UNLV Theses, Dissertations, Professional Papers, and Capstones

5-1-2022

Psychometric Properties of the Eating Disorder Examination Questionnaire: Factor Analysis and Measurement Invariance by the Intersection of Race and Gender

Jessica H. Habashy

Follow this and additional works at: https://digitalscholarship.unlv.edu/thesesdissertations

Part of the Psychology Commons

PSYCHOMETRIC PROPERTIES OF THE EATING DISORDER EXAMINATION

QUESTIONNAIRE: FACTOR ANALYSIS AND MEASUREMENT

INVARIANCE BY THE INTERSECTION OF

RACE AND GENDER

By

Jessica H. Habashy

Bachelor of Arts – Psychology
University of Nevada, Las Vegas
2017

A thesis submitted in partial fulfillment
of the requirements for the

Master of Arts – Clinical Psychology

Department of Psychology
College of Liberal Arts
The Graduate College

University of Nevada, Las Vegas
May 2022

Abstract

The Eating Disorder Examination Questionnaire (EDE-Q) was originally validated in non-Hispanic White women and over the past two decades has become widely used as an eating pathology screening measure in college students. However, the original factor structure has generally failed to replicate across most studies, particularly among culturally diverse samples. The current study examined the factor structure and measurement invariance of the EDE-Q in a large sample of gender and racially/ethnically diverse college students. Participants included a racially and ethnically diverse sample of men and women from two universities. I first conducted exploratory factory analysis (EFA) to examine the factor structure of the EDE-Q, followed by confirmatory factor analysis (CFA) to verify the factor structure in order to establish the configural model. Next, I explored measurement invariance with the configural model by gender and race/ethnicity. CFA supported a three-factor, 10-item measure reflecting dietary restraint, preoccupation and eating concern, and shape/weight overvaluation. This measure achieved strict invariance by gender and race/ethnicity. Women, relative to men, reported higher scores for shape/weight overvaluation and preoccupation and eating concern. Significant differences among racial and ethnic groups were found among shape/weight overvaluation in which Hispanic individuals endorsed the highest scores. The three-factor, 10-item measure is a brief, valid, and reliable measure of eating disorder psychopathology for US college students. Routine screening of eating disorders among college campuses using this modified measure may promote early identification of eating disorders among young adults.

Table of Contents

List of Tables

List of Figures

Chapter 1 – Introduction

Eating disorders are severe psychiatric illnesses that broadly include abnormal disturbances in eating behaviors and significant body weight and shape concerns (American Psychiatric Association [APA], 2013). The primary eating disorders recognized in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) include anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED; APA], 2013). Recovery from an eating disorder can be prolonged, and mortality rates are among the highest of any psychiatric illness (Klump et al., 2009). For instance, AN has the highest mortality rate of any psychiatric disorder with 20% of individuals prematurely dying from complications related to AN (e.g., suicide, heart problems; Arcelus et al., 2011). Furthermore, many individuals suffer from clinically significant eating disorder symptoms, but do not meet full threshold DSM-5 criteria for these primary eating disorders, resulting in an "other" diagnosis (Other Specified or Unspecified Feeding or Eating Disorder, APA, 2013).

Recently, in the guidelines of the 11th Revision of the International Classification of Diseases (ICD-11), BED was added as an eating disorder category instead of merely an "other specified" eating disorder as previously seen in the 10th Revision of the International Classification of Diseases (ICD-10; Reed et al., 2019). Additionally, guidelines for defining a binge episode were altered such that the key characteristic of binge eating is a sense of loss of control. As previously mentioned in the ICD-10, a "binge eating episode" referred solely to 'objective' ones in which the individual eats an amount of food that is larger than most people would eat under similar circumstances (Reed et al., 2019). ICD-11 has updated its diagnostic guidelines to also include 'subjective,' episodes involving eating amounts of food that may be objectively within normal limits but are subjectively observed as large by the individual. This

adaption is particularly important, as it is the loss of control and perception of overeating that is the distressing aspect of the binge episode (Reed et al., 2019).

Specific disordered eating symptoms that are often present in individuals suffering from eating disorders, include: body dissatisfaction (i.e. negative subjective evaluation of the weight and shape of one's own body), weight preoccupation (i.e. thoughts about thinness and concern with body fat), dietary restraint (i.e., the intention to restrict food intake in order to control body weight), binge eating (i.e., consumption of an unusually large amount of food and feeling unable to stop eating), and use of inappropriate compensatory behaviors (e.g., self-induced vomiting, laxative abuse) for weight management (see Table 1 for definitions). According to previous research, 80% of men and women from the UK chose an "ideal" body that differs from their own body shape, which is closely associated with their dieting behaviors (Furnham et al., 2002). In a United States (US) sample, 13.4%-31.8% of women reported body dissatisfaction and 9.0%-24.8% of men reported body dissatisfaction (Fallon et al., 2014). Additionally, high levels of disordered eating symptoms (e.g., body weight/shape concerns; Jacobi et al., 2004) have been shown to prospectively predict subsequent onset of eating disorders. Thus, the examination of disordered eating symptoms likely has etiologic relevance to full threshold eating disorder pathology.

Across the globe, the exact etiology of eating disorders is unknown; however, risk for eating pathology is multi-faceted – spanning genetic and biological, environmental, psychological, and sociocultural influences (for a review, see Culbert et al., 2015). Prior research has indicated that eating disorders are highly heritable, associated with changes in neurological performance resulting in impairments in cognitive functioning and emotional stability (Klump et al., 2009). Eating disorders are also strongly associated with sociocultural effects (e.g., media

exposure, family, peers) related to the preoccupation of physical appearance and beauty (Derenne & Baresin, 2006). Considering this collection of factors that may contribute to eating pathology, those with eating disorders often use food and their bodies to cope with external and internal stressors (Payton, 2014). As a result, eating disordered behaviors can become self-perpetuating, leading to ritualistic behaviors that are often reinforced physiologically and psychologically (Academy for Eating Disorders, 2012). Ultimately, these maladaptive behaviors result in significant impairments in cognitive (e.g., unusual preoccupation with food, weight, and shape), physical (e.g., gastrointestinal distress, hair loss, edema, compromised cardiac functioning; Academy for Eating Disorders, 2012), psychological (e.g., feelings of guilt, irritability, depression, anxiety), and social functioning (i.e., increased social isolation).

While extant epidemiologic studies reveal diversity among individuals with eating disorder symptomology in terms of race/ethnicity, socioeconomic background, and gender (Hudson et al., 2007; Swanson et al., 2011), eating disorders remain under-diagnosed and under-treated in community samples (Hart et al., 2011). Thus far, research has been predominately conducted using clinical samples of mostly White women; the lack of gender and race/ethnicity in studies examining eating disorders may further perpetuate stereotypes of those who do and do not seek treatment (Mulders-Jones et al., 2017). Currently, there remains a desperate need for the measurement and assessment in various demographic sectors to identify useful diagnostic tools for screening eating disorders in diverse groups.

Chapter 2 – Literature Review

Screening for Eating Disorders

Prevalence of Eating Disorders

Prevalence estimates are not presented for all eating disorders published in the DSM-5 due to the range of eating-disordered behaviors (APA, 2013). However, the National Institute of Mental Health (NIMH), based on a National Comorbidity Survey Replication (Hudson et al., 2007), approximated that between five and ten million women and around one million men in the US have an eating disorder diagnosis. Existing research refutes the original notion that eating disorders *only* affect White middle class young women by providing evidence that no socioeconomic or ethnic group is immune from developing an eating disorder (Golden, 2003). Indeed, rates of disordered eating have increased across all US demographic sectors. Particularly, prevalence has occurred at a faster rate among male, lower socioeconomic, and older individuals (Mitchison et al., 2014). To develop effective screening and treatment interventions for individuals living in the US with eating disorders, further research is needed to ensure that studies are more representative across gender, racial/ethnic background, and the lifespan.

Eating Disorders among Adolescents

The onset of eating disorders often develops during adolescence with the highest prevalence being in adolescent girls (APA, 2013). Eating disorders are the third most common chronic condition in adolescents (Kalisvaart & Hergenroeder, 2007). In a longitudinal study of 496 adolescent girls, 5.2% met criteria for AN, BN, or BED. Moreover, a total of 13.2% reported disordered eating symptoms by age 20 (Stice et al., 2010). The lifetime prevalence of AN, BN, and BED in adolescent girls are 0.3%, 0.9%, and 1.6%, respectively (Stice et al., 2010). In community samples, there have been an increase in rates of US adolescent boys diagnosed with

eating disorders with no significant difference between gender in clinical severity of symptoms (Gorrell & Murray, 2019).

Prior research has revealed increased prevalence rates of disordered eating within ethnic minority youth (e.g., Black, Hispanic, Asian American; Golden et al., 2015). Additionally, previous research has reported that Hispanic adolescents were significantly more likely to suffer from BN than non-Hispanic peers. In fact, there was a higher prevalence of BED in all minority groups compared to White adolescents (Swanson et al., 2011). Goeree and colleagues (2011) found that Black teenagers are 50% more likely than White teenagers to endorse symptoms of bulimia (i.e., bingeing and purging) which is consistent with previous findings suggesting higher symptoms of bulimia in Black adolescent girls than White adolescent girls (Striegel-Moore et al., 2000). Researchers also reported that teenage girls from low-income families are 153% more likely to exhibit symptoms of bulimia than adolescent girls from more affluent families (i.e., those with a household income greater than $40,000; Goeree et al., 2011).

Eating Disorders among US College Students

Eating disorders are particularly pervasive in college students (Stice et al., 2013). Early identification of eating disorders is imperative for college students between the ages of 18-25 as mental illness accounts for the largest burden of any diseases within this particular age range (Michaud et al., 2006). Prevalence estimates of eating disorders within college students are approximately 8% to 17% (Reinking & Alexander, 2005). According to the American College Health Association's 2008 National College Health Assessment (ACHA-NCHA), 3% of women and 0.4% of men report anorexia, 2% of women and 0.2% of men report bulimia, and 4% of women and 1% of men report vomiting or taking laxatives to lose weight in the past 30 days. Additionally, 12-month prevalence estimates of disordered eating range from 17% to 90% in

college-aged women (Berg et al., 2009) and from 8% to 30% for college-aged men (Lipson & Sonneville, 2017). Since subthreshold eating disorder symptoms often develop into an eating disorder (Stice et al., 2010), timely prevention is warranted.

Eating Disorders among US Women

According to the National Institute of Mental Health (NIMH), across the lifetime, 0.9% of adult women report anorexia, 1.5% of adult women report bulimia, and 3.5% of women report binge-eating disorder (Hudson et al., 2007). This may, in part, be due to societal factors that send messages to women to strive to attain the thin-ideal. The feminine thin-ideal, defined as a slender physique – tiny waist with little body fat – has become the Western standard of beauty (Levine et al., 1994). Western mass media, including magazines, billboards, social media, and advertisements, plays a central role in perpetuating the idealization of thinness to the public, particularly in women.

