



Published in final edited form as:

J Am Assoc Nurse Pract. 2014 August ; 26(8): 445–451. doi:10.1002/2327-6924.12070.

Binge Eating and Weight Loss Behaviors of Overweight and Obese College Students

Susan Kelly-Weeder, PhD, FNP-BC^{*}, Kathryn Phillips, MS, NP-BC, Kelly Leonard, BS, and Margaret Veroneau, BS

Abstract

Purpose—To investigate binge eating (BE) and weight related behaviors in overweight and obese college students.

Data Sources—This was a secondary analysis of data from 487 overweight and obese college age students from a private university in the northeastern US.

Conclusions—BE was reported by 34.9% of students. Only 6.2% of participants reported the use of compensatory behaviors (i.e., self-induced vomiting, laxative, or diuretic use) to prevent weight gain. BE was associated with smoking and exercising to lose weight. Gender differences emerged from the data as women were more likely to report being obese, the use of compensatory behaviors, and to perceive themselves as moderately or extremely overweight.

Implications for Practice—Binge eating is a significant problem on college campuses and is associated with the development of obesity and eating disorders. Nurse practitioners (NPs) are in an excellent position to effect change in this population through their frequent contact with young adults in community and school-based venues. Nurse practitioners are well-prepared to identify at-risk college students and provide them with individualized care, education, and support.

Introduction

Binge eating (BE), defined as eating a large amount of food in a short period of time while experiencing a subjective loss of control (American Psychological Association [APA], 2000), is a disordered eating behavior that is observed across populations. It is a cardinal feature reported by individuals with anorexia nervosa, bulimia nervosa, and binge eating disorder. However, binge eating has also been described by individuals who do not meet the diagnostic criteria for an eating disorder.

Along with other disordered eating behaviors (i.e., fasting, purging), binge eating is commonly reported in both male and female college age students (White, Reynolds-Malear, & Cordero, 2011). In a classic study, Mintz and Betz (1988) reported that 64% of undergraduate women engaged in some form of disordered eating including chronic dieting, binge eating, or purging behaviors. Binge eating is of specific concern because it has been

^{*}Address correspondence to Dr. Susan Kelly-Weeder, Associate Professor, William F. Connell School of Nursing, Cushing Hall #420, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467 ph: (617) 552-8018, kellywee@bc.edu.

associated with the development of obesity and is implicated in the development of eating disorders (Stice & Shaw, 2004).

Binge eating rates vary considerably. Hudson and colleagues (2007) investigated a nationally representative community sample of 9,282 adults 18 years of age and older and reported a 12-month prevalence of any BE at 2.1% and a lifetime prevalence of 4.5%. Researchers studying college age women have reported rates from 8.4% to 64% (Kelly-Weeder & Edwards, 2011; Mintz & Betz, 1988). Fewer researchers have investigated these behaviors in male students. In a recent study of gender differences in BE behavior in college students, 29.4% of students reported BE in the last 30 days. A significant gender difference was noted in this study, as female students (33.6% versus 21.7%; $\chi^2=32.2$, $p < 0.001$) were significantly more likely to endorse this behavior than their male peers (Kelly-Weeder, Jennings, Wolfe, in press).

The percentage of overweight and obese individuals in the United States has been increasing for decades. Currently, 34.2% of adults are overweight and another 33.7% are obese (Ogden, Carroll & Adult, 2010). College students (ages 17–24 years), who represent a unique sub-section of the population, are not spared from this epidemic and current estimates indicate that one-third of all college students are overweight or obese (Brunt, Rhee & Zhong, 2008; Harring, Montgomery & Hardin, 2010; Keown, Smith & Harris, 2009; Lloyd-Richardson, Bailey, Fave, & Wing, 2009; Ratanasiripong & Burkey, 2011). College students are at particular risk because the years between adolescence and adulthood are associated with weight gain and a decrease in both physical activity and dietary quality (Nelson, Story, Larson, Sztainer & Lytle, 2008). A limited number of investigators have examined these behaviors in overweight or obese students. Saules and colleagues (2009) reported that 30–42.6% of overweight college students reported binge eating within the last 6 months. However, lower rates of BE in an overweight student population were described by Laska and associates (2010) who reported that 15–17% of college age women and 9.7–10% of college age men had endorsed recent binge eating.

