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## Assessing Prevalence of Eating Disorders Among College Students

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The University of Southern Mississippi

Assessing Prevalence of Eating Disorders Among College Students

by

Taylor Duncan

A Thesis

Submitted to the Honors College of  
The University of Southern Mississippi  
in Partial Fulfillment  
of Honors Requirements

December 2019



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## **Abstract**

Eating disorders have become a subject of concern for college-aged young adults in recent years. Risk factors like social media use are contributing to an increase in affected students, and research suggests that gender along with other variables plays a significant role. This thesis examined the current research on eating disorders and risk factors associated with their development. Through an online survey, information from freshman, sophomore, junior, senior, and graduate students at The University of Southern Mississippi regarding their current eating behaviors, feelings toward food and body, and demographic information was collected. Data collected indicated the student population's level of disordered eating, which was compared with the findings of previous research.

Keywords: eating disorders, anorexia, bulimia, binge eating disorder, social media, shape, weight

## **Dedication**

*For Owen, who tried to kick the computer off of my belly at most of my writing sessions. Thank you for staying put just long enough for Mommy to finish this project, and know that perseverance will take you places you did not think you could go.*

*I love you.*

## **Acknowledgements**

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## Table of Contents

List of Tables.....	viii
List of Figures.....	ix
List of Abbreviations.....	x
Chapter 1: Introduction.....	1
Chapter 2: Literature Review.....	7
Chapter 3: Methodology.....	16
Chapter 4: Results.....	19
Chapter 5: Discussion.....	24
References.....	26
Appendices.....	32

## **List of Tables**

Table 1. Characteristics Among College Students at The University of Southern Mississippi.....	19
Table 2. Mean EDE-Q Subscale scores of College Students at The University of Southern Mississippi.....	22
Table 3. Correlation between Social Media Scores and EDE-Q Subscale Scores ....	23

## List of Figures

Figure 1. Mean scores for Eating, Weight, and Shape Concern subscales by grade classification.....	21
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## **List of Abbreviations**

APA	American Psychological Association
AN	Anorexia nervosa
BED	Binge eating disorder
BN	Bulimia nervosa
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
ED	Eating disorder
EDNOS	Eating disorder not otherwise specified
EDE-Q	Eating Disorder Examination Questionnaire
OSFED	Otherwise specified eating disorder



## **Chapter 1: Introduction**

Health and fitness have become iconic words in today's health-conscious society, but dieting can become dangerous if it evolves into an eating disorder. The most common types of eating disorders (EDs) outlined in the most recent edition of the DSM-5 (2013), the Diagnostic and Statistical Manual of Mental Disorders, are anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED). Today's technology, particularly social media, may also play a key role in the development of eating disorders.

### **Anorexia Nervosa**

Anorexia nervosa (AN) involves the restriction of energy intake leading to a significantly low body weight in the context of age, sex, and physical health. A patient may also present with a fear of gaining weight and/or a disturbance in the way one's body is perceived (American Psychiatric Association, 2013). An estimated 1% of American women suffer from AN in their lifetime (Hudson et al., 2007). It is the third most common chronic disease in adolescent girls. There are two subtypes that clinicians usually distinguish between when treating affected individuals: restricting and purging. Purging could include vomiting but more often is exhibited in the form of excessive and/or compulsive exercise or diuretic misuse. This psychological disorder, given its characteristic physical manifestations, carries high risk for severe and chronic damage to the body. Electrolyte disturbance and damage to the gastrointestinal tract, often including the abuse of laxatives, is not uncommon. Those with AN are also more likely to experience varying severities of osteoporosis, infertility (given that the menstrual cycle ceases in clinical AN), cardiovascular disease, and a myriad of other health conditions (Meczekalski et al., 2013).

Previous research indicates that sub-threshold AN, which falls just short of meeting all criteria for diagnosis, occurs in 1.1% to 3.0% of adolescent females (Stice & Bohon, 2012). These girls tend to experiment with dieting several times throughout adolescence before the disorder fully manifests. Influences like media exposure, pressures for thinness, and thin-ideal internalization contribute to these desires for young girls to diet. If a young woman also has personality characteristics such as neuroticism, perfectionism, and negative urgency or the “tendency to act rashly while distressed” (Fischer, Wonderlich, & Becker, 2018), she might be at greater risk for an ED. Biological factors can also be elements of risk, such as serotonin disturbances and, in AN, dopamine disturbances (Culbert et al., 2015). Anorexia nervosa or highly restrictive eating behaviors have the highest death rate of all eating disorders (Fichter et al., 2016).

### **Bulimia Nervosa**

According to the DSM-5 (2013), bulimia nervosa (BN) is characterized by recurrent episodes of binge eating, when a person consumes an abnormal amount of food in a short time, followed by episodes of purging. This purging is an attempt to rid the body of the calories from the binge that might otherwise cause weight gain. Purging activities may include vomiting, laxative (or other diuretic medication) misuse, fasting, and excessive exercise. For a clinical diagnosis, this pattern must occur at least once a week for three months, on average (APA, 2013). Around 1.5% of American women suffer from BN in their lifetime (Hudson et al., 2007). The oral cavity and esophagus can suffer extreme damage from chronic vomiting due to the acidic nature of vomit, so, as in AN, healing and treatment of the body are necessary components of the recovery process.

## **Binge Eating Disorder**

Binge eating disorder (BED) is classified as an ED marked by recurrent and persistent episodes of binge eating including eating faster than normal, eating large amounts of food without the presence of hunger, and feeling shameful or depressed after overeating. Additionally, substantial distress over binge eating and the absence of purging behaviors are requirements for diagnosis, along with the stipulation that the pattern must occur at least once a week for three months. Binge Eating Disorder (BED) is the most common ED in the United States. It affects 3.5% of adult women, 2% of adult men, and up to 1.6% of adolescents (Swanson et al., 2011).

