more likely than other underage drinkers to engage in additional risky behaviors, like tobacco and other drug use, physical violence, and unsafe sex (Miller, Naimi, Brewer, & Jones, 2007).

However, the consequences of college students’ heavy drinking are not limited to the drinkers themselves. Studies show that students who attend colleges with high rates of heavy drinking experience a greater number of secondhand effects, including disruption of sleep or studies, property damage, and verbal, physical, or sexual violence (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995). The residents of neighborhoods near colleges characterized as heavy drinking schools have even been shown to experience higher rates of noise disruptions, property damage, and police visits than people who live in neighborhoods surrounding colleges with lower drinking rates and people who did not live near a college (Wechsler et al., 1995).

While college administrators in the past have adopted more intensive on-campus alcohol
and drug abuse education and prevention programs (Kunz, Irving, & Black, 1993; Morritz, Seehafer, & Maatz-Majestic, 1993), the successful implementation of interventions to reduce problem drinking in this environment has been challenging because many college students generally do not express concern about their drinking behavior and live in an environment that often supports heavy drinking (Borsari & Carey, 1999; Harrington, Brigham, & Clayton, 1999; Larimer & Cronce, 2002). Although stricter policies have been implemented on various college campuses with regards to problem drinking, some research suggests that such policies have actually increased risky drinking behavior and related negative consequences among college students (Tullisi et al., 2006).

The research literature in this field is large, but of “uneven quality” (NIAAA, 2005). Past prevention efforts have largely emphasized changing characteristics of individual drinkers, such as their knowledge, attitudes, and perceptions (Wechsler et al., 1994, 2000). Prevention efforts must extend beyond these familiar approaches or use them strategically to effect change in other areas (Holder, 2001). Studies that focus on the use of interventions, as well as continued studies on underlying themes behind higher levels of alcohol use, are needed to more clearly derive appropriate interventions that impact drinking behaviors and their adverse consequences for these populations. Specifically, the research calls for testing interactive and mediating models of multiple risk factors based on theory that address developmental processes and use additive models of multiple risks to identify students at highest risk for alcohol-related problems (NIAAA, 2005).
Disordered Eating Behavior (DEB)

Prevalence

The incidence of DEBs continues to grow among college students (Kurth et al., 1995; Mulholland & Mintz, 2001) and DEBs have become a pervasive social problem on college campuses (Freizinger et al., 2010). In fact, the rate of development of new cases of eating disorders has been increasing since 1950 (Hudson et al., 2007; Streigel-Moore & Franko, 2003; Wade et al., 2011). At any given point in time, between 5% and 17% of college students meet diagnostic criteria for an eating disorder such as anorexia or bulimia (Becker et al., 2004; Prouty, Protinsky, & Canady, 2002), while many DEBs symptoms are not reported or even acknowledged. In a recent study by Neumark-Sztainer et al. (2011) involving 2,287 youth, the prevalence of unhealthy weight loss behaviors was 61% among girls and 28% among boys. In one study, 44% of college students and 61% of students who exhibited at least some kind of DEBs did not believe that their behaviors warranted therapy (Meyer, 2005). Unfortunately, less than 28% of individuals who have a diagnosable eating disorder receive treatment (Cachelin, Striegel-Moore, & Regan, 2006). Of tremendous concern is the passive lack of initiative and urgency associated with DEBs, as well as the lack of predisposition to seek help (Eisenberg et al., 2013).

Modern society places a tremendous amount of pressure on individuals to be thin and fight obesity (Bailey & Ricciardelli, 2010; Ogden Carroll, Kit, & Flegal, 2010). However, with this pressure to achieve a thin ideal comes the potential for increased body dissatisfaction (Veldhuis et al., 2012). Body dissatisfaction, which often results in a preoccupation with weight and shape (van den Berg et al., 2007), is considered to be one of the “most consistent and robust risk and maintenance factors for eating pathology” (Stice, 2002) and has been reported at rates of
up to 80% of college women (Heatherton et al., 1995; Spitzer et al., 1999; Vohs et al., 2001). Research shows that body dissatisfaction is consistently associated with dieting as well as disordered eating attitudes and behaviors among younger women (Tiggemann, 2011; Liechty & Lee, 2013). It is important to note that there does not have to be a clinical diagnosis of an eating disorder for an individual to display DEBs, and the pathology of DEBs may actually be problematic but not severe (Cooley & Toray, 1996; Krahn et al, 2004; Anderson et al., 2006).

**Risk Factors**

Although the prevalence of DEB is similar among non-Hispanic Whites, Hispanics, African-Americans, and Asians in the United States (Hudson et al., 2007; Wade et al., 2011), research has indicated that a host of biological, psychological, and physical risk factors, such as body dissatisfaction, perfectionism, genetics, and early age of menarche, put individuals at risk for DEBs (Fitzsimmons-Craft, 2011). Several studies indicate that an individual’s ability to cope with life events can be related to weight or a preoccupation with weight, which is a precursor to DEBs (Denisoff & Endler, 2000). Also, individuals who perceive themselves to be more physically attractive are more likely to be preoccupied with their weight and shape (Gingras et al., 2004; Colabianchi et al., 2006).

In addition to these vulnerabilities, certain environments may heighten the risk for DEBs (Giles et al., 2009). College represents one environment that may spur the development or exacerbation of eating disorder symptoms (Vohs et al., 2001). College years are suggested to pose a significant risk for developing DEBs, with sub-threshold levels of DEBs being reported at rates of up to 67% for college women (Franko & Omori, 1999; Hoerr et al., 2002), indicating that DEBs are relatively “normative” for this group. Research shows that women in university
settings have demonstrated weight and shape preoccupation (Cash, Phillips, Santos, & Hrabosky, 2004), body dissatisfaction (Cash et al., 2004), and DEBs (Taylor et al., 2006).

The transition to adulthood has been identified as an important developmental period for exploring and establishing eating and weight-related health habits and beliefs (Nelson et al., 2008). Emerging adulthood (ages 18-25) is a stage of late adolescence that exists in industrialized countries when individuals gradually transition from the dependence of childhood to the full independence of adulthood (Arnett & Tanner, 2006). This is consistent with research that DEBs typically have their onset during late adolescence (Tiggemann, 2013). One study indicated that over one-half of teenage girls and nearly one-third of teenage boys use unhealthy weight control behaviors such as skipping meals, fasting, smoking cigarettes, vomiting, and taking laxatives (Neumark-Sztainer, 2005).

Weight and shape become increasingly salient and important specifically in women’s everyday lives in the college setting (Cook-Cottone, & Phelps, 2003). A woman’s understanding of her own body is based not only on her own views of it, but also on how she believes others view it (Davison & McCabe, 2005). The college years are a time when many individuals undergo significant changes in self-concept (Lindner et al., 2008) and identity formation and peer interaction are of utmost importance (Arnett & Tanner, 2006; Erikson, 1959).

While women are more likely then men to be dissatisfied with their bodies, desire a thinner shape, and even engage in DEBs (Barker & Galambos, 2003; Paxton, Schutz, Wertheim, & Muir, 1999; Afifi-Soweid, Kteily, & Shediac-Rizkallah, 2004; Kittler, Menard, & Phillips, 2007), body dissatisfaction and DEBs among males are not trivial (Corson & Anderson, 2002; Hudson et al., 2007). College-aged men have reported engaging in a vast array of DEBs and have expressed concern regarding body shape and size early in adolescence (Eisenberg,
Neumark-Sztainer, & Paxton, 2004; Konstanski, Fisher, & Gullone, 2004). O’Dea and Abraham (2002) reported that 9% of college men engaged in DEBs, 3% reported objective binge eating, and 3% reported self-induced vomiting.

In a recent study by Eisenberg et al. (2011), the female-male ratio of DEBs among college students was approximately three to one, much lower than the female-male ratio of lifetime diagnoses (approximately twenty to one). These results stand in contrast to the estimation that men experience eating pathology at one-tenth the rate of women (American Psychiatric Association, 1994) and highlight the importance of examining DEBs among both females and males, specifically in college populations (Eisenberg et al., 2011).

**Negative Consequences**

Even when diagnostic criteria for eating disorders are unmet, sub-threshold eating disorders and symptoms of DEBs are associated with adverse social, emotional, and physical consequences that can become life threatening (Ferreiro, Seoane, & Senra, 2012; Swanson et al., 2011; Ackard, Fulkerson, & Neumark-Sztainer, 2011; Graber, Tyrka, & Brooks-Gunn, 2003). DEBs in college students have been linked to increased levels of stress and anxiety (Barker, Williams, & Galambos, 2006; Loth, van den Berg, Eisenberg, & Neumark-Sztainer, 2008; Mitchell & Mazzeo, 2004). However, more serious consequences include a host of physical and mental issues, to the most severe of which is death. The majority of lives lost by eating disorders are due to suicide because eating disorders and DEBs are not only related to mental issues such as depression, but can also create a strong sense of hopelessness where the individual feels trapped and doesn’t know how to escape the situation (Academy of Eating Disorders, 2011). Physical consequences include muscle weakness, hair and skin problems, tooth decay, infertility, malnutrition due to starving the body of essential nutrients, severe dehydration, bone loss,
digestive issues, cardiovascular disease, and major organ malfunction (AED, 2011).

Understanding populations who are not receiving clinical care and have not been diagnosed with an eating disorder is crucial, as early detection and treatment of DEBs substantially increases the chance of full recovery (Eisenberg, 2011). Further research needs to address DEBs among both males and females on college campuses, with specific focus on psychological predictors and risk factors associated with the development of DEBs. High prevalence and persistence of DEBs seen in the literature, combined with the low reported rates of treatment seeking, indicates that future work is necessary to examine how identification, referral, and treatment protocols are organized at campuses nationwide as well as to determine effective means of prevention of DEBs on college campuses.

**Co-Occurrence of HED and DEB**

*Prevalence*

Among college students specifically, a good deal of research has demonstrated an association between alcohol use and unhealthy eating patterns (Franko et al., 2005; Dansky, Brewerton, & Kilpatrick, 2000; Krahn et al., 2004; Holderness et al., 1994). A study by Krahn et al. (2004) suggested that dysfunctional eating behaviors often associated with dieting in female college students could also be associated with dysfunctional alcohol use. This study reported that an estimated 30-50% of individuals with bulimia and 12-18% of individuals with anorexia either abuse or are dependent on alcohol. In addition, study results indicated a distinct comorbidity between substance dependence and eating disorders with approximately 35% of people reporting alcohol or drug dependence also identified to have an eating disorder.

This correlation extends beyond those clinically diagnosed with an eating disorder to include those with less severe DEBs (Krahn et al., 2005). In one recent study, close to 70% of
college-aged females who reported restricting calories on days they chose to drink did so to feel the effects of the alcohol better (Burke et al., 2010). This same study found a positive relationship between dieting severity and frequency of binge drinking, which can lead to a hazardous combination (Burke et al., 2010). In this study, the 30% of students that restricted calories also reported HED 10-19 of the last 30 days (Burke et al., 2010). Additionally, 20% of students that admitted to binge drinking and restricting calories did so on more than 20 days in the past 30. Other research suggests that one in six students have admitted to restricting caloric intake in order to consume alcohol more successfully (Cofsky, 2012).

Risk Factors

In the study previously referenced by Krahn et al. (2005), dieting and bingeing severity was more closely associated with frequency and intensity of alcohol use than measures of depression, parents’ drinking level, and early age of first drink. Given that drinking alcohol involves consuming empty calories, one could assume that individuals with weight concerns would either avoid drinking or compensate by paying particular attention to their diet, especially on days they plan to drink (Giles et al., 2009).

While co-occurrence research has focused on the prevalence among women, research supports that drunkorexia occurs in both genders, but usually with different motivation. Women tend to restrict calories in order to prevent weight gain, whereas men tend to restrict calories to get drunk faster and save money on food and alcohol (Wolaver, 2002). While both men and women might engage in this behavior, some research suggests that men are likely to work out more in order to compensate, while women are more likely to binge or eat less (National Eating Disorders Association, 2006).
It appears that the appeal of engaging in these co-occurring behaviors for teenagers and young adults is the ability to continue consuming large quantities of alcohol, while still maintaining, or possibly even decreasing, their body weight (Chambers, 2008). Engaging in these dual behaviors also allows college students to feel more inebriated after consuming less alcohol (Burke et al., 2010). Societal pressures to maintain the thin ideal, as well as to participate in episodes of excessive alcohol consumption, have led young adults to turn to extreme measures. Several studies have noted that the phenomenon of DEBs and HED specifically among women may be restricted to the college atmosphere, where irregular eating and drinking patterns are more prevalent and potentially problematic (Kelly-Weeder, 2011; Khaylis, Trockel, & Taylor, 2009).

**Negative Consequences**

Among a population vulnerable to severe alcohol related consequences, the restriction of calories or not eating prior to alcohol consumption makes the use of alcohol even more dangerous (Burke et al., 2010). Studies among those who engage in DEBs such as vomiting after eating, binge eating, caloric restriction, or taking laxatives or stimulants for weight loss suggest a greater propensity to experience negative consequences (Burke et al., 2010). These outcomes range from having problems at work or school, with friends, with a dating partner, and being involved in a regretted sexual situation (Kelly-Weeder & Edwards, 2009) to engaging in forced intercourse and blacking-out (Burke et al., 2010; Anderson, Martens, & Cimini, 2005; Dams-O’Conner, Martens, & Anderson, 2005; Dunn, Larimer, & Neighbors, 2002; Krahn et al., 2004). DEBs, specifically the restriction of food, can be dangerous, and adding alcohol increases the potential danger as well as the toxicity (NEDA, 2006). Reasons for these heightened potent
outcomes are due to a lack of adequate nutrients for the body as well as the lack of food consumption prior to drinking (Burke et al., 2010).

For women especially, the effects of not eating prior to alcohol consumption are a great concern as women are already at a heightened risk to suffer from serious alcohol related outcomes due to differences between sexes (Burke et al., 2010). Females generally weigh less than males, have less alcohol dehydrogenase (alcohol metabolizing enzymes), and usually have less total body water to weaken alcohol in the bloodstream. Drinking on an empty stomach permits alcohol to enter the body faster, which increases blood alcohol levels and leads to increased risks of brain impairment (blackouts) and negative health and behavioral consequences (White, 2004; Burke et al., 2010). Short-term consequences include higher risk of sexual assault, alcohol poisoning, cognitive difficulties, or losing consciousness; however, long-term consequences of drunkorexia can lead to liver, stomach, and heart problems (University of Missouri – Columbia, 2011).

While these behaviors pose serious health consequences, the literature addressing the co-occurrence of these behaviors in college students, especially in males, is sparse. In college-aged populations, the co-occurrence of HED and DEBs has been predominantly studied in young women (Anderson et al., 2005; Benjamin & Wulfert, 2005; Krahn et al., 2005; Piran & Robinson, 2006) with researchers frequently reporting increased alcohol use in bulimic and binge eating women (Bulik et al., 2004; Holderness et al., 2004; Hudson et al., 2007). Future studies should examine these co-occurring behaviors among all college students, including high-risk populations (Burke et al., 2010). Incoming freshmen should be educated about the increased health risks associated with these co-occurring behaviors and existing alcohol education
programs should be modified to include a DEB component as well as a focus on the co-occurrence of these behaviors (Burke et al., 2010).

**Theoretical Foundation**

*Social Cognitive Theory*

The use of theory in designing, implementing, and evaluating Public Health/Health Education and Promotion programs is of great importance. Application of theory serves several significant functions such as specifying methods for behavior change, helping in discerning measureable program outcomes, identifying timing for interventions, helping in choosing the appropriate combination of strategies, improving replication potential, and enhancing program efficiency and effectiveness (Sharma & Petosa, 2012). One of the most prominent theories in the field of Health Education and Promotion is SCT, developed by Albert Bandura (1986).

According to Bandura (1986), human functioning is the result of the constant, dynamic interaction among personal, behavioral, and environmental factors, a term known as reciprocal determinism, which is the fundamental framework of SCT. Within SCT, there are several factors that affect a person’s behavior, one of which is outcome expectancies. Bandura hypothesized that no cognition is more influential in everyday life than expectancies (1986). Outcome expectancies related to alcohol and thinness and restricting were examined as personal factors predicting behavior in this study. Other personal factors in this study include SO, self-objectification, and body shame. The environmental factor in this study is reported levels of media consumption. Correlations among personal and environmental factors were examined as well.

*Social Cognitive Approaches to HED and DEB*

SCT has been considered one of the most successful models with adolescent and young adult drinking and has shown great promise in predicting college student drinking (Bandura,
From a SCT perspective, alcohol use is influenced by a triadic reciprocal relationship between the environment, the person, and the individual’s behavior, which includes legal policy and regulations, knowledge and beliefs about alcohol misuse, outcome expectancies, self-efficacy, knowledge of laws and policies, and internalized socio-cultural norms about drinking.

In the past 3 decades, researchers have increasingly emphasized the importance of SCT constructs in developing and implementing alcohol cessation programs as they have shown to significantly predict behavior among youth and young adults (Callas, Flynn, & Warden, 2004; Metrik, McCarthy, Frissell, MacPherson, & Brown, 2004; Oei & Morawska, 2004). Botvin (1983) utilized SCT while examining prevention approaches for adolescent substance abuse. Similarly, Vakalahi (2001) examined the effectiveness of using SCT to examine adolescent substance use and family-based risk and protective factors. Williams and Kleinfelter (1989) used SCT to examine the relationship between problem solving skills and drinking among college students. Dijkstra, Sweeney, & Gebhardt (2001) used SCT to examine how SCT factors enhanced prediction of drinking behavior. Bandura (2004) developed a stepwise implementation model to enhance the effectiveness of alcohol and drug education interventions, which included targeting multiple dimensions of influence, clearly demonstrating the idea of reciprocal determinism on which SCT is founded. Burke & Stephens suggested that by incorporating personal factors into the conceptualization and prediction of HED, there is the potential for a better understanding of the phenomenon and, ultimately, the development of interventions that more effectively target the underlying causes (Burke & Stephens, 1999).

While SCT has not been as frequently used with DEBs, SCT seems to hold the potential to better understand and explain the development of eating disorders, which are complex, multi-
determined, and include many variables that interact in their determination (Tiggemann, 2013). Recent findings highlight the potential effectiveness of a broad, preventive dissonance-based approach to DEBs in college settings and stress the need for interventions with a SCT approach (Yager & O’Dea, 2008). Beyond preventing more serious cases, such an approach has the potential to reduce the substantial psychological toll associated with subclinical body image and eating concerns.

The development of DEBs is explained by biopsychosocial multifactorial models and should be viewed as a multidimensional construct (Striegel-Moore & Huydic, 1993). This by no means denies the importance of genetic (or epigenetic) or psychological influences in the development of eating disorders, but rather seeks to find points of contact between the personal and environmental influences prioritized by SCT and based on existing knowledge about DEBs and HED (Tiggemann, 2013, p. 40). This type of approach recognizes that student behavior is the result of multiple interacting factors.

While a great deal of resources have been spent on DEBs and HED research and treatment, much of this has targeted knowledge, self-efficacy, and policy change, with minimal focus on personal factors in the form of objectification experiences and related constructs. It is possible that these constructs hold potential to contribute to the psychopathology associated with these behaviors. These objectification experiences and related constructs will be examined in this study as personal and environmental factors functioning in a reciprocal relationship.

**Personal Factors**

*Sexual Objectification*

As previously discussed in chapter one, a recent development in feminist psychology is the development of Objectification Theory by Fredrickson and Roberts (1997), which provides a
framework for understanding the experiences of women in a culture that sexualizes the female body. Objectification Theory proposes that many the female body is sexually objectified and treated as an object to be valued for its’ use by others. In Western societies, women are subject to cultural and interpersonal experiences in which the female body is construed primarily as an object that exists to be inspected and evaluated for the pleasure and use of others (Tiggemann, 2013). Women and girls in Western societies exist in a culture that both implicitly and explicitly objectified the female body. As such, sexual objectification forms a portion of the daily experience of a woman. Sexual objectification occurs when people separate womens’ sexual body parts or functions from the entire person, reducing women to the status of mere instruments and regarding their bodies as capable of representing them (Fredrickson & Roberts, 1997).

Sexual objectification is illustrated interpersonally in the notions of male gaze and socioculturally in representations of women in the visual media. Sexual objectification occurs in numerous ways such as practices of some men checking out a woman’s “goods,” whistles or cat calls, sexual comments about women’s body parts, depictions of women as sexual objects in the media, unwanted sexual advances, sexual harassment, and sexual abuse and assault (Fredrickson & Roberts, 1997; Kozee, Tylka, Augustus-Horvath, & Denchik, 2007; Swim, Hyers, Cohen, & Ferguson, 2001). Research specifically suggests that college women may be particularly vulnerable to the effects of objectification (Fitzsimmons-Craft, Bardone-Cone, & Kelly, 2011).

Research has frequently supported the theorized links between sexually objectifying experiences and poorer mental health. Research indicates that experiences of sexist events, including discrimination, harassment, rape, sexual assault, and physical assault are related to adverse mental and psychological outcomes, such as depression (Moradi & Subich, 2002; Swim, Hyers, Cohen, & Ferguson, 2001; Szymanski, 2005). Additionally, Landrine et al. (1995) found
that sexist events are related to psychological distress above and beyond major and minor generic stressful life events. Research shows that experiencing sexism requires more adaptation than that needed for generic stressors and can negatively affect physical and mental health (Clark, Anderson, Clark, & Williams, 1999). Morry and Staska (2001) assessed college women’s exposure to beauty magazines as one specific type of sexual objectification experience. These researchers found that women’s self-reported exposure to beauty (but not fitness) magazines was related to greater levels of DEBs. Moradi, Dirks, and Matteson (2005) also found that women’s self-reported experiences of sexual objectification were linked to DEBs (Fredrickson & Roberts, 1997; Peat & Muehlenkamp, 2011; Moradi et al., 2005; Moradi & Huang, 2008).

A small amount of research has begun to support the link between sexually objectifying experiences and substance abuse, although a focus on HED is currently non-existent. One study among college females found experiences of sexual objectification to be related to substance abuse (Carr & Szymanski, 2011). Indirect research related to objectification has suggested links between substance abuse and forms of objectification. Zucker and Landry (2007) theorized that experiences of discrimination or living in an environment filled with these stimuli is a risk factor for substance abuse problems, where individuals may attempt to cope with feelings of anger or depression related to these events by using substances as a method of numbing their emotions. These authors found a positive relationship between self-reported experiences of sexist discrimination and HED (Zucker & Landry, 2007). Martens, Rocha, Martin, & Serra (2008) found a correlation between using alcohol as a way to cope with life and alcohol-related problems among undergraduates. Thus, abusing substances may be one way to cope with excess stress associated with experiences of sexism. Other studies have found a positive relationship between sexual harassment and HED (Davis & Wood, 1999; Rospenda, 2002). Lastly,
experiences of childhood sexual abuse, which are an extreme form of SO, have been correlated with adult use of alcohol (Figuerora-Moseley, Landrine, & Klonoff, 2004; Moran, Vuchinich, & Hall, 2004; Nelson et al., 2002; Thompson, Arias, Basile, & Desai, 2002). It seems likely that the more sexual objectification a woman experiences the more likely she may be to abuse substances to cope with excess stress and emotional trauma.