Researchers have noted that students who report binge eating are more likely to participate in both healthy and unhealthy weight control measures (Kelly-Weeder, 2011). Many researchers who have investigated binge eating phenomena in college age students have focused on concurrent risk factors. Unhealthy behaviors, such as smoking (Saules, et al., 2009) and excessive alcohol consumption (Kelly-Weeder & Edwards, 2011; Luce, Engler, & Crowther, 2007) have been positively correlated with binge eating. Students who have reported binge eating also demonstrated an increased incidence of unhealthy weight management practices, including the use of laxatives, diuretics, and excessive exercise (Kelly-Weeder, 2011). Similar to unhealthy alcohol use, problematic eating behaviors in college students have been associated with negative coping ability (Sulkowski, Dempsey, & Dempsey, 2011) and an increase in depressive symptoms, anxiety, guilt, anger, stress and body dissatisfaction (Jurascio, Perone & Timko, 2011; Kluck, 2010; Napolitano & Himes, 2011).

For college students, living off campus, being physically inactive, reporting a desire to be thinner, and practicing disordered eating behaviors have all been linked to the development

of being overweight or obese (Brunt & Rhee, 2008; Desai, Miller, Staples & Bravender, 2008; Nelson, et. al., 2007; Pribis, Burtneck, McKenzi & Thayer, 2010). Additionally, having an elevated body mass index (BMI) has been associated with an increased incidence of psychological disorders, such as negative body image, body image dissatisfaction, depression, and binge eating disorder (Jurascio, et. al. 2011; Kluck, 2010; Napolitano & Himes, 2011; Watkins, Christie & Chally, 2008).

Researchers have also investigated correlations between a student's perceived and actual body weight. Investigators have reported that students who view themselves as overweight or obese are more likely to engage in binge eating behavior (Binkley, Fry & Brown, 2009; Saules, et al., 2009; Vartanian & Germeroth, 2011; Wharton, Adams & Hampl, 2008). Self-perception of weight status has been linked to students' understanding of their health risk. Specifically, students who do not accurately perceive their weight may be more likely to disregard healthy lifestyle choices, such as appropriate dieting and exercise practices (Ratansiripong & Burkey, 2011).

Developmentally, college students are at a critical junction between adolescence and adulthood (Nelson, et al., 2008) and as increasing numbers of students become overweight or obese, it is important that clinicians and researchers better understand the health behaviors associated with this phenomenon. Specifically, developing a broader understanding of binge eating and other weight related behaviors will allow researchers and clinicians to develop interventions to reduce unhealthy weight practices. Additionally, the scarcity of information available about weight practices of college students signifies a need to focus research efforts in this area. Therefore, the purpose of this study was to investigate binge eating and weight related behaviors in a group of overweight and obese college students.

Methods

This descriptive study was a secondary analysis of a web-based survey of college students which investigated binge eating and associated behavioral correlates (Kelly-Weeder, et al., in press). The original study was conducted at a large, private university in the northeastern United States. Survey Monkey®, a web-based survey tool, was used to collect data in the original study.

Data collection procedures

After Institutional Review Board approval, the research team from the original study contacted undergraduate students via email and asked them to participate in an anonymous, web-based survey. Email invitations were sent to 7,500 undergraduate students. The invitation included a description of the study, the primary investigator's contact information, and a link to the electronic survey. Students who elected to participate in the study completed an on-line informed consent tool prior to accessing the survey. Participation was voluntary and students who completed the survey could choose to enter their email address into a raffle for a chance to win a \$50 Amazon gift certificate. A total of 2,073 students completed the original study.