## **Subclinical Eating Disorders**

A pattern of disordered eating behavior that is labeled as sub-threshold (not quite meeting diagnostic requirements of AN, BN, or BED) and/or atypical is still considered hazardous to one's health and is now defined in the DSM-5 (APA, 2013). What was previously diagnosed as EDNOS ("eating disorder not otherwise specified"), an ED that does not fit the criteria of AN, BN, or BED, is now called OSFED, which stands for "other specified feeding or eating disorder." An OSFED also has a few subtypes; these include: atypical AN (i.e., anorexic features without low weight), BN (of low frequency and/or limited duration), BED (of low frequency and/or limited duration), purging disorder, and night eating syndrome.

Subclinical EDs may be a prodromal phase, or precursor, leading up to a full diagnosis (Touchette et al., 2010). Another study also found that the highest depressive scores were found in adolescents presenting with subclinical BED and BN, with anxiety symptoms also present more in adolescents who leaned toward bulimic behaviors (Levinson & Rodebaugh, 2011).

Research has indicated that adolescent girls are most at risk for eating disorders; however, men are at risk as well (Strother et al., 2012). Possible contributing influences of



disordered eating include low self-esteem, distorted body image, lack of adequate coping skills, and personality traits like rigidity and compulsivity. Primary care physicians are not trained well enough in identifying EDs, so those who are suffering may go largely under the radar (Linville et al., 2010). Further, when patients do receive a medical evaluation and diagnosis, insurance companies often do not cover care, which further complicates the treatment process (Morton, 2016).

The social implications of EDs manifest in the causation as well as the maintenance of the destructive behaviors. Society touts weight-loss as an all-purpose solution to body dissatisfaction, and this can be particularly dangerous for those already prone to thoughts of self-doubt and self-consciousness (Mehler & Andersen, 2017). Experts claim that EDs really are not about food at all but in fact are coping mechanisms and ill-fit solutions to underlying issues such as untreated depression or relationship difficulties.

### **Social Media**

Current literature suggests that social media is a risk factor for the development of EDs (Mabe et al., 2014). Online platforms discussing disordered eating behavior and recovery can disguise more malicious intentions to promote EDs as part of a lifestyle choice. Accessing social media, along with exposure to thin-ideal media portrayals are thought to increase risk of developing an ED (Tiggeman & Slater, 2013).

The present study focuses on the eating and dieting behaviors of male and female students at the University of Southern Mississippi and their feelings toward food and body. The purpose of this study was to identify how much of the student population engages in eating patterns or behaviors that could potentially be disordered. A secondary objective was to explore

the relationship between social media use and disordered eating patterns. This research aimed to answer the following questions:

- 1) What are the participant characteristics among the student body regarding disordered eating behaviors?
- 2) What are the mean Global scale scores of the student body indicating disordered eating behaviors? Of those students engaging in disordered eating, what percentage of students engage in restrictive and bulimic behaviors?
- 3) Is there a difference in mean Global scores within the student body demographic variables (i.e., age groups, gender, grade classification, major, sexual identity)?
- 4) Do some majors and athletes (i.e., biology, business, dance, psychology, and nutrition) have greater dissatisfaction or discomfort with their weight or shape than students in other majors?
- 5) What is the relationship between BMI (Body Mass Index) based on self-reported weight and height and disordered eating patterns, as reflected in the mean Global score?
- 6) How do students feel about how others regard their bodies?
- 7) What is the relationship between social media use and students with disordered eating patterns?

## **Chapter 2: Literature Review**

Anorexia nervosa (AN), perhaps the most widely known and earliest defined ED, has been documented in the literature since the seventeenth century, with the term being introduced by Queen Victoria's personal physician, Sir William Gull, in 1874 (Niedzielski, Kaźmierczak, & Grzybowski, 2017). The term is of Greek origin and translates to “nervous absence of appetite.” Even from these earliest cases, it is detailed that those affected were mainly teenage girls (Palmer, Mensh, & Matarazzo, 1952). Researchers then surmised that the reason behind this behavior was not simply loss of appetite as they had thought, but had more complex origins such as the symbolic nature of eating (excess, gluttony, guilt, etc.), personality traits, and the elements of puberty and sexuality based on Freudian theory (Bemporad et al., 1992).

Eating disorders have been documented since the case of St. Catherine of Siena (1347–1380 AD), who suffered an intense form of holy fasting, her condition now thought to have been the first case of AN though it is different from modern AN given the religious reasoning behind it (Galassi et al., 2018). In the 1900s, professionals began to look at parents to blame for EDs and performed a “parentectomy” in some cases; the patients still were primarily teenage girls. In this procedure, the girls were taken from their parents in hopes of beginning a healing process (Eating Recovery Center, 2018). Today, AN, BN, and BED are more prevalent than ever. The National Eating Disorder Association estimates that roughly 30 million people in the United States suffer from eating disorders, with a figure around 70,000 globally per year (Hudson, Hiripi, Pope, & Kessler, 2007) and (Le Grange, Swanson, Crow, & Merikangas, 2012).