Another way that sexual objectification might affect a woman’s propensity to engage in HED is through exposure to sexually objectifying media ads, which pair women’s sexuality and appearance with substance use. In 2003, a Miller Lite commercial was aired that featured two buxom women wrestling in wet concrete. This ad attracted a good bit of media attention to the use of women and sex to pull in the attention of young male beer drinkers (Chura, 2003). Numerous alcohol advertisers have used ads like these to sell their products (Boyd, 1996; Chura, 2003; Goodrum & Dalrymple, 1990; Hall & Crum, 1994). Hall and Crum (1994) examined the use of camera shots of men and women’s body parts in different brands of fifty-nine beer commercials. They found that women appeared less in beer commercials than men, but their bodily exposure was greater. Research even indicates that women who order alcoholic drinks are perceived by both genders as more sexually available than men are (George, Gournic, & McAfee, 1988).

Research has shown that advertising promises viewers fantasies of sex appeal, sexual esteem, sensuality, and sexual attractiveness if you use a certain product (Miller, 1992; Lambiase & Reichert, 2003). Sexually objectifying cultural messages suggest that by engaging in substance use, both men and women will increase their likelihood of being involved with a “good looking” man or woman. Further research indicates that girls and women are more likely to abuse alcohol as a way to be accepted into their interpersonal relationships (Gomberg, 1996), which offers
insight into a relationship between HED and objectification, since males are often those responsible for engaging in sexual objectification of females (Carr & Szymanski, 2011). Szymanski, Moffit, and Carr (2011) extended the Objectification Theory by arguing that an accumulation of sexually objectifying experiences may be a risk factor for substance abuse in women, including HED, whether in an attempt to become the sexy, thin, attractive ideal promoted in the media or to cope with excess stress associated with these experiences.

**Self-Objectification**

Sexual objectification is positively related to self-objectification in a growing body of research (Moradi & Huang, 2008; Moradi et al., 2005; Kozee et al., 2007). Fredrickson and Roberts (1997) asserted that as a result of living in a culture that sexually objectifies the female body and personal experiences of being sexually objectified, women internalize this outside view of themselves to varied degrees and begin to self-objectify by treating themselves as an object to be looked at and evaluated on the basis of appearance.

Self-objectification is defined as the act of consistently measuring oneself with cultural standards of beauty and often manifests itself through body surveillance (Fredrickson & Roberts, 1997; Tylka & Hill, 2004; Kozee et al., 2007). Over time, through the pervasiveness of and repeated experience of SO, women and girls are gradually socialized to internalize an observer’s perspective of their own bodies. Self-objectification is often explained as valuing one’s own body more from a third-person perspective, focusing on observable body attributes (e.g., “How do I look?”), rather than from a first-person perspective, focusing on privileged or non-observable body attributes (e.g., “What am I capable of?” or “How do I feel?”). Women receive the message that they have the ability to control their bodies and that, given the appropriate amount of effort, they can comply with cultural standards of thinness (McKinley & Hyde, 1996;
Fitzsimmons-Craft, 2011). Thus, many women feel they must engage in constant body surveillance in order to ensure their compliance with the thin ideal (Fitzsimmons-Craft, 2011).

Objectification Theory posits that an accumulation of sexually objectifying experiences and women’s internalization of them via self-objectification may account for various mental health risks that disproportionately affect women, such as ED, depression, and sexual dysfunction (Fredrickson & Roberts, 1997). Internalization of the thin ideal refers to the extent to which an individual cognitively “buys into” socially defined ideals of attractiveness and is believed to promote body dissatisfaction due to virtual unattainability of the excessively thin female body standard (Thompson & Stice, 2001).

Self-objectification is characterized by habitual body surveillance (body monitoring) and can lead to a number of negative behavioral and experiential consequences for women, including DEB, depression, etc. Research has shown that women’s self-reported experiences of sexual objectification have been linked to symptoms of DEBs (McKinley & Hyde, 1996; Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Moradi et al., 2005; Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Kuring, 2004; Tiggemann & Slater, 2001; Slater & Tiggemann, 2002; Szymanski & Henning, 2007). Women self-objectify in terms of body surveillance by adopting a form of self-consciousness in which they habitually monitor their own body’s outward appearance and spend significant amounts of attention on how others may perceive their physical appearance (Fredrickson & Roberts, 1997), a concept similar to body-checking, which is an important component of DEB (Tiggemann, 2013).

Self-objectification can be context dependent and triggered or magnified by certain situations, in particular those that accentuate an awareness of an observer’s perspective of the body. Self-objectification is conceptualized as both a property of the individual (trait self-
objectification) and as a potential response to environmental contingencies that will fluctuate over time (state self-objectification). Adolescence is a time of great physical maturation, as well as of increased self-awareness, self-consciousness, preoccupation with image, and concern with social acceptance (Harter, 1999; Tiggemann, 2013). During the college years (late adolescence), women may be particularly vulnerable to self-objectification and its’ negative effects given the importance that most women place on appearance during this time (Muth & Cash, 1997).

Moradi and Huang (2008) found that self-objectification and its indicator, body surveillance, may make it more likely that negative consequences, such as body dissatisfaction or DEBs, are experienced following sexual objectification experiences. Fitzsimmons-Craft et al. (2011) even suggested that self-objectification may serve as an additional explanation as to exactly how the thin ideal internalization manifests itself into body dissatisfaction and DEB. This pattern proposes a damaging cyclical process in which sexual objectification promotes self-objectification and its proposed consequences, which in turn intensify the impact of future sexual objectification (Moradi & Huang, 2008).

Objectification Theory posits that women who self-objectify will adopt practices that keep them within the guidelines of a culture that demand certain standards of beauty or behavior (Fredrickson & Roberts, 1997). Research shows that self-objectification creates increased opportunities to experience shame, especially shame about one’s body, which can lead to increased body shame (Moradi & Huang, 2008; Tiggemann, 2013) as well as negative behaviors such as DEBs (Tiggemann, 2013). According to the sociocultural model, DEBs are a result of internalizing the increasing pressures for women in Western society to achieve an ultraslender figure/the thin ideal, which current cultural trends emphasize as an essential component of beauty (Fitzsimmons-Craft, 2011, p. 1225; Malkin, Wornian, & Chrisler, 1999; Sypeck, Gray, &
Ahrens, 2004). Both women and men are repeatedly exposed to cultural messages, often through the media, that sexually objectify individuals and pair sexuality with substance use. With the thin ideal images that bombard us today comes the message that “thinness is a sign of success, health, and being in charge of your life. Thinness promises both men and women the ‘goodies’ life has to offer” (Hesse-Biber, Leavy, Quinn, & Zoini, 2006). This objectification may then be internalized to varying degrees via self-objectification, which may encourage individuals to engage in HED as a way to obtain the ideals of thinness, sexiness, and beauty promoted in this Western culture.

Studies found that women’s self-reported exposure to beauty magazines was related to greater levels of DEBs (Morry & Staska, 2001). In addition to messages from the media, parents and friends may also glorify slimness and place pressure on young women to be thin (Sabik & Tylka, 2006). However, in order for these sociocultural pressures to have harmful effects on an individual, they must be internalized. If a woman internalizes this thin ideal and the values associated with it into her worldview, it is likely that this internalization will have adverse effects (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). Multiple studies have indicated that thin ideal internalization predicts increased body dissatisfaction and shame (Kerry, van den Berg, & Thompson, 2004; Shroff & Thompson, 2006).

Body Shame

Originally examined by Fredrickson & Roberts (1997), body shame results when women evaluate themselves in relation to cultural standards of beauty and come up short. Theoretical accounts of shame hold that this emotion occurs whenever individuals evaluate themselves relative to internalized or cultural ideals and fail to meet these ideals (in contemporary American society, these ideals prescribe an ultra-thin body for women, one that is literally impossible for
most women to attain). Research has shown that many women experience a discrepancy between their actual body and their ideal body (Silberstein, Striegel-Moore, Timko, & Rodin, 1988; Noll & Fredrickson, 1998) and these perceived failures translate feeling fat or out of shape into a unique form of shame for women (Noll & Fredrickson, 1998).

Even positive comments can entrench judgment of women’s bodies and increased body shame (Tiggeman & Boundy, 2008). Shame motivates individuals to change those aspects of the self that fail to live up to internalized ideals (Lewis, 1971; Lewis, 1992; Noll & Fredrickson, 1998). As a result, many women begin to feel helpless if they cannot “fix” their bodily flaws and they cannot control other’s responses to their appearance, which has been linked to depression and lengthening of depressive episodes, HED, and other unhealthy outcomes (Fredrickson & Roberts, 1997; Nolen-Hoeksema, 1991; Nolen-Hoeksema, Morrow, & Fredrickson, 1993). Diets promise women relief from the body shame arising from dissatisfaction with body size, although weight loss practices such as restricted eating may actually amplify the experience of body shame rather than alleviate it (Noll & Fredrickson, 1998).

While actual body shame experiences may lead to dieting, research suggests that anticipated body shame, or the threat of experiencing body shame one day by not meeting body ideals, may also contribute to dieting (Noll & Fredrickson, 1998). Some women who self-objectify may be satisfied with their weight and appearance (despite their preoccupation with appearance) and thus do not experience body shame. These women may nonetheless engage in DEBs as a way to maintain their satisfaction. In this sense, restricted and disordered eating may be fueled by the anticipation or dread of the negative consequences of body shame.

Body shame may also trigger binge-eating episodes or overeating among chronic dieters and individuals with bulimia nervosa (Noll & Fredrickson, 1998). Research suggests that
overeating may be particularly triggered by negative affect associated with self-perceptions of inadequacy or failure. Shame follows from failure to meet ideals. Therefore, experiences of body shame are likely to be among those negative affects that trigger overeating. Body shame may also indirectly contribute to binge eating through dieting practices. Body shame may fuel dieting, which may in turn contribute to binge eating (Noll & Fredrickson, 1998).

Alcohol Outcome Expectancies

Bandura hypothesized that no cognition is more influential in everyday life than expectancies (1997). Alcohol expectancies, or the beliefs that people hold about the effects of alcohol, are a specific example of the broader SCT construct of outcome expectancy. According to Rotter (1954) and others (Bandura, 1977, 1997), outcome expectancy refers to an individual’s belief that engaging in a particular behavior will result in a certain outcome or series of outcomes. These SC theorists further state that a positive relationship exists between the relative desirability of the expected outcome(s) and the degree of motivation for engaging in the behavior (Rotter, 1954, 1966). Positive outcome expectancies will result in increased motivation for engaging in a behavior, whereas negative outcome expectancies produce feelings of reservation or behavioral inhibition. It is presumed that these expectancies or beliefs are activated when one considers consuming alcohol (Dunn & Goldman, 1998, 2000; Dunn, Lau, & Cruz, 2000; Friedman, McCarthy, Bartholow, & Hicks, 2007; Goldman, Darkes, & Del Boca, 1999; Jones, Corbin, & Fromme, 2001; Kraus, Smith, & Ratner, 1994; Miller, Smith, & Goldman, 1990; Roehrich & Goldman, 1995; Sher, Wood, Wood, & Raskin, 1996; Smith, Goldman, Greenbaum, & Christiansen, 1995; Stein, Goldman, & Del Boca, 2000).

Based on these ideas about expectancies, drinking behaviors are formed mainly through social influences of culture, family, and peers, while predisposing individual difference
behaviors may interact with the influence of socializing agents (Burke & Stephens, 1999). The effects of alcohol are not due to its physiological effects but rather the beliefs an individual holds about the effects of alcohol. Researchers believe that people may have high positive outcome expectancies (belief that alcohol will bring about positive consequences) regarding alcohol usage along with low expectancies about negative effects (belief that alcohol will bring about negative consequences) of alcohol that will lead to excessive consumption. These positive alcohol expectancies may also predict future drinking behavior in non-drinking adolescents (Lewis & O’Neill, 2000). Bandura (1986) suggested that individuals who hold positive alcohol outcome expectancies tend to gravitate toward environments that foster high-risk drinking (Borsari & Carey, 1999; Cashin et al., 1998; Klein, 1992).

A key aspect of SCT is the concept of reciprocal determinism: in this instance, increases in positive outcome expectancies about alcohol result in increases in alcohol use, while at the same time increases in alcohol use can produce subsequent increases in positive expectancies. SCT has had considerable impact on our understanding of human behavior and, along with other cognitive models, has profoundly influenced our understanding of the use and maintenance of substance use disorders (Connor, Gullo, Feeney, Kavanagh, & Young, 2014). An individual’s drinking episode is driven in part by the expectancies of the desirable effects that alcohol will have (Oei & Morawska, 2004). Alcohol Expectancies have been shown to be better predictors of various drinking patterns than demographic and background variables (Brown, 1985; Christiansen & Goldman, 1983). Expectancies are better predictors of alcohol consumption for adolescents than for adults (Oei & Morawska, 2004) and these expectancies are more closely related to drinking amongst older than younger adolescents (Aas, Klepp, Laberg, & Aaro, 1995).
Research examining the development of alcohol expectancies has consistently found that they are evident well in advance of initial drinking behavior, with some being present as early as 6 years of age (Miller et al., 1990). Several studies suggest that parents (Brown, Creamer, & Stetson, 1987; Jessor & Jessor, 1975), peers (Jessor, 1982; Webb, Baer, Francis, & Caid, 1993), and the media (Austin & Mieli, 1994; Lisman, 1987) may be particularly important sources of information about the effects of alcohol. A study by Smith et al. (1995) indicated that alcohol expectancies of social facilitation served as a significant predictor of both initiation and drinking behavior and subsequent levels of consumptions. This same study also discovered that those with highest expectancies for social facilitation from alcohol began to drink and increased their drinking at the fastest rate over a two-year period.

The relationship between alcohol expectancies and drinking patterns of college students has also been examined. Using cross-sectional designs and self-report methodologies, several studies have shown alcohol expectancies to be significantly related to college student drinking and to predict additional variance beyond that accounted for by such demographic factors as gender, family history of alcoholism, and preexisting levels of consumption (Brown 1985; Brown et al., 1980). Research findings also suggest that substantial variability exists across alcohol expectancies with students holding different types of expectancies in relation to anticipated levels of intoxication (Southwick, Steele, Marlatt, & Lindell, 1981), and predicting that others will be more effected by alcohol, as compared to themselves (Rohsenow, 1983). In addition, studies (Burke & Stephens, 1999; Fromme, Stroot, & Kaplan, 1993; Leigh & Stacy, 1993) have provided evidence that college-student drinking is predicted by both positive (e.g., social and sexual enhancement) and negative (e.g., cognitive and motor impairment) expectancies, and that the expectancy domains most consistently related to heavy, frequent, and
problematic drinking are social facilitation, tension reduction, and fun (Brown, 1985; Thombs, 1991, 1993).

Although expectancies regarding cognitive, behavioral and motor functioning are generally considered as negative expectancies, researchers have found that problematic drinkers had greater expectancies of improvements in cognitive and motor abilities than nonproblem drinkers. Heavy drinkers viewed the behavioral and cognitive effects from alcohol as being a positive change (Lewis & O’Neill, 2000). Social assertion expectancies, defined as beliefs of increased sociability and assertiveness from drinking, was positively associated with increased alcohol use in college student populations. Social assertiveness expectancies were also positively correlated with increased alcohol consumption over a two-month period for male college students than female college students. Students drank more alcohol assuming it would relieve tension and increase confidence in social situations (Kidorf & Lang, 1999).

According to Lewis and O’Neill (2000), expectancies of relaxation and tension reduction were the strongest predictors of problematic drinking when compared to social assertiveness and physical pleasure. In addition, quantity and frequency of alcohol consumption has been strongly associated with tension reduction expectancies more in problem drinkers than in nonproblem drinkers. Tension reduction expectancies have also been associated with drinking-related negative consequences (Turrisi, Wiersma, & Hughes, 2000).

According to Bandura (1986), outcome expectancy will increase the behavior of a person if he desires or places value on the expected outcome. College students having both high expectancies and high valuations of these expectancies related to alcohol use are more likely to engage in problematic drinking contrary to students with low expectancies and low valuations of those expectancies. It was seen that heavier drinkers view the negative effects of alcohol as more
benign than lighter drinkers and thus negative expectancies have less of an effect in preventing the drinking behavior of this group.

The positive expectancies associated with alcohol use included enhanced socialization, relaxation, altered cognition, sexual enhancement, assertion, and affective change. Research indicates that alcohol expectancies showed consistent associations with key drinking parameters (Young & Oei, 1993; Connor, Young, & Williams, 2000) and were causal influences on the drinking behavior of young adults (Jones et al., 2001). Alcohol expectancies were beliefs and ideas about the positive and negative effects that alcohol has on an individual's behavior and most research on alcohol expectancies had shown that positive expectancies were related to heavier patterns of drinking (Marlatt & Gordon, 1985).

Based on alcohol expectancy theory and prior research, it has been hypothesized that high endorsement of positive expectancies would be predictive of elevated hazardous use. Research indicates that problematic drinking among college students is related to the expectation that positive effects occur as a result of consuming of alcohol such as tension reduction and improvements in social behavior (Brown et al., 1985; Thombs, 1993). Problem drinkers have positive expectations about the immediate effects of alcohol consumption even though drinking is linked to long-term impairment in social functioning. One study found that college students who scored high on the Alcohol Expectancy Questionnaire (AEQ; Brown et al., 1987; Brown et al., 1980) were more likely to later become problem drinkers than students with lower alcohol expectancy scores (Kidorf, Sherman, Johnson, & Bigelow, 1995). Another study indicated that, among problem drinkers, decreases in the strength of alcohol expectancies predicted a subsequent reduction in the number of drinking days (Connors, Tarbox, & Faillace, 1993).
Thinness and Restricting Expectancies

Tolman (1932) proposed that our past experiences are stored in our memory as mental representations that impact our behavior. He described “expectancies” as learned relations between behaviors and their consequences that are stored in memory and then influence future behavior – an “if, then” relationship. Researchers have argued that expectancy is not a narrow theoretical process, but is best viewed as an umbrella term for processes that influence all behavior (Goldman et al., 1999). Given this interpretation, researchers more recently have applied expectancies to various forms of behavior. One of the areas in which this application is most evident is alcohol research. There is a wealth of data on the role of expectancies in drinking behavior, and they are beginning to emerge as a potential causal factor in the explanation of alcohol use. However, despite the remarkable implications for treatment and prevention evidenced within alcohol research, surprisingly little work has investigated the role of expectancies in eating behavior.

Attempts to identify the motivations for extreme dieting behaviors and extreme eating behaviors (such as binging) point to the potential applicability of examining expectancies in this domain (Bohon, Stice, & Burton, 2009; Hohlstein et al., 1998; Gokee-LaRose, Dunn, & Tantleff-Dunn, 2003; Thombs, Rosenberg, Mahoney, & Daniel, 1996; Heatherton & Baumeister, 1991; Simmons, Smith, & Hill, 2002; Smith, Simmons, Flory, Annus, & Hill 2007).

With respect to dieting and thinness, factors such as the belief that shape and weight are of fundamental importance and must be kept under strict control (Fairburn, 1985), or anorexic women's unusually strong beliefs that it is essential to become thin have long been emphasized (Garner & Bemis, 1982, 1985). With respect to eating, states such as anxiety, depression, and boredom are reliable predictors of binge episodes (Arnow, Kenardy, & Agras, 1995; Paxton &
Diggins, 1997; Polivy & Herman, 1993); these findings have led many researchers to suggest that binge eating may serve as an attempt to manage, alleviate, or avoid painful affect (Heatherton & Baumeister, 1991; Johnson & Larson, 1982; Mizes, 1985; Orleans & Barnett, 1984; Davis, Freeman, & Solyom, 1985; Steinberg, Tobin, & Johnson, 1990).

From the standpoint of expectancy learning theory, an extreme drive for thinness results from having learned to associate thinness with powerful, perhaps overgeneralized, reinforcers. Similarly, the temporal association of negative affect with binging implies that perhaps bingers have learned to anticipate reduction of distress from hinging. In this sense, expectancy theory represents an attempt to move earlier in the causal chain leading to the development of maladaptive eating and dieting behaviors. The measurement of eating and dieting-related expectancies represents an attempt to measure individual differences in what individuals have learned from their varying eating-and dieting-related learning histories—differences thought to influence symptom development.

As a first step toward applying this model to DEBs, research has been conducted to identify empirically both the eating and the dieting and thinness expectancies in both women and men. In a seminal effort to understand the potential relationship between expectancies and decisions related to eating, Hohlstein et al. (1998) used factor analytic strategies to develop and validate an eating expectancy questionnaire that measures learned expectancies for positive and negative reinforcement from eating. Their work yielded five factors, or subscales (eating helps manage negative affect, eating is pleasurable and useful, eating leads to feeling out of control, eating enhances cognitive competence, and eating alleviates boredom). The researchers also administered the measure to a clinical sample and found that expectancy profiles differentiated between individuals with anorexia and those with bulimia, as well as between ED patients and
controls. In addition, they found that expectancies did not differentiate psychiatric controls from normal controls. Further, they tested the ability of the expectancy scales to correctly classify participants into groups, and the expectancy profiles were able to do so for 94% of the cases (58 of 63 controls, 8 of 9 patients with anorexia, and all 22 patients with bulimia). Factor analysis distinguished between expectancies for positive and negative reinforcement from eating, and negative reinforcement expectancies (i.e., eating helps manage negative affect, eating alleviates boredom) was associated with binge eating, and with some dieting behavior, but not with successful dieting (Hohlstein et al., 1998).

In another prominent expectancy study, Gokee-LaRose et al. (2003) applied alcohol expectancy research to eating, and examined eating expectancies from a semantic network perspective. Findings suggested that there is a fundamental difference in the way that individuals with higher scores on measures of restriction and bulimia activate and store eating-related messages compared to individuals with low levels of disturbance. As evidenced by the promising findings of these two initial studies, continued research on the role of expectancies in eating behavior holds the potential to substantially enhance our understanding of EDs, and may serve to inform valuable interventions similar to those demonstrated with alcohol. The possibility of ultimately producing changes in DEBs by targeting expectancies warrants additional research in this area.

DEBs can endorse alcohol expectancies related to tension reduction, social facilitation, sexual experiences, and feeling attractive. The expectancy results for tension reduction are consistent with previous research that has suggested that DEBs and drinking problems might result from affective regulation trouble (Stice, Burton, & Shaw, 2004; Luce, Engler, & Crowther, 2007). However, affective trouble might not be the only domain with which individuals with
DEBs are struggling. The study also found that individuals with DEBs might be looking to alcohol to feel attractive, facilitate social relationships, and have sexual relationships. A further interpretation could be that individuals with DEBs might have lower self-confidence and higher social anxiety. These individuals might rely more on alcohol to increase their social confidence, which might place them at-risk for suffering from more adverse consequences. Therefore, establishing realistic expectancies from alcohol are an important area to target in alcohol interventions, especially in individuals with DEBs.

**Environmental Factors**

*Media Consumption*

There is growing evidence that the media’s endorsement of an increasingly thin ideal is associated with the rise in DEBs over the last few decades (Hawkins, Richards, MacGranley, & Stein, 2004). The thin images of women projected by mass media are usually 15% lower in weight than the average woman, making the image unattainable for most women. Traditionally, mass media have included television, movies, magazines and ubiquitous advertisements. A recent addition to this list is the Internet. Internet usage has risen over 60% per year since 1990. The Center for the Digital Future (2013) reports that 86% of Americans use the Internet for an average of 20.4 hours per week. The Internet provides communication through electronic mail (e-mail), the World Wide Web (WWW) and Internet Relay Chat (IRC; Childress & Asamen, 1998).