Research indicates that women who have heightened internalization of thin-ideal (i.e., the extent to which one "buys into" socially defined ideals of attractiveness; Thompson & Stice, 2001) are at greatest risk of developing disordered eating symptoms (Clay et al., 2005). Prior studies suggest that heightened internalization of thin-ideal prospectively predicts the development of an eating disorder (Stice, 2016). The thin-ideal represented by the media is approximately 15% below the average weight of women, embodying biogenetically challenging, if not impossible beauty standards (Hawkins, 2004). Researchers have suggested that this ideal, combined with societal influences on dieting, has contributed to the epidemic of eating disorders among women (Stice et al., 1994).

Eating Disorders among US Women of Color. Initial research investigating the role of ethnicity on eating disorders suggested that White women are at elevated risk compared to ethnic

minorities (Wildes & Forbush, 2015). However, more recent studies indicate this may not be the case, although findings are inconsistent (Wildes & Forbush, 2015). Previous research has concluded that White women have a higher lifelong prevalence for eating disorders including anorexia nervosa (Udo & Grilo, 2018), bulimia nervosa (Striegel-Moore et al., 2003), and binge eating disorder (Udo & Grilo, 2018) when compared to other ethnic groups (i.e., Black, Hispanic, Asian or Pacific Islander). Conversely, other studies have determined no significant ethnic differences in the prevalence of anorexia nervosa (Marques et al., 2011; Swanson et al., 2011), bulimia nervosa (Udo & Grilo, 2018) or binge eating disorder (Lee-Winn et al., 2014; Marques et al., 2011; Swanson et al., 2011) among women. Another study did not detect ethnic differences in the prevalence of any DSM-5 eating disorders (Solmi et al., 2016).

Though some prior studies have concluded that ethnic minorities are less vulnerable to eating disorders than Whites, other research suggests much more similarities in eating disorders and body image issues among various ethnic groups than differences. As an example, one meta-analysis found no differences in body dissatisfaction between Asian Americans and White Americans (Grabe & Hyde, 2006), which is consistent with results from studies that have examined ethnic differences in eating disorder symptoms and established risk factors (Gluck & Geliebter, 2002; Gordon et al., 2010). Mixed findings may be due to most samples having small sample sizes and so the opportunity to identify differences may be inadequate. The differential effect of the thin-ideal on ethnic groups may also be another reason for the inconsistent findings. For example, among some Hispanic and Black communities, a larger, more curvaceous body size is found to be more attractive and the ideal physique (Payton, 2014).

As such, some ethnic minority young women tend to endorse a larger body size than White women (Gordon et al., 2010). Moreover, within group differences may exist due to the

degree to which one places importance on their racial identity (i.e., the attitude and behaviors consistent within a racial group; Thompson & Neville, 1999). Still, the idealization of thinness among women is ubiquitous in Westernized cultures, and the expression of eating disorders has been found among many cultural communities globally (Watters, 2010).

Eating Disorders among US Men

Men are typically socialized in Western culture to aim for standards of body shape that mimic female standards of beauty (Payton, 2014). The "ideal" masculine form is reflected through media as one that is lean, dominant, muscular, and athletic (Crossley et al., 2012). This idealized and unrealistic standard of male beauty has also frequently resulted in eating-disordered behaviors (e.g., excessive exercise, binge eating, purging; Hildebrandt et al., 2010). NIMH determined that 0.3% of adult men report anorexia, 0.3% of adult men report bulimia, and 2% of men report binge-eating disorder across the lifetime (Hudson et al., 2007).

Though research consistently finds higher rates of eating disorders among women, the first national study of eating disorders (*N*=3,000 adults) reported that 25% of cases of anorexia nervosa (AN) and bulimia nervosa (BN) and 40% of binge eating disorder (BED) cases were male (Hudson et al., 2007). Both researchers and clinicians posit that the under-reporting of symptoms and inadequate physical and mental health services alter the rate and severity of eating disorders (Levine & Smolak, 2006). Though more heterosexual women experience increased body image concerns than gay or bisexual men, research indicates that eating disorders affect a higher proportion of men who identify as gay or bisexual compared to heterosexual men (Strother et al., 2012). More research is critical to understand the development and maintenance of eating disorders among other subpopulations of men such as men of color and/or among men who identify as gay, bisexual, or queer.

Eating Disorders among US Men of Color. Rates of prevalence and mortality of eating disorders among men of color are consistently absent from the broader eating disorder literature (Payton, 2014). Several factors have been suggested to account for this lack of knowledge. Significant underreporting of eating-disordered behaviors among communities of color, insufficient outreach by mental health professionals, and high treatment premature termination rates among men of color could be just a few explanatory reasons (Alegría et al., 2007). Additionally, these factors correspond with an adaptive mistrust of mental health professionals among communities of color, due to experiences of systemic, institutional, and individual racism that run rife throughout the course of history of medicine as well as the discipline of psychology (Payton, 2014).

Moreover, due to the common incorrect assumption that eating disorders affect *only* White, middle/upper middle-class women, men of color with eating disorders may feel additionally isolated. Despite this misconception, recent research suggests that eating disorders within communities of color occur at rates approximately similar to White communities, and these rates are increasing among men of color (Payton, 2014). Specifically, there have been few empirical studies investigating eating disorders among Black men. In one study by Taylor and colleagues (2007), the researchers suggested that among Black men, the lifetime prevalence of eating-disordered behaviors were 0.20% (AN), 0.97% (BN), and 4.14% (any binge eating [BE]).

There is also a paucity of research examining eating disorders among Asian American men. Despite few investigations conducted, Nicdao et al. (2007) concluded that while prevalence rates are relatively low, eating disorders present among Asian American men with lifetime prevalence rates of: 0.05% (AN), 0.71% (BN), 1.35% (BED), and 3.94% (BED). Notably, although Asian American women presented with higher levels of eating disordered behaviors,

Asian American men reported disordered eating behaviors at rates similar to disordered eating behaviors among men within the general population (Hudson et al., 2007).

Consistent with other men of color, Hispanic/Latino men have been excluded from the larger literature. Although research is sparse, disordered eating behaviors among Hispanic or Latino men encompass a major health concern. In a study looking at the lifetime and 12-month prevalence estimates of the Hispanic population in America, researchers found that while Hispanic women reported higher lifetime and 12-month prevalence rates than Latino men for BED, BN, and "any binge eating", there were no statistically significant gender differences observed (Alegría et al., 2007). Prevalence rates for Hispanic or Latino men were 0.03% (AN), 1.34% (BN), 1.55% (BED), and 5.43% (any binge eating). Overall, rates are slightly higher than the lifetime prevalence rates of Asian American men and slightly lower than the rates of Black men. Considering the negative consequences of eating disorders, it is vital to understand the prevalence of eating disorders across diverse ethnic and sexual identities.

Medical and Psychiatric Co-Occurrence with Eating Disorders

Medical complications are unfortunately common among individuals with an eating disorder, specifically AN and BN. In the case of AN, it is the only mental illness that is inevitably associated with several medical difficulties because of weight loss and malnutrition (Mehler, 2018). As such, the more severe AN becomes, the more prevalent the medical complications are. Though part of the mortality rate of AN is due to suicide, it is also substantially attributed to sudden cardiac death (Mehler, 2018). Due to a significantly low weight, individuals with AN may experience a thinning of their cardiac muscle mass, which results in deteriorated cardiac contractility (Lamzabi et al., 2015). Gastrointestinal issues have also been noted among AN patients, attributed to an overall slowing of gastrointestinal

performance (Lamzabati et al. 2015). Moreover, one of the most troubling complications of AN is osteopenia and osteoporosis due to the reduction of bone density, which negatively affects both men and women (Kraeft et al., 2013).

In BN, complications with self-induced vomiting (the most frequent type of purging behavior in BN patients) results in many detrimental effects. Constant vomiting leads to dehydration and can result in an electrolyte imbalance that may then heighten risk for cardiac problems such as hypotension (i.e., low blood pressure), and tachycardia (i.e., rapid heartbeat; Mehler & Rhylander, 2015). Laxative abuse is the second most common purging behavior in BN patients and the repeated use of laxatives is dangerous (11%-63% prevalence rates in BN; Bruce et al., 2004). Ongoing, inappropriate use of laxatives can result in hemorrhoids (swollen, inflamed veins in the rectum) and hematochezia (blood in stool). Given the various medical comorbidities eating disorders share, the treatment of eating disorders is the main target to prevent these complications that may cause serious morbidity and mortality concerns.

Aside from the pronounced impact eating disorders alone have on an individual, patients with an eating disorder may also suffer from various psychiatric comorbidities and decreased social functioning. Bipolar mood disorder, depressive disorder, anxiety disorder, obsessive-compulsive disorder, and alcohol use disorder are some of the common comorbidities observed among patients with an eating disorder (Buhren et al., 2014). Specifically, features of anxiety (i.e., obsessive-compulsive disorder, generalized anxiety disorder) are suggested to typically accompany diagnoses of AN as there is parallelism found among the clinical manifestations of both these disorders (i.e., ritualistic behaviors; Kaye et al., 2004).

In a study of 2,436 female inpatients diagnosed with an eating disorder, 97% of the sample experienced one or more comorbid conditions, 92% were diagnosed with depression,

56% were diagnosed with anxiety disorders, and 20% were diagnosed with obsessive-compulsive disorder (Blinder et al., 2006). An increased risk of suicide has also been reported to be highly associated with an eating disorder (Udo et al., 2019). Based on data from a US representative sample, the prevalence of suicide attempts was 24.9% among individuals with a history of AN, 31.4% among those with a history of BN, and 22.9% among those with a history of BED (Udo et al., 2019).

Prior studies indicate that a traumatic event(s), substance use, impulsivity, self-injurious behavior, and sexual risk-taking are more likely to complement BN diagnoses (Levine & Smolak, 2006). Perfectionistic personality styles predictably occur alongside disordered eating symptoms (Habashy & Culbert, 2019) as well as all classifications of eating disorders (Castro-Fornieles et al., 2007). Given the various comorbidities eating disorders share, it is essential that clinicians carefully assess for them, especially among populations that may not fit the "typical" clinical picture of an eating disorder. Screening on college campuses, specifically, is important as disordered eating is likely to emerge, resurface, or intensify during emerging adulthood (Fitzsimmons-Craft et al., 2019). Previous research has indicated that eating disorders are a growing epidemic in college students with rates rising from 7.9% to 25% in men and 23.4% to 32.6% in women over a 13-year period (White, 2011). One means of increasing early detection is through the practice of routinely screening high risk populations, which includes college students. Early detection of eating disorder symptoms increases the chances of successful recovery, particularly when providing treatment services to college students (Fitzsimmons-Craft et al., 2019).

Self-Report Instruments to Assess for Eating Disorder Psychopathology

Due to eating disorders being more prevalent on college campuses than in the general population (Eisenberg et al., 2011), it is crucial to properly screen for and identify the presence of an eating disorder in this sample. There have been a variety of self-report measures used to assess eating disorder psychopathology and risk in college-age students. Fitzsimmons-Craft et al. (2019) reviewed the most common measures in the literature for eating disorders in college students. The most common measures reportedly utilized are the Eating Attitudes Test-26 (EAT-26; Garner et al., 1982) the Eating Disorder Examination Questionnaire (EDE-Q; Fairburn et al., 1994), the Eating Disorder Diagnostic Scale (EDDS; Stice et al., 2000), the Sick Control One Stone Fat Food (SCOFF; Morgan et al., 1999), and the Stanford-Washington Eating Disorder Scale (SWED; Graham et al., 2018; see Table 2). Of all these screening tools, the EDE-Q is the most widely used self-report measure assessing eating disorder psychopathology in college student samples (Fitzsimmons-Craft et al., 2019). The EDE-Q is relatively brief, cost-efficient, and is used routinely for research and clinical purposes.