### **Biological, Environmental, and Cultural Influences on Eating Disorders**

There are established biological abnormalities such as imbalance of monoamine neurotransmitters with traits often seen in ED patients and other co-morbid conditions like

obsessive-compulsive disorder and anxiety disorders (Kanakam & Treasure, 2013). Biology may set the stage, but environment seems to play the greatest role in ED development. In U.S. culture, media endorsements of underweight celebrities and more subtle cultural ideals of thinness, such as advertisements for diet foods and drinks, send messages to women and men alike that the best body is a smaller body (Culbert et al., 2015). Slater, Cole, and Fardouly (2019) confirm that the battle against thin-ideal media messages is still ongoing when as part of their research they briefly exposed women to parodies of thin-ideal celebrity Instagram posts, which led to greater body satisfaction than when exposed to thin-ideal posts alone. The parody images provided a “relief” effect to participants and the humor involved may be beneficial in reshaping negative body image and fighting back against media portrayal of the thin-ideal.

At the core of disordered eating are issues related to body image and confidence (Kearney-Cooke & Tieger, 2015). Dietary restraint and compulsive exercise accompany these attitudes, as well as over-prioritization of weight. Along with body image, body size perception is also linked to eating disorder diagnosis, as those with eating disorders are thought to have a disturbance in the way they view their own bodies (Preston & Ehrsson, 2018). Body dysmorphic disorder, a “pathological preoccupation with an imagined or slight physical defect of one’s body to the point of causing significant stress or behavioral impairment” (APA, 2019) can also be comorbid with or a precursor to an ED diagnosis.

### **Risk Factors of Anorexia Nervosa**

From the largest national sample to date of 36,306 U.S. adults who participated in a structured interview, prevalence estimates of lifetime AN, BN, and BED were .07%, .03%, and .05%, respectively, with women having a higher prevalence for all disorders than men (Tomoko et al., 2018). Researchers previously thought that white, middle-class American women were

most at risk for developing EDs and that other populations such as African American women and all men were protected from risk. However, recent studies are showing that gap to be closing, putting all differences in gender, socioeconomic status, and race on a more equal risk level (Harris, 2015). Some men suffer from AN by striving for thinness by means of voluntary starvation, but it might be more common that men suffer from reverse AN. In this case, concerns of muscle size and low body fat percentage, rather than a waif-like physique, are the focuses of disordered eating behavior (Mehler & Andersen, 2017). Reverse AN may be more likely to appear in men who are in a weight or shape-oriented sport such as wrestling or bodybuilding. The analogy could be made that while women aspire to a “thin ideal,” men desire to achieve a “muscular ideal,” which emphasizes muscle mass as well as leanness. It seems that men also engage in negative thought and talk patterns, lamenting they would like to lose more weight or, alternatively, gain more muscle (Ahlich, Choquette, & Rancourt, 2018). Some research has shown that one in four men have engaged in dieting behavior including restricting caloric intake and binge eating behaviors (Lavender et al., 2010). Thirty percent of men in this particular sample also reported that they support intense forms of exercise. These behaviors may not be as compensatory in males as they normally are seen in women. Instead, pathological behavior geared toward muscle gain may be the motive for the appearance of disordered eating patterns in males. Representation of males in current statistics for AN are likely underestimated and it is projected that males make up about 25% of the total anorexic population (Meczekalski et al., 2013). Other risk factors associated with ED risk include perfectionism, co-morbid psychological disorders, social media use, and ascribing to certain communities like LGBTQ+ and athletes and dancers (Hilbert et. al., 2016).

## **Perfectionism**

Perfectionism is a known contributor to ED risk, and those who have recovered still show heightened levels of this personality characteristic. Perfectionism may not be related to the outcome of a person's treatment but seems to be correlated with the length of time it will take a patient to fully recover from the disorder (Bardone-Cone et al., 2010). Perfectionism can make a person especially vulnerable to the development of an ED, and it can also contribute to anxiety and depression, which are additional known risk factors. Rigidly high standards, along with perfectionism, are necessary to target in treatment due to their close involvement in developing and maintaining an ED (Boone et al., 2010).

## **Comorbid Psychological Disorders**

Cases of depression and anxiety have been shown to positively correlate with EDs (Linardon et al., 2018). Depression and emotion regulation directly predict EDs and, for those affected, disordered eating behavior often acts as a moderating or escaping coping mechanism (Prefit & Szentagotai-TĂTAR, 2018). Researchers have found that roughly 65% of patients with AN and BN also qualify for diagnosis of at least one anxiety disorder, with most participants involved in the study indicating that the anxiety disorder preceded the ED (Swinbourne, 2012). Obsessive-compulsive disorder, panic disorder, social phobia, agoraphobia, generalized anxiety disorder, and post-traumatic stress disorder have been linked to all subtypes of EDs in past studies, including varying levels between the subtypes. In one study, 36 out of 1,536 anorexic patients committed suicide; this group battling AN has a particularly high risk, but EDs in general lead to a higher suicide risk. Disordered eating is particularly common amongst college women, and risk increases for women engaging in substance use (Perryman, Barnard, & Rerysen, 2018). Women with anorexia have a twofold risk of having an alcohol use disorder and

being regular smokers. Additionally, women with bulimia are two to three times more likely to have an alcohol or illicit drug use disorder (Baker et al., 2010).

### **Social Media**

Social media often becomes a space for the sharing of ED behaviors among those suffering and even a breeding ground for pro-eating disorder advocacy like MyProAna.com, a website that seemingly promotes a community for healing but also provides “tips and tricks” on how to “diet for weight loss” for visitors (Branley & Covey, 2017). Pro-disorder platforms appear to be more active than pro-recovery platforms, promoting an impossible thin-ideal, sharing dietary intake focused on calories, and reinforcing EDs as part of one’s identity (Wang, Brede, Ianni, & Mentzakis, 2018). Forums on these sites host women discussing their bodies and others’ bodies and threads that often show emaciated images of women in contexts that make them seem goal-oriented. Conversations center around body dissatisfaction and lamentation about body size, making the support “goal” seem only a facade (Dias, 2003). Findings from a recent study purport Twitter users displaying ED psychopathology in their postings are consistent with earlier research, indicating young women ages 15 to 19 are the most common population with EDs (Cavazos-Rehg et al., 2019).