A positive aspect of the Internet is that it is an educational and communication tool (Bremer, 2005). However, the Internet may influence behaviors negatively. Lo and Wei (2005) found that viewing Internet pornography may be associated with more tolerance of and more
engagement in sexually permissive behaviors. Further, the impact of viewing Internet pornography was stronger than viewing pornographic material in the more traditional media.

The Internet may possibly intensify the impact of the sociocultural thin ideal through interactive websites. For several years, websites promoting and supporting eating disorders have flourished on the Internet. These pro-eating disorder websites, often referred to as ‘pro-ana’ (pro-anorexia) and ‘pro-mia’ (pro-bulimia) websites, are numerous. These websites convey the idea that eating disorders are a lifestyle choice rather than a disorder. According to Uca (2004), the majority of pro-eating disorder websites contain similar elements such as a disclaimer, the pro-eating disorder philosophy (as expressed through the ‘Ana Creed’ or ‘A Letter from Anna’), tips and tricks on unhealthy eating behaviors, nutritional information, ‘thinspiration’ and interactive components.

In assessing the impact of these websites, Wilson, Peebles, Hardy, & Litt (2006) mailed surveys to adolescent eating disorder patients asking about their use of pro-eating disorder and pro-recovery websites, and how their use of these websites impacted their eating disorder and behavior. Results suggest that the use of pro-eating disorder websites is associated with a greater aversive impact on eating disorder patients’ ‘quality of life’. They concluded that ‘Pro-eating disorder websites offer information to increase the severity and risk behaviors of an eating disorder, which our population of eating disorder adolescents frequently heeded’ (Wilson et al., 2005).

In a more direct examination of the influence of these websites, Bardone-Cone and Cass (2007) created a pro-ana website that included pictures of extremely thin women, the Ana Creed, Thin Commandments and tips on purging and weight loss. The study randomly assigned women to be exposed to one of three websites: A pro-ana website, a fashion website or a home décor
website. The women’s moods, cognitions and eating behaviors were measured before and after being exposed to the websites. Results indicated that women exposed to the pro-ana website experienced a decrease in self-esteem, perceived attractiveness and increases in negative affect, feeling overweight, dieting behaviors, and thoughts about their weight. In comparison, women exposed to the other websites did not exhibit these results. This study adds to the surmounting evidence that media consumption may be harmful by encouraging and reinforcing DEBs (Bardone-Cone & Cass, 2006, 2006; Csipke & Horne, 2007; Harper et al., 2008).

Conclusions

Gaps in the field

While millions of dollars have been spent on alcohol-related prevention programs with more comprehensive prevention approaches, new estimates show that the rate of HED is even a larger problem than previously thought (CDC, 2012). Similarly, while Health Education and Promotion programs aimed at eating disorders and DEBs have been conducted on university campuses since the mid 1980’s, few have achieved significant improvements in target health attitudes and behaviors (Yager & O’Dea, 2008). Given the severity and difficulty of treating DEBs and HED, prevention of these problems are recognized public health goals (Yager & O’Dea, 2008; CDC, 2012). Relative to this study, the relationship between HED and DEBs is extremely complex and not clearly understood. There is a scarcity of information examining the co-occurrence of these behaviors, specifically in relation to sexual objectification and related constructs. This study will add to the field by attempting to contribute information to fill the gaps in our current understanding regarding the influence of various objectification-related personal and environmental factors on the co-occurrence of HED and DEBs.
CHAPTER 3

METHODOLOGY

Data for this dissertation was collected from one large public university in the southeastern region of the United States. Dissertation methodology employed quantitative approaches to examine personal and environmental factors related to the co-occurrence of HED and DEBs in college students. The survey that was used in this study was developed from previous work in the areas of sexual objectification (Kozee et al., 2007), self-objectification and body shame (McKinley & Hyde, 1996), alcohol expectancies (Brown et al., 1987), thinness and restricting expectancies, (Hohlstein et al., 1998), alcohol use among young adults (Core Institute, 2013; ACHA, 2011; Hingson, Heeren, Winter, & Wechsler, 2005), DEBs (Fairburn & Beglin, 1994; 2008) and media consumption (Stice & Shaw, 1994; Thompson & Stice, 2001). The initial version of the survey (see Appendix B) consisted of a combination of Likert type and short-answer items. Permission was sought and obtained for all copyrighted scales that were not considered public domain. Author permission can be found in Appendix C. This methodology section details the rationale for the study design, development of the interview instrument guide, sample selection, data collection protocol, and statistical procedures.

Institutional Review Board Approval

The Institutional Review Board (IRB) at The University of Alabama (UA) approved a proposal with expedited review on August 28th, 2014 (approval included in Appendix B). No modifications to the IRB protocol were necessary.
Assessment Battery Development

The instrument that was used in this study was developed and modified from previous work in the areas of sexual objectification (Kozee et al., 2007), self-objectification and body shame (McKinley & Hyde, 1996), alcohol expectancies (Brown et al., 1987), thinness and restricting expectancies, (Hohlstein et al., 1998), alcohol use among young adults (Core Institute, 2013; ACHA, 2011), DEB (Fairburn & Beglin, 1994; 2008) and media consumption (Stice & Shaw, 1994; Thompson & Stice, 2001). The initial version of the survey (see attached) consisted of a combination of Likert type and short-answer items. Permission was sought and obtained for all copyrighted scales that were not considered public domain. Author permission can be found in Appendix D. Items and scales utilized for this measure are reported in Table 3.1.
### Table 3.1
Summary of Survey Instruments

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<td>Core Survey Average Weekly Drinks</td>
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<tr>
<td>College Alcohol Survey Binge Item</td>
<td>Alcohol Use</td>
<td>1</td>
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<tr>
<td>Media Consumption Scale</td>
<td>Media Consumption</td>
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</tr>
<tr>
<td>Eating Disorder Examination Questionnaire</td>
<td>Disordered Eating Behaviors</td>
<td>32</td>
</tr>
<tr>
<td>Drunkorexia Behavior Items</td>
<td>Co-Occurrence Behaviors</td>
<td>3</td>
</tr>
<tr>
<td>Thinness and Restricting Expectancy Inventory</td>
<td>Thinness and Restricting Expectancies</td>
<td>44</td>
</tr>
<tr>
<td>Self-Objectification Subscale – Objectified Body Consciousness Scale</td>
<td>Self-Objectification</td>
<td>8</td>
</tr>
<tr>
<td>Body Shame Subscale – Objectified Body Consciousness Scale</td>
<td>Body Shame</td>
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</tr>
<tr>
<td>Interpersonal Sexual Objectification Scale</td>
<td>Sexual Objectification</td>
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</tr>
<tr>
<td>Alcohol Expectancy Questionnaire Items</td>
<td>Alcohol Expectancies</td>
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</tr>
<tr>
<td><strong>TOTAL ITEMS</strong></td>
<td></td>
<td><strong>137</strong></td>
</tr>
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</table>
Survey Measures

Demographic Variables

Commonly measured and relevant demographic variables were measured for this study and included: gender; ethnicity; race; year in school; sexual orientation; greek-affiliation; and relationship status. These variables, although categorical in nature, helped to characterize the sample and to define sub-groups in analyses. Although not part of a research question, demographic variables were used to provide insight into predictors of these co-occurring behaviors, as well as into experiences of objectification-related constructs on this college campus. Results will be used to inform future research studies, specifically those related to gender.

Alcohol Use

The survey included three items addressing alcohol use that were taken from the CORE Alcohol and Other Drug Survey (Core Institute, 2013) as well as the College Alcohol Study (CAS) (Hingson et al., 2005). The CORE survey has been utilized in the college population for over a decade, and is one of the most widely used substance use surveys in college research. The CAS has been used to survey more than 50,000 college students at 120 four-year schools in 40 states between 1993 and 2001. Items referring to current binge drinking status and typical drinks consumed per week and in the last two weeks measured alcohol use for this study. Overall reliability and validity of the CORE survey in college samples has been previously established (Core Institute, 2000) as well as reliability and validity of the CAS (Wechsler, 1994).

The average weekly drinks question, an open-ended continuous item, states, “What is the average number of drinks you consume per week? ____ (a drink is a bottle of beer, a glass of wine, a wine cooler, a shot glass of liquor, or a mixed drink).” Both binge measures are
categorical items, the first of which states, “Think back over the last two weeks. How many times have you had four / five (four for females, five for males) or more drinks at a sitting?” The second binge measure asks, “In a typical week, on how many days a week do you drink alcohol?”

Disordered Eating Behaviors

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is a 28-item self-report measure of ED psychopathology which asks respondents to rate on a Likert scale, ranging from 0–6, from not at all to moderately and no days to every day, measuring the frequency or severity of core ED symptoms and related behaviors and beliefs over the past 28 days. The measure comprises four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern. Internal consistency reliability coefficients for the subscales ranged from .73 to .89 in undergraduate men and .75 to .93 in undergraduate women.

Media Consumption

The Media Consumption Scale (MCS; Stice et al., 1994; Thompson & Stice, 2001) is a self-report measure that assesses individual’s exposure to media-related outlets, specifically television and magazines. The measure consists of three items related to television exposure (e.g., “How many hours of Drama shows, such as Teen Wolf, Pretty Little Liars, Game of Thrones, Arrow, True Blood, Breaking Bad, etc. do you watch in an average week?”) and three items related to magazine exposure (e.g., “How many hours do you spend reading Fashion or Beauty magazines such as Glamour, Cosmopolitan, Elle or Vogue, in an average week?”). Titles of fashion magazines were adjusted based on current ratings. Respondents reported the number of hours they watch television programs or read magazines in an average week. The scale for each category ranges from 0 hours to 20 hours. Scores for the scale were obtained by summing
the total hours of reported media consumption. This scale was modified from its original form used by Stice et al. (1994) to include current television programming (i.e., TV news magazines) and current popular magazines (i.e., women's domestic magazines). The original version used in the Stice et al. (1994) study demonstrated sound reliability (test-retest over a three week period, \( r = .76 \)).

**Sexual Objectification**

Sexual objectification experiences were assessed using the Interpersonal Sexual Objectification Scale (ISOS; Kozee et al., 2007), which consists of 15 items reflecting two factors: body evaluation and unwanted explicit sexual advances. Example items include “How often have you noticed someone staring at your breasts when you are talking to them?” and “How often have you been touched or fondled against your will?” Respondents were instructed to respond to each item by reporting experiences within the past year. Each item was responded to on a 5-point Likert-scale from 1 (*never*) to 5 (*almost always*). Mean scores were used with higher scores representing greater levels of sexual objectification. Validity of scores on the ISOS was supported via both exploratory and confirmatory factor analyses, by its’ positive correlations with sexist degradation, sexist events, internalization of the thin ideal, body surveillance, and body shame, by demonstrating that the ISOS predicted self-objectification above and beyond the variance accounted for by sexist events, and by showing that it was not related to socially desirable responding. Reported internal consistency and test-retest reliability for scores on the ISOS full scale were .92 and .90, respectively (Kozee et al., 2007).

**Self-Objectification**

Self-objectification was measured by the Body Surveillance subscale of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996). The body surveillance subscale
has been used in previous research to assess self-objectification (Greenleaf & McGreer, 2006; Muehlenkamp, Swanson, & Brausch, 2005). This subscale included eight items that assess the amount that a woman self-objectifies herself by constantly looking at her body and thinking about her body in the way that it may appear to others. Example items include “I think more about how my body feels than how my body looks” and “I rarely think about how I look”. Each item was rated on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) with the option of indicating ‘not applicable’ for each item. Scores were calculated by summing the responses for each item and dividing by the number of non-missing items. Mean scores were used with higher scores representing greater levels of self-objectification. Reported alpha for scores on this subscale with an undergraduate sample was .89. Validity was supported by factor analyses and by correlating the OBCS full scale and subscales with measures that assess body esteem, DEBs, self-consciousness, and social anxiety (McKinley & Hyde, 1996)

Body Shame

Body shame was assessed with the Body Shame subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996), which consists of eight items that reflect how badly a woman feels if she does not meet cultural standards in regard to her body. Example items are “When I can’t control my weight, I feel like something must be wrong with me” and “I feel ashamed of myself when I haven’t made the effort to look my best.” Respondents were asked to respond on a 7-point Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree) or circle ‘not applicable’ if the item did not apply to them. Mean scores were used with higher scores representing greater levels of body shame. Reported alpha for scores on this subscale with an undergraduate sample was .84. Validity was supported by exploratory and confirmatory factor analyses and by correlating the OBCS full scale and subscales with measures that assess body
esteem, DEBs, private self-consciousness, and social anxiety (McKinley & Hyde, 1996).

**Alcohol Outcome Expectancies**

The Alcohol Expectancy Questionnaire (AEQ; Brown et al., 1987) is an empirically derived self-report form assessing diverse anticipated experiences associated with alcohol use. The revised adult version is a refined compilation of 120 verbatim statements of adult men (53 percent) and women (47 percent) ages 15 to 60 years, with diverse ethnic backgrounds and drinking histories. Items are rated using a visual analog with a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The adult version is designed to assess the domain of alcohol reinforcement expectancies and consists of six factor-analytically derived subscales (positive global changes in experience, sexual enhancement, social and physical pleasure, assertiveness, relaxation/tension reduction, and arousal/interpersonal power) from which questions most closely related to sexual and self-objectification will be utilized for this study. The AEQ has been evaluated in clinical and nonclinical populations, and a number of research-specific derivations have been developed. The AEQ has been tested for reliability and validity; test-retest, internal consistency, content validity, criterion validity, and construct validity have all been examined. The AEQ is both beneficial for understanding personally perceived reinforcement from alcohol use, as well as in guiding efforts to identify addiction risk and develop effective treatment methods that incorporate expectancies. For the purposes of this study, seven questions were utilized that most clearly represented alcohol outcome expectancies related to objectification and a factor analysis was conducted with these items.

**Thinness and Restricting Expectancies**

The Thinness and Restricting Expectancy Inventory (TREI; Hohlstein et al., 1998) was designed to assess cognitive expectations for the consequences of thinness and restricting food
intake. The TREI is a 44-item, self-report measure of expectancies that thinness and dieting lead to overgeneralized life improvement. A 7-point Likert scale was used and a total score was calculated, higher scores indicating more positive expectancies about thinness and restricting food intake. Internal consistency reliability for the measure is .98. The TREI reflects a broad expectation for overgeneralized life improvement from dieting and thinness, for example, feeling more capable, confident, in control, and self-reliant; coping better; feeling more attractive; and feeling more respected by others. Endorsement was correlated with successful dieting and women showing a dieting plus dis-inhibition pattern endorsed both this expectancy and expectancies that eating will help manage negative affect and alleviate boredom more strongly than did other women. The TREI also distinguished among anorexics, bulimics, and normal and psychiatric controls (Hohlstein et al., 1998).

**Participant Recruitment**

The sample was recruited from the following undergraduate classes in the College of Human Environmental Sciences, College of Communication and Information Sciences, and College of Commerce and Business Administration at The University of Alabama: APR 260; GBA 300; JN 311, COM 123, MC101, MC401, HHE 270; HHE 440; NHM 101. Drawing from different academic divisions at UA provided a more representative sample of students. The researcher sent recruitment emails to instructors to inform them of the study and to gain permission to enter classes for participant recruitment.

For classes where instructors allowed the researcher to attend, the researcher scheduled appointments to attend classes and administer surveys. The researcher recruited students within specific classes agreed upon by the associated instructor. Prior to study recruitment and
administration, the investigator asked the instructor to leave the room in order to reduce the potential of coercion for those wishing to participate in the study.

Before the instructor left the classroom, the instructor mentioned that those who chose not to participate should remain in the classroom quietly until everyone finished the survey and the instructor re-entered. Once the instructor exited the classroom, the researcher delivered a script explaining the study and offering students the opportunity to participate. This script explained that the study was a “Student Consumption Behavior Survey” designed to examine health-related issues such as alcohol use and eating behaviors among college students.

Additionally, the script made students aware of the risks, incentives, and requirements for participating in the study and the students were explicitly instructed that participation was anonymous, voluntary, and will take about 20-25 minutes to complete. The researcher informed students that there was no compensation for participating in the study and asked those students who chose not to participate to sit quietly until all respondents were finished and the instructor re-entered the classroom. Lastly, the researcher informed potential respondents that if they did choose to participate, they would be asked some personal questions and that they should visit or call the Student Counseling Center on campus (they will be provided with the phone number: 205-348-3863) if they needed to talk with someone. The investigator then distributed the survey to students in the class who chose to participate.

**Survey Completion**

Each participant who chose to take the survey filled out a paper and pen survey. Before the survey was administered, the instructor left the classroom to help ensure anonymity and to decrease the risk for any potential bias. The first page of the survey was the informed consent section of the survey. By filling out the survey, students indicated that they understood what was
being asked of them, they were between the ages of 18 and 24, and that they agreed to participate. Students were reminded that they were free to discontinue the study or leave at any time and they would be provided with the phone number to the UA Counseling Center (205-348-3863), should they feel the need to talk with someone as a result of taking this survey.

Students were asked to place their completed surveys in an envelope at the front of the classroom, which was sealed once all surveys had been collected. This envelope helped to ensure anonymity of responses. Students were reminded that they could detach the informed consent if they wished to keep the copy. Once the information sheet had been read, the survey took approximately 20-25 minutes to complete. Survey instructions informed respondents that they could only complete the survey one time, even if they were enrolled in other classes where the survey was administered. For example, if they had already completed the survey for another class that happened to be included in the selected classes for the sample, they were asked not to participate more than once. Students completing this survey were free to skip any questions that they did not feel comfortable answering and were free to discontinue completion of it at any time. Each participant was thanked for his or her time on the last page and provided with the contact information to the UA Counseling Center (205-348-3863) in the unlikely event of psychological distress.

**Participant Population**

This particular study involved approximately 700 students from The University of Alabama. A power analysis was not conducted because the researcher did not have access to power analysis software sophisticated enough to calculate the sample size for a binary logistic regression.
Additionally, proportions needed to calculate a power analysis for a multiple binary logistic regression are not yet known for some predictor variables, and may not yield a truly representative sample size. A review of HED and DEB literature yielded multiple studies that had a broad sample size range from 211 to 1553 (Kelly-Weeder, 2011; Burke et al., 2010; Carr & Szymanski, 2011; Lienemann & Lamb, 2013; Peat & Muehlenkamp, 2011; Lampard & McLean, 2011; Clapp & Shillington, 2001; McBride et al., 2014). Together, the researcher and statistician took both statistical and practical issues into consideration (Bowling, 2002; Isaac & Michael, 1995; Neutens & Rubinson, 2010) and decided that 700 students would be a sufficient sample size for this proposed study.

In order to remain consistent with the literature in this area, undergraduate students aged 18-24 were eligible for this study. Because Alabama law states that those individuals that are under 19 years of age are still considered to be minors, there were minors involved in this study since the inclusion criteria for age range begins at 18. Additionally, a waiver of parental consent was submitted for this study. Due to the increasing percent of students who live away from home at this university, the researcher decided that it would not be feasible to obtain parental consent for 18-year-old minors in this study. Written consent was also waived for all respondents to ensure the highest level of anonymity. Any individual that did not fall under this specified age range, or inclusion criteria, was not qualified to participate in this particular study. The researcher instructed students not to participate if they were not within the specified age range. Undergraduate students currently enrolled in undergraduate classes that were taught through the College of Human Environmental Sciences, College of Communication and Information Sciences, and College of Commerce and Business Administration at The University of Alabama during the Fall 2014 semester were qualified for this study. These students that were enrolled in
undergraduate classes could be either male or female and could have possibly identified with an array of ethnic backgrounds.

**Participant Protections**

To ensure the highest level of anonymity and to protect the privacy of subjects, no identifying information was collected in the survey. The survey was completely anonymous. Before the survey was administered, the instructor left the classroom to help ensure anonymity and to decrease the risk for any potential bias. Furthermore, students were also asked to not disclose any of the information that was discussed in this study with others or those that were not willing to participate in this study. Students were reminded that they could detach the information sheet attached to the front of the survey if they wished to keep the copy. The students were asked to place their completed survey in an envelope at the front of the classroom, which was sealed once all surveys were collected. This envelope helped ensure anonymity of responses.

In order to protect the students’ responses, survey data was contained within an SPSS file and protected on a flash drive that was kept in a locked cabinet in the researcher’s locked office. There was also a back-up flash drive containing the data that was locked in a separate part of the researcher’s office. The researcher entered all data by hand into an SPSS file and re-entered 10% of the data to increase accuracy. Access to this data was only granted to the investigators associated with the study. At no time were surveys or data left unattended by the principal investigators. Additionally, no labels were attached to completed surveys. The investigators took all completed surveys and placed them in the same file. At no time was the instructor of the class made aware of who participated in the study. After collecting all of the needed respondents, a data set was created in SPSS, which was only viewed by the researcher.
Analysis Overview

Using SPSS for IBM Statistics, Version 21 (IBM Corp, 2012), various levels of analyses were performed on the completed and cleaned data set. Descriptive analyses were performed on several variables to describe the sample population. Additionally, preliminary correlations, regressions, and chi-square analyses were performed to determine basic relationships between variables (Field, 2009, p.783). Based on preliminary analyses, a series of logistic regression and linear regression analyses were used to uncover complex relationships between personal and environmental factors identified as part of SCT in this study. Multiple regression is an extension of simple regressions in which an outcome is predicted by a linear combination of two or more predictor variables (Field, 2009, p. 790). Binary logistic regression is a regression in which the outcome is categorical and has only two categories (Field, 2009, p. 789). These were appropriate analyses to examine the categorical outcome variable in the study (co-occurrence of HED and DEBs), which will have two categories (YES/NO).

Reliability

Cronbach’s Alpha was examined to assess the reliability of each scale in this study. The alpha coefficient measured the consistency of participant responses to the entire scale. A score of at least .60 is considered to be acceptable internal consistency for an instrument (Hair, Black, Babin, Anderson, & Tatham, 2006), although several scales have previously calculated Cronbach alpha’s of above .70 or .80.

Research Questions

The following research questions were utilized in the investigation of personal and environmental factors and the co-occurrence of HED and DEBs:
Research Question 1: *What is the prevalence of heavy episodic drinking, disordered eating behaviors, and their co-occurrence among college students?*

This question focused on prevalence of 3 variables: HED, DEBs, and the co-occurrence of HED and DEBs. To examine prevalence of these behaviors among college students sampled at UA, simple frequencies and descriptives were run in SPSS. HED was a categorical variable (YES/NO), DEB was a continuous variable, and the co-occurrence of both HED and DEBs was a categorical variable (YES/NO).

HED prevalence among the UA sample was analyzed by looking at frequencies, percentiles, and a bar chart. DEBs was analyzed by looking at descriptives to determine information about distribution, variability, and measures of central tendency, as well as the mean values, standard deviation, and variance. A histogram was used to assess normality for DEBs as well as skewness and kurtosis values.

After recoding the continuous variable (DEBs) into categories based on the absence or presence of behaviors, then creating a new categorical variable for the co-occurrence of these two behaviors, frequencies were assessed for the co-occurrence by examining percentages and a bar graph.

Hypothesis of RQ 1: Prevalence of heavy episodic drinking, disordered eating behaviors, and their co-occurrence will be comparable to national trends among college students.