Measures

Respondents in the original study were asked a series of questions including demographics (i.e., age, gender, race), current height and weight, exercise, smoking behavior, weight perception, compensatory measures to prevent weight gain, and binge eating.

Each student was asked if they had experienced an episode of binge eating within the last 30 days. Binge eating was defined as consuming, within a two hour period, an amount of food that was definitely greater than most people would eat, while feeling unable to control how much they ate or stop the behavior (APA, 2000). Students who endorsed binge eating were subsequently asked a series of open-ended questions to further describe this behavior.

Body mass index was calculated from self-reported weight and height by dividing weight in kilograms by height in meters squared (kg/m^2). Compensatory measures to prevent weight gain included information on self-induced vomiting, as well as syrup of ipecac, laxative, and diuretic use. Self-perceived body weight was ascertained from a frequently used, single question adapted from the Eating Disorders Questionnaire (Fairburn & Beglin, 1994), that asked participants to rate how they would describe their current weight. The response categories were extremely thin, moderately thin, slightly thin, normal weight, slightly overweight, moderately overweight, and extremely overweight.

Sample selection

Sample selection for the secondary analysis began with a review of the male and female participants who had completed data on current height, weight and related variables ($n=2,073$). Of the participants with complete data, those who reported a body mass index (BMI) of 25.0 or greater were included in the analysis. The final sample for the secondary analysis was 487 undergraduate students.

Data Management and Analysis

All data were stored in the principal investigator's secure account, which was only accessible to members of the research team. Descriptive statistics were computed for each of the study variables including frequencies and measures of central tendency. Bivariate analyses were conducted using chi-square tests for nominal level variables and one way ANOVA for continuous variables. Fisher exact tests were utilized for analyses that include small cell sizes. Relationships were considered significant if they reached a p value of 0.05 . STATA 10 ® was used to conduct the analysis.

Results

Sample characteristics

The sample consisted of 487 undergraduate students who reported a BMI of greater than 25, defining them as overweight or obese. Of the 487 students, 78.6% ($n=383$) were overweight (BMI to 25) and 21.4% ($n=104$) were obese (BMI ≥ 30). Students were predominately Caucasian (77.2%) with a mean age of 19.87 (Range=18–23; SD=1.03). Additional information is presented in Table 1.

Binge eating was reported by greater than one-third (34.9%) of the sample. Nearly thirty-eight percent (37.8%) of female students and 31.4% of male students ($\chi^2=2.57$; $p=0.11$) reported binge eating in the last 30 days. Compensatory behaviors to avoid weight gain (i.e., self-induced vomiting, laxative or diuretic use) were reported by 6.2% ($n=30$) of the sample, all of whom were binge eaters ($\chi^2=59.6$; $p=0.001$). The most commonly reported compensatory behavior was self-induced vomiting (4.1%). Greater than sixty percent (63.2%) of the sample reported exercising to lose weight. Only 32.8% of students reported a history of any tobacco use and current smoking was endorsed by only 12% of participants. Both exercise and smoking were positively correlated with binge eating behavior. Binge eating students were more likely to report exercising to lose weight (73.5%; $\chi^2=11.3$; $p=0.001$) and to be current smokers (18.4%; $\chi^2=7.52$; $p=0.006$).

Gender differences were identified with female students being more likely to report a BMI ≥ 25 ($\chi^2=4.93$; $p=0.026$), endorse the use of compensatory behaviors ($\chi^2=8.48$; $p=0.004$), and being more likely to perceive themselves to be moderately or extremely overweight ($\chi^2=28.89$; $p=0.001$). Additional gender differences are displayed in Table 2.