Social media in its display of thin models and celebrities can be especially triggering to individuals who have suffered some form of ED. Research shows that those who have a history of AN rate images as more attractive when the subject is thinner, compared to a control group who recorded the opposite (Sweitzer et al., 2018). A dopamine-linked reward response reinforces these triggers and potentially drives the individual even more toward disordered eating. Internet exposure alone is a risk factor for developing body image disturbances, as the exposure to the thin-ideal is almost guaranteed (Tiggeman & Slater, 2013). A 2014 study found that after only 20

minutes of Facebook use, college women can be observed experiencing an increase in body shape and weight concern (Mabe et al., 2014). This behavior included comparing themselves to friends' photos and untagging themselves in photos they perceived to be unflattering of themselves. Additionally, the study discusses that comments on Facebook such as "you look so thin" perpetuate the thin ideal and may contribute to ED risk.

Photo enhancing on social media platforms is rampant, with apps like FaceTune and its features of skin smoothing, eye brightening, and proportion alteration. This widespread editing of photos consumed by women on Facebook is negatively affecting their self-esteem and body image (Mabe et al., 2014). The fear of self-compassion is a strong contributor of ED symptoms, as found in a sample that compared college students and individuals admitted into inpatient ED treatment facilities. The students' greatest predictor of ED symptoms was shown to be low self-compassion (Kelly et al., 2014). Self-compassion could be a protective factor against EDs, since research shows that a person who has a greater amount of self-compassion physically responds in healthier ways to external stress. The thin-ideal internalization by adolescent girls from sources such as the media is also a prime factor in ED development and body dissatisfaction (Thompson et al., 2001). The thin-ideal is apparent in the fashion industry and the consumer market for women's products. Perhaps the basis of the thin-ideal lies in a collective cultural desire to conform to a body shape that has positive cultural meanings attached (Volonte, 2019). Risk factors like perfectionism, co-morbid psychological disorders, and social media use are all risk factors for the general public for eating disorders, but there are certain groups that are at an even greater risk.



## **High Risk Groups**

According to the National Eating Disorders Association, athletes, dancers, and those in the modeling/fashion and acting industries are more susceptible to societal pressures to maintain a certain body shape and size and are therefore at a greater risk for developing an ED.

Additionally, the LGBTQ+ community experience unique life stressors which make them more vulnerable for the onset of an ED as well.

### **Athletes and Dancers**

Shape-sensitive sports are often the ones that carry the highest ED risk. These include sports like distance running, weight-centered sports like wrestling, and aesthetic sports such as figure skating (Smolak, Murnen, & Ruble, 2000). Athletes in past studies have cited revealing uniforms, coaches, and teammates as sources of pressure (Reel et al., 2010). Additionally, athletes report that when they were sick and unable to train, they engaged in restrictive eating behaviors in order to avoid weight gain while away from practices and rehearsals (Arthur-Cameselle, Sossin, & Quatromoni, 2017). Arthur-Cameselle and Quatromoni (2011) found over 80% of participants reported they experienced poor body image. In the same study, athletes pointed out teammate eating behavior was a heavy influence in their own eating behavior, and researchers conducting the study surmised that competitiveness among teammates may play a role in ED development.

Dancers have been cited in past literature as a vulnerable population to EDs due to the competitive nature and emphasis on low weight (Schnitt & Schnitt, 1986). A study considering the sociocultural factors related to eating disorders in professional ballet dancers in the United States found that ballerinas with EDs had higher scores on the EAT-26, poorer self-image, and lower body weights than those who did not identify as having an ED (Hamilton, Brooks-Gunn,

& Warren, 1985). Additionally, none of the African American dancers reported having AN or BN, while 15% of white dancers reported having AN and 19% reported BN. Level of competition was related to reports of AN, and ethnicity appeared to play a role in reports of both AN and BN.

### **LGBTQ+**

Having a sexual orientation other than straight and a gender identity other than cisgender may increase likelihood of the development of an ED (Diemer et al., 2015). Homosexual men, like heterosexual women, report more body dissatisfaction, pressure to attain a certain body shape, and ED symptomatology. Lesbian women, like heterosexual men, report being more concerned about muscle mass than attaining a thin body shape (Yean et al., 2013). Bell, Rieger, and Hirsch (2019) conducted a study with 97 gay men and 82 lesbian women. Predictors of EDs in this population included depression, perceived stigma, and self-compassion in gay men and depression in lesbian women. In this study, there was also a significant difference between groups in weight-based self-worth (i.e., thinness being a positive physical quality), with the lowest percentage in gay men (63%) and the highest percentage in lesbian women (82%). Gay and bisexual men in one study showed significantly higher prevalence of EDs than heterosexual men. Researchers appealed to clinicians to realize this disparity and to be cognizant of it when screening and diagnosing (Feldman & Meyer, 2007).

### **Conclusion**

Overall, existing research shows that eating disorder risk is high in the collegiate population and especially so when combined with being female, involved in athletics, participating in social media use, and having a co-morbid psychological disorder. Further

research must be done in the population, perhaps with a greater number of participants, to determine accurate correlations.

## **Chapter 3: Methodology**

### **Design of Study**

This quantitative study used survey methodology to measure level of disorder in the eating behaviors and perceptions of students at the University of Southern Mississippi. This study was approved by The University of Southern Mississippi Institutional Review Board (Appendix A).