Research Question 2: *What are the relationships between sexual objectification (continuous), self-objectification (continuous), body shame (continuous), alcohol outcome expectancies (continuous), thinness and restricting expectancies (continuous), and media consumption (continuous)?*

In order to examine relationships among six continuous variables that examine both personal (sexual objectification, self-objectification, body shame, alcohol outcome expectancies, and thinness and restricting expectancies) and environmental factors (media consumption), correlation analyses were conducted. If data was normal, Pearson correlation analyses were
performed to examine relationships among continuous predictors (Field, 2009, p.789). If data was non-normal, Spearman correlation analyses were performed to examine relationships among predictors (Field, 2009, p. 179). Linearity of relationships and constant variance was examined. The purported relationships among variables are displayed in Appendix A.

Assumptions of RQ2: For this analysis, it was assumed that the continuous predictors would not violate assumptions of normality.

Hypothesis of RQ 2: There will be positive relationships between sexual objectification, self-objectification, body shame, alcohol outcome expectancies, thinness and restricting expectancies, and media consumption.

Research Question 3: Do sexual objectification, self-objectification, body shame, outcome expectancies (alcohol and thinness and restricting), and media consumption predict the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

Univariate regressions were performed to determine which individual variables significantly predict co-occurrence. To determine the final multivariate regression model, a multiple regression using backward stepwise elimination was performed to predict which personal (sexual objectification, self-objectification, body shame, alcohol outcome expectancies, and thinness and restricting outcome expectancies) and environmental factors (media consumption) predict the co-occurrence of HED and DEBs.

Binary logistic regression was appropriate for this analysis because the outcome variable is categorical (with 2 categories) and the predictor variables are continuous (Field, 2009, pg. 265, 790). The p-values, standardized beta coefficients, variance explained and odds ratios were used to determine statistical and practical significance. The purported relationships among variables are displayed in Appendix A.
Assumptions of RQ3: For this analysis, it was assumed that each predictor has a linear relationship with the log of the outcome.

Hypothesis of RQ3: High scores on sexual objectification, self-objectification, body shame, alcohol outcome expectancies, thinness and restricting expectancies, and media consumption use will predict the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students.

Research Question 4: Does body shame mediate the relationship between self-objectification and alcohol outcome expectancies among college students?

In order to examine the relationship between self-objectification and alcohol outcome expectancies, a mediated regression was performed to determine if body shame affected the relationship between self-objectification and alcohol outcome expectancies. Mediated linear regression is appropriate for this research question because the outcome variable, alcohol outcome expectancies, is continuous, and the mediator variable (body shame) could have affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Research reveals that body shame explains a portion of why individuals hold increased alcohol outcome expectancies (Thompson, Spitler, McCoy, Marra, Sutfin, Rhods, & Brown, 2009); therefore, it is hypothesized that body shame accounts for a portion of this relationship between self-objectification and alcohol outcome expectancies and speaks to why this relationship occurs.

Before mediated regression could be utilized, a linear regression determined if self-objectification was a significant predictor of body shame. A linear regression was performed to determine if self-objectification (the predictor) as well as body shame (the mediator) were significant predictors of alcohol outcome expectancies. The purported relationships among variables are displayed in Appendix A.
Assumptions of RQ4: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ4: Including body shame as a mediator will weaken the direct effect of self-objectification on alcohol outcome expectancies, which will create a larger indirect effect on alcohol outcome expectancies.

Research Question 5: *Does body shame mediate the relationship between self-objectification and thinness and restricting expectancies among college students?*

In order to examine the relationship between self-objectification and thinness and restricting expectancies, a mediated regression was performed to determine if body shame affected the relationship between self-objectification and thinness and restricting expectancies. Mediated linear regression was appropriate for this research question because the outcome variable, thinness and restricting expectancies, is continuous, and the mediator variable (body shame) could have affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Research reveals that body shame explains a portion of why individuals hold increased thinness and restricting expectancies (Fitzsimmons-Craft, 2011); therefore, it is hypothesized that body shame accounts for a portion of the relationship between self-objectification and thinness and restricting expectancies and speaks to why this relationship occurs.

Before mediated regression could be utilized, a linear regression previously performed for research question 4 determined if self-objectification was a significant predictor of body shame. A linear regression was performed to determine if self-objectification (the predictor) as well as body shame (the mediator) were significant predictors of thinness and restricting expectancies. The purported relationships among variables are displayed in Appendix A.
Assumptions of RQ5: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ5: Including body shame as a mediator will weaken the direct effect of self-objectification on thinness and restricting expectancies, which will create a larger indirect effect on thinness and restricting expectancies.

Research Question 6: Do alcohol outcome expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

In order to examine the relationship between body shame and the co-occurrence of HED and DEBs, a mediated logistic regression was performed to determine if alcohol outcome expectancies affected the relationship between body shame and co-occurrence. Mediated logistic regression was appropriate for this research question because the outcome variable, co-occurrence, is categorical, and the mediator variable (alcohol outcome expectancies) could have affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Research reveals that alcohol outcome expectancies explain a large portion of why individuals engage in heavy episodic drinking (Friedman et al., 2007; Oei & Morawska, 2004); therefore, it is hypothesized that alcohol outcomes expectancies account for a portion of the relationship between body shame and co-occurrence of HED and DEBs and speak to why this relationship occurs.

Before mediated regression could be utilized, a linear regression determined if body shame was a significant predictor of alcohol outcome expectancies. Results from a logistic regression used for research question 3 determined if body shame and alcohol outcome expectancies were predictors of co-occurrence. The purported relationships among variables are displayed in Appendix A.
Assumptions of RQ6: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ6: Including alcohol outcome expectancies as a mediator will weaken the direct effect of body shame on co-occurrence, which will create a larger indirect effect on co-occurrence of heavy episodic drinking and disordered eating behaviors.

Research Question 7: Do thinness and restricting expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

In order to examine the relationship between body shame and the co-occurrence of HED and DEBs, a mediated logistic regression was performed to determine if thinness and restricting outcome expectancies affect the relationship between body shame and co-occurrence. Mediated logistic regression was appropriate for this research question because the outcome variable, co-occurrence, is categorical, and the mediator variable (thinness and restricting expectancies) could have affected the relationship between the predictor and the outcome variable. A given variable may be said to function as a mediator to the extent that it accounts for the relation between the predictor and the criterion and speaks to how or why such effects occur (Field, 2013, pg. 395). Research reveals that thinness and restricting expectancies explain a portion of why individuals engage in disordered eating behaviors (Fitzsimmons-Craft, 2011; McKinley & Hyde, 1996); therefore, it is hypothesized that thinness and restricting expectancies account for a portion of the relationship between body shame and co-occurrence of HED and DEBs and speak to why this relationship occurs.

Before mediated regression could be utilized, a linear regression determined if body shame was a significant predictor of thinness and restricting expectancies. Results from a logistic regression used for research question 3 determined if body shame and thinness and restricting
expectancies were predictors of co-occurrence. The purported relationships among variables are displayed in Appendix A.

Assumptions of RQ7: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ7: Including thinness and restricting expectancies as a mediator will weaken the direct effect of body shame on co-occurrence, which will create a larger indirect effect on co-occurrence of heavy episodic drinking and disordered eating behaviors.

Research Question 8: *Do higher levels of reported media consumption moderate the relationship between body shame and alcohol outcome expectancies among college students?*

In order to examine the relationship between body shame and alcohol outcome expectancies, a moderated linear regression was performed to determine if media consumption affected the relationship between body shame and alcohol outcome expectancies. Moderated linear regression was appropriate for this research question because the outcome variable, alcohol outcome expectancies, is continuous, and the moderator variable could have affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Moderation was examined in this analysis because previous literature has shown that media consumption serves as a moderator of the enhanced relationship between certain independent variables and alcohol outcome expectancies (NIAAA, 1998; DeBenedittis & Borjesson Holman, 2011; Madson, Moorer, Zeigler-Hill, Bonnell, & Villarosa, 2013).

Before moderated regression could be utilized, a linear regression determined if body shame was a significant predictor of alcohol outcome expectancies. Additionally, the standardized interaction term between the predictor and the moderator was computed. The purported relationships among variables are displayed in Appendix A.
Assumptions of RQ8: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ8: Higher levels of reported media consumption will strengthen the relationship between body shame and alcohol outcome expectancies.

Research Question 9: *Do higher levels of reported media consumption moderate the relationship between body shame and thinness and restricting outcome expectancies among college students?*

In order to examine the relationship between body shame and thinness and restricting expectancies, a moderated linear regression was performed to determine if media consumption affected the relationship between body shame and thinness and restricting expectancies. Moderated linear regression was appropriate for this research question because the outcome variable, thinness and restricting expectancies, is continuous, and the moderator variable could have affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Moderation was examined in this analysis because previous literature has shown that media consumption has been associated with enhanced thinness and restricting expectancies (Van Vonderen & Kinnally, 2012; Miller & Halberstadt, 2005; Harrison & Hefner, 2006).

Before moderated regression could be utilized, a linear regression determined if body shame was a significant predictor of thinness and restricting expectancies. Additionally, the standardized interaction term between the predictor and the moderator was computed. The purported relationships among variables are displayed in Appendix A.

Assumptions of RQ9: For this analysis, it was assumed that residuals follow a normal distribution.

Hypothesis of RQ9: Higher levels of reported media consumption will strengthen the relationship between body shame and thinness and restricting expectancies.
Data Cleaning

New Variables

Several new variables were created from existing data to prepare for advanced statistical analysis. The binge drinking status variable, defined as drinking five or more alcohol drinks in one sitting at least once in the past two week (Serras, Saules, Cranford, & Eisenbeg, 2010), was created as a binary variable (YES/NO). DEB variable was transformed into a categorical variable (YES/NO) based on the presence or absence of disordered eating behavior symptoms. Questions in this scale began with, “On how many of the past 28 days have you…” A response of “No Days” to every question would result in a score of 0, while a response of “1-5 Days” to every question would result in a score of 22. Of the entire sample, 34.8 percent (n=259) reported low scores of DEBs (22 or below), and 4.0 percent (n=27) reported a score of zero (complete absence of DEBs); however, in an attempt to not overinflate the sample of respondents with self-reported DEBs, scores of 23 or above were considered YES. If any respondent had a global total score of 23 or more, which would require reporting a score of 6-12 days in the past 28 days to at least one item, they were classified as YES. If the respondent did not report 6-12 days on any item, they were classified as NO. For a list of items in this scale, refer to Appendix C, questions 18-33.

From these two categorical (YES/NO) variables, a co-occurrence variable was created, which was a categorical (YES/NO) variable as well. Respondents were only scored with YES for co-occurrence if they indicated prevalence of both heavy episodic drinking and disordered eating behaviors. For the body shame variable, one item (#3) was deleted from the scale and cronbach’s alpha for the scale increased from 0.381 to 0.686. A new mean was calculated based on seven items instead of eight. The Alcohol Outcome Expectancies variable was calculated from 7 items from the AEQ, which assessed expectancies related to objectification. Exploratory
Factor Analysis was conducted and consistency and reliability were assessed. For analysis, the responses were divided into 3 groups: Disagree with all, Agree with 1-3 items, or Agree with 4-6 items. These groups were coded as 0, 1, or 2 respectively.

**Missing Data**

Through descriptive analysis, it was determined that each scale initially housed missing data, with missing data for any individual item being under ten percent, which is acceptable with health research (Dodeen, 2003). In each of these cases, a mean was calculated and substituted for the missing items. Complete data sets were then used to calculate a sum for each individual participant to be used in advanced analysis. However, missing data can also create underrepresentation of variables, which can produce research limitations (Sneider, Clark, Rakowski, & Lapane, 2012). Therefore, respondents who did not complete scales related to sexual objectification, self-objectification, or body shame were deleted from the sample. The resulting sample \( n=667 \) included sufficient responses to make analysis possible and was sufficient for statistical analysis.

**Limitations**

There are several limitations that were inherent as a part of this study, including the use of self-report and convenience sampling techniques, the use of only two major constructs of a broad theoretical model, the cross-sectional nature, the examination of a single university, which limits generalizability, and the length of the survey. However, the methodology described in this chapter attempted to minimize the impact of these limitations. These limitations are addressed and discussed further in Chapter 5 of this document.
CHAPTER 4

RESULTS

The purpose of this study was to examine objectification-related personal and environmental factors associated with the co-occurrence of HED and DEBs in college students. A number of studies have attempted to explore sexual objectification, but none of these have examined the co-occurrence of HED and DEBs in light of sexual objectification. Also, these studies have not been applied to the field of Health Education and Promotion/Public Health nor have they included the use of theories from these fields to support health behavior change on college campuses around the nation.

Data from this study were used to help quantify the scope of specific co-occurring negative behaviors among college students. Additionally, it measured and examined the relationships between objectification-related factors on these co-occurring behaviors. To explore the issues mentioned, the study examined the prevalence and descriptives of HED, DEBs, and the co-occurrence of HED and DEBs and examined potential moderators and mediators of the co-occurrence. Finally, strategies and suggestions will be reported for further investigation. All quantitative analyses were performed using SPSS version 22.0. The a priori criteria to indicate significance of a predictor is less than or equal to .05. The results are organized in nine sections based on the existing research questions. Variance explained will be mentioned throughout this chapter. The rule of determinancy is based on the assumptions that natural phenomena are
completely or almost always determined, and that it is always possible to find an equation that accurately describes or explains almost all the variance in the relationships under study. This suggests that researchers should proceed with their studies until they find an equation or set of equations that explain nearly 100 percent of the variance for the phenomena in question (Lieberson, 1985). Therefore, in discussing variance in this chapter, higher percentages are thought to more fully explain the variance in relationships between variables.

**Sample Population**

A total of 689 undergraduate students enrolled at The University of Alabama responded to the survey. However, 3 did not meet the age requirement and 19 did not complete any sexual objectification, self-objectification, or body shame questions, and were therefore excluded from all analyses. Therefore, the total sample size for all analyses was $n=667$. Students were recruited from classes in the College of Human Environmental Sciences, College of Communication and Information Sciences, and the College of Commerce and Business Administration at The University of Alabama. A total of 13 instructors were contacted for class recruitment, and 10 gave permission to recruit in 12 classes during class time. Out of all classes entered, there were very few students who chose to not participate in the survey. Of approximately 900 students enrolled in the classes surveyed, 667 participated in the survey, which is 74.1 percent. According to Punch (2003), more than 50 percent response rate in classrooms is good.

The resulting sample included 667 respondents, as is discussed at the end of Chapter 3. Of the respondents, 68.4 percent identified as female ($n=456$), and 79.3 percent identified as White/Non-Hispanic ($n=529$). A total of 296 students (44.4 percent of the sample) indicated membership in a Greek fraternity or sorority and 95.8 percent reported heterosexual orientation
(\(n=636\)). Table 4.1 highlights the demographic and college-related characteristics of the sample and Table 4.2 highlights school-related characteristics of the sample population.

Table 4.1  
**Demographic and Personal Characteristics of Study Sample**

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>211</td>
<td>31.6</td>
</tr>
<tr>
<td>Female</td>
<td>456</td>
<td>68.4</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>156</td>
<td>23.4</td>
</tr>
<tr>
<td>19</td>
<td>124</td>
<td>18.5</td>
</tr>
<tr>
<td>20</td>
<td>154</td>
<td>23.1</td>
</tr>
<tr>
<td>21</td>
<td>124</td>
<td>18.6</td>
</tr>
<tr>
<td>22</td>
<td>83</td>
<td>12.4</td>
</tr>
<tr>
<td>23</td>
<td>17</td>
<td>2.5</td>
</tr>
<tr>
<td>24</td>
<td>9</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian/Alaskan Native</td>
<td>3</td>
<td>0.4%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>13</td>
<td>1.9%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>29</td>
<td>4.3%</td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td>529</td>
<td>79.3%</td>
</tr>
<tr>
<td>Black/Non-Hispanic</td>
<td>81</td>
<td>12.1%</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>1.8%</td>
</tr>
<tr>
<td><strong>Sexual Orientation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td>636</td>
<td>95.4%</td>
</tr>
<tr>
<td>Bisexual</td>
<td>16</td>
<td>2.4%</td>
</tr>
<tr>
<td>Gay/Lesbian</td>
<td>9</td>
<td>1.3%</td>
</tr>
<tr>
<td>Unsure</td>
<td>6</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not in a Relationship</td>
<td>370</td>
<td>55.5%</td>
</tr>
<tr>
<td>In a Relationship/Not Living Together</td>
<td>268</td>
<td>40.2%</td>
</tr>
<tr>
<td>In a Relationship/Living Together</td>
<td>29</td>
<td>4.3%</td>
</tr>
</tbody>
</table>
Table 4.3 presents additional health-related characteristics of the sample. Of the sample, 88.8 percent reported their overall health to be excellent, very good, or good. 66.5 percent of the sample described their weight status as “about the right weight” and 69.3 percent fell into the normal BMI range when calculated using height and weight. Based on these BMI calculations, only 24.8 percent fell into the overweight or obese categories; however, 50.5 percent of the sample reported trying to lose weight.
Table 4.3  
**Self-Reported Health & Weight Status of Study Sample**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Description</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>103</td>
<td>15.4</td>
</tr>
<tr>
<td>Very Good</td>
<td>231</td>
<td>34.6</td>
</tr>
<tr>
<td>Good</td>
<td>258</td>
<td>38.7</td>
</tr>
<tr>
<td>Fair</td>
<td>66</td>
<td>9.9</td>
</tr>
<tr>
<td>Poor</td>
<td>7</td>
<td>1.0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Weight Description</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Underweight</td>
<td>3</td>
<td>0.4</td>
</tr>
<tr>
<td>Slightly Underweight</td>
<td>85</td>
<td>12.8</td>
</tr>
<tr>
<td>About the Right Weight</td>
<td>443</td>
<td>66.5</td>
</tr>
<tr>
<td>Slightly Overweight</td>
<td>122</td>
<td>18.3</td>
</tr>
<tr>
<td>Very Overweight</td>
<td>13</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Calculated BMI</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight (&lt;18.5)</td>
<td>39</td>
<td>5.8</td>
</tr>
<tr>
<td>Normal (18.5-24.9)</td>
<td>462</td>
<td>69.3</td>
</tr>
<tr>
<td>Overweight (25-29.9)</td>
<td>117</td>
<td>17.5</td>
</tr>
<tr>
<td>Obesity (&gt;30.0)</td>
<td>49</td>
<td>7.3</td>
</tr>
<tr>
<td><strong>Change Weight</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Trying to Do Anything</td>
<td>79</td>
<td>12.0</td>
</tr>
<tr>
<td>Lose Weight</td>
<td>333</td>
<td>50.5</td>
</tr>
<tr>
<td>Stay the Same</td>
<td>183</td>
<td>27.7</td>
</tr>
<tr>
<td>Gain Weight</td>
<td>65</td>
<td>9.8</td>
</tr>
</tbody>
</table>

**Psychometrics**

The scales utilized in this study have previously determined measures of reliability and validity in college populations. For the purposes of this study, internal consistency and reliability was determined for each scale utilizing Cronbach’s alpha. The reliability for each scale was within the range of acceptability (Kline, 2000), with the exception of the Media Consumption Scale, and can be seen in Table 4.4.
Table 4.4
*Cronbach’s Alphas for Study Scales*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Cronbach’s Alpha</th>
<th>Level of Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating Disorder Examination Questionnaire</td>
<td>0.95</td>
<td>Excellent</td>
</tr>
<tr>
<td>Interpersonal Sexual Objectification Scale</td>
<td>0.97</td>
<td>Excellent</td>
</tr>
<tr>
<td>Objectified Body Consciousness Scale – Body Surveillance Subscale</td>
<td>0.79</td>
<td>Good</td>
</tr>
<tr>
<td>Objectified Body Consciousness Scale – Body Shame Subscale</td>
<td>0.69</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Alcohol Expectancy Questionnaire</td>
<td>0.87</td>
<td>Good</td>
</tr>
<tr>
<td>Media Consumption Scale</td>
<td>0.58</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Thinness and Restricting Expectancy Inventory</td>
<td>0.99</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Cronbach’s reliability analysis revealed that the Media Consumption Scale ($\alpha = 0.58$) had a moderately low reliability score. However, other studies using this scale have reported overall lower reliability scores ranging from 0.57 to 0.76 or reported not calculating reliability at all since the measures consists of single-item indexes (Stice et al., 1994; Harrison & Cantor, 1997; Varnado, 2000). This provides support for the need for an updated media consumption scale to be able to conduct more accurate research.

In addition, an exploratory factor analysis (EFA) was performed on the seven Alcohol Outcome Expectancy items extracted from the full AEQ scale. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = 0.890 (excellent according to Hutcheson & Sofroniou, 1999), and all KMO values for individual items were greater than 0.77, which is well above the acceptable limit of 0.5 (Field, 2013). An initial analysis was run to obtain eigenvalues for each factor in the data. One factor had an eigenvalue over Kaiser’s criterion of 1
and in combination explained 56.52 percent of the variance. These seven questions from the AEQ had not been used apart from the rest of the scale and were checked for validity utilizing a Exploratory Factor Analysis and reliability using Cronbach’s alpha. The scree plot showed inflexions that justified the one-factor; therefore, one factor was retained based on this observation as well as the large sample size and the convergence of the scree plot and Kaiser’s criterion on this value. Table 4.5 shows the factor loadings and shows that the items all cluster on factor 1, suggesting that they all represent objectification-related alcohol outcome expectancies.

<table>
<thead>
<tr>
<th>Item</th>
<th>Objectification-Relation Alcohol Outcome Expectancies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking gives me more confidence in myself.</td>
<td>0.72</td>
</tr>
<tr>
<td>After a few drinks, I don’t worry as much about what other people think of me.</td>
<td>0.71</td>
</tr>
<tr>
<td>I often feel sexier after I have had a couple of drinks.</td>
<td>0.67</td>
</tr>
<tr>
<td>Alcohol makes me worry less.</td>
<td>0.70</td>
</tr>
<tr>
<td>I tend to be less self-critical when I have something alcoholic to drink.</td>
<td>0.73</td>
</tr>
<tr>
<td>If I am feeling restricted in any way, a few drinks make me feel better.</td>
<td>0.72</td>
</tr>
<tr>
<td>Drinking can make me more satisfied with myself.</td>
<td>0.67</td>
</tr>
</tbody>
</table>
Research Questions

Research Question 1: What is the prevalence of heavy episodic drinking, disordered eating behaviors, and their co-occurrence among college students?

Heavy episodic drinking is defined as drinking five or more alcohol drinks for men (four or more for women) in one sitting at least once in the past two weeks (Serras, Saules, Cranford, & Eisenberg, 2010). Prevalence of HED will be addressed in the first research question. Two additional drinking questions were asked to gain insight into drinking behaviors among the sample, “What is the average number of drinks that you consume a week?” and “In a typical month, how many days do you drink alcohol?” Approximately 28.3 percent (n=145) of respondents reported drinking more than ten drinks per week on average and 21.5 percent (n=143) reported drinking alcohol on ten or more days in a typical month.

The prevalence of HED was analyzed through frequency and descriptive data. Greater than two thirds of the entire sample (68.7%) reported HED within the past two weeks. The prevalence of DEBs, which was initially a continuous variable, was analyzed through frequency and descriptive data to determine information about distribution, variability, and measures of central tendency, as well as the mean values, standard deviation, and variance. The mean total EDEQ score for all respondents was 2.65 (SD=1.34). A histogram was used to assess normality for DEBs as well as skewness (.725) and kurtosis (-.364) values, which fell within the range of normality. These frequencies and percentages for HED and DEB are reported in Table 4.6.
Table 4.6
Heavy Episodic Drinking and Disordered Eating Behavior Prevalence

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Episodic Drinking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>208</td>
<td>31.2</td>
</tr>
<tr>
<td>Yes</td>
<td>459</td>
<td>68.8</td>
</tr>
<tr>
<td><strong>Disordered Eating Behaviors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>259</td>
<td>38.8</td>
</tr>
<tr>
<td>Yes</td>
<td>408</td>
<td>61.2</td>
</tr>
</tbody>
</table>

The DEB variable was assessed as a continuous variable with a mean global score comprised of four mean subscale scores. Subscale means and standard deviations, as well as the global mean score and standard deviation, are listed in Table 4.7.