The Eating Disorder Examination Questionnaire (EDE-Q)

The Eating Disorder Examination (EDE; Fairburn & Cooper, 1993) is a well-established interview that is deemed the gold standard in the assessment of eating disorder psychopathology (Fairburn et al., 2008). The EDE is relatively lengthy to administer and requires a significant amount of training by the assessor. The EDE-Q was developed to address these limitations by utilizing the same constructs examined in the EDE in a self-report questionnaire (Berg et al., 2011). Consistent with the EDE, the EDE-Q contains a global score based on four subscales of 22 attitudinal items: dietary restraint, eating concern, shape concern, and weight concern (for definitions, see Table 1; Fairburn & Cooper, 1993; Fairburn et al., 2008). These subscales were produced to reflect the main features found within eating disorder psychopathology (see Table 2

for details). The remaining questions assess behavioral features of eating disorders (e.g., binge eating, excessive exercise, laxative misuse, and self-induced vomiting). Of particular interest is the binge eating composite, which assesses for objective binge eating and experiencing loss of control in the past 28 days (Racine et al., 2018). Presently, there is a paucity of research examining binge eating (BE) symptoms in college men and women which makes screening for BE a larger problem (Phillips et al., 2016).

The EDE-Q is also available in many languages and validated versions are available in Dutch (Aardoom et al., 2012), Fijian (Becker et al., 2010), German (Hilbert et al., 2012), Greek (Giovazalis et al., 2013), Italian (Calugi et al., 2016), Mexican (Penelo et al., 2013), Norwegian (Rø, et al., 2010), Portuguese (Machado et al., 2014), Spanish (Villarroel et al., 2011), Swedish (Welch et al., 2011), and Turkish (Yucel et al., 2011). Additionally, the EDE-Q has shown good test-retest reliability over one week across subscales and the global score (Spearman's rho=0.66-.93; Rose et al., 2013; Reas et al., 2006), high internal consistency in both clinical and nonclinical samples across subscales and the global score (αs=0.73-0.93; Bardone & Boyd, 2007; Mond et al., 2004; Luce & Crowther, 1999), temporal stability across five months (Bardone & Boyd, 2007), and convergent validity with the EDE (Reas et al., 2011; Mond et al., 2004).

Efforts to study diverse populations also have led to the development of EDE-Q norms for men (Jennings & Phillips, 2017; Mond et al. 2014) and other ethnic groups (Serier et al. 2018; Nakai et al. 2014; Kelly et al. 2012), Notably, much of the psychometric literature on the EDE-Q has examined its reliability and degree of concordance with the EDE interview and has largely supported its utility as an effective screening measure and assessment measure of eating disorders and eating disorder psychopathology (see Berg et al., 2012, for a review).

Despite the EDE-Q's utility as a screening measure, its performance varies across different clinical and community samples (Berg et al., 2012). These inconsistent findings are perhaps due to the original EDE and EDE-Q subscales being deliberately developed such that items were collected on a theoretical basis to represent the main areas of eating disorder psychopathology (Serier et al., 2018), rather than explored through a data driven (i.e., factor analytic) approach.

Proposed Factor Structure of the EDE-Q

Factor analysis can detect a small set of unobserved factors that account for the covariance among a larger set of observed factors (Jupp, 2006). Prior research has examined the factor structure of the EDE-Q using both exploratory and confirmatory factor analyses in a variety of populations. Most research has not supported the thematically derived original structure of the EDE and EDE-Q. In fact, over 20 studies have examined the factor structure of the EDE-Q, and only two studies have supported the original proposed four-factor structure (Franko et al., 2012; Villaroel et al., 2011).

Exploratory Factor Analysis

Seven studies have utilized an EFA to assess the latent constructs underlying these variables. Previous findings supported the three-factor (White et al., 2014; Hilbert et al., 2012; Peterson et al., 2007; Hilbert et al., 2007) and four-factor models (Friborg et al., 2013; Aardoom et al., 2012; Becker et al., 2010). Notably, many of the items from the shape and weight concern subscales loaded jointly in the best-fitting solution (White et al., 2014; Hilbert et al., 2007). This is consistent with early data from the original validation study suggesting that these factors (i.e., shape concerns and weight concerns) are highly correlated with one another in both clinical and control samples (rs = 0.54-0.86; Cooper et al., 1989). Despite these findings, these subscales

remain separate even though there is considerable empirical evidence suggesting that these factors may not be so distinct from each other (White et al., 2014; Hilbert et al., 2007).

Confirmatory Factor Analysis

Consistent with research utilizing EFAs, research examining CFAs have produced mixed results supporting a range of factor structures in various populations (i.e., clinical, community, college). Some studies have removed items that had not loaded clearly onto any one factor to improve the model's fit (see Table 3; Kliem et al., 2016; Parker et al., 2016, 2015; Calugi et al., 2016; Grilo et al., 2015; Grilo et al., 2013; Darcy et al., 2013; Allen et al., 2011; Grilo et al., 2010; Hrabosky et al., 2008; Wade et al., 2008). Results from these studies yielded support from authors who conducted EFA models including one- (Chan & Leung, 2015), two- (Penelo et al., 2013), three- (Calugi et al., 2016; White et al., 2014; Giovazolias et al., 2013; Barnes et al., 2012) and four-factor models (Franko et al., 2012; Villarroel et al., 2011). In some studies, the best-fitting model included as few as seven items in total (e.g., Grilo et al., 2010) and this modified factor structure exhibited improved internal consistency as well as less redundancy than the original four factor model in a college sample (Grilo et al., 2015). Thus far, there has not been a consensus on the most appropriate factor structure for the EDE-Q in a given population. The factor structure of a questionnaire is additionally impacted if items endorsed on an assessment are interpreted differently by various groups (e.g., gender, racial/ethnic groups).

Measurement Invariance

As with many eating disorder assessments, the EDE-Q was developed and validated in non-Hispanic White women, reflecting the antiquated and false assumption that eating disorders only affect this population. This poses a problem, as the aforementioned literature review has outlined that no population is invulnerable to developing an eating disorder. To date, only a few

studies have examined measurement invariance (i.e., the same questionnaire in different groups measures the same construct in the same way; Dadivov et al., 2014) of the EDE-Q regarding gender, race/ethnicity, and the intersection of these identity characteristics.

In a sample of Mexican children and adolescents, researchers found support for measurement invariant across gender (Penelo et al., 2013). Two studies examining college students found evidence of measurement invariance across gender using the full measure (Rand-Giovannetti et al., 2020) and brief three-factor structure utilizing seven items of the EDE-Q and three subscales (i.e., dietary restraint, weight/shape concerns, body dissatisfaction; Jenkins & Davey, 2020; Grilo et al., 2015). Measurement invariance was also demonstrated across gender in college students from the United Kingdom and Germany (Jenkins & Davey, 2020; Kliem et al., 2016).

Furthermore, the factor structure and measurement invariance of the EDE-Q has rarely been examined in ethnically diverse populations, yet it is regularly used to evaluate eating pathology in these groups. When testing the EDE-Q among Hispanic and non-Hispanic White college women, some studies determined measurement invariance (Belon et al., 2011) while others have not (Serier et al., 2018; Belon et al., 2015). Measurement invariance for the EDE-Q was also not supported when assessing White and Black college women (Kelly et al., 2012). Presently, mixed findings warrant the need for further exploration to clarify conclusions in Hispanic and Black communities.

Thus far, only one study has tested for measurement invariance of the EDE-Q when examining the intersection of gender and race/ethnicity. McEntee et al. (2020) compared eating disorder symptoms in US Latino male, non-Latino male, Latina females, and non-Latina White female in a large sample of college students. Findings reveal support for the three-factor seven

item EDE-Q and support for measurement invariance. As such, differences across gender and race/ethnicity are not interpretable on this measure. It is still unclear, however, if differences exist in other ethnic minorities (e.g., Black, Asian American or Pacific Islander) among male and female college students.

Current Study

With the increase in racial and ethnic minority groups in the US population (U.S. Census Bureau, 2020), there is a growing need to expand upon research to include more diverse samples as consistent with the diversity observed in the US population currently. Specifically, despite recent studies including more diverse populations, research continues to be sparse in evaluating the assessment of eating disorders in men and racial/ethnic minorities (Murray et al., 2017). This is potentially problematic, as there is growing evidence suggesting more similarities than differences among ethnic minority and White individuals regarding the prevalence of eating disorder symptoms (Udo & Grilo, 2018). There is also an increase in eating pathology found within men (Mitchison & Mond, 2015), highlighting the need to clarify gender differences in the EDE-Q factor structure since it is widely used to examine eating disorders among young adults. College students are of particular interest as the typical college years (18-25) correspond with the median age of onset for eating disorders (Franko & Keel, 2006). Early identification and intervention are urgently needed to treat eating disorders and, ultimately, alleviate suffering.

Moreover, the APA Multicultural Guidelines (APA, 2017) explicitly enjoins *against* applying concepts and theories as if they are universal. However, most of the research on eating disorders among men and women of color employs theories that were established based on White women's experiences, and as a result, several of the current eating pathology measures have not been widely validated for use with diverse populations. Furthermore, considering the

great variability of findings between men and women of color, who are already underrepresented in the larger literature on eating disorders, it is vital to validate whether the EDE-Q is an appropriate measure to assess and screen for eating pathology in these populations.

By taking these considerations of gender and race/ethnicity into account, both clinicians and researchers may advance their interpretations of the EDE-Q and their understanding of the nature of eating pathology in a racially/ethnically diverse sample of men and women college students. The following aims guided my analyses:

Aim 1: To evaluate the factor structure of the EDE-Q:

a) Test exploratory factor analysis to identify the number of factors in the EDE-Q given heterogeneity of the factor structure as noted in previous studies, and

b) Use confirmatory factor analysis to verify factor structure and establish configural model.

Aim 2: Use measurement invariance analyses to investigate the measurement validity of the configural model of the EDE-Q across gender and race/ethnicity in college students.

Aim 3: Examine the intersection of race and gender in a racially/ethnically diverse sample of college students with the EDE-Q.

In addition, the current study used archival data from a larger study in the laboratory (described in Method section). The dataset included the four subscales, behavioral indicators (e.g., binge eating, laxative use, vomiting, overexercising), as well as the global score of the EDE-Q in a sample of undergraduate men and women between the ages of 18 to 25 years old.

The current study tested the following hypotheses:

H1: As noted in the literature (Rand-Giovanetti et al., 2017), I expect that women will have higher latent variable scores on the EDE-Q compared to men.

H2: Based on prior work (McEntee et al., 2020), I do not expect significant gender or racial differences on the behavioral indicators (i.e., binge eating, laxative use, vomiting, overexercising).

H3: As noted in previous work (Marques et al., 2011), I do not suspect significant differences across race/ethnicity and eating pathology.