### **Study Sample and Procedures**

#### **Participants**

Data were collected from students at The University of Southern Mississippi (USM). A convenience sample represented the University's population in this study and included any undergraduate or graduate student 18 years old or older enrolled. Participants were recruited through University-wide emails sent to students once a week over the course of three weeks.

#### **Data Collection Survey**

A copy of the survey used in this study can be found in Appendix B. The survey was developed using items from the Eating Disorder Examination Questionnaire (EDE-Q) 6.0, which was adapted from the original 41-item Eating Disorder Examination Interview (EDE) devised by Cooper & Fairburn (1987). The EDE-Q has been validated and has good concurrent validity and acceptable criterion validity according to Mond, Hay, Rodgers, Owen, and Beumont (2004). It is a 28-item self-report questionnaire and has four sub-scales within a Global scale. These subscales are Restraint, Weight Concern, Shape Concern, and Eating Concern. The first twelve items ask questions regarding behavior over the last 28 days in which a participant can respond from 0 to 6, 0 indicating the particular behavior occurring no days and 6 being every day with 1 to 5 being 5-day increments up to 27 days. Items 13 to 18 ask about how many times (with the

exception of one item, which asks how many days) a particular behavior occurred. Items 19 to 21 ask questions about the participant's feelings and attitudes and use the same 0 to 6 scoring system as the first 12 items. Lastly, items 22 to 28 use a 0 to 6 scale with four descriptors: not all, slightly, moderately, and markedly. To produce a certain subscore, the assigned ratings for individual items (see Appendix C) were added together and averaged to obtain a mean score. To garner an overall (Global) score, the four subscale scores were added together and averaged to obtain an overall mean score with the highest score being 6; higher scores indicate greater disordered eating patterns. Scale scores are reported as means and standard deviations. At the end of this section of the survey, participants were asked to report their current height and weight.

Items 34 to 42 in the survey are questions related to participant social media use and were developed based on the current literature (Cavazos-Rehg et al., 2019). Item 34 asks about social media engagement on specific platforms, and items 35 to 39 ask questions related to social media activity and body image with answer options ranging from never (1) to always (6). Question 40 asks how concerned the student was about how people perceive the way his or her body looks in social media photos with answers ranging from not at all (1) to very concerned (4). Finally, Item 41 asks about how many hours per day the participant spent on social media from less than one hour (1) to greater than five hours (6). The Social Media scale consisted of items 34 to 39.

Demographic questions were asked at the end of the survey and included age, gender, ethnicity, sexual orientation, grade level, and major area of study.

### **Data Collection**

Student participants were recruited to take the online survey in the fall 2019 semester through an email sent out by USM Mailout, which is sent to students once weekly by the USM

Office of Communication. The survey was hosted by Qualtrics to record and organize data as it was retrieved from survey participants. The survey was anonymous, with no associated names or email addresses of the participants recorded with the exception of an option upon completion of the survey to enter an email for a chance to win a \$25 Amazon gift card. At the end of the survey, a referral to USM Counseling Services was provided for students who feel they may have an eating disorder or need to talk with someone about their eating behaviors.

### **Data Analysis**

Data analyses were conducted using IBM SPSS Statistics 25 software to compute means, frequencies, and cross-tabulations of disordered eating behaviors among the student population. Pearson correlations were run to identify relationships between disordered behavior responses, mean scale scores, and body mass index (BMI). Mean scale scores were also compared using independent *t*-tests and ANOVA to examine if there were any significant differences between various student demographics (i.e., age, gender, sexual orientation), grade level, and, major area of study.

## Chapter 4: Results

Participants in the study were largely white females between the ages of 18 and 22, heterosexual, and of normal weight. Demographic data including major areas of study within the sample are shown in Table 1.

Table 1.

*Characteristics among College Students at The University of Southern Mississippi (N = 154)*

Characteristic	<i>n</i>	%
Gender		
Male	14	9.1
Female	137	89.0
Age		
18-22	104	68.4
23-27	19	12.5
28-32	11	7.2
≥32	18	11.8
Major		
Biology	15	19.5
Business	11	14.3
Dance	9	11.7
Psychology	15	19.5
Nutrition	27	35.1

*Table 1 continues.*

Table 1 (continued)

<i>Characteristic</i>	<i>n</i>	<i>%</i>
Sexual Preference		
Gay or lesbian	10	6.5
Straight or heterosexual	117	76.0
Bisexual	20	13.0
Other	3	1.9
I don't know/ prefer not to answer	4	2.6
Ethnicity		
Asian	9	5.8
Black or African American	18	11.7
Hispanic or Latino	4	2.6
White	118	76.6
Two or more of the above	5	3.2
Grade Level		
Freshman	36	23.4
Sophomore	18	11.7
Junior	43	27.9
Senior	28	18.2
Graduate	29	18.8
BMI Category		
Underweight	4	2.6
Normal Weight	85	55.2
Overweight	36	23.4
Obese	29	18.8



Disordered eating patterns were low in this sample, as reflected in the Global mean score of 2.25 ( $SD = 1.44$ ). Although 35.9% of the sample reported feeling fat every day during the last 28 days, only 22.7% reported engaging in restrictive eating behavior over the same period. Additionally, 27.9% of participants reported they did not engage in binge eating behavior over the last 28 days.

There were no significant differences in mean Global scores within participants' genders, sexual identities, age groups, or majors. However, there were significant differences between grade classifications, specifically freshman and juniors, as indicated by Tukey's HSD for eating concern ( $F(4,149) = 2.96, p < .05$ ), weight concern ( $F(4,149) = 3.13, p < .05$ ), and shape concern ( $F(4,149) = 3.079, p < .05$ ) mean subscale scores (Figure).