Table 4.7
EDE-Q Subscale Mean Scores

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape Concern</td>
<td>3.18±1.71</td>
</tr>
<tr>
<td>Weight Concern</td>
<td>2.90±1.65</td>
</tr>
<tr>
<td>Restraint</td>
<td>2.67±1.48</td>
</tr>
<tr>
<td>Eating Concern</td>
<td>1.83±1.09</td>
</tr>
<tr>
<td>Global Score</td>
<td>2.65±1.34</td>
</tr>
</tbody>
</table>

In order to calculate the final co-occurrence variable, the DEB variable was transformed into a categorical variable (YES/NO) based on the presence or absence of disordered eating behavior symptoms. Questions in this scale began with, “On how many of the past 28 days have you…” A response of “No Days” to every question would result in a score of 0, while a response of “1-5 Days” to every question would result in a score of 22. Of the entire sample, 34.8 percent ($n=259$) reported low scores of DEBs (22 or below), and 4.0 percent ($n=27$) reported a score of zero (complete absence of DEBs); however, in an attempt to not overinflate the sample of
respondents with self-reported DEBs, scores of 23 or above were considered YES. If any respondent had a global total score of 23 or more, which would require reporting a score of 6-12 days in the past 28 days to at least one item, they were classified as YES. If the respondent did not report 6-12 days on any item, they were classified as NO. For a list of items in this scale, refer to Appendix C, questions 18-33. The distribution of total scores is reported in Table 4.8.

Table 4.8
Distribution of Global Total Disordered Eating Behavior Scores

<table>
<thead>
<tr>
<th>Score</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>27</td>
<td>4.0</td>
</tr>
<tr>
<td>1-2</td>
<td>33</td>
<td>4.9</td>
</tr>
<tr>
<td>3-12</td>
<td>110</td>
<td>16.5</td>
</tr>
<tr>
<td>13-22</td>
<td>89</td>
<td>13.4</td>
</tr>
<tr>
<td>23-highest</td>
<td>408</td>
<td>61.2</td>
</tr>
</tbody>
</table>

A new categorical variable for the co-occurrence of disordered eating behaviors and heavy episodic drinking was created based on the presence of DEBs and reported HED within the past 2 weeks. The prevalence of the co-occurrence of HED and DEBs was analyzed through frequency and descriptive data. Of the entire sample, 41.4 percent (n=276) reported co-occurrence of HED and DEBs while 58.6 percent (n=391) reported the absence of co-occurring behaviors. These frequencies and percentages for co-occurrence are reported in Table 4.9.

Table 4.9
Co-Occurrence Prevalence

<table>
<thead>
<tr>
<th>Co-Occurrence</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>391</td>
<td>58.6</td>
</tr>
<tr>
<td>Yes</td>
<td>276</td>
<td>41.4</td>
</tr>
</tbody>
</table>

Among the 58.6 percent (n=391) who reported the absence of co-occurring behaviors,
only 76 respondents reported NO to both HED and DEB, while 132 reported YES to DEB, and 183 respondents percent reported YES to HED. These specific frequencies and percentages of HED and DEB behaviors are reported in Figure 4.1.

Figure 4.1 *Crosstabulation of Heavy Episodic Drinking and Disordered Eating Behaviors*

<table>
<thead>
<tr>
<th>DEB Status</th>
<th>DEB Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HED Status</strong></td>
<td>No</td>
</tr>
<tr>
<td>No</td>
<td>n=76 (11.3%)</td>
</tr>
<tr>
<td>Yes</td>
<td>n=183 (27.4%)</td>
</tr>
</tbody>
</table>

Chi-Square analyses revealed correlations between the following demographic variables and the co-occurrence of HED and DEBs: biological sex, Greek affiliation, ethnic origin, trying to do something about weight, and living arrangements. The Chi-square statistics for the demographic variables under study are reported in Table 4.10.
Table 4.10  
*Chi-Square Correlations-Demographics and Co-Occurrence*

<table>
<thead>
<tr>
<th>Demographic</th>
<th>χ² Value</th>
<th>p</th>
<th>% YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>21.625</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td>47.0</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td>28.6</td>
</tr>
<tr>
<td>Greek Affiliation</td>
<td>49.923</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>39.3</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>60.7</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>22.181</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td></td>
<td></td>
<td>1.8</td>
</tr>
<tr>
<td>White (Non-Hispanic)</td>
<td></td>
<td></td>
<td>88.0</td>
</tr>
<tr>
<td>Black (Non-Hispanic)</td>
<td></td>
<td></td>
<td>7.3</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>1.5</td>
</tr>
<tr>
<td>Weight Change</td>
<td>76.489</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>Not trying to do anything</td>
<td></td>
<td></td>
<td>5.5</td>
</tr>
<tr>
<td>Trying to lose weight</td>
<td></td>
<td></td>
<td>69.4</td>
</tr>
<tr>
<td>Stay the same weight</td>
<td></td>
<td></td>
<td>22.1</td>
</tr>
<tr>
<td>Trying to gain weight</td>
<td></td>
<td></td>
<td>12.3</td>
</tr>
<tr>
<td>Living Arrangements</td>
<td>17.075</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>Campus Residence Hall</td>
<td></td>
<td></td>
<td>29.4</td>
</tr>
<tr>
<td>Other College/University housing</td>
<td></td>
<td></td>
<td>8.8</td>
</tr>
<tr>
<td>Other off-campus housing</td>
<td></td>
<td></td>
<td>50.4</td>
</tr>
<tr>
<td>Fraternity/Sorority House</td>
<td></td>
<td></td>
<td>9.9</td>
</tr>
<tr>
<td>Parent/Guardian’s House</td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
</tbody>
</table>

***Significant at the p<.001 level

Research Question 2: *What are the relationships between sexual objectification (continuous), self-objectification (continuous), body shame (continuous), alcohol outcome expectancies (continuous), thinness and restricting expectancies (continuous), and media consumption (continuous)?*

For these continuous independent variables, normality was assessed to determine whether Pearson correlation analyses or Spearman correlation analyses would be utilized to determine relationships among predictors (Field, 2009, p.789). The following variables were found to have a normal distribution: sexual objectification (skewness = 0.269, kurtosis = -0.346), self-
objectification (skewness = -0.447, kurtosis = 0.488), body shame (skewness = 0.187, kurtosis = -0.754), and thinness and restricting expectancies (skewness = 0.079, kurtosis = -0.999). A visual review of the histogram and normal curve for each of these continuous variables also revealed that the variable was normally distributed. Alcohol Outcome Expectancies had a kurtosis value just outside of the normal range (skewness = -0.450, kurtosis = -1.071); however, a visual review of the histogram and normal curve for this variable revealed that this variable was also normally distributed. Skewness and kurtosis values were outside the normal range for media consumption (skewness = 1.632, kurtosis = 2.931). Therefore, Spearman correlations were conducted with this variable.

Sexual objectification included 30 items and was based on a 5-point scale with a range of 1-5 and a mean of 2.33 (SD = 0.72). Self-objectification included 8 items, 6 of which were reverse coded, and was based on a 7-item scale with a range of 1-7 and a mean of 4.69 (SD = 1.06). A reliability analysis revealed that the scale (α = 0.97) was reliable. Body Shame included 8 items with a range of 1-7, two of which were reverse coded; however, based on the initial results of a reliability analysis (α = 0.44), one item (#3) was deleted from the scale and Cronbach’s alpha increased from 0.44 to 0.69. A new mean score was calculated based on the sum and had a mean of 3.55 (SD = 1.11). The Alcohol Outcome Expectancies variable was calculated as a continuous variable based on 3 groups: Disagree with all, Agree with 1-3 items, or Agree with 4-6 items. These groups were coded as 0, 1, or 2 respectively. Of the entire sample, 22.0 percent (n=147) disagreed with all items, 31.8 percent (n=212) agreed with 1-3 items, and 46.2 percent (n=308) agreed with 4-6 items. Cronbach’s reliability analysis revealed that the scale (α = 0.87) was reliable. Media Consumption included 6 open-ended questions with a range of 0 to 48 and a total mean score of 8.48 (SD = 8.00) and a median score of 6.0.
Cronbach’s reliability analysis revealed that the scale ($\alpha = 0.58$) was acceptable, but not highly reliable. Lastly, the Thinness and Restricting Expectancies variable was a continuous variable that included 44 items and was based on a 7-item scale with a range of 1-7 and a mean of 3.38 ($SD = 1.63$). Cronbach’s reliability analysis revealed that the scale ($\alpha = 0.99$) was reliable.

According to both the Pearson and Spearman rank correlation analyses, there were multiple statistically significant parametric and non-parametric correlations. Results indicate there were significant positive correlations between all variables except between alcohol outcome expectancies and media consumption. Correlation coefficients, p-values, and descriptive means and standard deviations for these values can be found in Table 4.11.

Table 4.11

<table>
<thead>
<tr>
<th></th>
<th>Sexual Obj</th>
<th>Self Obj</th>
<th>Body Shame</th>
<th>AEQ</th>
<th>TREI</th>
<th>Media Consumption*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex Obj</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r = 0.262***</td>
<td>r = 0.228***</td>
<td>r = 0.145***</td>
<td>r = 0.196***</td>
<td>r = 0.196***</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Self Obj</strong></td>
<td>r = 0.481***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>r = 0.089**</td>
</tr>
<tr>
<td>r = 0.167***</td>
<td>r = 0.484***</td>
<td>r = 0.089**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Body Shame</strong></td>
<td></td>
<td></td>
<td>r = 0.180***</td>
<td></td>
<td></td>
<td>r = 0.122***</td>
</tr>
<tr>
<td></td>
<td>r = 0.703***</td>
<td>r = 0.122***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AEQ</strong></td>
<td></td>
<td></td>
<td></td>
<td>r = 0.231***</td>
<td></td>
<td>r = 0.059</td>
</tr>
<tr>
<td></td>
<td></td>
<td>r = 0.231***</td>
<td>r = 0.059</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TREI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>p = 0.131</td>
</tr>
<tr>
<td></td>
<td></td>
<td>r = 0.102**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Means</strong></td>
<td>2.33</td>
<td>3.50</td>
<td>3.27</td>
<td>1.49</td>
<td>3.38</td>
<td>8.74</td>
</tr>
<tr>
<td><strong>St Dev.</strong></td>
<td>0.72</td>
<td>0.81</td>
<td>1.19</td>
<td>0.37</td>
<td>1.63</td>
<td>9.62</td>
</tr>
</tbody>
</table>

*Spearman Correlation values reported
**Significant at the p<0.01 level
***Significant at the p<.001 level
Research Question 3: *Do sexual objectification, self-objectification, body shame, outcome expectancies (alcohol and thinness and restricting), and media consumption predict the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?*

First, to create the final multivariate model, univariate logistic regressions were calculated to determine which individual variables significantly predicted co-occurrence. To determine the final multivariate regression model, a multiple logistic regression using backward stepwise elimination was performed to predict which significant personal (sexual objectification, self-objectification, body shame, alcohol outcome expectancies, and thinness and restricting) and environmental factors (media consumption) predict the co-occurrence of HED and DEBs. The p-values, standardized beta coefficients, confidence intervals, and odds ratios will be used to determine statistical and practical significance and can be seen in Table 4.12.

Table 4.12
*Continuous Univariate Predictors of Co-Occurrence*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>p</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex Obj.</td>
<td>0.731</td>
<td>***</td>
<td>2.077</td>
<td>[1.650, 2.616]</td>
</tr>
<tr>
<td>Self-Obj.</td>
<td>0.814</td>
<td>***</td>
<td>2.257</td>
<td>[1.873, 2.718]</td>
</tr>
<tr>
<td>Body Shame</td>
<td>0.702</td>
<td>***</td>
<td>2.018</td>
<td>[1.720, 2.368]</td>
</tr>
<tr>
<td>AEQ</td>
<td>1.138</td>
<td>***</td>
<td>3.122</td>
<td>[2.457, 3.966]</td>
</tr>
<tr>
<td>TREI</td>
<td>0.493</td>
<td>***</td>
<td>1.638</td>
<td>[1.468, 1.828]</td>
</tr>
<tr>
<td>Media</td>
<td>0.040</td>
<td>***</td>
<td>1.041</td>
<td>[1.020, 1.062]</td>
</tr>
</tbody>
</table>

*OR=Odds Ratio, CI=Confidence Interval*

***Significant at the p<.001 level*

Logistic regression was appropriate for this analysis because the outcome variable was dichotomous (YES/NO) and the predictor variables were all continuous. Additionally, regression
was appropriate because the researcher attempted to predict a (YES/NO) outcome, which is the purpose of logistic regression (Gross, Portney, & Watkins, p. 549). The model was acceptable after five iterations, an acceptable amount by the majority of statistical standards. Additionally, a Hosmer-Lemeshow test was not significant, \( p = 0.951 \), which reveals that the model is a good fit for the data. In the final model, five of the six variables were still significant predictors of co-occurrence. Further, the model explained 37.8 percent of the variance (Nagelkerke’s \( R^2 \) value = 0.378) in co-occurrence of heavy episodic drinking and disordered eating behaviors. The p-values, standardized beta coefficients, variance explained, and odds ratios will be used to determine statistical and practical significance, and can be seen in Table 4.13.

Table 4.13

*Results of RQ3 Multivariate Binary Logistic Regression*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>( \beta )</th>
<th>( p )</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex Obj.</td>
<td>0.381</td>
<td>**</td>
<td>1.464</td>
<td>[1.114, 1.925]</td>
</tr>
<tr>
<td>Self-Obj.</td>
<td>0.465</td>
<td>***</td>
<td>1.592</td>
<td>[1.270, 1.994]</td>
</tr>
<tr>
<td>Body Shame</td>
<td>0.275</td>
<td>**</td>
<td>1.317</td>
<td>[1.043, 1.663]</td>
</tr>
<tr>
<td>AEQ</td>
<td>1.015</td>
<td>***</td>
<td>2.759</td>
<td>[2.133, 3.568]</td>
</tr>
<tr>
<td>TREI</td>
<td>0.185</td>
<td>**</td>
<td>1.203</td>
<td>[1.025, 1.412]</td>
</tr>
<tr>
<td>Media</td>
<td>0.022</td>
<td>0.075</td>
<td>1.023</td>
<td>[0.998, 1.048]</td>
</tr>
</tbody>
</table>

\( OR = \) Odds Ratio, \( CI = \) Confidence Interval

**Significant at the \( p<0.01 \) level

***Significant at the \( p<.001 \) level
Research Question 4: *Does body shame mediate the relationship between self-objectification and alcohol outcome expectancies among college students?*

A mediated linear regression was performed to determine if body shame mediated the relationship between self-objectification and alcohol outcome expectancies. This potential relationship is displayed in Figure 4.2.

Figure 4.2 *Mediated Regression Diagram—Body Shame.* This figure illustrates the mediated relationship between variables.

Before mediated regression could be utilized, a linear regression revealed that self-objectification (the predictor) was a significant predictor of body shame (the mediator) ($\beta = 0.502, p < 0.001$). The total variance explained ($R^2$) was 0.233, which means that self-objectification predicts 23.3 percent of the variance in body shame. A second linear regression found that self-objectification (the predictor) was a significant predictor of alcohol outcome expectancies (the outcome) ($\beta = 0.124, p < 0.001$). The total variance explained ($R^2$) was 0.028, which indicates that self-objectification only predicts 2.8 percent of the variance in alcohol outcome expectancies. A third linear regression found that body shame (the mediator) was a significant predictor of alcohol outcome expectancies ($\beta = 0.122, p < 0.001$). The total variance explained ($R^2$) was 0.029, which means that body shame only predicts 2.9 percent of the variance of alcohol outcome expectancies.
A mediated regression was performed to determine if body shame mediated the relationship between self-objectification and alcohol outcome expectancies. There was a significant indirect effect of self-objectification on alcohol outcome expectancies through body shame ($\beta = 0.057, p < 0.001$), which shows there is partial mediation. The total variance explained ($R^2$) for this model was 0.0277, which means that the mediated model only predicts 2.8 percent of the variance in alcohol outcome expectancies. Again, mediated linear regression was appropriate for this research question because the outcome variable (alcohol outcome expectancies) is continuous, and the mediator variable (body shame) affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). The p-values, standardized beta coefficients, and confidence intervals will be used to determine statistical and practical significance and are reported in Table 4.14.

Table 4.14
*RQ 4 Mediated Linear Regression–Body Shame*

<table>
<thead>
<tr>
<th>Predicted Variable</th>
<th>$\beta$</th>
<th>(95% CI)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Objectification predicting Body Shame</td>
<td>0.502</td>
<td>[0.433, 0.572]</td>
<td>***</td>
</tr>
<tr>
<td>Body Shame predicting Alcohol Outcome Expectancies</td>
<td>0.122</td>
<td>[0.068, 0.175]</td>
<td>***</td>
</tr>
<tr>
<td>Self Objectification predicting Alcohol Outcome Expectancies (Direct Effect)</td>
<td>0.124</td>
<td>[0.068, 0.179]</td>
<td>***</td>
</tr>
<tr>
<td>Body Shame mediating Self Objectification and Alcohol Outcome Expectancies (Indirect Effect)</td>
<td>0.057</td>
<td>[0.020, 0.100]</td>
<td>***</td>
</tr>
</tbody>
</table>

*CI = Confidence Interval*

***Significant at the $p<.001$ level*
Research Question 5: *Does body shame mediate the relationship between self-objectification and thinness and restricting expectancies among college students?*

A mediated linear regression was performed to determine if body shame mediated the relationship between self-objectification and thinness and restricting expectancies. This potential relationship is displayed in Figure 4.3.

Figure 4.3 Mediated Regression Diagram–Body Shame. This figure illustrates the mediated relationship between variables.

![Mediated Regression Diagram](image)

Before mediated regression could be utilized, a linear regression found that self-objectification (the predictor) was a significant predictor of body shame (the mediator) ($\beta = 0.500$, $p < 0.001$). The total variance explained ($R^2$) was 0.231, which means that self-objectification predicts 23.1 percent of the variance in body shame. A second linear regression found that self-objectification was a significant predictor of thinness and restricting expectancies (the outcome) ($\beta = 0.742$, $p < 0.001$). The total variance explained ($R^2$) was 0.234, which shows that self-objectification predicts 23.4 percent of the variance in thinness and restricting expectancies. A third linear regression found that body shame was a significant predictor of thinness and restricting expectancies ($\beta = 1.035$, $p < .001$). The total variance explained ($R^2$) was 0.494, which means that this model predicts 49.4 percent of the variance of thinness and restricting expectancies.
A mediated regression was then performed to determine if body shame mediated the relationship between self-objectification and thinness and restricting expectancies. There was a significant indirect effect of self-objectification on thinness and restricting expectancies through body shame (β = 0.294, p < 0.001), which shows there is a partial mediation. The total variance explained (R²) for this model was 0.234, which means that the mediated model predicts 23.4 percent of the variance in thinness and restricting expectancies. Again, mediated linear regression was appropriate for this research question because the outcome variable (thinness and restricting expectancies) is continuous, and the mediator variable (body shame) affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). The p-values, standardized beta coefficients, and confidence intervals will be used to determine statistical and practical significance and are reported in Table 4.15.

Table 4.15
*RQ 5 Mediated Linear Regression—Body Shame*

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>(95% CI)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Objectification predicting Body Shame</td>
<td>0.502</td>
<td>[0.432, 0.571]</td>
<td>***</td>
</tr>
<tr>
<td>Body Shame predicting Thinness and Restricting Expectancies</td>
<td>1.035</td>
<td>[0.956, 1.115]</td>
<td>***</td>
</tr>
<tr>
<td>Self Objectification predicting Thinness and Restricting Expectancies (Direct Effect)</td>
<td>0.742</td>
<td>[0.640, 0.845]</td>
<td>***</td>
</tr>
<tr>
<td>Body Shame mediating Self Objectification and Thinness and Restricting Expectancies (Indirect Effect)</td>
<td>0.294</td>
<td>[0.250, 0.347]</td>
<td>***</td>
</tr>
</tbody>
</table>

CI = Confidence Interval  
***Significant at the p<.001 level
Research Question 6: Do alcohol outcome expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

A mediated logistic regression was performed to determine if alcohol outcome expectancies mediated the relationship between body shame and co-occurrence of heavy episodic drinking and disordered eating behaviors. This potential relationship is displayed in Figure 4.4.

Figure 4.4 Mediated Regression Diagram—Alcohol Outcome Expectancies. This figure illustrates the mediated relationship between variables.

![Mediated Regression Diagram](image)

Before mediated regression can be utilized to answer this question, a linear regression revealed that body shame (predictor) was a significant predictor of alcohol outcome expectancies (mediator) ($\beta = 0.123, p < 0.001$). The total variance explained ($R^2$) was 0.03, which means that body shame only explains 3.0 percent of the variance in alcohol outcome expectancies. A logistic regression found that body shame was a significant predictor of co-occurrence (the outcome) ($\beta = 0.702, p < 0.001$). The total variance explained ($R^2$) was 0.163, which shows that body shame explains 16.3 percent of the variance in co-occurrence. An additional logistic regression model found that alcohol outcome expectancies (mediator) were a significant predictor of co-
occurrence (outcome) ($\beta = 1.138, p < 0.001$). The total variance explained ($R^2$) was 0.198; this reveals that alcohol outcome expectancies explain 19.8 percent of the variance in co-occurrence.

A mediated logistic regression was then performed to determine if alcohol outcome expectancies mediated the relationship between body shame and co-occurrence. There was a significant indirect effect of body shame on co-occurrence through alcohol outcome expectancies ($\beta = 0.133, p<0.001$), which shows there was a partial mediation. The total variance explained ($R^2$) for this model was 0.165, which means that the mediated model predicts 16.5 percent of the variance in co-occurrence. Mediated logistic regression was appropriate for this research question because the outcome variable, co-occurrence, is categorical, and the mediator variable (alcohol outcome expectancies) affected the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). The p-values, standardized beta coefficients, confidence intervals, and odds ratios will be used to determine statistical and practical significance and are reported in Table 4.16.
Table 4.16  
*RQ 6 Mediated Logistic Regression–Alcohol Outcome Expectancies*

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>(95% CI)</th>
<th>p</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Shame predicting Alcohol Outcome Expectancies</td>
<td>0.123</td>
<td>[0.070, 0.177]</td>
<td>***</td>
<td>---</td>
</tr>
<tr>
<td>Alcohol Outcome Expectancies predicting Co-Occurrence</td>
<td>1.138</td>
<td>[0.834, 1.330]</td>
<td>***</td>
<td>3.122 [2.457, 3.966]</td>
</tr>
<tr>
<td>Body Shame predicting Co-Occurrence (Direct Effect)</td>
<td>0.702</td>
<td>[0.507, 0.853]</td>
<td>***</td>
<td>2.018 [1.720, 2.368]</td>
</tr>
<tr>
<td>Alcohol Outcome Expectancies mediating Body Shame and Co-Occurrence (Indirect Effect)</td>
<td>0.133</td>
<td>[0.071, 0.198]</td>
<td>***</td>
<td>---</td>
</tr>
</tbody>
</table>

CI = Confidence Interval  
***Significant at the p<.001 level

Research Question 7: *Do thinness and restricting expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?*

A mediated logistic regression was performed to determine if thinness and restricting expectancies mediated the relationship between body shame and co-occurrence of heavy episodic drinking and disordered eating behaviors. This potential relationship is displayed in Figure 4.5.
Before mediated regression can be utilized to answer this question, a linear regression revealed that body shame (predictor) was a significant predictor of thinness and restricting expectancies (mediator) ($\beta = 1.035, p < 0.001$). The total variance explained ($R^2$) was 0.494, which shows that body shame explains 49.4 percent of the variance in thinness and restricting expectancies. A logistic regression determined that body shame was a significant predictor of co-occurrence (outcome) ($\beta = 0.702, p < 0.001$). The total variance explained ($R^2$) was 0.163, which reveals that body shame explains 16.3 percent of the variance of co-occurrence. An additional logistic regression found that thinness and restricting expectancies (mediator) was a significant predictor of co-occurrence (outcome) ($\beta = 0.493, p < 0.001$). The total variance explained ($R^2$) was 0.171, which shows that thinness and restricting expectancies explain 17.1 percent of the variance of co-occurrence.