H4: Given the mixed literature, I expect that the original four-factor model (Cooper & Fairburn, 1987) will not be supported, and the best-fitting model will include a factor comprising items from both the Shape Concern and Weight Concern subscales. Considering the heterogeneity of findings regarding the number of factors in the final models, no hypothesis is made.

H5: Since no other studies thus far have examined the intersection of gender and race/ethnicity among five separate racial/ethnic groups, the paucity of existing evidence precluded any a priori hypothesis.

Chapter 3 - Method

Participants

Participants included undergraduate students (*N*=1,981; 70% women, 30% men; ages 18-25; *M*=19.18, *SD*=1.45; see Table 4) from two universities in the Southeast and Southwest regions in the United States who were recruited from introductory psychology courses and received course credit upon completion of the study. Approximately 37% of my sample identified as a first-generation college student and had a mean body max index (BMI) of 24.63 (*SD*=5.92). Participants in the 18-25 age range were selected given this is the typical college age and median age of onset for developing an eating disorder. Notably, individuals who are older than 40 years old are at considerably lower risk for eating disorders so analyses may not be unduly impacted by exclusion of these participants (Hudson et al., 2007).

My sample was diverse in terms of ethnic/racial backgrounds. For example, approximately 32% (*n*=636) of the sample identified as White, 21% (*n*=429) identified as Asian or Pacific Islander, 17% (*n*=352) identified as Hispanic or Latino, 10% identified as Black or African American (*n*=209), and about 18% (*n*=355) identified as multiracial. The remaining subgroups were too few to be included in analyses (i.e., Middle Eastern [*n*=26], Native American/American Indian [*n*=9]) or preferred not to share their racial group [(*n*=28]). Participants who identified as non-binary or declined to answer their gender identity were also excluded from analyses (*n*=26).[1] The final sample size included 1,981 participants (see Figure 1 for missing data). Dataset was part of a larger study in the laboratory: *Sexual Health Survey*.

Measures

---

[1]Participants who identified as cisgender men and women or transgender men and women were included in the final sample for gender (i.e., men and women). Participants who identified as non-binary were excluded from final analyses given small sample size (see participants section). I used the following terms to describe the racial/ethnic groups in my sample: White, Black, Asian, Hispanic, and multiracial based on American Psychological Association standards for non-biased language (APA, 2019).

Demographic Questionnaire

A general demographic questionnaire was used to examine information regarding gender identity, age, race/ethnicity, and first-generation college student status.

DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure - Adult

The DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure was used to assess for depression and anxiety (Narrow et al., 2013). This measure consists of 23 items that assess 13 psychiatric domains (i.e., anger, anxiety, depression, dissociation, mania, memory, personality functioning, psychosis, repetitive thoughts and behaviors, sleep problems, somatic symptoms, substance use, and suicidal ideation) during the past two weeks on a five-point scale (0=none or not at all to 4=severe or nearly every day). A rating of two suggests subthreshold symptoms and a rating of three or higher indicates clinically significant symptomatology (Narrow et al., 2013).

The Eating Disorder Examination Questionnaire (EDE-Q)

The sixth edition of the Eating Disorder Examination Questionnaire (EDE-Q 6.0) was used to assess the degree to which participants engaged in eating disorder cognitions and behaviors. There are 22 items in the EDE-Q which focus on symptoms over the past 28 days and are rated on a seven-point rating scale (0=characteristic was not present to 6=characteristic was present every day or in extreme form). Scores are averaged to compose four subscales: dietary restraint, body shape concerns, body weight concerns, and eating concerns (Carter et al., 2001). The global score is the average of these subscales, and higher scores are indicative of elevated levels of overall eating pathology.

The remaining six EDE-Q items examine eating disorder behaviors such as the frequency of binge eating (i.e., number of occurrences, number of occurrences accompanied by a loss of control overeating, total number of days with at least one occurrence) compensatory vomiting,

excessive exercise, and laxative use. I examined the presence of objective binge eating (i.e.,

eating an unusually large amount of food and experiencing a sense of loss of control in the past

28 days). Frequency of compensatory behaviors (objective binge eating, vomiting, laxative use,

and compulsive exercising) will be coded as binary variables (i.e., yes or no) in this sample as

conducted in prior studies examining the factor structure and measurement invariance of the

EDE-Q (Rand-Giovannetti et al., 2020; McEntee et al., 2020). Though these behavioral

indicators do not contribute to the EDE-Q subscales, they provide valuable information for

diagnostic and treatment considerations.

Covariates

Body Mass Index (BMI). Body Mass Index is positively associated with disordered

eating (Jacobi et al., 2004), and thus, was included as a covariate in statistical analyses.

Participants' BMI will be calculated (weight [in pounds]/height [in inches] squared) using self-

reported measurements of their height and weight from the EDE-Q. The Centers for Disease

Control and Prevention (CDC) guidelines determined cutoffs for underweight, normal,

overweight, and obese. Participants with a BMI less than 18.5 are considered underweight, those

with a BMI between 18.5 and 25 are considered normal, BMI between 25 and 30 is considered

overweight, and BMI greater than 30 falls within the obese range.

Depression and Anxiety. Both depression and anxiety are significant predictors of

disorder eating symptoms (Eisenberg et al., 2011; Jacobi et al., 2004). As such, I first calculated

the mean scores of these predictors separately to determine if one accounted for the variance

more for disordered eating symptoms. Then, I created a composite score of depression (two

items) and anxiety (two items) using all items from the resultant subscales in the DSM-5 Self-

Rated Level 1 Cross-Cutting Symptom Measure. The mean scores of depression, anxiety, and the

composite score computed for depression and anxiety were also included as covariates in my statistical analyses.

Procedures

Participants signed up for the study via the Psychology Department subject pool system (via SONA). Assessments were completed online and took approximately one hour and fifteen minutes to complete. Participants were asked to read through the consent form prior to data collection. Study procedures were approved by the Institutional Review Board (IRB). To minimize missing data, the survey software reminds (but does not demand) that participants address missed items before continuing with the study. As of May 2021, a total of 2,186 participants were assessed. The *Sexual Health Survey* completed data collection in May 2021.

Statistical Analyses

Data Preparation

Scales containing 10 or more items were calculated for participants missing <10% items, and scores were coded as missing for participants missing data on scales that contained less than 10 items.

Descriptive Statistics

Means and standard deviations of the three factors (as derived from the factor analysis described above), binge eating, laxative use, vomiting, and over exercising were conducted on R (R Core Team, 2021).

Item Analysis

Before conducting an exploratory factor analysis, I first examined skewness and kurtosis for each of the 22 EDE-Q items and covariates (i.e., check for outliers). Data is considered normal if skewness falls between -2 and +2 and kurtosis falls between -7 and +7 consistent with

maximum likelihood methods (Ryu, 2011). Skewed distributions will be transformed prior to analyses so that ranges are closer to zero to represent a normal distribution (i.e., moderate skewness = natural log transformation; substantial skewness = square-root transformation; severe skewness = inverse transformation; Tabachnick & Fidell, 2001) on SPSS 27.0 (SPSS, Inc. Chicago, IL).

After completing the item analysis, I evaluated the inter-item correlations of the 22 items for the EDE-Q. Any items that are highly correlated (r>.80) were examined for possible deletion due to multicollinearity (Field et al., 2013). I decided which item among the pair to retain by examining which item was endorsed more by participants as well as which of the items related most to the given construct (i.e., eating pathology) according to theory. Weakly correlated items (r<.30) were also examined for possible deletion as small correlations can bias the results (Field et al., 2013). For example, if an item showed consecutive weak correlation with other items, it would be considered for possible deletion. Items suitable for deletion were removed prior to conducting exploratory factor analysis.

Sample Split

The sample was randomly divided into two groups; I used these two mutually independent samples for performing both the exploratory factor analysis and confirmatory factor analysis.

Exploratory Factor Analysis (Sample 1)

Given the inconsistencies of findings from previous studies conducting confirmatory factor analyses (see Table 3), I used R (R Core Team, 2021) to first complete an exploratory factor analysis (n=990) to determine the number of common factors within the EDE-Q and conducted a parallel analysis using the package 'fa.parallel' (Horn, 1965). A parallel analysis

compares eigenvalues from the sample correlation matrix with eigenvalues obtained from a random correlation matrix in which no factors are expected (Lim & Jahng, 2019). Parallel analysis has received support as being one of the most accurate methods for determining the number of factors to retain (Velicer et al., 2000). Despite its accurate methods, it has long been questioned for its theoretical justification in which the eigenvalues of the reduced correlation matrix with communalities of the variables in the main diagonal have a direct relation to its number of factors, however, the same does not apply for those of the full correlation matrix with ones in the diagonal (Lim & Jahng, 2019).

Since it is suggested to use multiple approaches in factor extraction (Williams et al., 2010), the Kaiser-Guttman Rule and Cattell's (1966) Scree test were also employed. The Kaiser-Guttman rule (Kaiser, 1960) retains eigenvalues greater than one and has received widespread adoption in studies. However, one limitation is that the rule of retaining eigenvalues just above one has been suggested to be rather arbitrary (Fabrigar et al., 1999). The scree test examines the eigenvalues by a plot and major factors result in a steep "cliff", followed by a break or "scree" containing components with minor factors (Hayton et al., 2004). Though the scree test works well with highly correlated factors, it has been criticized for its ambiguity in the case in which there are either no clear breaks or more than two apparent breaks in the plot (Hayton et al., 2004).

Next, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was used to determine sampling adequacy for each variable in the model and the complete model. Kaiser's recommended threshold is above 0.6 (Kaiser, 1974). Bartlett's Test of Sphericity was conducted to determine whether correlations between items were large enough to perform an EFA (i.e., $p < .05$). In addition, I tested the fit of the EDE-Q first using all items enforcing a three-factor

model given this factor structure has gained the most support in prior research and in this study (see EFA Results section). Common factors were extracted utilizing a principal axis factoring method and direct oblimin rotation. Oblimin (oblique) rotation is often used when factors are assumed to be correlated and provides estimates of correlations among factors (Fabrigar et al., 1999). Items that did not load on any one factor were also removed to improve overall model fit. After I eliminated unnecessary items, I used confirmatory factor analysis to verify the factor structure and determined the best model fit.

Confirmatory Factor Analysis (Sample 2)

I used R (R Core Team, 2021) to complete tests of confirmatory factor analysis (CFA) using the 'lavaan' (Rosseel, 2012) and 'semTools' (Jorgensen et al., 2018) packages. A minimum of five cases per parameter is needed to conduct a CFA (Kline, 2016). The EDE-Q was examined at the intersection of gender and race/ethnicity with the other half of the sample (n=991), and I investigated the fit of the three-factor model tested from the EFA using the maximum likelihood robust estimator (MLR). Model fit was established with the Chi-square statistic (χ^2; cutoff for good fit p>.05). Alternative fit indices were also used to determine the model's fit: Comparative Fit Index (CFI), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and Tucker-Lewis Index (TLI). Good model fit is suggested by a CFI and TLI over .95, RMSEA under .05, and SRMR under .05 (Hu & Bentler, 1999; Hu & Bentler, 1998). Acceptable model fit is indicated by a CFI and TLI over .90, RMSEA under .08, and SRMR under .10 (Hu & Bentler, 1999; Hu & Bentler, 1998). The three-factor model was subsequently used as the configural model for the assessment of measurement invariance by gender and race/ethnicity.