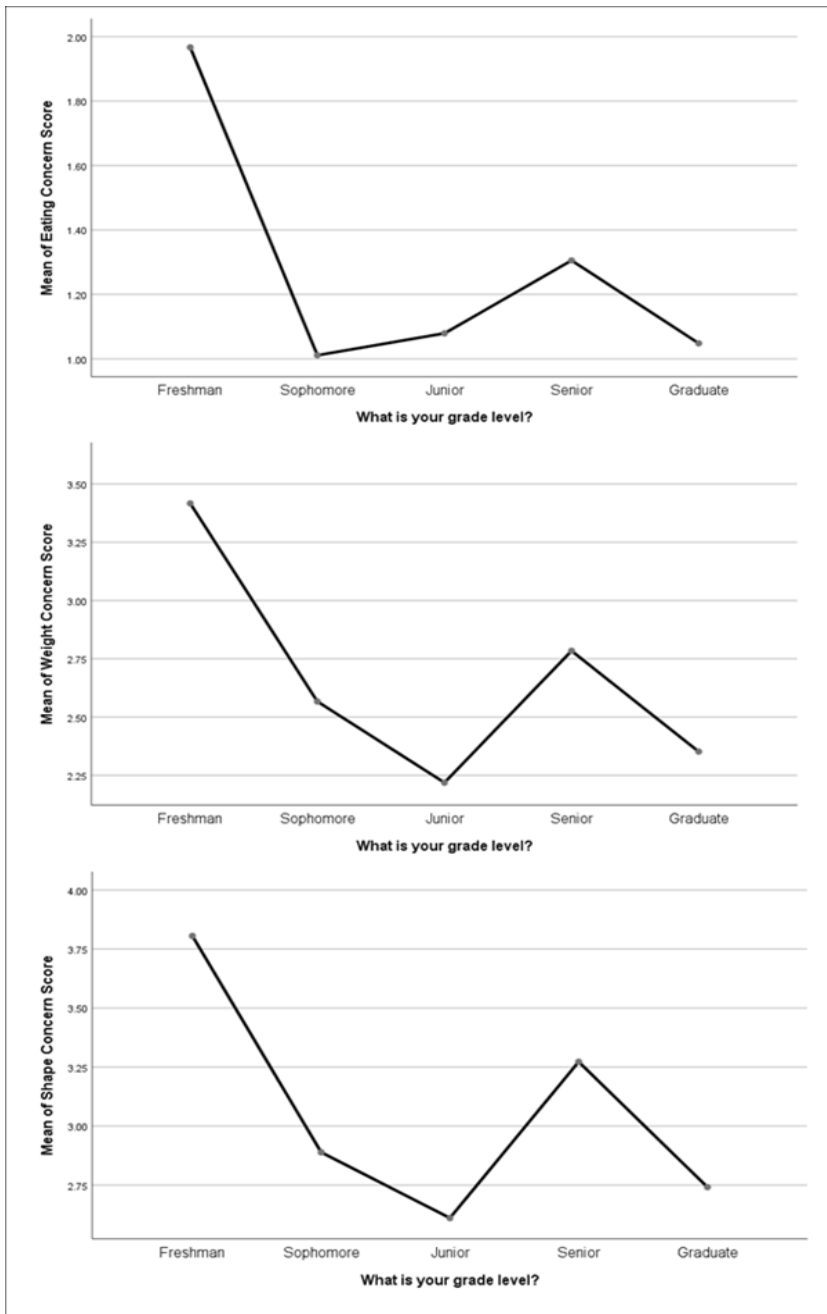


Figure. Mean scores for Eating, Weight, and Shape Concern subscales by grade classification.

A significant linear relationship with a moderate positive correlation was also found between BMI and disordered eating patterns using Global mean scores ( $r(152) = .33, p < .01$ ). Mean scores and standard deviations of the student body sample for the EDE-Q 6.0 subscale scores are shown in Table 2. While there were no significant differences between students' majors and weight and shape concern mean scores, 52% reported being uncomfortable to significantly uncomfortable about others seeing their shape or figure. Further, students majoring in nutrition reported greater dissatisfaction with their weight ( $n/N = 11/27$ ) and shape ( $n/N = 9/27$ ) than students in other majors. Twenty students reported being athletes. Male Global scores were fairly low at 1.57 ( $SD = 1.1$ ). Less than half ( $n = 9$ ) reported being dissatisfied to significantly dissatisfied with their shape and only 7 athletes reported being dissatisfied to significantly dissatisfied with their weight.

Table 2.

*Mean EDE-Q Subscale scores of College Students at The University of Southern Mississippi*

( $N = 154$ )

Subscale Score	<i>M</i>	<i>SD</i>
Restraint Score	1.9688	1.70200
Eating Concern Score	1.3140	1.37836
Shape Concern Score	3.0674	1.69149
Weight Concern Score	2.6672	1.65151

There were strong positive correlations between mean Social Media scale scores and all four mean subscale scores, indicating positive significant linear relationships between variables. Table 3 shows the correlations and descriptive statistics. Out of 154 participants, 44.2% reported they often, usually, or always compared their bodies to others on social media. Additionally,

71.4% of participants felt that social media presents a thin-ideal often, usually, or always, and 24% responded that they often or usually felt negatively about their weight or shape after accessing social media.

Table 3.