To determine the final mediated regression model, a mediated regression was performed to determine if thinness and restricting expectancies mediated the relationship between body shame and co-occurrence. There was a significant indirect effect of body shame on co-occurrence through thinness and restricting expectancies ($\beta = 0.319, p < 0.001$), which shows there is a partial mediation. The total variance explained ($R^2$) for this model was 0.168, which
means that the mediated model predicts 16.8 percent of the variance in thinness and restricting expectancies. As in the previous analysis, mediated logistic regression was appropriate for this research question because the outcome variable, co-occurrence, is categorical, and the mediator variable (thinness and restricting expectancies) may affect the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). The p-values, standardized beta coefficients, confidence intervals, and odds ratios will be used to determine statistical and practical significance and are reported in Table 4.17.

Table 4.17
*RQ 7 Mediated Logistic Regression—Thinness and Restricting Expectancies*

<table>
<thead>
<tr>
<th></th>
<th>( \beta )</th>
<th>(95% CI)</th>
<th>( p )</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Shame predicting Thinness and Restricting Expectancies</td>
<td>1.040</td>
<td>[0.960, 1.120]</td>
<td>***</td>
<td>---</td>
</tr>
<tr>
<td>Thinness and Restricting Expectancies predicting Co-Occurrence</td>
<td>0.493</td>
<td>[1.468, 1.828]</td>
<td>***</td>
<td>1.638 [1.468, 1.828]</td>
</tr>
<tr>
<td>Body Shame predicting Co-Occurrence (Direct Effect)</td>
<td>0.702</td>
<td>[0.507, 0.853]</td>
<td>***</td>
<td>2.018 [1.720, 2.368]</td>
</tr>
<tr>
<td>Thinness and Restricting Expectancies mediating Body Shame and</td>
<td>0.319</td>
<td>[0.175, 0.483]</td>
<td>***</td>
<td>---</td>
</tr>
<tr>
<td>Co-Occurrence (Indirect Effect)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*CI = Confidence Interval*

***Significant at the \( p<.001 \) level*
Research Question 8: Do higher levels of reported media consumption moderate the relationship between body shame and alcohol outcome expectancies among college students? A moderated linear regression was performed to determine if media consumption affected the relationship between body shame and alcohol outcome expectancies. This potential relationship is represented in Figure 4.6.

Figure 4.6 Moderated Linear Regression Diagram–Media Consumption. This figure illustrates the moderated relationship between variables.

Moderated linear regression was appropriate for this research question because the outcome variable, thinness and restricting outcome expectancies, is continuous, and the moderator variable could potentially affect the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Before moderated linear regression was utilized, a linear regression revealed that body shame (predictor) was a significant predictor of alcohol outcome expectancies ($\beta = 0.109$, $p < .001$). Additionally, a linear regression was performed to determine the relationship between media consumption (moderator) and alcohol outcome expectancies (outcome). This relationship was not significant ($p = 0.145$); therefore, the moderated linear regression cannot be completed.
Research Question 9: *Do higher levels of reported media consumption moderate the relationship between body shame and thinness and restricting outcome expectancies among college students?*

A moderated linear regression was performed to determine if media consumption moderated the relationship between body shame and thinness and restricting outcome expectancies. This potential relationship is represented in Figure 4.7.

Figure 4.7 *Moderated Linear Regression Diagram–Media Consumption.* This figure illustrates the moderated relationship between variables.

Moderated linear regression was appropriate for this research question because the outcome variable, thinness and restricting outcome expectancies, is continuous, and the moderator variable could potentially affect the relationship between the predictor and the outcome variable (Field, 2013, pg. 395). Before moderated regression was utilized, a linear regression found that body shame was a significant predictor of thinness and restricting outcome expectancies ($\beta = 1.10$, $p < .001$). Additionally, a second linear regression was performed to determine if there was a significant relationship between media consumption (moderator) and thinness and restricting expectancies ($\beta = 0.107$, $p = 0.006$). Since relationships were significant, the moderator variable (media consumption) was standardized and an interaction term between body shame (predictor) and media consumption (moderator) was computed ($\beta = 0.013$, $p =$
A significant interaction effect indicated that the relationship between body shame and alcohol outcome expectancies was moderated by media consumption. The total variance explained ($R^2$) for this model was 0.499, which means that the moderated model predicts almost half (49.9%) of the variance in thinness and restricting expectancies. The p-values, standardized beta coefficients, and confidence intervals will be used to determine statistical and practical significance and are reported in Table 4.18.

Table 4.18

<table>
<thead>
<tr>
<th>$RQ_9$ Moderated Linear Regression–Media Consumption</th>
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<tbody>
<tr>
<td><strong>Constant</strong></td>
</tr>
<tr>
<td>Media Consumption</td>
</tr>
<tr>
<td>Body Shame</td>
</tr>
<tr>
<td>Body Shame x Media Consumption</td>
</tr>
</tbody>
</table>

CI = Confidence Interval  
**Significant at the $p<0.01$ level  
***Significant at the $p<.001$ level

Conclusions

Overall this chapter explained statistical analyses conducted to examine relationships among objectification-related personal and environmental factors and the co-occurrence of heavy episodic drinking and disordered eating behaviors. Practical significance and limitations of this study will be discussed in Chapter 5, as well as implications of how these results can be utilized in the field of Public Health/Health Education and Promotion.
CHAPTER 5
DISCUSSION

Both disordered eating behaviors and heavy episodic drinking remain two of the most important health issues on college campuses, and recent research shows that the co-occurrence of these two unhealthy behaviors is both common and dangerous (Kelly-Weeder, 2010; Burke et al., 2010; Giles et al., 2009). In this study, 68.8 percent of college students reported heavy episodic drinking and 61.2 percent reported disordered eating behaviors, with 41.4 percent reporting engaging in these co-occurring behaviors in the past month. These findings are higher than national rates among college students for both heavy episodic drinking and disordered eating behaviors individually, which are approximately 42.8 percent and 20 percent respectively (Core Institute, 2013; National Eating Disorder Association, 2006; American Psychiatric Association, 2006); however, a national average for co-occurring behaviors has not yet been established. Further, the distribution of students in this sample was almost evenly distributed among year in college contributing to the generalizability of this sample to the target population as well as confirming the need for ongoing prevention efforts targeting these behaviors at the college level.

It is well established in the scientific literature that heavy episodic drinking and disordered eating behaviors, as well as the co-occurrence of these two, are associated with a myriad of negative physical, mental, social, economic, and academic outcomes (Leppel, 2006; Mallet, Lee, Neighbors, Larimer, & Turrisi, 2006; NEDA, 2014; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011; Presnell et al., 2009). This research further affirms the need to
understand and develop prevention programming that effectively targets and attempts to prevent and reduce these co-occurring behaviors on college campuses.

Heavy episodic drinking and disordered eating continue to be widespread behaviors despite a growing wealth of research in this area (Burke et al., 2010; Core Institute, 2013; Eisenberg et al., 2013). Measurement of these two variables is a widely known problem since behaviors are self-reported and there are many biases that affect reporting; these limitations must be acknowledged by researchers. Currently, only one scale has been developed to measure the co-occurrence of these two behaviors, which provides a limitation for research related to this growing health issue and substantiates the need for further research on these behaviors (Burke et al., 2010).

Sexual objectification is gaining traction as a widely experienced phenomenon with many negative health consequences, ranging from depression, eating disorders, and sexual dysfunction (Thompson & Stice, 2001; Murnen et al., 2003; Tiggemann, & Kuring, 2004; Szymanski & Henning, 2007). While there is a fair amount of research in this area, the majority has specifically been limited to the field of psychology, and minimal research exists in the field of communications. Further, only one existing research study has attempted to examine the potential direct relationship between sexual objectification and substance abuse, but no studies have examined the relationship of sexual objectification to co-occurring heavy episodic drinking and disordered eating behaviors (Carr & Szymanski, 2011).

Measurements of sexual objectification and related constructs of self-objectification and body shame have been developed and validated, but there are many obstacles facing researchers in this area of research. Two tremendous obstacles are related to the lack of awareness
surrounding this topic as well as the unwillingness to acknowledge prevalence of objectification in specific environments (Tiggemann, 2011).

In this study, 97.9 percent ($n=653$) of respondents reported experiencing sexual objectification in the past year, with 30.3 percent ($n=197$) of those self-identifying as male and 69.7 percent ($n=455$) of those self-identifying as female. While members of both genders reported high levels of sexual objectification, a higher percentage of females reported sexual objectification, which is consistent with existing literature (Carr & Szymanski, 2011). However, these results also support recent research that sexual objectification is no longer thought to be limited to females; it extends its’ reach to men as well (Murnen et al., 2003; Carr & Szymanski, 2011).

For self-reported co-occurring behaviors, there were demographic differences, the first one being gender: 77.8 percent of females reported co-occurring behaviors, while 22.2 percent of males reported co-occurrence ($\chi^2 = 21.625, p<0.001$). There were also differences in Greek affiliation representing these co-occurring behaviors: 56.4 percent of Greek-affiliated respondents reported co-occurring behaviors, while only 29.3 percent of non Greek-affiliated respondents reported co-occurrence ($\chi^2 = 49.923, p<0.001$).

Another significant demographic characteristic was the question “Are you trying to do any of the following about your weight,” which was significantly associated with co-occurring behaviors, with 56.6 percent of those who reported trying to “lose weight” also reporting co-occurrence ($\chi^2 = 76.489, p<0.001$). Lastly, only 8.3 percent of respondents who reported living at a parent or guardian’s house reported co-occurrence, while 41.2 percent of those who lived in a campus residence hall, 57.1 percent of those who lived in college/university housing, 38.3 percent of those who lived in off-campus housing, and 58.7 percent of those who lived in a
fraternity or sorority house reported co-occurring behaviors ($\chi^2 = 17.075, p=0.004$). While studies have examined these differences among HED and DEBs individually, these differences among co-occurring HED and DEB warrant further examination to better understand how to tailor health education interventions on college campuses.

**Theory**

The theoretical framework of this study was appropriate, as it is increasingly recognized that behaviors such as heavy episodic drinking and disordered eating should be approached from a multi-dimensional perspective. This approach could help health educators understand these complex behaviors and help design interventions targeting these behaviors simultaneously. Bandura’s Social Cognitive Theory (1986) was employed to provide insight into the objectification-related personal and environmental areas of influence on the co-occurrence of heavy episodic drinking and disordered eating behaviors. The incorporation of objectification-related constructs within the context of Social Cognitive Theory is an innovative approach to better understanding the potential multi-dimensional relationships between these objectification constructs and the co-occurrence of HED and DEB.

**Research Questions**

*RQ1: What is the prevalence of heavy episodic drinking, disordered eating behaviors, and their co-occurrence among college students?*

Of the entire sample, 68.7 percent ($n=458$) reported HED within the past two weeks, which is significantly higher than the national average of 42.8 percent (Core Institute, 2013). The rates self-reported in this study are somewhat comparable to HED rates obtained from research on this specific college campus, and this rate, which is higher than the national average, emphasizes the importance of developing programs targeting HED on college campuses nationwide. It is also imperative that future research examines factors contributing to these
alarming rates and health educators attempt to design effective interventions to decrease the prevalence on college campuses.

As equally alarming, 61.2 percent of the sample reported the presence of disordered eating behaviors, which is also substantially higher than the national reported average of approximately 20 percent (National Eating Disorder Association, 2006; APA, 2006). Disordered eating behaviors include the full spectrum of disordered eating, which includes a range of behaviors from simple dieting to clinical eating disorders (Krahn et al., 2005; APA, 2006). While 71.9 percent of females in this sample reported the presence of disordered eating behaviors, 37.6 percent of males reported the presence of disordered eating behaviors as well. This supports research that females report higher levels of disordered eating than males (Fitzsimmons-Craft, 2011); however, the prevalence of DEBs in males in this sample is almost double the national average, which is evidence of the need for health educators to tailor gender-specific DEB interventions. Research suggests that college years pose a significant risk for developing disordered eating behaviors, specifically in women (Hoerr et al., 2002; Cash et al., 2004; Taylor et al., 2006); however, research examining the development of disordered eating behaviors among college-aged males is lacking.

To date, there have been few programs on college campuses that have been highly successful with decreasing disordered eating behaviors, partially due to the complexity of the behavior (Yager & O’Dea, 2008). However, the results from this study acknowledge that health educators must work vigorously to decrease the soaring rates of DEBs. In light of these results, the recent call for a Social Cognitive Theory approach to DEBs that utilizes multiple dimensions holds tremendous potential and should be explored for future program design.
Finally, 41.4 percent ($n=276$) of the total sample reported the co-occurrence of heavy episodic drinking and disordered eating behaviors. Not only is this co-occurrence becoming somewhat common in the nation, but this complex occurrence of behaviors is purportedly affecting nearly half of the population on the college campus where this research was conducted. Based on this high prevalence among both males and females, results confirm the immediate need for interventions that target these behaviors simultaneously. A great deal of research that spans more than twenty years has reported a strong reciprocal link between substance abuse and disordered eating behaviors, which could potentially suggest that respondents who did not report co-occurrence are at a high risk of developing co-occurring behaviors even though they did not report co-occurrence at present (Franko et al., 2005; Holderness, Brooks-Gunn, & Warren, 1994; Dansky, Brewerton, & Kilpatrick, 2000; O’Brien & Vincent, 2003; National Center on Addiction and Substance Abuse at Columbia University, 2001; Krahn, Kurth, Gomberg, & Drewnowski, 2004; Ressler, 2008). In order to eliminate this destructive relationship, primary prevention programming would be appropriate at an early age and should be examined by school health educators for implementation during childhood and adolescence. Further, secondary and tertiary programming services for college students may help lead to a reduction in not only HED and DEBs individually, but also the co-occurrence of these behaviors.

**RQ2: What are the relationships between sexual objectification (continuous), self-objectification (continuous), body shame (continuous), alcohol outcome expectancies (continuous), thinness and restricting expectancies (continuous), and media consumption (continuous)?**

While it is acknowledged in existing literature that sexual objectification, self-objectification, and body shame are commonly correlated (Carr & Szymanski, 2011), and have been examined in relation to media consumption (Lambiase & Reichert, 2003; Kozee et al., 2007; Fitzsimmons-Craft et al., 2011), these variables have not been examined in relation to
alcohol outcome expectancies and thinness and restricting expectancies, which are often associated with HED and DEBs, respectively.

Univariate linear regressions determined that all variables were significantly correlated with one another, with the exception of the correlation between media consumption and alcohol outcome expectancies. This insignificant correlation is contrary to research that supports the notion that media reinforces alcohol outcome expectancies and that these expectancies are developed at a very young age, perhaps as young as 3 or 4 years old (Dunn & Goldman, 1998; Snyder et al., 2006). One study revealed that 42 percent of 1st-3rd grade girls want to be thinner and 81 percent of 10 year olds are afraid of being fat (Mellin et al., 1991). Current research suggests that the onset of clinically diagnosed eating disorders happens at an average age of 12 to 13-years old, with the development of disordered eating behaviors beginning at a much younger age (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). Positive correlations between sexual objectification, self-objectification, body shame, and media consumption confirm existing research (Carr & Szymanski, 2011). The strongest two correlations in this study were those between body shame and thinness and restricting expectancies and between self-objectification and thinness and restricting expectancies.

These multiple significant correlations provide support for the potential relationships between objectification constructs and expectancies related to the co-occurrence of HED and DEBs, which will be examined in future research questions in this study. From these findings, one can deduce that thinness and restricting expectancies may play a more significant role in the objectification framework than has been previously mentioned in literature. It is possible that a person’s experiences of sexual and self-objectification heighten levels of body shame, and increased body shame leads to increased expectancies about being thin. These correlations also
suggest that it is vital to further understand how sexual objectification, self-objectification, and body shame influence expectancies, which hold the potential to influence behavior. Understanding these correlations will allow health educators on college campuses to more effectively tailor prevention programs to address these multiple personal and environmental factors. Also, school health educators could begin targeting objectification and related expectancies in children as a means of primary and secondary prevention.

**RQ3: Do sexual objectification, self-objectification, body shame, alcohol outcome expectancies, thinness and restricting expectancies, and media consumption predict the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?**

Univariate regressions were initially conducted to determine which personal and environmental variables predicted co-occurrence. All of the univariate predictors had a significant relationship with co-occurrence of HED and DEBs: sexual objectification, self-objectification, body shame, alcohol outcome expectancies, thinness and restricting expectancies, and media consumption. Sexual objectification, self-objectification, and body shame have been identified in a previous research study as a predictor for substance abuse, and in multiple studies as a predictor of disordered eating behaviors; however, these variables have not been examined as risk factors for the co-occurrence of HED and DEBs (Carr & Szymanski, 2011; Tiggemann, & Kuring, 2004; Szymanski & Henning, 2007).

Alcohol outcome expectancies were the strongest univariate predictor of co-occurrence of HED and DEB with an OR of 3.122, meaning that individuals who held higher expectancies about alcohol were over 3 times as likely to report co-occurrence of HED and DEBs. This is consistent with decades of research, which indicates that expectancies predict drinking behavior in both children and adults (Dunn & Goldman, 1998, 2000; Dunn, Lau, & Cruz, 2000; Friedman, McCarthy, Bartholow, & Hicks, 2007; Goldman, Darkes, & Del Boca, 1999; Jones, Corbin, &
All independent variables in this research question, with the surprising exception of media consumption, retained significance in the final multivariate model, suggesting that the combination of these factors help predict the co-occurrence of HED and DEBs among college students. The lack of significance of media consumption as a predictor is in contrast to previous studies where higher levels of media consumption are associated with increased DEBs and HED (Morry & Staska, 2001; Snyder et al., 2006; Thompson et al., 2004; Shroff & Thompson, 2006). However, this is the first study to examine the co-occurrence of these complex behaviors in relation to objectification and further research needs to be conducted by examining media consumption in a variety of ways other than retrospective self-report. Also, the media consumption scale was the only scale with a lower level of reliability, as well as the only non-normal distribution, which could have impacted its’ ability to accurately predict co-occurrence.

In this final model, alcohol outcome expectancies was still the strongest predictor of co-occurrence, with an OR of 2.759, which means that individuals who have higher alcohol outcome expectancies are almost 3 times as likely to report co-occurrence of HED and DEBs. While alcohol outcome expectancies have been examined as a predictor of HED, they have not been examined as a predictor of co-occurring HED and DEBs. This supports the hypothesis that while co-occurrence is complex, there may be similar motivations for engaging in these co-occurring behaviors. Alcohol outcome expectancies should be further examined to better understand the relationship between HED and DEBs. Also, understanding that the development of alcohol outcome expectancies begins as early as the age of 3 or 4 years old suggests that
primary prevention at a young age, even perhaps in early elementary school, could prevent positive alcohol outcome expectancies from developing and could decrease the prevalence of these co-occurring behaviors.

In this model, self-objectification was the second strongest predictor of co-occurrence, with an OR of 1.592, meaning that individuals with higher levels of self-objectification were 1.5 times as likely to engage in co-occurring behaviors. Sexual objectification fell just slightly behind as a predictor with an OR of 1.464. There are several theories as to why sexual objectification and related constructs predict unhealthy behaviors, in this instance co-occurrence of HED and DEB. Several studies suggest that females engage in unhealthy behaviors, such as drug abuse, in an attempt to manage anxiety and depression resulting from discrimination, harassment, rape, sexual assault, and physical assault, often related to gender (Moradi & Subich, 2002; Szymanski, 2005; Peat & Muehlenkamp, 2011). One study even suggests that experiences of discrimination are a risk factor for substance abuse problems (Zucker & Landry, 2007). Another theory is that these experiences of discrimination ultimately lead to body shame, which can cause such severe anxiety and depression as a result of not measuring up to the “thin ideal.” This anxiety and depression could potentially influence an individual’s engagement in DEBs in an attempt to make his or her body more like the ideal standard (Fitzsimmons-Craft et al., 2011).

A potential next step for this research question is to break down self-objectification into specific levels (low, moderate, high) as well as experiences of sexual objectification into frequency groups (never, rarely, occasionally, frequently, almost always) to gain a more detailed picture of the impact of this construct on co-occurrence. Although time-consuming, another potentially beneficial step would be to conduct a qualitative component (interviews) by identifying individuals who were willing to talk openly about their experiences with
objectification on a college campus. This could help gain insight into sexual objectification experiences, self-objectification, body shame, and expectancies in individuals who report co-occurrence. This would also enable researchers to have a more detailed understanding of potential predictors of co-occurrence and could provide evidence for further research in this field, even potentially extending its’ reach to eventually include sexual assault as a severe form of sexual objectification.

Additionally, it is imperative that either the existing media consumption scale is updated or a new scale is developed to measure the consumption of current media sources to inform more accurate behavioral science research. Lastly, items that measured alcohol outcome expectancies were extracted from the full AEQ scale based on perception of the item’s ability to measure objectification-related alcohol outcome expectancies. While an EFA was conducted and a high reliability score was reported ($\alpha = 0.87$), this scale still needs to undergo further psychometrics testing. This scale holds promising potential for future investigation of objectification-related alcohol outcome expectancies that could significantly impact co-occurrence of HED and DEBs.

**RQ4: Does body shame mediate the relationship between self-objectification and alcohol outcome expectancies among college students?**

In this mediated regression, body shame partially mediated the relationship between self-objectification and alcohol outcome expectancies. Initially, self-objectification was identified as a predictor of body shame, which suggests that viewing self as an object to be used and viewed for the pleasure of others is in fact a predictor of feeling higher levels of shame about one’s own body. Additionally, body shame was identified as a significant predictor of alcohol outcome expectancies as well. This suggests that an individual who experiences higher levels of shame related to his or her body has higher expectancies related to rewards associated with drinking alcohol. Lastly, self-objectification was identified as a significant predictor of alcohol outcome
expectancies, which suggests that the more an individual views self through the lens of another person, the more likely they are to associate higher expectancies with consuming alcohol.