Measurement Invariance (Full Sample)

Using the full sample (*N*=1,981), I used multi-group confirmatory factor analysis to conduct measurement invariance by gender (i.e., men and women) and race/ethnicity (i.e., White, Black, Hispanic, Asian, and multiracial) on R (R Core Team, 2021) using the maximum-likelihood estimation with robust standard errors (MLR; Satorra & Bentler, 2001). Measurement invariance is usually tested in four steps (Borgogna et al., 2021).

1) *Configural Invariance*: Responses will demonstrate the same factor structure across groups.

2) *Metric Invariance*: Once configural invariance is attained, I will test whether the items in a measure have the same relationship to the underlying latent construct across groups (i.e., equivalent factor loadings; Xu & Tracey, 2017). As such, factor structure and factor loadings are equivalent across groups.

3) *Scalar Invariance*: Once metric invariance is met, I will test the equivalence of intercepts between groups. Support for scalar invariance suggests equivalent means between groups. As such, the factor structure, factor loadings, and factor intercepts are equivalent across groups.

4) *Residual Invariance*: Lastly, if scalar variance is found, I will test the equivalence of errors. This is the most difficult form of invariance. Residual invariance would suggest that the scale measures the same underlying construct between groups with an equivalent degree of accuracy (Borgogna et al., 2021).

Due to a disadvantage of the chi-square test being an overestimation of the discrepancy in goodness-of-fit in large samples (Davidov et al., 2014), I used various alternative global fit indices (i.e., CFI, TLI, RMSEA, and SRMR) to assess the relative/incremental goodness-of-fit of my models based on the robust maximum likelihood estimator (MLR). To assess for differences

between successive measurement invariance models, I specifically examined the change in CFI (i.e., ΔCFI) and RMSEA (i.e., ΔRMSEA) statistics. Consistent with recommendations from Chen (2007), a decline in CFI larger than 0.01 and increases in RMSEA larger than 0.015 indicated a significant worsening of fit. If the model had failed to achieve metric, scalar, or strict invariance, I planned to examine the modification indices to establish which loadings, intercepts, or residuals led to the lack of invariance (van de Schoot et al., 2013).

Spearman's Rho Correlations

Using the full sample (*N*=1,981), I conducted Spearman's Rho correlations on SPSS 27.0 (SPSS, Inc. Chicago, IL) to calculate initial associations between the three latent variables, BMI, depression, anxiety, the composite score of depression and anxiety, and the dichotomized behavioral indicators (i.e., binge eating, laxative use, vomiting, and over exercising).

Chi-Square of Independence

Using the full sample (*N*=1,981), I conducted eight chi-square tests of independence on SPSS 27.0 (SPSS, Inc. Chicago, IL) to examine the effects of gender and race/ethnicity on the prevalence of objective binge eating, vomiting, laxative use, and compulsive exercising. Consistent with Rand-Giovannetti et al. (2020), I created binary variables (yes/no) for examining "no occurrence" and "any occurrence" of objective binge episodes, self-induced vomiting, excessive exercise, and laxative use. Participants met criteria for "any occurrence" among these behavioral indicators if they engaged in an episode ≥1 over the past 28 days.

Multivariate Analysis of Covariance (MANCOVA)

Using the full sample (*N*=1,981), I conducted a 2x5 MANCOVA on SPSS 27.0 (SPSS, Inc. Chicago, IL) to examine group differences on the three factors across gender (i.e., male and female) and race/ethnicity (i.e., White, Asian, Hispanic, Black, and multiracial) covarying for the

effects of BMI, behavioral indicators, and a composite score of depression and anxiety. Holm-Bonferroni's post hoc was applied for Test I error correction in multiple comparisons.

Power Analysis

Power estimations were made using G-Power (version 3.1; Faul et al., 2009). Prior studies indicate that effect sizes for associations between gender and disordered eating and the associations between race/ethnicity and disordered eating are likely to be small-to-medium in magnitude (Vince & Walker, 2007; Striegel et al., 2009). With a sample size of 1,981 men and women, nine effects (gender [i.e., male and female] and race/ethnicity [i.e., White, Asian, Hispanic, Black, multiracial] covariates: BMI, composite score of depression and anxiety) and a p value of .05, the current study had 95% power of small-to-medium effect size. According to the "rules of thumb" for factor analysis, the minimum sample per group for adequate statistical power is $n>200$ (Kyriazos, 2018). Additionally, since measurement invariance analyses have the potential of being untrustworthy in smaller samples, groups that contain a sample size of 100 or smaller will not be included in analyses (Borgona et al., 2021).

Chapter 4 - Results

Descriptive Statistics

Means, standard deviations, skewness, and kurtosis of the 22-items in the EDE-Q are displayed in Table 5. Possible outliers were also examined for all items and no significant outliers were detected in the dataset. Two items were particularly notable (items 2 and 19), both of which were consistent with findings from a prior study examining the measurement invariance of the EDE-Q among Hispanic and non-Hispanic White college women (Serier et al., 2018). Item 2 was rarely reported "Have you gone for long periods of time (8 waking hours or more) without eating anything to influence your shape or weight?" with a skewness of 2.09 and kurtosis of 3.66. Item 19 was also rarely endorsed "Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)?" with a skewness of 3.27 and kurtosis of 16.59. These items were taken into consideration when identifying which items to drop prior to conducting the EFA.

Inter-item Correlations

Next, I evaluated the inter-item correlations for all 22 attitudinal items ranged from .16 to .89 (total inter-item correlation M=.48) indicating that items, overall, fit together conceptually (see Table 6). Item 19 demonstrated consistently low correlations (<.30) among all but four items (7, 9, 20, 21), each belonging to the same subscale (i.e., eating concerns). Considering this item's significant low correlations among other items as well as high skewness and kurtosis, item 19 was dropped prior to conducting the EFA. Additionally, several items (11, 12, 22, 23, 25, 26, 27, 28) showed strong positive associations (≥.80) indicating that overlapping items may not be contributing something unique to the construct (i.e., multicollinearity). Notably, all these items belong to the shape and weight concerns subscales which, as previously mentioned, have

31

regularly shown high correlations among various populations (White et al., 2014; Hilbert et al., 2007).

Specifically, items 11 and 12 showed a strong positive association (r=.80) and the decision to drop item 11 as opposed to item 12 was based on the complexity of making sense of "feeling fat" that is often reported in individuals diagnosed with an eating disorder but difficult to scientifically measure (Zhang et al., 2021). Items 22 and 23 demonstrated the highest association (r=.89) and item 22 (M=2.46, SD=2.16; [t(1,960)=2.90, p<.05]) was subsequently dropped among the pair given item 23 being endorsed more by participants (M=2.53, SD=2.14), thus suggesting a *slightly* higher relevance to eating pathology in this given sample. Furthermore, items 25 and 26 had a correlation of .87; therefore, I decided to drop item 26 to ensure adequate representation of weight concerns, which is considered to be a core feature of eating disorder psychopathology. Finally, items 27 and 28 showed a strong positive association (r=.85) and the decision to drop item 27 (M=2.37, SD=2.13) was due to item 28 being endorsed more by participants (M=2.59, SD=2.22; [t(1,965)=8.17, p<.001]) and it is the only item in the EDE-Q that taps into one's feelings surrounding how *others* see one's own shape or figure which may be a unique and important contributing factor to disordered eating symptomatology. From these analyses, I retained 17 items prior to conducting the EFA.

Exploratory Factor Analysis (EFA)

The dataset was randomly split in half (n=990) via computer-generated random seed on R and of the 22 items, 17 were entered into the EFA. I used iterative principal axis factoring in R via the "fa" function in the psych package and oblique (Direct Oblimin) rotation which allows factors to be correlated with each other while providing a simple structure (Grieder & Steiner, 2021).

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were calculated first to evaluate the appropriateness of the data. The KMO was .94 and the Bartlett's test was significant ($\chi^2(120)=19,171.5$, $p<0.001$), indicating that the data was indeed suitable for factor analysis. Parallel analysis, Kaiser-Guttman rule, and scree all suggested that three factors should be retained; given previous research conducting EFAs on the EDE-Q suggesting three factors more consistently than any other factor structure, I decided to test the three-factor solution.

The aforementioned 17 items were tested in a three-factor model. Items were retained if the factor loading was $\geq.50$ and loaded onto only one factor. Eight total "trials" were conducted to individually remove items that did not meet the above criteria (items 2, 10, 21, 5, 6, 12, and 20). Consistent with these conditions, 10 items were retained, accounting for 63.1% of the variance (see Tables 7 and 8). Although several items (5, 10, 12, 21) were close to load onto two separate factors ($\geq.34$), no items loaded $\geq.50$ onto more than one factor. The first factor, labeled *dietary restraint*, comprised of three items which assessed trying to limit or exclude one's food intake (items 1 and 3) and following strict rules regarding eating (item 4). The second factor, labeled *preoccupation and eating concern*, assessed difficulty concentrating due to thoughts about food and shape (items 7 and 8) as well as fear of losing control over eating (item 9). The third factor, labeled *shape/weight overvaluation*, assessed the influence of shape on one's own self-worth (item 23), reaction to being weighed once a week (item 24), weight dissatisfaction (item 25), and the degree to which one feels uncomfortable about others seeing their shape (item 28).

Confirmatory Factor Analysis (CFA)

A CFA was conducted using the other half of the randomly split data set (n=991). Though chi-square is the most used global fit index, it is sensitive to large sample sizes thereby decreasing the p-value and often rejects a good fitting model (Alavi et al., 2020). As such, other modification indices are recommended (i.e., CFI, TLI, RMSEA, SRMR), and were assessed in combination to establish goodness of fit as they are less sensitive to sample size (Fan & Sivo, 2007). The three-factor, 10-item model displayed adequate fit in the overall sample (χ^2 (32)=193.18, p<0.001; CFI=0.97 and TLI=0.96; RMSEA=0.07; SRMR=0.05; see Figure 2 for standardized factor loadings). Additionally, the three-factor, 10-item model, displayed acceptable fit among gender and race/ethnicity among all groups except for those identifying as multiracial (RMSEA >0.08; see Table 9). Overall, given the adequate fit in the whole CFA sample, the three-factor, 10-item model was retained as the configural model to test measurement invariance among gender and race/ethnicity.

Measurement Invariance

Multigroup confirmatory factor analysis (MGCFA)

Multigroup confirmatory factor analyses (MGCFA) were conducted using the modified three-factor, 10-item model across gender and race/ethnicity. Since MGCFA requires that scores on the latent variable are represented for members of different groups (Wicherts & Dolan, 2010), scores 5 and 6 were collapsed into one due to no participant who identified as Asian American rated a score of 6 or "every day" for item 7 only (n=118).