*Correlation between Social Media Scores and EDE-Q Subscale Scores (N = 154)*

Variables	Social Media	Restraint	Eating Concern	Shape Concern	Weight Concern
Social Media	1				
Restraint	.502**	1			
Eating Concern	.586**	.666**	1		
Shape Concern	.619**	.655**	.786**	1	
Weight Concern	.604**	.680**	.713**	.892	1

\*\* Correlation is significant at the .01 level (2-tailed)

## Chapter 5: Discussion

The purpose of this study was to assess disordered eating behavior in college students at The University of Southern Mississippi, particularly in relation to social media use and major area of study. Overall, the sample did not express notable disordered eating behaviors. This finding may be due to a limited sample size. The results were consistent with previous research (Tomoko et al., 2018) in that females showed more eating disordered behavior than males. However, our study only included the responses of 14 males, so the sample size could have affected that data. The population seemed to have a greater amount of students who engage in restrictive eating or anorexic behaviors rather than bulimic behaviors. Shape Concern was high in freshman, lower for sophomores and juniors, and then seemed to rise again with the senior population. This high score for freshmen could be due to dieting efforts in reaction to the stigma of the “freshman fifteen” that many college students hear about and subsequently try to avoid gaining (Gow, Trace, & Mazzeo, 2010). The spike in scores for seniors maybe related to increasing upperclassman demands of academic performance as classes become more rigorous, the extra pressure to succeed, and the stress of post-graduation plans (Beiter, Nash, McCrady, Rhoades, Linscomb, Clarahan, & Sammut, 2015).

Shape Concern was the highest concern overall for every grade year, out of all three concern subscales, Shape, Eating, and Weight. Additionally, the data pattern was similar to that of the norming for the scaled scores in the EDE-Q used for the survey (Fairburn & Beglin, 1994) although scores in the present study were slightly elevated. Social Media scores were the most significant correlation, as 69.5% of participants reported comparing their bodies to those in social media photos sometimes, often, usually, or always. Previous research found that athletes were more likely to report engaging in disordered eating patterns (Boone, Soenens, Braet, &

Goossens, 2010) but this study did not find this correlation, probably due to sample size. However, the findings did show that students in nutrition, biology, and psychology majors had increased Global scores compared to the rest of the sample. This could be due to increased knowledge and awareness about EDs, or having a tendency toward disordered eating could be a motivating factor to choose to study and learn more about it in one of these related scientific fields (Korinth, Schiess, & Westenhoefer, 2010).

Limitations include that data were gathered via self-report through an online questionnaire. Taking a survey online introduces distractions, as well as an uncontrolled testing environment that could have affected validity of participant responses. The nature of the survey might also have skewed student responses, as eating behavior is a personal matter. Divulging this information may have been uncomfortable for some, therefore affecting the truthfulness of survey responses. Additionally, small sample size was a limitation. The study only included 154 participants, and a greater population would have allowed for a more conclusive assessment of significant differences and correlations between subgroups of the student population.

Future research should focus on further identifying correlations between risk factors and demographics in relation to disordered eating behaviors, and more specifically, the effects of social media on disordered eating behaviors.

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## Appendix A

### Office of Research Integrity



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### NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-19-334

PROJECT TITLE: EDs

SCHOOL/PROGRAM: School of CAFS, Nutrition and Food Systems

RESEARCHER(S): Jordan Duncan, Holly Huye

IRB COMMITTEE ACTION: Approved

CATEGORY: Expedited

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.

PERIOD OF APPROVAL: September 16, 2019

*Donald Sacco*

**Donald Sacco, Ph.D.**  
**Institutional Review Board Chairperson**

## APPENDIX B

### EATING QUESTIONNAIRE

**Instructions: The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all of the questions. Please only choose one answer for each question. Thank you.**

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.

On how many of the past 28 days .....	No day s	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1    Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2    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?	0	1	2	3	4	5	6
3    Have you <u>tried</u> to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4    Have you <u>tried</u> 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)?	0	1	2	3	4	5	6
5    Have you had a definite desire to have an <u>empty</u> stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6
6    Have you had a definite desire to have a <u>totally flat</u> stomach?	0	1	2	3	4	5	6
7    Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6



8	Has thinking about <u>shape or weight</u> made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9	Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10	Have you had a definite fear that you might gain weight?	0	1	2	3	4	5	6
11	Have you felt fat?	0	1	2	3	4	5	6
12	Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: 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).

Over the past four weeks (28 days).....

13	Over the past 28 days, how many <u>times</u> have you eaten what other people would regard as an <u>unusually large amount of food</u> (given the circumstances)?	..... .....
14	....On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?	..... .....
15	Over the past 28 days, on how many <b>DAYS</b> have such episodes of over-eating occurred (i.e. you have eaten an unusually large amount of food and have had a sense of loss of control at the time)?	..... .....
16	Over the past 28 days, how many <u>times</u> have you made yourself sick (vomit) as a means of controlling your shape or weight?	..... .....
17	Over the past 28 days, how many <u>times</u> have you taken laxatives as a means of controlling your shape or weight?	..... .....

18 Over the past 28 days, how many times have you exercised in a "driven" or "compulsive" way as a means of controlling your weight, shape or amount of fat or to burn off calories? .....

Questions 19-21: 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.