Although this relationship has not been explored in previous research, it appears that body shame accounts for some of the relationship between self-objectification and alcohol outcome expectancies. These results suggest that the ability of self-objectification to predict alcohol outcome expectancies is partly due to body shame. Self-objectification over time may contribute to a growing sense of powerlessness in individuals as they take in and swallow up the negative messages about the self. These negative feelings could potentially impact an individual’s perception of what drinking alcohol will do to decrease these feelings of shame or this constant, exhausting observance of self. Positive alcohol expectancies are associated in the literature with enhanced socialization, altered cognition, sexual enhancement, assertion, and affective change (Connor et al., 2000). These expectancies could potentially be associated with attempts to manage anxiety and depression resulting from sexual and self-objectification (Moradi & Subich, 2002; Szymanski, 2005; Peat & Muehlenkamp, 2011).

With the preexisting knowledge that alcohol outcome expectancies are highly related to drinking behaviors, this relationship should be explored further to understand the mediational role of body shame with self-objectification and alcohol outcome expectancies. Understanding how these expectancies are developed and the relationship of predictor variables that help form these expectancies, such as self-objectification and body shame, can help design primary and secondary prevention Public Health/Health Education and Promotion efforts. Once again, being able to use this research to inform school health education with children and adolescents could prevent the development of inaccurate expectancies and unhealthy behaviors in adolescence and adulthood.
Raising awareness of the role of self-objectification and body shame in developing positive expectancies among college students could help decrease positive expectancies, thereby reducing co-occurring behaviors on college campuses nationwide. Lastly, the previously discussed AEQ items used to measure alcohol outcome expectancies related to objectification could potentially provide an effective way of measuring alcohol outcome expectancies related to objectification. Further validation of this scale could be very beneficial for co-occurrence research in the field of Public Health/Health Education and Promotion.

**RQ5: Does body shame mediate the relationship between self-objectification and thinness and restricting expectancies among college students?**

In this mediated regression, body shame partially mediated the relationship between self-objectification and thinness and restricting expectancies. As in the previous analysis, self-objectification was identified as a predictor of body shame, which suggests that viewing self as an object to be viewed and used for the pleasure of others is in fact a predictor of increased levels of body shame. Additionally, body shame was identified as a significant predictor of thinness and restricting expectancies. This suggests that an individual who experiences higher levels of shame related to his or her body has higher expectancies related to being thin. Lastly, self-objectification was identified as a significant predictor of thinness and restricting expectancies, which suggests that the more an individual views self through the lens of another person, the more likely they are to hold higher outcome expectancies related to being thin.

Although this mediated relationship has not been explored in previous research, it appears that body shame accounts for some of the relationship between self-objectification and thinness and restricting expectancies. These results suggest that the ability of self-objectification to predict thinness and restricting expectancies is partly due to body shame. As discussed in the previous research question, self-objectification over time may contribute to a growing sense of
powerlessness as individuals take in and swallow up the negative messages about the self (Peterson, Grippo, & Tantleff-Dunn, 2008). These negative feelings could potentially impact an individual’s perception of what being thin will do to decrease these feelings of shame or this constant, exhausting observance of self.

It is hypothesized that when an individual views him or herself as an object or through the eyes of another individual, that person could potentially have higher levels of body shame, specifically when the self they see through this lens of another person does not meet the ideal standard promoted in our culture. In fact, self-objectification is argued to create increased opportunities to experience shame, especially shame about one’s body (Moradi & Huang, 2008; Tiggemann, 2013). As a result of the significant levels of shame being experienced, that individual could potentially place higher expectancies on being thin. Therefore, understanding how these expectancies related to being thin are developed and examining the relationship of predictor variables that help form these expectancies, such as self-objectification and body shame, can help design primary and secondary prevention health education efforts among children, adolescents, and young adults. Also, this information can be useful for school administrators, health educators, and policy makers with regards to what type of advertising that promotes objectification is allowed on school campuses.

RQ6: Do alcohol outcome expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?

In this mediated regression, alcohol outcome expectancies partially mediated the relationship between body shame and the co-occurrence of HED and DEBs. As in a previous analysis, body shame was identified as a significant predictor of alcohol outcome expectancies, which suggests that an individual who experiences higher levels of shame related to his or her
body has higher expectancies related to drinking alcohol. Additionally, alcohol outcome expectancies were identified as a significant predictor of co-occurrence of HED and DEBs. This supports previous research that higher expectancies predict drinking behaviors; however, this research is new in that expectancies have not been applied to co-occurring behaviors (Friedman, McCarthy, Bartholow, & Hicks, 2007). Lastly, body shame was identified as a significant predictor of co-occurrence of HED and DEBs. This suggests that an individual who experiences higher levels of shame related to his or her body is more likely to engage in both HED and DEBs.

The perception of rewards associated with drinking alcohol could impact an individual’s decision to engage in these behaviors, especially if the rewards involve increasing the way one feels about his or her body. Therefore, examining the influence of expectancies related to co-occurrence is crucial for determining primary and secondary prevention health education efforts among children, adolescents, and young adults. Increased body shame could affect perception of alcohol outcome expectancies, thereby increasing co-occurrence of HED and DEB; future research should explore levels of body shame (low, moderate, high) in relation to alcohol outcome expectancies and risk of co-occurrence to gain more specific insight into this mediated relationship.

**RQ7: Do thinness and restricting expectancies mediate the relationship between body shame and the co-occurrence of heavy episodic drinking and disordered eating behaviors among college students?**

In this mediated regression, thinness and restricting expectancies partially mediated the relationship between body shame and the co-occurrence of HED and DEBs. As in a previous analysis in this study, body shame was identified as a significant predictor of thinness and restricting expectancies, which suggests that an individual who experiences higher levels of
shame related to his or her body has higher expectancies related to thinness and restricting expectancies. Additionally, thinness and restricting expectancies were identified as a significant predictor of co-occurrence of HED and DEBs. Although surprisingly little work has investigated the role of expectancies in eating behavior, attempts to identify motivations for extreme dieting and restricting and extreme disordered eating behaviors point to the potential applicability of examining expectancies in this domain, specifically co-occurrence of HED and DEBs in this study (Bohon, Stice, & Burton, 2009; Hohlstein, Smith, & Atlas, 1998; Gokee-LaRose, Dunn, & Tantleff-Dunn, 2003; Thombs, Rosenberg, Mahoney, & Daniel, 1996; Heatherton & Baumeister, 1991; Simmons, Smith, & Hill, 2002; Smith, Simmons, Flory, Annus, & Hill 2007). Lastly, body shame was identified as a significant predictor of co-occurrence of HED and DEBs. This suggests that an individual who experiences higher levels of shame related to his or her body is more likely to engage in both HED and DEBs.

The perception of rewards associated with being thin could impact an individual’s decision to engage in these behaviors, especially if the rewards involve increasing the way one feels about his or her body. Therefore, examining expectancies related to co-occurrence is crucial for determining primary and secondary prevention health education efforts among children, adolescents, and young adults. Future research should explore multiple levels of body shame (low, moderate, high) in relation to risk of co-occurrence to gain more specific insight into this mediated relationship.

**RQ8: Does media consumption moderate the relationship between body shame and alcohol outcome expectancies among college students?**

In a moderated regression, media consumption did not significantly moderate the relationship between body shame and alcohol outcome expectancies. While it is widely reported that media consumption is a risk factor for alcohol outcome expectancies (Lambiase & Reichert,
2003; Carr & Szymanski, 2011), this link may be indirect, and other extraneous variables may play a role in this relationship. In this analysis, although media consumption was not a significant moderator, this concept should be studied further to understand exactly what role media consumption plays in alcohol outcome expectancies. Further, as discussed earlier, the media consumption scale does not have excellent reliability so developing a more accurate measure of media consumption is a necessary step in determining the role of media consumption in this analysis.

*RQ9: Does media consumption moderate the relationship between body shame and thinness and restricting expectancies among college students?*  
In this moderated regression, media consumption significantly moderated the relationship between body shame and thinness and restricting expectancies. This suggests that the interaction of media consumption and body shame significantly predicts thinness and restricting expectancies, which is consistent with research that both media consumption and body shame are associated with thinness expectancies (Calogero et al., 2005; Hesse-Biber et al., 2006). Results suggest that increased media consumption plays a significant role in the development and/or maintenance of positive expectancies related to being thin. Results from this analysis should promote further research regarding the impact of media consumption on body shame and expectancies associated with being thin. These results should inform health educators as they work to develop media literacy programs for children, adolescents, and young adults in schools and on college campuses that are designed to challenge cultural standards and promote understanding of the ways media is effecting perceptions of beauty and ultimately contributing to unhealthy behaviors.
Purpose of the Study

The main purpose of this study was to examine objectification-related personal and environmental factors associated with the co-occurrence of HED and DEBs in college students. Additionally, data from this study was used to help quantify the scope of sexual and self-objectification as well as the co-occurrence of heavy episodic drinking and disordered eating behaviors on campus.

Significance of the Study

While Social Cognitive Theory has been utilized for many years with study design for heavy episodic drinking on college campuses, recent research has called for this multi-dimensional framework to be used in examining disordered eating behaviors as well minimal literature reports following these recommendations (Yager & O’Dea, 2008; Tiggemann, 2013). Further, no existing programs to date target the co-occurrence of these risky behaviors. Results from this study can help inform university administrators of the potential harm associated with an environment that affirms sexual objectification, even through passivity. Results also have the potential to inform administrators of the prevalence and danger of the co-occurrence of heavy episodic drinking and disordered eating behaviors. Additionally, health educators could use findings from this study to identify risk factors for co-occurrence of HED and DEB and tailor primary and secondary prevention programs to children, adolescents, and young adults.

Implications

This study has promising implications for Public Health/Health Education and Promotion practitioners, university administrators, health policy officials, and future research. The high rates of the co-occurrence of heavy episodic drinking and disordered eating behaviors suggest the need for early primary prevention Public Health/Health Education and Promotion
programming for children and adolescents. Because individuals are flooded with many of these discussed constructs (sexual objectification, self-objectification, body shame, alcohol outcome expectancies, and thinness and restricting expectancies) from the time they are young children, incorporating programming surrounding these constructs into school health education in elementary school is essential.

Advocating for policies, stakeholder support, and other resources for middle and high school administrators to incorporate sexual objectification programming as part of a comprehensive Public Health/Health Education and Promotion curriculum is of extreme importance for reducing the co-occurrence of heavy episodic drinking and disordered eating behaviors during adolescence and young adulthood. Further, alcohol outcome expectancies, sexual objectification, and self-objectification were the strongest predictors of co-occurrence of heavy episodic drinking and disordered eating behaviors in the sample of students at UA; this signifies that secondary and tertiary prevention education is warranted in some capacity on college campuses. Advocacy efforts could include advocating for the discontinuation of the use of objectification to promote programs/competitions/events on campuses across the nation.

By addressing previous experiences of sexual objectification, as well as other personal and environmental factors examined in this study, the co-occurrence of heavy episodic drinking and disordered eating behaviors may be reduced among college students. Helping students develop awareness as well as positive coping methods, including developing healthy ways to challenge and resist sexual objectification by verbalizing instead of silencing their beliefs, could potentially help combat future experiences of sexual objectification and in turn impact related behaviors such as co-occurrence of HED and DEBs. Conducting media literacy programs in which individuals are taught to critically evaluate a wide variety of media may significantly
diminish current and future self-objectification (Steiner-Adair & Vorenburg, 1999) not only in college students, but also in children and adolescents.

The mediated relationships between self-objectification, body shame, alcohol and thinness expectancies, and co-occurrence are complex and require additional exploration. Based on the results of these analyses, prevention programs may further benefit from identifying and targeting the connections between these variables. Additionally, media consumption significantly moderated the relationship between body shame and thinness and restricting expectancies, but did not moderate the relationship between body shame and alcohol outcome expectancies. This relationship needs to be examined further with a more reliable measure of media consumption, specifically since existing literature has found significant correlations between these variables.

The results of this study showed that an alarming 97.9 percent of respondents reported experiencing some type of sexual objectification in the past year. Although 28.0 percent of respondents were freshmen and these experiences could have occurred before they began college, the remaining 72.0 percent occurred in students who potentially experienced sexual objectification while in the college campus setting. Of the total sample, all but one female and all but thirteen males reported experiencing sexual objectification in the past year, which is even higher than one study that found 94 percent of undergraduate women reporting sexual objectification in the past semester (Swim, Hyers, Cohen, & Ferguson, 2001). These findings point to existing environmental and political factors that promote sexually objectifying experiences on the college campus, which were not examined in this study. Women specifically experience immersed forms of sexual objectification that occur when women are part of situations, environments, and subcultures where sexual objectification is encouraged and promoted (Szymanski, Moffitt, & Carr, 2011). It is probable that there are attitudes embedded in
the culture of this college campus that contribute to an environment of sexual objectification and it is essential that these be examined and uncovered, if in fact they do exist.

In addition to commonplace, everyday forms of sexual objectification, many women also experience more extreme forms of sexual objectification via actual sexual victimization, such as rape, sexual assault, and sexual harassment (Fredrickson & Roberts, 1997). Research indicates that one in four women have been victims of rape or attempted rape, and more than half of college women have experienced sexual victimization (Fisher, Cullen, & Turner, 2000; White, Donat, & Bondurant, 2001). In fact, females’ self-reported experiences of sexual victimization are related to more self-objectification and body shame (Lindberg, Grabe, & Hyde, 2007). Although not examined in this study, it is highly possible that respondents in this sample have experienced severe forms of sexual objectification, which could in turn promote further self-objectification, body shame, and ultimately be related to the presence of co-occurring disordered eating behaviors and heavy episodic drinking.

The reciprocal relationship between heavy episodic drinking and disordered eating behaviors is seen in multiple sources of literature (Harrop & Marlatt, 2010; Grilo, Sinha, & O’Malley, 2002; Ressler, 2008). In fact, alcohol and other substance abuse disorders are four times more common in individuals with disordered eating behaviors than in the general population (Harrop & Marlatt, 2010). In this sample, of the 391 respondents (58.6%) who did not report co-occurrence, only 76 respondents not engaging in either heavy episodic drinking or disordered eating behaviors. Although disordered eating behaviors were not examined in this study as a risk factor for heavy episodic drinking, and vice versa, it could be true that while a respondent did not report the co-occurrence of both behaviors, those respondents are at a higher risk of future co-occurrence based on the presence of one of these behaviors.
Limitations

There are several limitations that were acknowledged as inherent in this study, including the use of self-report and convenience sampling techniques, the use of only two constructs of a broad theoretical model, the correlational and cross-sectional research design, the examination of students in specific departments from a single university, and the length of the survey.

Generalizability of this study was limited by the lack of racial/ethnic and sexual orientation diversity in the sample. Though four of the five identified transgender participants reported co-occurrence of disordered eating behaviors and heavy episodic drinking, no conclusions can be drawn because of the extremely small sample of transgender individuals, but research in this area that focuses on transgender populations may be warranted (Szymanski, Moffitt, & Carr, 2011). In fact, one respondent wrote a note to the research team that suggested her “issues with drinking and eating” stemmed from her experiences of objectification as a transgendered teen. One associated limitation was the wording of the question, “What is your gender?” which should have more accurately been worded, “What is your biological sex?” As a result of the wording of this question on the survey, one student created and checked a separate box and wrote the word “Other” beside the box.

Also, 79.3 percent of the sample reported their ethnic origin as White/Non-Hispanic, which limits the generalizability of this study. This study is also limited by the targeted age range (18-24 years old); thus we do not know if these results generalize to other individuals who are middle-aged and older. Lastly, males were underrepresented in this sample; however, with the majority of research focusing on sexual objectification in females, the sample of male respondents was beneficial and has the potential to inform future research regarding sexual objectification as well as the prevalence of disordered eating behaviors in males. Intentional
oversampling of males may be necessary in future research to attain a more accurate picture of sexual objectification and related constructs on college campuses.

While self-report questionnaires have generated higher scores than interviews and data collection methods that are not anonymous (Fairburn & Beglin, 1994; Stice, 2000), as is true with all self-report data, participants may not have responded honestly to survey items and results could be due to a general tendency to respond one way or another. Given the negative stereotypes with disordered eating behaviors, some individuals may hide these types of behaviors and may feel unable to share even with an anonymous survey. Self-report surveys allow for the collection of large amounts of data with less expense and time and while self-report is standard practice in measuring potentially sensitive question items such as drinking behaviors, disordered eating behaviors, and sexual topics, it is a known limitation of this research (Kays, Gathercoal, & Buhrow, 2011). Further, because participation was voluntary, potential participants who felt as if the content of the survey was irrelevant to them or they were not interested in disclosing personal information may have chosen not to take the survey.

Respondents could have self-selected to not participate because of fear of negative emotional reactions associated with sexual objectification experiences or the prevalence of existing disordered eating or drinking behaviors. Lastly, individual differences are also likely to exist in judgments about what constitutes an experience of sexual objectification or what constitutes a disordered eating behavior. The combination of these potential self-selections may have skewed the reported percentages of co-occurrence of heavy episodic drinking and disordered eating behaviors in this study.

Another limitation to this study was the use of convenience sampling as opposed to random sampling. This may have led to oversampling of certain populations such as females,
and therefore weaken the ability to generalize these results to a greater United States college student population. However, convenience sampling is not highly uncommon, specifically for research projects that have limited resources. Further, random sampling would have done little to improve issues of self-selection and extraneous sources of bias in this study.

In addition, the cross-sectional nature of the study limits the conclusions that could be drawn from the results. Because this study only examined a specific snapshot in time, correlational relationships could be established, but causation cannot be concluded. Conclusions drawn from this study are also limited by the sampling from a single university in the Southeastern United States and by the small sample size ($n=667$).

Follow-up research should include a larger sample that includes regional and national representation to make more significant associations and to gain deeper insight into the co-occurrence of heavy episodic drinking and disordered eating behaviors in relation to objectification-related constructs from a multidimensional perspective.

**Future Research**

The results and interpretation of this study clearly point to several areas of follow-up research. First, a longitudinal design that investigates co-occurrence of heavy episodic drinking and disordered eating behaviors from a multi-dimensional perspective is warranted. By looking at incidence of behaviors over time, researchers can draw broader conclusions about objectification-related risk factors of co-occurrence and observe any changes that take place over time. This would be extremely insightful to observe experiences of sexual objectification, rates of objectification-related constructs, and co-occurrence of HED and DEBs in students over the course of several years. Also, administering a baseline survey to determine sexual objectification
experiences of entering college freshmen then comparing them to responses after 1, 2, and 3 years of being immersed in the college setting.

Although the sample was from multiple departments on campus, represented an equivalent mix of college class, and had a fair distribution of Greek versus non-Greek affiliation, a regional or national sample of data from various universities across the nation could strengthen generalizability. In terms of generalizability to the rest of the college population, the Greek population in this sample was higher (44% compared to 33%), the female population was higher (68.4% compared to 54%), and the sample of students living on campus was higher (42.7% compared to 30%). However, the racial and ethnic composition of this sample was very similar to that of the entire University (79.3% White compared to 81%, 12.1% Black compared to 12.3%, 4.3% Asian compared to 2.0%, and 1.9% Hispanic or Latino compared to 3.4%). Regional differences could be explored, as well as potential differences among institutions of higher education. This study needs to be tested with sexual and racial/ethnic minorities, and non-college educated to see if similar relationships exist between constructs.

Since many predictors of heavy episodic drinking and disordered eating behaviors are influenced greatly during childhood and adolescence, prevention research is needed in samples of children and adolescents. Because minors are a protected population, it is particularly difficult to conduct research with children and adolescents; however, it does not indicate that researchers should not work with this population. Further, it is unclear what types of prevention programming, if any, is reaching these populations specifically related to sexual and self-objectification, and whether this programming is effective. While there are many body image organizations and coalitions, a recent review of the literature did not find any existing programs specifically focusing on sexual and self-objectification in children, adolescents, or young adults.
Although this was not addressed in a research question, the relationship between sexual objectification and sexual assault victimization should be studied further. This study uncovered sexual and self-objectification as a predictor of co-occurrence of HED and DEBs, but more information is needed about these experiences to understand this relationship, such as severity and frequency of sexually objectifying experiences. Moreover, self-reported experiences of sexual victimization are related to more self-objectification and body shame (Lindberg, Grabe, & Hyde, 2007), which are both predictors of co-occurrence of HED and DEBs; therefore, conducting qualitative explorations into these particular risk factors may be beneficial when for planning secondary and tertiary prevention education.

Little attention has been paid to increasing understanding of specific environments where sexual objectification of women is promoted or of women’s experiences in these contexts (Szymanski, Moffitt, & Carr, 2011). Also, minority individuals’ experiences of sexual objectification and victimization against a backdrop of other forms of oppression, which may influence both their risk and response to sexual objectification, should be examined (Szymanski, Moffitt, & Carr, 2011).

Conclusions

The present study represents an innovative investigation into co-occurrence of disordered eating behaviors and heavy episodic drinking from a multi-dimensional perspective, one that specifically examines constructs related to sexual and self-objectification. The study was grounded within the Social Cognitive Theory framework and has the potential to provide greater insight into this tremendous health issue. As expected with this approach, several questions arose from the results, inciting the need for multiple areas of follow-up research. This study added to existing research in that it provided further evidence for the co-occurrence of heavy episodic
drinking and disordered eating behaviors on college campuses, examined sexual objectification related predictors of co-occurrence, and incorporated preliminary findings that examine the effect of objectification on co-occurrence.

Because Western cultures sexually objectify the human body, all individuals are vulnerable to the experiences of sexual objectification and related constructs to varying degrees. It is imperative that we challenge these experiences at a social and cultural level and that we educate individuals about the negative consequences of sexual and self-objectification on their physical, social, and emotional development. “If children and adolescents can develop an empowered sense of self, they may be more likely to challenge power imbalances and the social construction of gender in ways that do not involve starvation and other abuses of their bodies,” such as heavy episodic drinking and all kinds of disordered eating behaviors (Fallon, Katzman, & Wooley, 1994). Overall, the results of this study suggest that socio-cultural explanations for the development of the co-occurrence of heavy episodic drinking and disordered eating behaviors should continue to be explored and integrated into the prevention and treatment efforts for clinical and nonclinical populations of individuals, specifically on college campuses.
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McKinley, N. M., & Hyde, J. S. (1996). The Objectified Body Consciousness Scale:


Appendix A

Variable Diagram
Appendix B

Institutional Review Board Approval
August 28, 2014

Sarah Rush
Dept. of Health Sciences
CHES
Box 870311

Re: IRB#: Examining Personal and Environmental Factors Related to the Co-Occurrence of Heavy Episodic Drinking and Disordered Eating Behaviors in College Students

Dear Ms. Rush:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waivers. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on August 27, 2015. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Please use reproductions of the IRB approved stamped information sheet to obtain consent from your participants.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

[Signature]

Director & Research Compliance Officer
Office of Research Compliance
The University of Alabama
Appendix C

Assessment Battery
The University of Alabama Student Consumption Behavior Survey

We are conducting a study on health behaviors among college students attending The University of Alabama and are interested in examining health-related issues such as alcohol use and eating behaviors among college students. We would appreciate your responses to the questions on the following survey. There are no right or wrong answers to any of these questions. Please tell us what you really think!