The configural model allowed for factor loadings and intercepts to vary between gender and race/ethnicity and fit the data well (Table 11). When loadings were constrained to be equal between gender and race/ethnicity (i.e., metric model), the models did not appear to fit worse than the configural model as displayed in the small changes in CFI and RMSEA statistics. Strong

(scalar) invariance implicates equality of item threshold meaning that no item responses are systematically higher or lower in one group when compared to the other groups (Borgogna et al., 2021). As shown in Table 11, strong invariance for both gender and race/ethnicity models showed acceptable model fits (i.e., ΔRMSEA and ΔCFI never exceeded critical values of 0.015 and 0.01, respectively). Finally, strict invariance reflects that the residual variances of each item are similar across groups. The fit indices remained excellent for the strict measurement invariances models for both gender and race/ethnicity (i.e., CFI, TLI, SRMR) as well as small differences in CFI and RMSEA. As such, measurement invariance of the three-factor, 10-item model was supported at the strict level for both gender and race/ethnicity.

Spearman's Rho Correlations

Spearman's rho correlations for the three-factor, 10-item EDE-Q, covariates (BMI, depression, anxiety, and composite score of depression and anxiety), and behavioral indicators (binge eating, vomiting, laxative use, and excessive exercise) are displayed in Table 11. The three latent factors showed significant and positive associations of small-to-medium magnitude among each other that were not too highly correlated ($r_s > .80$) as well as all covariates and behavioral indicators. Since it did not appear that the mean individual scores of depression and anxiety accounted for more of the variance across each latent factor, I opted to use the composite score for depression and anxiety to simplify subsequent analyses (i.e., MANCOVA).

Chi-Squares of Independence

Chi-square analyses for no occurrence and any occurrence among the dichotomized behavioral indicators across race/ethnicity and gender are displayed in Tables 12 and 13. Notably, there appeared to be significant effects of race/ethnicity on vomiting and laxative use in which those who identified as White exhibited higher rates compared to other groups. There also

appeared to be significant effects of gender on binge eating and laxative use in which more women reported engaging in these behaviors than men. Results are aligned with prior research suggesting that compensatory behaviors occur at higher levels among women than men and White women, specifically, endorsing these behaviors more than men and women from other racial groups (Striegel-Moore et al., 2009).

Multivariate Analysis of Covariance (MANCOVA)

A 2 (gender) x 5 (race/ethnicity) multivariance analysis of covariance (MANCOVA) was conducted on the three latent factors as dependent variables: dietary restraint, preoccupation and eating concern, and shape/weight overvaluation, after controlling for the behavioral indicators (i.e., binge eating, vomiting, laxative use, excessive exercise), composite score of depression and anxiety, and BMI (see Table 14). Independent variables were gender (dummy coded: 1=men, 2=women) and race/ethnicity (i.e., White, Black, Hispanic, Asian, and multiracial). While there are several statistics that can be calculated (e.g., Pillai's Trace, Hotelling's Trace, and Roy's Largest Root), Pillai's test statistic gives more robust results when there is an unbalanced sample size among groups as there is in the current study (Ateş et al., 2019). As such, I used it to test whether there were differences between the means of groups of subjects on a combination of dependent variables.

The multivariate result was significant across all covariates except for laxative use (Pillai's Trace=.003, F=2.06, df=1,829, p=.10). Multivariate main effects were observed for gender, Pillai's Trace =.06, F=37.02, df=1,829, $p<.001$, η_p^2=.057 and race/ethnicity, Pillai's Trace =.03, F=3.95, df=5,493, $p<.001$, η_p^2=.009; however, the interaction between gender and race/ethnicity remained nonsignificant (Pillai's trace=.006, F=.93, df=5,493, p=.51, η_p^2=.002).

To further investigate the impact of each effect on the individual dependent variables, post hoc univariate analyses with Bonferroni Adjustments for multiple comparisons were conducted using an alpha value of .05. Univariate analyses for the effect of gender on the three latent variables showed significant main effects for preoccupation and eating concern ($F(1, 1831)=8.95$, $p<.05$, $\eta_p^2=.005$ and shape/weight overvaluation ($F(1, 1831)=105.32$, $p<.001$, $\eta_p^2=.054$). Main effects indicated that women ($M=2.68$, $SD=1.90$), relative to men ($M=1.60$, $SD=1.56$), reported higher levels of shape/weight overvaluation with a medium effect size ($d=.62$). Women also reported higher levels of preoccupation and eating concern ($M=1.07$, $SD=1.56$) than men ($M=.65$, $SD=1.19$) with a small effect size ($d=.30$; see Table 14).

Univariate analyses for the effect of race/ethnicity on the three latent variables showed significant main effects for dietary restraint ($F(4, 1831)=2.57$, $p<.05$, $\eta_p^2=.006$) and shape/weight overvaluation ($F(4, 1831)=11.35$, $p<.001$, $\eta_p^2=.012$) with small effect sizes. However, Holm-Bonferroni post-hoc comparisons did not yield any significant differences between the five groups for dietary restraint. Follow-up pairwise comparisons indicated that Asian individuals scored significantly higher ($M=2.33$, $SD=1.76$) than White individuals ($M=2.26$, $SD=1.89$; $d=.04$) and Black individuals ($M=2.02$, $SD=1.90$; $d=.17$) on shape/weight overvaluation. Furthermore, those identifying as Hispanic scored significantly higher ($M=2.69$, $SD=1.85$) than individuals identifying as Black on shape/weight overvaluation ($M=2.02$, $SD=1.90$; $d=.36$).

Chapter 5 - Discussion

The current study examined the psychometric properties of the EDE-Q to assess for differences in eating pathology across the intersection of gender and race/ethnicity in a large and diverse sample of US young adult college students. First, I conducted an EFA on half of the sample followed by a CFA on the other randomly split dataset to establish the best fitting model of the EDE-Q. Second, I tested for measurement invariance on the configural model across gender and race/ethnicity. Third, I tested for differences among the behavioral indicators across gender and race/ethnicity. Lastly, I assessed for mean differences across gender and race/ethnicity on the three latent variables, adjusting for BMI, behavioral indicators, and a composite score of depression and anxiety. Overall, my results add to the growing literature of the measurement and assessment in various demographic sectors to establish what are useful diagnostic tools for screening eating disorders in a diverse sample of young adults. In the following sections, I will review and summarize the findings for my study aims, discuss implications for the modified three-factor, 10-item EDE-Q as a new screening tool in college campuses, and describe recommendations for future research.

Aim 1: Factor Structure of the Eating Disorder Examination Questionnaire

Through a series of analyses, my results suggested that a modified three-factor, 10-item model fit the data the best, which aligns with most prior research not supporting the original four-factor structure of the EDE-Q (see Table 3). Eating disorder pathology, in turn, may thus be interpreted as multidimensional in the EDE-Q (Rand-Giovannetti et al., 2020), with each factor representing a distinct and core attitude of eating disorder symptoms.

The items on Factor 1 (dietary restraint) provided partial support for the four-factor original theoretical model (Fairburn et al., 1994). Factor 1 also contained most of the items

related to restraint from the theoretical model (i.e., an attempt to limit or exclude one's food intake and following strict rules regarding eating). Importantly, despite prior work on EFAs and CFAs on the EDE-Q demonstrating varying factor structures and number of items, these same three items on this given factor have been mostly supported in previous studies (Grilo et al., 2010; Friborg et al., 2013; Hrabosky et al., 2008). Thus, these three items may be the most salient in embodying the factor of dietary restraint in the EDE-Q.

Factor 2 (preoccupation and eating concern) deviated the most from Fairburn's original theoretical model (Fairburn et al., 1994), however, revealed similar items to White et al. (2014)'s factor also labeled as *preoccupation and eating concern* due to two of the three items being from Fairburn et al (1994) eating concern subscale. Findings are also in line with Rand-Giovannetti et al (2020)'s factor labeled 'dietary restriction', which has important clinical implications for the nature of eating disorder symptomatology. For example, the items that loaded on this factor tapped into a preoccupation with one's own body/eating (i.e., fear of loss of control over eating, preoccupation with eating, shape, and weight). These items could be conceptualized as the cognitive outcomes of starvation as documented in the Minnesota Starvation Experiment in which the fear of losing control over eating may lead to starvation which, in turn, worsens one's preoccupation with food, shape, and weight (Keys et al., 1950).

Factor 3 (shape/weight overvaluation) supported my hypothesis in that the best fitting model would consist of a single factor containing items from both the Shape Concern and Weight Concern subscales. Most prior research conducting a factor analysis on the EDE-Q demonstrated that the Shape and Weight concern subscales are not conceptually distinct constructs and are often combined for research purposes (van Zutven et al., 2015). Overvaluation of shape and weight is defined as the "undue influence of body weight or shape on self-

evaluation" and is distinct from merely one's preoccupation with one's own body image due to defining one's self-worth primarily based on one's shape and/or weight (APA, 2013). Additionally, this overvaluation of shape and weight is what differentiates in clinical samples patients with eating disorders from those with body dissatisfaction but no eating disorder symptomatology (Goldfein et al., 2000).

Overall, findings from both the EFA and CFA support prior research in the use of a modified reduced-item model for the EDE-Q, particularly when examining a diverse sample of university students. This newly proposed factor structure retained most of the same themes with the original factor structure of the EDE-Q as well as modified versions, with the exception of factor 2, which may provide a unique attribute to core attitudes of eating disordered psychopathology. Results also expand on a robust line of research suggesting that administrators of the EDE-Q may consider steering away from the theoretically derived factor structure of the original EDE-Q given its lack of replicability in various samples using briefer, modified versions of the scale (Rand-Giovannetti, 2020).

Aim 2: Measurement Invariance of the Eating Disorder Examination Questionnaire

Multigroup confirmatory factor analysis (MGCFA) was also performed on the modified three-factor, 10-item model across gender and race/ethnicity. Notably, the RMSEA and TLI indices appeared to slightly improve instead of worsening when more constraints were added to the models. A possible suggestion for this discrepancy may be due to unbalanced sample sizes in which the models could have over-identified as more constraints were added (Yoon & Lai, 2018). Still, the modified reduced-item factor structure achieved residual (strict) invariance, the most difficult form of invariance to attain, across gender and race/ethnic groups, which has yet to be achieved with the EDE-Q. This indicates that the residual associated with each latent

variables, factor loadings, and intercepts are equal across both gender and race/ethnicity. As such, any differences between gender and racial group item responses are due to group differences and not measurement issues (i.e., item bias).

The current study provides a meaningful contribution to the growing body of literature on measurement invariance of the EDE-Q, because my thesis is the first study to examine measurement invariance of the EDE-Q with a newly modified factor structure looking at the intersection of gender *and* five separate racial groups. This is also the first study to achieve strict invariance which implies identical measurement at the item level of eating disorder psychopathology and guarantees the equivalence of this measure across race/ethnicity and gender (Luong & Flake, 2021). Additionally, current findings may help provide clarity to the mixed results of measurement invariance across race/ethnicity (Belon et al., 2011; Belon et al., 2015; Serier et al., 2018) as there was a large enough sample size in all racial groups to test for group differences. Results also add further support to the measurement invariance across gender (Rand-Giovannetti et al., 2020; Grilo et al., 2015; Peñelo et al., 2013), and builds off support of measurement invariance across the intersection of gender and race/ethnicity because my study included more than two racial groups (i.e., Hispanic and Non-Hispanic White; McEntee et al., 2020).