19	Over the past 28 days, on how many days have you eaten in secret (ie, furtively)?. Do not count episodes of binge eating	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
		0	1	2	3	4	5	6
20	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	None of the times	A few of the times	Less than half	Half of the times	More than half	Most of the time	Every time
		0	1	2	3	4	5	6
21	Over the past 28 days, how concerned have you been about other people seeing you eat? .....Do not count episodes of binge eating	Not at all		Slightly		Moderately		Markedly
		0	1	2	3	4	5	6

Questions 22-28: Please circle the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days)

On how many of the past 28 days .....		Not at all	Slightly	Moderately	Markedly
22	Has your <u>weight</u> influenced how you think about (judge) yourself as a person?	0	1	2 3	4 5 6
23	Has your <u>shape</u> influenced how you think about (judge) yourself as a person?	0	1	2 3	4 5 6

24	How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6
25	How dissatisfied have you been with your <u>weight</u> ?	0	1	2	3	4	5	6
26	How dissatisfied have you been with your <u>shape</u> ?	0	1	2	3	4	5	6
27	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)?	0	1	2	3	4	5	6
28	How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6

29. What is your weight at present? (Please give your best estimate). .....

30. What is your height? (Please give your best estimate). .....

31. If female: Over the past three-to-four months have you missed any menstrual periods? .....

31a. If so, how many? .....

32. Have you been taking the "pill"?  
.....

EDE-Q reproduced with permission. Fairburn and Beglin (2008). In Fairburn, C. G. (2008). *Cognitive Behavior Therapy and Eating Disorders*. Guilford Press, New York.

## Section II Social Media Usage

Please choose the best response regarding your usage of social media.

33. Which of these social media applications do you use? Choose all that apply.

- Facebook
- Twitter
- YouTube
- Instagram
- I do not use social media applications.

34. Do you save photos from social media accounts or the Internet as "thinspiration" or "body goals"?

- Never
- Rarely
- Sometimes
- Often
- Usually
- Always

35. Do you access pro-anorexia or pro-bulimia sites on the Internet?

- Never
- Rarely
- Sometimes
- Often
- Usually
- Always

36. Do you compare your body to others' on social media?

- Never
- Rarely
- Sometimes
- Often
- Usually
- Always

37. Do you feel that social media encourages and presents a thin-ideal?

- Never
- Rarely
- Sometimes
- Often
- Usually
- Always

38. Do you feel negatively about your body weight or shape after accessing social media?

- Never
- Rarely
- Sometimes
- Often
- Usually

Always

39. Do you digitally enhance your photos (i.e. FaceTune, or other body editing) before posting?

- Never
- Rarely
- Sometimes
- Often
- Usually
- Always

40. How concerned are you about how people perceive the way your body looks in social media photos?

- Not at all
- Slightly
- Moderately
- Very concerned

0

41. How many hours do you estimate you spend a day on social media?

- < 1 hour
- 1-2 hours
- 2 to 3 hours
- 3 to 4 hours
- 4 to 5 hours
- >5 hours

### **Section III. Participant Characteristics**

Please tell us about yourself. Answer the following questions or choose the best response.

42. What is your age? \_\_\_\_\_

43. What is your grade level?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

44. What is your major area of study?

- Biology
- Business
- Dance
- History
- Mathematics
- Music
- Nutrition

- Theatre
- Other \_\_\_\_\_

45. Are you an athlete? Yes No

If yes, what sport do you participate in? \_\_\_\_\_

46. Which response best describes your ethnicity?

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Two or more of the above

47. Which of the following gender identities do you most identify?

- Female
- Male
- Transgender Female
- Transgender Male
- Gender Variant/Non-conforming
- Other \_\_\_\_\_
- Prefer not to answer

48. Which response describes how you think of yourself?

- Gay or Lesbian
- Straight or heterosexual
- Bisexual
- Other \_\_\_\_\_
- I don't know/Prefer not to answer

If you feel that you may have an eating disorder, you can find treatment professionals in your area by contacting the National Eating Disorders Association (NEDA) Helpline Monday through Thursday, 9am-9pm or Friday 9am-5pm ET at (800) 931-2237 or [www.nationaleatingdisorders.org/helplinechat](http://www.nationaleatingdisorders.org/helplinechat). The University of Southern Mississippi's Student Counseling Services offers free and confidential mental health services to currently enrolled students and their office can be reached at (601) 266-4829.

## APPENDIX C



**Scoring:** The EDE, and its self-reported versions, EDE-Q, generate two types of data. First, they provide frequency data on key behavioral features of eating disorders in terms of number of episodes of the behavior and in some instances number of days on which the behavior has occurred. Second, they provide subscale scores reflecting the severity of aspects of the psychopathology of eating disorders. The subscales are Restraint, Eating Concern, Shape Concern and Weight Concern. To obtain a particular subscale score, the ratings for the relevant items (listed below) are added together and the sum divided by the total number of items forming the subscales. If ratings are only available on some items, a score may nevertheless be obtained by dividing the resulting total by the number of rated items so long as more than half the items have been rated. To obtain an overall or “global” score, the four subscales scores are summed and the resulting total divided by the number of subscales (i.e. four). Subscales score are reported as means and standard deviations.

### Subscale Items

#### Restraint

- 1 Restraint over eating
- 2 Avoidance of eating
- 3 Food avoidance
- 4 Dietary Rules
- 5 Empty stomach

#### Eating Concern

- 7 Preoccupation with food, eating or calories
- 9 Fear of losing control over eating
- 19 Eating in secret 21 Social eating
- 20 Guilt about eating

#### Shape Concern

- 6 Flat stomach
- 8 Preoccupation with shape or weight
- 23 Importance of shape
- 10 Fear of weight gain
- 26 Dissatisfaction with shape
- 27 Discomfort seeing body
- 28 Avoidance of exposure
- 11 Feelings of fatness

#### Weight Concern

- 22 Importance of weight
- 24 Reaction to prescribed weighing
- 8 Preoccupation with shape or weight

25 Dissatisfaction with weight  
12 Desire to lose weight

Protocol source: <https://www.phenxtoolkit.org/protocols/view/230104#Source>