Greater than 70% of students perceived themselves to be overweight. Weight perception was correlated with both binge eating and BMI. Students who reported binge eating were more likely to perceive themselves as slightly (BE: 43.5% vs. nonBE: 41.3%), moderately (BEs: 33.5% vs. nonBEs: 19.6%), or extremely overweight (BEs: 8.2% vs. nonBEs: 2.8%) ($\chi^2=34.12$; $p=0.001$). Additionally, as BMI increased so did the likelihood that students would perceive themselves to be increasingly overweight ($F=30.96$; $p=0.001$).

Discussion

The aim of this study was to investigate binge eating and associated weight control behaviors in a sample of overweight and obese college students. This investigation is important because of the link between weight gain in the college years and the development of long term obesity and subsequent health problems in adulthood. Additionally, binge eating is commonly reported in samples of college age students and its link to obesity has not been fully explained in this population. A greater understanding of binge eating in overweight and obese college students may lead to the development of new interventions that can be used to reduce the rates of obesity and the associated health risks.

The rates of binge eating in this study were similar to those reported by Saules and associates (2009) in their study of overweight college students; however, the rates were considerably higher than those reported by Laska and colleagues (2010). While not statistically different, the results of this study suggest increased binge eating by female students, which corresponds with much of the current literature (Laska, et al., 2010). However, the rate of binge eating in male students was higher than previously reported (Kelly-Weeder, et al., in press; Laska, et al., 2010; Saules, et al., 2009). While the lack of consistency in defining binge eating may be responsible for these discrepancies, it is clearly an area where additional research is needed. Being able to better describe the experience of binge eating for both male and female students may lead to significant changes in how binge

eating is conceptualized and to the development of novel and/or gender specific interventions.

A small percentage (6.2%) of binge eating students engaged in compensatory behaviors to avoid weight gain and, in accordance with the literature, these behaviors were more frequently reported by women (Kelly-Weeder, et al., in press; Pritchard, 2008). This makes logical sense in an overweight and obese sample of students and may indicate that this group is at increased risk for the development of Binge Eating Disorder (BED) (Bartholome, Peterson, Raatz, & Raymond, 2012). To better understand the prevalence of BED in college students, additional binge eating parameters (eating rapidly, eating until uncomfortably full, eating large amounts without feeling hungry) as well as feelings associated with eating behavior (embarrassed, disgusted, depressed or guilty about eating) must be explored.

A large percentage of students reported exercising to lose weight, consistent with reports that indicate high levels of exercise in college age populations (Nelson, et al., 2007). Interestingly, binge eating students were more likely to report exercise use than their non-binge eating classmates, which may suggest a healthy approach to weight loss. However, it may also indicate a more troubling relationship. Mond and Calogero (2009) reported that women with disordered eating behaviors were more likely to exercise for weight loss than non-eating disordered women. These women were also reported to experience extreme guilt if they could not exercise (Mond & Calogero, 2009). Since data were not collected on frequency and duration of exercise behaviors, it is not possible to determine how often students exercised, what types of exercise they participated in, or if excessive exercise practices were employed. Future researchers need to more clearly classify types and frequency of exercise to better determine the role exercise plays for binge eating students.

The relationship between current smoking and binge eating is noteworthy. While the rate of current smoking in this sample was quite low (12%), smoking was more commonly reported by binge eating students. While this association has been previously reported (Saules, et al, 2009) the correlation has been unclear. Researchers and clinicians have long speculated that smoking is a dieting aid and is used by individuals as a means for controlling their appetites and dietary intake (Weiss, Merrill & Gritz, 2007). However, smoking is also associated with a variety of weight-promoting behaviors that include consuming higher calorie foods, dining in restaurants, and eating while watching television (Carroll, et al, 2006). There is also an established relationship between smoking and exercise, which suggests that smokers are less likely to exercise (Moore, et al., 2008; Seo, et al., 2007). The relationships among smoking, exercise, binge eating, and weight gain in college students is complicated and needs further explication before researchers can truly determine how these behaviors co-exist in this population.