Aim 3: Gender and Racial Differences on the Eating Disorder Examination Questionnaire

Consistent with my hypothesis and prior research (McEntee et al., 2020; Rand-Giovannetti et al., 2020), mean comparisons indicated that women indeed showed higher scores on the latent variables of the EDE-Q than men. Specifically, women reported higher means for preoccupation and eating concern and shape/weight overvaluation. One possible explanation could be due to different beauty standard ideals in which research suggests that most young men

prefer a lean and muscular physique rather than a lean one per se as more women endorse (Murray et al., 2016). Furthermore, men with eating disorder symptomatology may not be particularly striving for "low weight" as "bulking up" muscles while maintaining low body fat may be more of the objective to attain the ideal male physique (Murray et al., 2016). There did not appear to be significant differences between young adult men and women for dietary restraint suggesting that there are little differences across this symptom of eating pathology which is in contrast with prior work showing women reporting higher dietary restraint than men (McEntee et al., 2020; Rand-Giovannetti et al., 2020).

Results also revealed, contrary to my hypothesis, significant differences across racial groups on the latent variables dietary restraint and shape/weight overvaluation. Mean comparisons determined that those identifying as Hispanic followed by multiracial, Asian, and White showed the highest means for shape/weight overvaluation and those identifying as Black endorsed the lowest shape/weight overvaluation. This confirms recent work indicating that individuals of racial/ethnic minority groups may be just as likely as White participants to report body shape concerns (Olson et al., 2020). Although racial differences in body dissatisfaction are small (Grabe & Hyde, 2006), these findings add to prior research examining body dissatisfaction among women as Black women reported the lowest scores on body dissatisfaction between White, Hispanic, and Asian American women (Warren et al., 2005). However, results should be taken with caution as Cohen's d effect sizes were quite small (<.40) and could suggest that comparisons drawn may not be meaningfully different (Ferguson, 2009).

Taken together, considering findings revealing higher means of shape/weight overvaluation in participants of color than White participants, it appears that the overemphasis of White samples in eating disorders research and, therefore, consistent underrepresentation of

racial/ethnic minority groups in research, may pose a serious detriment to men and women of color with eating disorder psychopathology as this may further perpetuate the stereotype of who is affected by an eating disorder (i.e., White women). The current study serves as an important step in addressing the multifaceted nature of identity characteristics which intersect with one another (e.g., race/ethnicity, gender) to examine eating pathology and address prevailing health disparities in the US. In light of the current findings, further screening and assessment for men and women of color is warranted for eating disorder symptoms on college campuses.

Modified Factor Structure of the EDE-Q as a Screening Tool in College Campuses

Considering the severity of eating disorders and importance of early detection as to provide immediate intervention, all colleges and universities should prioritize screening for them as the typical age of college students is a vulnerable period in the development of young adults. While there are a variety of eating disorder screening tools that exist, the EDE-Q remains the gold standard in assessing for eating disorders. The current study adds to the ongoing literature of examining the factor structure of the EDE-Q as well as provides support for utilizing a shorter version while retaining the core symptoms of eating pathology. This shortened 10-item questionnaire may serve to reduce response burdensomeness thereby increasing the number of respondents to this instrument and appropriately assessing for eating disorder symptomatology in college men and women across race/ethnicity.

Limitations and Future Directions

The present study does not come without limitations. While my sample was diverse in terms of racial group representation, those identifying as Black were a particularly small sample in relation to other racial groups; future research is needed to examine a larger sample of Black college students to replicate the results from both the CFA and MGCFA analyses. Additionally,

participants were asked to report if they identified as Hispanic or Latino, assuming those identifying as Latinx represent a homogenous group (McEntee et al., 2020). Future research could be conducted to study eating pathology in specific Hispanic groups (e.g., Mexican American, Cuban), with the adapted 10-item EDE-Q tested in both English and Spanish. Similarly, while inclusion of multiracial individuals in this study was a strength considering those identifying as more than one race/ethnic group are often excluded from sample sizes, these individuals were also categorized into a single group which could potentially obscure group differences in eating behaviors (Goel et al., 2020). Future research is needed to examine differences in eating pathology across distinct multiracial groups, particularly as the number of individuals who identify as multiracial continues to increase in the US (U.S. Census Bureau, 2020).

Consistent with studies examining eating disorders in college students, the current study was comprised of approximately 70% of women. While there were enough men in my sample to provide adequate statistical power for analyses, future research is warranted to explore measurement invariance of the EDE-Q with a larger sample of undergraduate men. Moreover, gender identity was defined by the following: cisgender men, cisgender women, transgender men, and transgender women. As such, those identifying as genderqueer/gender-nonconforming were omitted from analyses due to small sample size, but future research should consider replicating these findings in gender/sexual minority groups who remain understudied in the eating disorder literature. Other identity characteristics such as socioeconomic status and sexual orientation were not included in this sample and it would be important to include in future research as symptoms of eating disorders have been reported to equally affect members from various socioeconomic backgrounds (Mulders-Jones et al., 2017) and clinical eating

disorders/behaviors have been reported to occur more frequently in gender/sexual minorities compared to heterosexual and cisgender individuals (Parker & Harriger, 2020).

Furthermore, findings reported are cross-sectional and based on a sample of college students who are primarily young, educated, and normal weight (i.e., 51.8% normal weight; see Table 5). Results may not generalize to other populations such as individuals of other age groups (e.g., youth, older adults), community populations, and clinical samples of individuals diagnosed with an eating disorder. Future research is needed to examine measurement invariance of the EDE-Q in community and clinical samples across the life span to explore the temporal precedence of these effects.

Finally, it is important to note that the open-ended questions (i.e., behavioral indicators) originally displayed in the EDE-Q 6.0 included the same rating scale as the other items in this questionnaire in the current study. This may, at least partially, explain why significant group differences emerged across certain behaviors (i.e., laxative use, vomiting) which contradicts with prior research (McEntee et al., 2020; Lipson & Sonneville, 2017). This open-ended structure of the behavioral indicators has been a major disadvantage of the EDE-Q as it prevents these items from being included in scoring and data analyses of the scale. Lev-Ari and colleagues (2021) expanded upon Grilo et al. (2010) three-factor, seven-item scale by recoding the bingeing and purging open-ended questions to include in the analyses, which demonstrated satisfactory psychometric properties in a community sample. Future studies should also consider recoding these open-ended items with the three-factor, ten-item scale to expand upon this measure and more closely assess for behavioral symptoms of eating disorders.

Practice Implications

Results from the current study revealed that the modified three-factor, 10-item EDE-Q may be a valid measure of eating disordered psychopathology across gender and race/ethnicity among US college men and women. This model is supported for the appropriateness of comparisons by gender and race/ethnicity among all three latent factors. Findings from this study highlight the need to routinely screen for eating disorders in college campuses as to combat barriers experienced by individuals who do not apply to the demographic stereotype of who experiences and suffers from an eating disorder. Of the 5,300 college campuses in the US, only 22% of colleges have reported offering screening opportunities for eating disorders year-round despite 87% of respondents believing that screening for eating disorders is important (National Eating Disorders Association, 2018). Additionally, of the students who screened positive for an eating disorder, only 20% received treatment, most of which being women (Fitzsimmons-Craft et al., 2019). Future studies should consider pairing treatment resources along with this screening measure. In taking these considerations into account, both researchers and clinicians may expand upon their understanding of eating pathology. Systematic screening of eating disorders using the modified 10-item EDE-Q is recommended and may result in identifying university students with high risk eating behaviors or symptoms who could then be referred for further evaluation to determine the appropriateness of diagnosis and treatment referral.

Demographic Questionnaire

1. What is your current gender identity? (Check all that apply)
   a. Male
   b. Female
   c. Female-to-Male (FTM)/Transgender Male
   d. Male-to-Female (MTF)/Transgender Female
   e. Gender Queer, neither exclusively male nor female
   f. Other (please specify) _____
   g. Decline to answer, please explain why _____

2. What sex were you assigned at birth on your original birth certificate? (Check one)
   a. Male
   b. Female
   c. Decline to answer, please explain why _____

3. What is your race? (Select all that apply.)
   a. White
   b. Black or African American
   c. Hispanic or Latino
   d. Native American or American Indian
   e. Asian/ Pacific Island
   f. Middle Eastern
   g. Other
   h. Prefer not to share

4. What is your age?

   _____

5. Where do you live?
   a. On campus
   b. Off campus (alone, with partner, or with friends/family)

6. What is your present religion, if any?
   Protestant
   Roman Catholic
   Latter Day Saints/Mormon
   Orthodox such as Greek or Russian Orthodox
   Jewish
   Muslim
   Buddhist
   Hindu
   Atheist
   Agnostic

Spiritual but not committed to one religion
Something else: _____

7. How often do you attend religious meetings (i.e., church, synagogue, temple, etc.)?
    a. Never
    b. Once a year or less
    c. A few times a year
    d. A few times a month
    e. Once a week
    f. More than once/week

8. How often do you spend time in private religious activities, such as prayer, meditation, or Bible study?
    a. Rarely or never
    b. A few times a month
    c. Once a week
    d. Two or more times/week
    e. Daily
    f. More than once a day

Directions. The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.

9. In my life, I experience the presence of the Divine (i.e., God)
    a. Definitely not true
    b. Tends not to be true
    c. Unsure
    d. Tends to be true
    e. Definitely true of me

10. My religious beliefs are what really lie behind my whole approach to life
    a. Definitely not true
    b. Tends not to be true
    c. Unsure
    d. Tends to be true
    e. Definitely true of me

11. I try hard to carry my religion into all other dealings in life
    a. Definitely not true
    b. Tends not to be true
    c. Unsure
    d. Tends to be true
    e. Definitely true of me

12. Are you involved or affiliated with any organizations on campus? (Select all that apply)
    a. Greek life

b. Religious groups
c. Varsity Sports teams
d. Intramural Sports teams
e. Multicultural Organizations
f. Gender and Sexuality Center
g. Other
h. I am not involved or affiliated with any organizations on campus

13. Are you a first-generation college student (i.e., first in your immediate family to go to college)?

a. Yes
b. No
c. Unsure

14. People are different in their sexual attraction to other people. Which best describes your feelings? Are you:
a. Only attracted to females
b. Mostly attracted to females
c. Equally attracted to females and males
d. Mostly attracted to males
e. Only attracted to males
f. Asexual
g. Pansexual
h. Not sure

15. How supportive is your family of your sexual orientation?
a. Supportive
b. Neutral
c. Unsupportive
d. N/A (my family does not know my sexual orientation)

16. How supportive is your family of your gender identity (cisgender, transgender, other)?
a. Supportive
b. Neutral
c. Unsupportive
d. N/A (my family does not know my gender identity)

17. What is your relationship status? (Choose all that apply.)
a. Single
b. Non-exclusive or casual / friends-with-benefits
c. In an exclusive or committed relationship
d. Married
e. Divorced
f. Polyamorous (The state of having multiple sexually or romantically committed relationships at the same time, with the consent of all partners involved.)

18. Have you ever served in Reserve Officers' Training Corps (ROTC)?
    Yes
    No

19. Have you ever served in the United States Armed Forces?
    Yes
    No (Skip pattern used here; Q19-20)

20. What branch of military did you serve in?
    Army
    Air Force
    Marine Corps
    Navy
    Coast Guard

21. How many times have you been deployed to a place where you received hazardous duty pay (e.g., deployed to Iraq, Afghanistan, Kuwait, Vietnam, Korea)?