Place an X in the box that best describes you or fill in the blank with the appropriate answer

1. Are you currently enrolled at UA as a:
   - Freshman
   - Junior
   - Sophomore
   - Senior

2. What is your gender?
   - Male
   - Female

3. Are you a member of a social fraternity or sorority?
   - Yes
   - No

4. What is your age?

5. Ethnic origin
   - American Indian / Alaskan Native
   - Hispanic
   - Asian / Pacific Islander
   - White (Non-Hispanic)
   - Black (Non-Hispanic)
   - Other

6. How would you describe your general health?
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor
   - Don’t Know

7. How do you describe your weight?
   - Very underweight
   - Slightly underweight
   - About the right weight
   - Slightly overweight
   - Very overweight

8. Are you trying to do any of the following about your weight?
   - I am not trying to do anything about my weight
   - Lose weight
   - Stay the same weight
   - Gain weight

9. In a typical week, how many days do you drink alcohol?
   - 0
   - 1-2
   - 3-5
   - 6-9
   - All days

10. Over the last 2 weeks, how many times have you had four (4) or more drinks of alcohol at a setting?
    - N/A, don’t drink
    - None
    - Once
    - 3-5 times
    - 6-9 times

11. What is the average number of drinks that you consume a week?

Questions 12-17: Please fill in the correct number in the boxes on the right.

*For example, if you want to enter 8, the box should look like this:

12. How many hours of reality shows, such as Top Gear, COPS, Keeping Up with the Kardashians, The Bachelorette, etc. do you watch in an average week?

13. How many hours of drama shows, such as Teen Wolf, Pretty Little Liars, Game of Thrones, Arrow, True Blood, etc. do you watch in an average week?

14. How many hours of Music Videos, such as MTV, CMT, BET, and VH-1, do you watch in an average week?

15. How many hours do you spend reading Entertainment or Arts websites or magazines, such as Rolling Stone, Entertainment Weekly, People, etc., in an average week?

16. How many hours do you spend reading Health or Fitness websites or magazines, such as Shape or Fitness, in an average week?

17. How many hours do you spend reading Women’s Fashion websites or magazines, such as Vogue, Glamour, Cosmopolitan or In Style in an average week?
Questions 18-33: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you had a definite desire to have a totally flat stomach?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Has thinking about food, eating, or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you had a definite fear of losing control over eating?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you had a definite fear that you might gain weight?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you felt fat?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
</tr>
<tr>
<td>Have you had a strong desire to lose weight?</td>
<td>NO DAYS</td>
<td>1-5 DAYS</td>
<td>6-12 DAYS</td>
<td>13-15 DAYS</td>
<td>16-22 DAYS</td>
<td>23-27 DAYS</td>
<td>EVERY DAY</td>
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</table>

Questions 30-35: Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).

<table>
<thead>
<tr>
<th>Question</th>
<th>0</th>
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<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the past 28 days, how many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the past 28 days, how many of these times did you have a sense of having lost control over your eating (at the time you were eating)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the past 28 days, how many days have such episodes of overeating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time you were eating)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over the past 28 days, how many times have you exercised in a &quot;driven&quot; or &quot;compulsive&quot; way as a means of controlling your weight, shape or amount of fat, or to burn off calories?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Questions 36-38: Please circle the appropriate number. Please note that for these questions, the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.

<table>
<thead>
<tr>
<th>Questions</th>
<th>ON HOW MANY OF THE PAST 28 DAYS...</th>
<th>NO DAYS</th>
<th>1-5 DAYS</th>
<th>6-12 DAYS</th>
<th>13-15 DAYS</th>
<th>16-22 DAYS</th>
<th>23-27 DAYS</th>
<th>EVERY DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? ...Do not count episodes of binge eating.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>37</td>
<td>On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? ...Do not count episodes of binge eating.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>38</td>
<td>Over the past 28 days, how concerned have you been about other people seeing you eat? ...Do not count episodes of binge eating.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Questions 39-45: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).

<table>
<thead>
<tr>
<th>Questions</th>
<th>ON HOW MANY DAYS OVER THE PAST 28 DAYS...</th>
<th>NOT AT ALL</th>
<th>SLIGHTLY</th>
<th>MODERATELY</th>
<th>MARKEDLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Has your weight influenced how you think about (judge) yourself as a person?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>40</td>
<td>Has your shape influenced how you think about (judge) yourself as a person?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>41</td>
<td>How much would it have upset you if you had been asked to weigh yourself once a week (no more, no less, often) for the next four weeks?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>42</td>
<td>How dissatisfied have you been with your weight?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>43</td>
<td>How dissatisfied have you been with your shape?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>44</td>
<td>How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>45</td>
<td>How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
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</table>

46. What is your weight at present? (please give your best estimate in lbs.)

47. What is your height? (please give your best estimate) _______ feet _______ inches

48. If female: over the past three to four months, have you missed any menstrual periods?  
   Yes (If YES, how many? _______________)  
   No

49. If female, have you been taking the “pill”?  
   Yes  
   No
Questions 50-52: Please circle the appropriate answer on a scale of 1 to 7, from strongly disagree to completely agree

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 How often do you cut back on eating before drinking in order to avoid gaining weight?</td>
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<tr>
<td>51 How often do you restrict eating before drinking in order to feel the effects of alcohol better or more?</td>
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<tr>
<td>52 How often do you intentionally eat before drinking so that you won’t be drinking on an empty stomach?</td>
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</tbody>
</table>

Questions 53-96: Please circle the appropriate answer on a scale of 1 to 7, from strongly disagree to completely agree

<table>
<thead>
<tr>
<th>Question</th>
<th>Completely Disagree</th>
<th>Mostly Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Slightly Agree</th>
<th>Mostly Agree</th>
<th>Completely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>53 I would feel like I could conquer things more easily if I were thin.</td>
<td></td>
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<tr>
<td>54 I would be more self-reliant and independent if I felt thin.</td>
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<tr>
<td>55 I feel great when I limit the amount I eat.</td>
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<td>56 I would be more attractive if I were thin.</td>
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<tr>
<td>57 I would feel better about myself if I were thin.</td>
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<td>58 My family would be more proud of me if I were thin.</td>
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<tr>
<td>59 When I limit what I eat, others respect me.</td>
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<td>60 My problems would appear less troublesome if I were thin.</td>
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<tr>
<td>61 When I limit what I eat, others notice me more.</td>
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<tr>
<td>62 Restricting what I eat makes me feel good about myself.</td>
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<td>63 I would be more attractive to the opposite sex if I were thin.</td>
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<td>64 When I limit what I eat, I am more assertive.</td>
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<td>65 I would feel stronger if I were thin.</td>
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<td>66 If I were thin, I would gain more attention from friends.</td>
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<td>67 I would feel less stressed, in general, if I were thin.</td>
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<td>68 When I limit what I eat, I feel more capable and competent.</td>
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<td>69 I would be happy if I were thin.</td>
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<td>70 I would handle myself better in social situations if I were thin.</td>
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<td>71 I feel more enthusiastic about doing other things after I’ve limited what I’ve eaten.</td>
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<td>72 When I limit what I eat, I am more attractive.</td>
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<tr>
<td>73 I would feel more capable and competent if I were thin.</td>
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<td>Question</td>
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<td>Moderately Disagree</td>
<td>Slightly Disagree</td>
<td>Neither Agree</td>
<td>Slightly Agree</td>
<td>Mostly Agree</td>
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<td>74</td>
<td>I would be more physically attractive to others if I were thin.</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>75</td>
<td>If I were thin, there would be one less thing to worry about.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>76</td>
<td>When I stick to a strict diet, I feel more in control of my life.</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>77</td>
<td>My family would complement me more if I were thin.</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>78</td>
<td>If I were thin, I would feel like a disciplined person.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>79</td>
<td>I would feel more like an adult if I were thin.</td>
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<td>2</td>
<td>3</td>
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<td>6</td>
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<tr>
<td>80</td>
<td>If I were thin, I’d do better in school or at my job.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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<tr>
<td>81</td>
<td>If I were thin, I would feel more worthwhile.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
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<tr>
<td>82</td>
<td>It is emotionally uplifting to limit the amount of food I eat.</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>83</td>
<td>I feel less guilty when I limit what I eat.</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
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<tr>
<td>84</td>
<td>Others would think more highly of me if I were thin.</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>85</td>
<td>I would feel like I could do whatever I wanted to if I were thin.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>86</td>
<td>I would cope better with failures at work or school if I were thin.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>87</td>
<td>My self-image would improve if I were thin.</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<tr>
<td>88</td>
<td>Even though others may try to control my life, limiting what I eat gives</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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<td></td>
<td>me one area where I feel in control.</td>
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<tr>
<td>89</td>
<td>I would feel more attractive if I were thin.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>90</td>
<td>If I were thin, it would show my parents that I am in control.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>91</td>
<td>People think more highly of me when I restrict what I eat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>92</td>
<td>I would fit in more if I were thin.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>93</td>
<td>It increases my self-esteem to limit what I eat.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>94</td>
<td>If I were thin, it would improve my appearance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>95</td>
<td>Being thin would be a boost to my self-esteem.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>96</td>
<td>Being thin would improve everything in my life.</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**Questions 97-112:** Please circle the appropriate answer on a scale of 1 to 7, from strongly disagree to completely agree.
99. I think more about how my body feels than how my body looks.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

100. I rarely compare how I look with how other people look.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

101. During the day, I think about how I look many times.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

102. I often worry about whether the clothes I am wearing make me look good.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

103. I rarely worry about how I look to other people.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

104. I am more concerned with what my body can do than how it looks.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

105. When I can’t control my weight, I feel like something must be wrong with me.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

106. I feel ashamed of myself when I haven’t made the effort to look my best.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

107. I feel like I must be a bad person when I don’t look as good as I could.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

108. I would be ashamed for people to know what I really weigh.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

109. I never worry that something is wrong with me when I am not exercising as much as I should.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

110. When I’m not exercising enough, I question whether I am a good enough person.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

111. Even when I can’t control my weight, I think I’m an okay person.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

112. When I’m not the size I think I should be, I feel ashamed.
   Strongly Disagree  Moderately Disagree  Slightly Disagree  Neutral  Slightly Agree  Moderately Agree  Completely Agree
   1  2  3  4  5  6  7

Questions 113-127: Please circle the appropriate answer on the right for how many times IN YOUR ENTIRE LIFE and how many times IN THE PAST YEAR.

113. How often have you been whistled at while walking down a street?
   How many times IN YOUR ENTIRE LIFE?
   Never  Rarely  Occasionally  Frequently  Almost Always
   How many times IN THE PAST YEAR?
   Never  Rarely  Occasionally  Frequently  Almost Always

114. How often have you noticed someone staring at your breasts when you are talking to them?
   How many times IN YOUR ENTIRE LIFE?
   Never  Rarely  Occasionally  Frequently  Almost Always
   How many times IN THE PAST YEAR?
   Never  Rarely  Occasionally  Frequently  Almost Always

115. How often have you felt like or known that someone was evaluating your physical appearance?
   How many times IN YOUR ENTIRE LIFE?
   Never  Rarely  Occasionally  Frequently  Almost Always
<table>
<thead>
<tr>
<th>Question</th>
<th>How many times IN THE PAST YEAR?</th>
<th>Never</th>
<th>Rarely</th>
<th>Occasionally</th>
<th>Frequently</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often have you felt that someone was staring at your body?</td>
<td>Never</td>
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<tr>
<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you noticed someone leering at your body?</td>
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<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you heard a rude, sexual remark made about your body?</td>
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<tr>
<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you been touched or fondled against your will?</td>
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<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you been the victim of sexual harassment (on the job, in school, etc)?</td>
<td>Never</td>
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<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you been honked at when you were walking down the street?</td>
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<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you seen someone stare at one or more of your body parts?</td>
<td>Never</td>
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<tr>
<td>How many times IN YOUR ENTIRE LIFE?</td>
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<tr>
<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you overheard inappropriate sexual comments made about your body?</td>
<td>Never</td>
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<tr>
<td>How many times IN YOUR ENTIRE LIFE?</td>
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<td>How many times IN THE PAST YEAR?</td>
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<tr>
<td>How often have you noticed that someone was not listening to what you were saying, but instead gazing at your body or a body part?</td>
<td>Never</td>
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<tr>
<td>How many times IN YOUR ENTIRE LIFE?</td>
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<tr>
<td>Question</td>
<td>Never</td>
<td>Rarely</td>
<td>Occasionally</td>
<td>Frequently</td>
<td>Almost Always</td>
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<tr>
<td>125 How often have you heard someone make sexual comments or innuendos when noticing your body?</td>
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<tr>
<td>126 How often has someone grabbed or pinched one of your private body areas against your will?</td>
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<tr>
<td>127 How often has someone made a degrading sexual gesture towards you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Questions 128-157: Please circle the appropriate answer on a scale of 1 to 5, from definitely disagree to definitely agree

<table>
<thead>
<tr>
<th>Question</th>
<th>Definitely Disagree</th>
<th>Mostly Disagree</th>
<th>Neither Agree Nor Disagree</th>
<th>Mostly Agree</th>
<th>Definitely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>128 TV programs are an important source of information about fashion and &quot;being attractive.&quot;</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>129 I've felt pressure from TV or magazines to lose weight.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>130 I do not care if my body looks like the body of people who are on TV.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>131 I compare my body to the bodies of people who are on TV.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>132 TV commercials are an important source of information about fashion and &quot;being attractive.&quot;</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>133 I do not feel pressure from TV or magazines to look pretty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>134 I would like my body to look like the models who appear in magazines.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>135 I compare my appearance to the appearance of TV and movie stars.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>136 Music videos on TV are not an important source of information about fashion and &quot;being attractive.&quot;</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>137 I've felt pressure from TV and magazines to be thin.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>138 I would like my body to look like the people who are in movies.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>139 I do not compare my body to the bodies of people who appear in magazines.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Question</td>
<td>Agree</td>
<td>Disagree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------</td>
<td>----------</td>
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<tr>
<td>158</td>
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</tr>
<tr>
<td>159</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I often feel sexier after I have had a couple of drinks.

Alcohol makes me worry less.

I tend to be less self-critical when I have something alcoholic to drink.

If I am feeling restricted in any way, a few drinks make me feel better.

Drinking can make me more satisfied with myself.

165. What is your sexual orientation?
   - Heterosexual
   - Gay / Lesbian
   - Bisexual
   - Unsure

166. Where do you currently live?
   - Campus residence hall
   - Fraternity or sorority house
   - Other college/university housing
   - Parent/guardian’s home
   - Other off-campus housing
   - Other

167. What is your relationship status?
   - Not in a relationship
   - In a relationship but not living together
   - In a relationship and living together

Thank you for your participation in this study!

If you would like to talk with someone after taking this study, please contact the UA Counseling Center at 205-348-3863.
Appendix D

Scale Permission
Permission to Use ISOS
2 messages

Sarah Rush <rush005@crimson.ua.edu>  
To: tylika.2@osu.edu

Dear Dr. Tylika,

I wanted to request your permission to use your Interpersonal Sexual Objectification Scale as part of my dissertation research. In my study, I will be examining possible relationships between objectification-related constructs and the co-occurrence of heavy episodic drinking and disordered eating behaviors. I have a great deal of respect for your work and hope to be able to use this scale you and your colleagues created.

If there is a fee associated with using your scale, would you please let me know?

Kindest regards,
Sarah Rush

Sarah E. Rush, MA, CHES  
Doctoral Candidate  
Health Promotion and Education  
The University of Alabama  
466 Russell Hall  
Tuscaloosa, AL 35487-0311  
rush005@crimson.ua.edu

Tracy Tylika <tracy@tylika@yahoo.com>  
Reply-To: Tracy Tylika <tylika.2@osu.edu>  
To: Sarah Rush <rush005@crimson.ua.edu>

Hi Sarah,

You have my permission to use the ISOS in your research. It is attached. There is no fee associated with the use of the scale. Best of luck with your dissertation.

Take good care,

Tracy

[Quoted text hidden]

ISOISitems.doc  
32K
Permission to Use SATAQ-3
2 messages

Sarah Rush <rush005@crimson.ua.edu>  Wed, Aug 20, 2014 at 12:23 AM
To: jethompson@usf.edu

Dear Dr. Thompson,

I wanted to request your permission to use your Sociocultural Attitudes Towards Appearance Questionnaire as part of my dissertation research. In my study, I will be examining possible relationships between objectification-related constructs and the co-occurrence of heavy episodic drinking and disordered eating behaviors. I have a great deal of respect for your work and hope to be able to use this scale you created.

If there is a fee associated with using your scale, would you please let me know?

Kindest regards,

Sarah Rush

Sarah E. Rush, MA, CHES
Doctoral Candidate
Health Promotion and Education
The University of Alabama
466 Russell Hall
Tuscaloosa, AL 35487-0311
rush005@crimson.ua.edu

Thompson, J. Kevin <jethompson@usf.edu>  Fri, Aug 22, 2014 at 8:51 AM
To: Sarah Rush <rush005@crimson.ua.edu>

Sure, no problem, no fee.

Kevin
Permission to Use AEQ-A

1 message

Bond, Janka <j2bond@ucsd.edu>  
To: "rush005@crimson.ua.edu" <rush005@crimson.ua.edu>  
Cc: "Lock, Patrice" <plock@ucsd.edu>

Wed, Aug 20, 2014 at 12:06 PM

Dear Sarah,

Thank you for using the AEQ in your research. We will appreciate it if you inform us of any publication, report, abstract, or presentation that arises from data collected using the AEQ.

All the best,

Janka

Janka Bond
Administrative Specialist
Office of Research Affairs
9500 Gilman Drive #0043
La Jolla, CA 92037-0043
Direct: 858.534.9467 Fax: 858.534.3868
Email: j2bond@ucsd.edu
UC San Diego

From: Sarah Rush [mailto:rush005@crimson.ua.edu]
Sent: Tuesday, August 19, 2014 10:37 PM
To: Brown, Sandra
Subject: Permission to Use AEQ-A

Dear Dr. Brown,

I wanted to request your permission to use your Alcohol Expectancy Questionnaire as part of my dissertation research. In my study, I will be examining possible relationships between objectification-related constructs, including alcohol outcome expectancies and the co-occurrence of heavy episodic
Permission to Use Objectified Body Consciousness Scale

Sarah Rush <rush005@crimson.ua.edu>
To: nmmckin@uw.edu

Wed, Aug 20, 2014 at 12:03 AM

Dear Dr. McKinley,

I wanted to request your permission to use your Objectified Body Consciousness Scale as part of my dissertation research. In my study, I will be examining possible relationships between objectification-related constructs and the co-occurrence of heavy episodic drinking and disordered eating behaviors. I have a great deal of respect for your work and hope to be able to use this scale you created.

If there is a fee associated with using your scale, would you please let me know?

Kindest regards,

Sarah Rush

--
Sarah E. Rush, MA, CHES
Doctoral Candidate
Health Promotion and Education
The University of Alabama
466 Russell Hall
Tuscaloosa, AL 35487-0311
rush005@crimson.ua.edu

Nita McKinley <nmmckin@uw.edu>
Reply-To: nmmckin@uw.edu
To: Sarah Rush <rush005@crimson.ua.edu>

Wed, Aug 20, 2014 at 9:44 AM

Hi Sarah,

You are welcome to use the scale for non-profit research. I’ve attached a handout with the scale and permission for use.

Good luck with your study!

*********************************************************

Nita Mary McKinley, PhD
Chair, Social, Behavioral, & Human Sciences Division
Appendix E

Information Sheet
UNIVERSITY OF ALABAMA
HUMAN RESEARCH PROTECTION PROGRAM
Information Sheet for a Non-Medical Study

Study title: “Student Consumption Behavior Survey”

Investigator’s Name: Sarah E. Rush, Doctoral Student in Health Science; Dr. Stuart Usdan, Professor of Health Science

Position: Assistant Professor, Department of Health Science
You are being asked to take part in a research study. This “Student Consumption Behavior Survey” is designed to examine consumption behaviors among college students. The study is being done by Sarah E. Rush, who is a graduate student at the University of Alabama. Ms. Rush is being supervised by Dr. Stuart Usdan, a professor in the Department of Health Science at the University of Alabama.

Is the researcher being paid for this study?
Sarah E. Rush is not receiving any payment for this work.

What is this study about?
This study is being done to better understand health-related issues, such as alcohol use and eating behaviors, among college students.

Why is this study important—What good will the results do?
Findings from this study could provide a deeper understanding into the scope of these health behaviors within the college environment and could potentially offer health practitioners and clinicians insight into decreasing and even preventing hazardous health behaviors among college students.

Why have I been asked to take part in this study?
You have been asked to be in this study because you are a college student and we are interested in your responses on this topic. For this study we are seeking undergraduate college students of any gender between the ages of 18 and 24 years old.

How many other people will be in this study?
About 700 college students will participate in this study.

What will I be asked to do in this study?
If you agree to be in this study, you will be asked to complete a survey pertaining to drinking and eating behaviors, as well as objectification-related constructs. There are no right or wrong answers to the questions you will be asked.

How much time will I spend being in this study?
The study should last about 20-25 minutes.

Will being in this study cost me anything?
The only cost to you from this study is your time.

Will I be compensated for being in this study?
You will not be compensated for being in this study.

What are the risks (problems or dangers) from being in this study?
It is not expected that you will be exposed to any risk by being in this research study. You can refuse to answer any questions that you do not want to answer.
What are the benefits of being in this study?
There are no direct benefits to you for participating in this study. However, you may become more aware of your personal health behaviors.

How will my privacy be protected?
If you are not comfortable completing surveys about your health behaviors than you can choose not to participate. Also, we ask that you do not discuss this study with anyone else, especially with those who choose to not participate in the survey. Once you are finished with this survey, please return it to one of the envelopes at the front of the classroom. This envelope will be sealed once all surveys are collected.

How will my confidentiality be protected?
No identifiable information will be collected in this survey - it is completely anonymous. There is no way to link your responses to you at all. Your instructor will not have access to know who chose to take the survey and who did not. Surveys will be kept in a locked cabinet and no one will have access to them except the researcher. We will write research articles and present the results of this study, but no one will be able to recognize you.

What are the alternatives to being in this study?
The only alternative is not to participate.

What are my rights as a participant?
Being in this study is totally voluntary. It is your free choice. You may choose not to be in it at all. If you start the study, you can stop at any time. Not participating or stopping participation will have no effect on your relationships with the University of Alabama. The University of Alabama Institutional Review Board is a committee that looks out for the ethical treatment of people in research studies. They may review the study records if they wish. This is to be sure that people in research studies are being treated fairly and that the study is being carried out as planned.

Who do I call if I have questions or problems?
If you have questions about this study right now, please ask them. If you need to talk to someone as a result of taking this survey, please contact the UA Counseling Center at (205-348-3863). If you have questions later on, please call Sarah Rush at 205-348-9717 or by e-mail at rushs905@crimson.ua.edu or Dr. Stuart Usdan at 205-348-1948. If you have questions or complaints about your rights as a research participant, call Ms. Tanta Myles, the Research Compliance Officer of the University at 205-348-8461 or toll-free at 1-877-820-3066. You may also ask questions, make suggestions, or file complaints and concerns through the IRB Outreach website at http://osp.ua.edu/site/PRCO_Welcome.html or email the Research Compliance office at participantinquiries@bham.ua.edu.

After you participate, you are encouraged to complete the survey for research participants that is online at the outreach website or you may ask the investigator for a copy of it and mail it to the University Office for Research Compliance, Box 870127, 358 Rose Administration Building, Tuscaloosa, AL 35487-0127.

How do I agree to participate?
Completing this survey is your consent to participate. If you agree with the following statement, please proceed with the survey:

"I have been informed of this study and I have had a chance to ask questions. I agree to participate in this study. I am between 18 and 24 years old, and understand that taking this survey is my consent to participating in this study."

PLEASE KEEP THIS INFORMATION SHEET FOR YOUR RECORDS.