The vast majority of participants (71.2%) accurately perceived their weight status as overweight, which leaves nearly 30% of students underestimating their weight status. Problems with adequately perceiving weight status have been reported by previous researchers. Binkley and associates (2009) reported that only 56% of college age men and women accurately perceived their weight and that an additional 39% of men and 25% of women underestimated their weight. Inaccurately perceiving weight status has been

positively correlated with depression, decreased motivation for weight loss, and unhealthy weight loss strategies (Binkley, et al., 2009; Harring, et al., 2010; Ratanasiripong & Burkey, 2011; Saules, et al., 2009; Wharton, et. al., 2008). The need to better understand this construct is critical, as it may be influential in determining who is at particularly high risk for disordered eating behaviors.

Binge eating students were more likely to perceive themselves as being overweight, which supports the findings of researchers who have reported increased binge eating in students who perceived themselves as overweight (Saules, et al., 2009). Gender differences were noted in self perceived weight status, as female students were more likely to report being moderately or extremely overweight. The literature supports the accuracy of women's perceptions, as previous researchers have reported that larger numbers of men perceive themselves to be smaller than their BMIs would indicate (Ratanasiripong & Burkey, 2011). The accuracy of the female students' self perceptions was further supported by the data indicating that more women were in the obese weight category.

Limitations

There are a number of limitations that must be considered when interpreting the results of this study. The sample was predominantly Caucasian and obtained from a single, private university setting which limits the generalizability of the results. The use of self-report data is potentially problematic. Using self-reported data eliminates the ability to validate the participants' responses by any objective method. It has been suggested that self-reported measures of BMI are inaccurate when compared with actual measures (Elgar & Stewart, 2008; Lin, 2007). However, in a recent study of college students, Binkley, et al (2009) reported that BMI from self-reported measures of height and weight were accurate for males, but somewhat low for female students when compared to their actual height and weight measures.

Despite these limitations, the study has a number of inherent strengths including a large sample size of both male and female overweight and obese students. Previous studies have primarily examined binge eating in female college students (Napolitano & Himes, 2011) and the inclusion of gender specific information directly contributes to our understanding of these behaviors. Additionally, the use of an anonymous, web-based survey increases the likelihood that students will respond openly and honestly to questions related to binge eating and other behavioral correlates.

Clinical Implications

Binge eating is a significant concern for the college age population because of its link to obesity and eating disorders. The college years are particularly high risk because they coincide with the median age (18–21) for the onset of eating disorders (Hudson, Hiripi, Pope, & Kessler, 2007). In addition, the health behaviors that young adults develop in this time period may stay with them for life, placing them at risk for serious, long-term, health consequences. Nurse practitioners, who practice in college environments or who see college students in other health related venues, need to be aware of the implications of these behaviors and specifically assess both male and female students for binge eating behavior.

A trusting, safe relationship will facilitate the college student sharing information about these often stigmatized eating and weight regulation behaviors. During office visits, nurse practitioners should ask young adults about binge eating, including the frequency and amount of food consumed, as the details of a binge can help clinicians to differentiate between subjective and objective bingeing. Additionally, it is of interest to note when the binges occur. If young adults report primarily nighttime bingeing, they may be at risk for Night Eating Syndrome (NES), which is also associated with obesity (Stunkard, 2011). Through leadership roles on college committees, nurse practitioners can help to change the food offerings available on campus, providing healthier choices particularly with late night food options that correspond to the timing of many binge eating episodes.

When asking students about eating behaviors, nurse practitioners will want to discuss stress and coping methods as researchers have indicated disordered eating is correlated with increased levels of stress and anxiety (Loth, van den Berg, Eisenberg, & Neumark-Sztainer, 2008; Sulkowski, et al., 2011). Increased binge eating episodes may occur around stressful life events. Referring students to resources, such as on campus counseling, will assist these young adults in learning new and effective stress management techniques.

As the results of this study indicated, binge eating in overweight and obese students is not generally associated with compensatory behaviors such as self-induced vomiting and laxative use. At the same time, binge eaters were more likely than non-binge eaters to exercise. Therefore, it is important for nurse practitioners to specifically discuss healthy and unhealthy weight control techniques in order to decipher what types of practices overweight and obese students are using to control their weight. In addition, nurse practitioners will want to inquire about other lifestyle choices such as alcohol consumption and cigarette use. Researchers have suggested that binge eating is positively correlated with smoking (Saules, et al., 2009) and excessive alcohol consumption (Luce, et al., 2007). Although the study team did not measure alcohol use in this study, it is a commonly reported risk behavior in college students.

Finally, nearly 30% of students did not perceive themselves to be overweight. This is of particular concern because students who do not understand that they are overweight or obese may not take measures to change their behaviors in order to control their weight. Nurse practitioners can help these students by discussing specific healthy diet choices available on campus and encouraging appropriate exercise, as well as highlighting the long term risks of obesity.

Our findings highlight the significance of binge eating behaviors, their connection with being overweight or obese, as well as their prevalence on college campuses. Additionally, our team's findings underscore that these behaviors are practiced not only by thin or underweight students, but also by those students who struggle with being overweight or obese. It is essential for nurse practitioners to carefully screen all college students for disordered eating practices. Nurse practitioners are in a key position to help educate young adults on the risks associated with disordered eating, obesity, and eating disorders in the interest of providing early intervention with the hope of preventing long term health problems.

References

- American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: Author; 2000. text rev
- Bartholome L, Peterson R, Raatz S, Raymond N. A comparison of the accuracy of self-reported intake with measured intake of a laboratory overeating episode in overweight and obese women with and without binge eating disorder. *European Journal of Nutrition*. 2012 Epub ahead of print.
- Binkley SE, Fry MD, Brown TC. The relationship of college students' perceptions of their BMI and weight status to their physical self-concept. *American Journal of Health Education*. 2009; 40(3): 139–145.
- Brunt AR, Rhee YS. Obesity and lifestyle in U.S. college students related to living arrangements. *Appetite*. 2008; 51:615–621. [PubMed: 18534714]
- Brunt A, Rhee Y, Zhong L. Differences in dietary patterns among college students according to body mass index. *Journal of American College Health*. 2008; 56(6):629–634. [PubMed: 18477517]
- Carroll S, Lee R, Kaur H, Harris K, Strother M, Huang T. Smoking, weight loss intention and obesity-promoting behaviors in college students. *Journal of American College Nutrition*. 2006; 25(4):348–353.
- Desai MN, Miller WC, Staples B, Bravender T. Risk factors associated with overweight and obesity in college students. *Journal of American College Health*. 2008; 57(1):109–114. [PubMed: 18682353]
- Elgar FJ, Stewart JM. Validity of self-report screening for overweight and obesity: Evidence from the Canadian community health survey. *Canadian Journal of Public Health*. 2008; 99(5):423–428. [PubMed: 19009930]
- Fairburn C, Beglin S. Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders*. 1994; 16(4):363–370. [PubMed: 7866415]
- Harring HA, Montgomery K, Hardin J. Perceptions of body weight, weight management strategies and depressive symptoms among US college students. *Journal of American College Health*. 2010; 59(1):43–50. [PubMed: 20670928]
- Hudson J, Hiripi E, Pope H, Kessler R. The prevalence and correlates of eating disorders in a national comorbidity survey replication. *Biological Psychiatry*. 2007; 61:348–358. [PubMed: 16815322]
- Juarascio AS, Perone J, Timko A. Moderators of the relationship between body image dissatisfaction and disordered eating. *Eating Disorders*. 2011; 19(4):346–354.10.1080/10640266.2011.584811 [PubMed: 22352974]
- Kelly-Weeder S. Binge drinking and disordered eating in college students. *Journal of the American Academy of Nurse Practitioners*. 2011; 23:33–41.10.1111/j.1745-7599.2010.00568.x [PubMed: 21208332]
- Kelly-Weeder S, Edwards E. Co-occurring binge eating and binge drinking in college women. *Journal for Nurse Practitioner*. 2011; 7:207–213.
- Kelly-Weeder S, Jennings K, Wolfe B. Gender differences in binge eating and behavioral correlates among college students. *Eating and Weight Disorders*. in press.
- Keown TL, Smith CB, Harris MS. Metabolic syndrome among college students. *The Journal for Nurse Practitioners*. 2009; 5(10):754–759.
- Kluck AS. Family influence on disordered eating: the role of body image dissatisfaction. *Body Image*. 2010; 7:8–14. [PubMed: 19945366]
- Laska M, Pasch K, Lust K, Story M, Ehlinger E. The differential prevalence of obesity and related behaviors in two vs. four year colleges. *Obesity*. 2011; 19:453–456. [PubMed: 20966910]
- Lin DC. Actual measurement of body weight and height are essential: Most self-reported weight and height s are unreliable. *Nutrition Today*. 2007; 42(6):263–266.
- Lloyd-Richardson EE, Bailey S, Fava JL, Wing R. A prospective study of weight gain during the college freshman and sophomore years. *Preventative Medicine*. 2009; 48:256–261.
- Loth K, Van Den Berg P, Eisenberg ME, Nuemark-Sztainer D. Stressful life events and disordered eating behaviors: Findings from project EAT. *Journal of Adolescent Health*. 2008; 43:514–516. [PubMed: 18848681]

- Luce K, Engler P, Crowther J. Eating disorders and alcohol use: Group differences in consumption rates and drinking motives. *Eating Behaviors*. 2007; 8(2):177–184. [PubMed: 17336788]
- Mintz L, Betz N. Prevalence and correlates of eating disordered behaviors among undergraduate women. *Journal of Counseling Psychology*. 1988; 35:463–471.
- Mond JM, Calogero RM. Excessive exercise in eating disorder patients and in healthy women. *Australian & New Zealand Journal of Psychiatry*. 2009; 43(3):227–234. [PubMed: 19221911]
- Moore M, Welch C. Relationship between vigorous exercise frequency and substance use among first year drinking college students. *Journal of American College Health*. 2008; 56(6):686–690. [PubMed: 18477525]
- Napolitano MA, Himes S. Race, weight, and correlates of binge eating in female college students. *Eating Behaviors*. 2011; 12(1):29–36. [PubMed: 21184970]
- Nelson MC, Story M, Larson NI, Sztainer DN, Lytle L. Emerging adulthood and college-aged youth: an overlooked age for weight-related behavior change. *Obesity*. 2008; 16:2205–2211.10.1038/oby.2008.365 [PubMed: 18719665]
- Nelson TF, Gortmaker SL, Subramanian SV, Cheung L, Wechsler H. Disparities in overweight and obesity among US college students. *American Journal of Health Behavior*. 2007; 31(4):363–373. [PubMed: 17511571]
- Ogden, CL.; Carroll, MD. Prevalence of overweight, obesity, and extreme obesity among adults: United States, trends 1960–1962 through 2007–2008. National Center for Health Statistics, Centers for Disease Control and Prevention. 2010. Retrieved March 13, 2012 from www.cdc.gov/nchs/data/.../obesity_adult.../obesity_adult_07_08.htm
- Pribis P, Burtneck CA, McKenzie SO, Thayer J. Trends in body fat, body mass index and physical fitness among male and female college students. *Nutrients*. 2010; 2:1075–1085.10.3390/nu2101075 [PubMed: 22253998]
- Pritchard M. Disordered eating in undergraduates: Does gender role orientation influence men and women the same way? *Sex Roles*. 2008; 59:282–289.
- Ratanasiripong P, Burkey H. Body mass index and body size perception: A normalizing of overweight and obesity among diverse college students. *Californian Journal of Health Promotion*. 2011; 9(1): 18–24.
- Saules K, Collings A, Hoodin F, Angelella N, Alschuler K, Ivezaj V, Saunders-Scott D, Wiedemann A. The contributions of weight problem perception, BMI, gender, mood, and smoking status to binge eating among college students. *Eating Behaviors*. 2009; 10:1–9. [PubMed: 19171310]
- Seo D, Nehl E, Agle J, Ma S. Relations between physical activity and behavioral and perceptual correlates among midwestern college students. *Journal of American College Health*. 2007; 56(2): 187–197. [PubMed: 17967767]
- Stice E, Shaw H. Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin*. 2004; 130(2):206–227. [PubMed: 14979770]
- Stunkard AJ. Eating disorders and obesity. *Psychiatric Clinics of North America*. 2011; 34(4):765–771.10.1016/j.psc.2011.08.010 [PubMed: 22098802]
- Sulkowski M, Dempsey J, Dempsey A. Effects of stress and coping on binge eating in female college students. *Eating Behaviors*. 2011; 12(3):188–191. [PubMed: 21741016]
- Vartanian LR, Germeroth LJ. Accuracy in estimating the body weight of self and others: impact of dietary restraint and BMI. *Body Image*. 2011; 8:415–418. [PubMed: 21839694]
- Watkins JA, Christie C, Chally P. Relationship between body image and body mass index in college men. *Journal of American College Health*. 2008; 57(1):95–100. [PubMed: 18682351]
- Weiss J, Merrill V, Gritz E. Ethnic variation in the association between weight concern and adolescent smoking. *Addictive Behaviors*. 2007; 32:2311–2316. [PubMed: 17307301]
- Wharton CM, Adams T, Hampl JS. Weight loss practices and body weight perceptions among US college students. *Journal of American College Health*. 2008; 56(5):579–584. [PubMed: 18400672]
- White S, Reynolds-Malear J, Cordero E. Disordered eating and the use of unhealthy weight control methods in college students: 1995, 2002, and 2008. *Eating Disorders*. 2011; 19(4):323–334. [PubMed: 22352972]

Table 1

Sample characteristics (N=487)

Characteristic	N	%
Gender		
Male	239	49.1
Female	248	50.9
Race		
Caucasian	376	77.53
Black	20	4.12
Hispanic	19	3.92
Asian	40	8.25
Other	29	6.19
Living Arrangements		
On campus	404	83.1
Off campus	82	16.9
Permanent Residence		
Northeastern US	347	71.25
Southeastern US	32	6.57
Midwest US	47	9.65
Southwestern US	20	4.11
Northwestern US	12	2.67
Outside of US	18	5.75
Weight Perception		
Extremely thin	0	0
Moderately thin	6	1.23
Slightly thin	11	2.26
Normal weight	123	25.26
Slightly overweight	205	42.09
Moderately overweight	119	24.44
Extremely overweight	23	4.72

Table 2

Gender Differences

Behavior	Male (n=239)	Female (n=248)	χ^2 with p value
Use of compensatory behaviors (N=30)	7 (2.93%)	23 (9.27%)	$\chi^2=8.48$; p=0.004
Exercise to lose weight	143 (59.83%)	165 (66.53)	$\chi^2=2.35$; p=0.125
Current smoking	35 (15.84%)	19 (8.30)	$\chi^2=6.06$; 0.014
BMI			
>25 (overweight)	198 (51.70%)	185 (48.30%)	$\chi^2=4.93$; p=0.026
>30 (obese)	41 (39.42%)	63 (60.58%)	
Weight Perception			$\chi^2=28.89$; p=0.000
Extremely thin	0	0	
Moderately thin	1 (0.42%)	5 (2.02%)	
Slightly thin	7 (2.93%)	4 (1.61%)	
Normal weight	79 (33.05%)	44 (17.74%)	
Slightly overweight	104 (43.51%)	101 (40.73%)	
Moderately overweight	42 (17.57%)	77 (31.05%)	
Extremely overweight	6 (2.52%)	17 (6.85%)	