    Zero times (never deployed)
    1 time
    2 times
    3 times
    4 times
    5 or more times

Eating Disorder Examination Questionnaire (EDE-Q) 6.0

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 select 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….

1. 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)?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

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?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

3. 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)?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

4. 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)?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

6. Have you had a definite desire to have a totally flat stomach?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

7. 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)?

   No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

8. 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)?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

9. Have you had a definite fear of losing control over eating?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

10. Have you had a definite fear that you might gain weight?
    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

11. Have you felt fat?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

12. Have you had a strong desire to lose weight?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

13. 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)?
    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

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)?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

15. Over the past 28 days, on 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)?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

16. Over the past 28 days, how many times have you made yourself sick (vomit) as a means of controlling your shape or weight?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

17. Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?

    No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

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?

No days   1-5 days   6-12 days   13-15 days   16-22 days   23-27 days   Every day

Questions 19-21: Please select 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 (i.e., 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

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

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

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

22. Has your weight influenced how you think about (judge) yourself as a person?
      Not at all   Slightly   Moderately   Markedly

23. Has your shape influenced how you think about (judge) yourself as a person?
      Not at all   Slightly   Moderately   Markedly

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?
      Not at all   Slightly   Moderately   Markedly

25. How dissatisfied have you been with your weight?
      Not at all   Slightly   Moderately   Markedly

26. How dissatisfied have you been with your shape?
                Not at all   Slightly   Moderately   Markedly

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)?
                Not at all   Slightly   Moderately   Markedly

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)?
                Not at all   Slightly   Moderately   Markedly

Supplemental questions

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?
    a. Yes
    b. No (Skip Q32)
    c. N/A (Skip Q32-33)

32. If so, how many? _____

33. Have you been taking the pill?
    a. Yes
    b. No

Appendix C

DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure – Adult

Directions: During the past **2 weeks**, how much (or how often) have you been bothered by the following problems?

Depression

1. Little interest or pleasure in doing things?
    a. None at all
    b. Rare, less than a day or two days
    c. Several days a week
    d. More than half the days of the week
    e. Nearly every day

2. Feeling down, depressed, or hopeless?
    a. None at all
    b. Rare, less than a day or two days
    c. Several days a week
    d. More than half the days of the week
    e. Nearly every day

Anxiety

3. Feeling nervous, anxious, frightened, worried, or on edge?
    a. None at all
    b. Rare, less than a day or two days
    c. Several days a week
    d. More than half the days of the week
    e. Nearly every day

4. Feeling panic or being frightened?
    a. None at all
    b. Rare, less than a day or two days
    c. Several days a week
    d. More than half the days of the week
    e. Nearly every day

5. Avoiding situations that make you anxious?
    a. None at all
    b. Rare, less than a day or two days
    c. Several days a week
    d. More than half the days of the week
    e. Nearly every day

Appendix D

Tables

Table 1. Definitions and terminology

Disordered eating symptoms	
Cognitive features	
Dietary restraint	The intention to restrict food intake to control body weight.
Weight preoccupation	Preoccupation with one's body weight or body fat
Eating concerns	The degree of concern about eating
Shape concerns	The degree of concern about body shape
Body dissatisfaction	Dissatisfaction with size or shape of one's body
Behavioral features	
Binge eating	The consumption of an unusually large amount of food coupled with feeling unable to stop eating.
Inappropriate compensatory behaviors	The maladaptive use of behaviors for weight management, such as self-induced vomiting, overexercising, and laxative abuse.

Table 2. Self-Report Screening Measures in College Students

Authors (year)	Measure	Item Number	Subscales and Measure Utility	Cut-off Score
Garner et al. (1982)	Eating Attitudes Test-26 (EAT-26)	26 items	Measures eating disorder attitudes and behaviors in three subscales: (1) dieting (2) bulimia/food preoccupation (3) oral control	>20
Fairburn et al. (1994)	Eating Disorder Examination Questionnaire (EDE-Q)	28 items	Measures eating disorder behaviors and attitudes in four subscales: (1) dietary restraint (2) shape concerns (3) weight concerns (4) eating concerns Also assesses for binge eating, laxative use, compensatory vomiting, and excessive exercise.	>4 on subscales, endorsing one or more objective binge eating episodes and one or more compensatory behavior episodes (e.g., vomiting, laxatives, diuretics, exercise)
Stice et al. (2000)	Eating Disorder Diagnostic Scale (EDDS)	22 items	Screens for AN, BN, and BED as well as assesses for eating disorder behaviors (e.g., fasting, vomiting, laxative use)	Different scoring instructions based on ED diagnosis
Morgan et al. (1999)	Sick Control One Stone Fat Food (SCOFF)	5 items	Assesses the core features of AN and BN	Endorsing two or more items
Graham et al. (2018)	Stanford-Washington Eating Disorder Scale (SWED)	17 items	Assesses eating disorder behavior as well as psychopathology to categorize individuals' risk for ED categories	Computer based algorithm to determine cut-offs based on DSM-5 criteria

Table 3. Review of CFA Studies Utilizing the EDE-Q

Authors (year)	EDE-Q Version	Participants	Models Tested	Results
Models with full items				
Rand-Giovanetti et al. (2017)	EDE-Q 6.0, 28-items	College students (*N*=981; 69.9% women; 29.6% men; 0.1% other)	Tested 12 models. One-factor model including 22-items; two-factor model; Allen et al. three factor model; Hilbert et al. (2012) three-factor model; Peterson et al. (2007) three-factor model; White et al. (2014) three-factor model; Aardoom et al. (2012) four-factor model; Fairburn et al. original four-factor model; Friborg et al (2013) four-factor model; Peterson et al. (2007) four-factor model; higher order model.	Best support was found for Friborg's four-factor model. Found to be invariant across sex.
White et al. (2014)	EDE-Q 6.0, 28-items	Adolescents (ages 14-18; *N*=917; 56.9% girls)	Tested original four-factor on half of the sample (EFA for the other half)	Failed to support original model, three-factor model had the best fit with all subscale items.
Penelo et al. (2013)	EDE-Q 4.0, 38-item Spanish Version	Adolescents (ages 11-18; *N*=2,928; 52.7% girls)	One-factor, two-factor retaining Restraint, three-factor retaining Restraint and Eating, original-four factor.	Best support for two-factor model using all subscale items.
Giovazolias et al. (2013)	Original EDE-Q 36-items, Greek Version	College students (*N*=500; 100% women)	One-factor, Hilbert et al.'s three-factor model, Peterson et al.'s three-factor	Peterson et al.'s three-factor model had the best fit.

			model, and original four-factor.	
Barnes et al. (2012)	EDE-Q 6.0, 28-items	Clinical sample of eating disorder patients (*N*=266; 95.8% women) College students (*N*=403; 91.8% women)	One-factor, Peterson et al. (2007) three-factor model, and original four-factor	Peterson et al.'s three-factor model had the best fit for both groups.
Villaroel et al. (2011)	EDE-Q 4.0, 38-item Spanish Version	College students (*N*=708; 100% women)	Original four-factor model	Support for original four-factor model was found.
Models with reduced items McEntee et al. (2020)	EDE-Q 6.0, 28-items	College students (*N*=1173; 15.1% Latino men; 11.3% non-Latino White men; 47.2% Latina women; 26.3% non-Latina White women	One-factor, eight-item model; two-factor, 22-item model; three-factor, seven-item model; alternative four-factor, 22 item-model; original four-factor, 22-item model.	Three-factor, seven-item model had best support for both groups.
Serier et al. (2018)	EDE-Q 6.0, 28-items	College students (*N*=561; 59.9% Latina women; 40.1% non-Latina White women)	Brief one-factor model, one-factor, two-factor, modified three-factor seven-item model, Peterson et al. (2007) three-factor model, and original four-factor model.	Modified three-factor seven-item provided the best fit in both samples.
Parker et al. (2016)	EDE-Q 6.0, 28-items	Bariatric surgery candidates (*N*=405;	Allen et al. (2011)'s three-factor model	Did not support three-factor model.

		79.3% women; 20.7% men)		
Calugi et al. (2016)	EDE-Q 6.0, 28-items, Italian version	Clinical sample of eating disorder patients (*N*=264; 97.3% women)	One-factor with all items; Grilo et al. (2010) brief three-factor model with seven items.	Found support for brief three-factor model with seven items.
Kliem et al. (2016)	EDE-Q 6.0, 28-items, German version	Community sample (*N*=2,508; 53.2% women)	One-factor model created by authors comparing a one-factor and four-factor eight item model.	Best support for four-factor model with eight items.
Grilo et al. (2015)	Original EDE-Q, 36-items	College students (*N*=310; 54.2% women)	Grilo et al. (2010) brief three-factor model; Hrabosky et al brief three-factor model; original four-factor model	Grilo et al. (2010) brief three-factor seven-item model was supported.
Chan & Leung (2015)	EDE-Q 6.0, 28-items	College students (*N*=310; 54.2% women)	Wade et al. (2008) brief one-factor model; Peterson et al. three factor, two-factor, and one-factor model.	Found support for Wade et al. brief one-factor model with eight items.
Carrard et al. (2015)	EDE-Q 6.0, 28-items, French version	BED patients (*N*=116; 100% female) Community (*N*=161; 100% female)	Grilo et al. (2010) brief three-factor model; Peterson et al. three-factor model; Wade et al. brief one-factor model	Grilo et al. (2010) three-factor seven-item model provided best fit.
Grilo et al. (2013)	Original EDE-Q, 36 items	Obese bariatric surgery candidates (*N*=174; 75.2% women)	Grilo et al. (2010) brief three-factor model; Hrabosky et al. (2010) brief three-factor model; original four-factor model.	Grilo et al. brief three-factor seven-item model was supported.

Table 4. Demographic statistics of sample

Characteristics (*n*=1981)	Frequency	Percentage	Mean (SD)
Age			19.18 (1.45)
18-19	1434	72.3%	
20-21	383	19.4%	
22-23	123	6.2%	
24-25	41	2.1%	
Gender			
Male	588	29.7%	
Female	1393	70.3%	
Race/Ethnicity			
White	636	32.1%	
Black	209	10.6%	
Hispanic	352	17.8%	
Asian	429	21.7%	
Multiracial	355	17.9%	
First-Generation College Student			
Yes	724	36.5%	
No	1207	60.9%	
Unsure	50	2.5%	
Body Mass Index (BMI)			24.63 (5.92)
Underweight (<18.5)	122	6.1%	
Normal Weight (18.5-24.9)	1026	51.8%	
Overweight (25-29.9)	432	21.8%	
Obese (>30)	281	14.2%	
Missing	120	6.1%	

Note. SD=standard deviation.

Table 5. Descriptive statistics for the 22-item EDE-Q

Items	Mean (SD)	Skewness	Kurtosis
1. Restraint over eating	1.96 (2.25)	.83	-.84
2. Avoidance of eating	**.87 (1.54)**	**2.09**	**3.66**
3. Food avoidance	1.82 (2.19)	.94	-.61
4. Dietary rules	1.58 (2.17)	1.12	-.25
5. Empty stomach	1.06 (1.86)	1.78	1.83
6. Flat stomach	2.92 (2.58)	.13	-1.74
7. Preoccupation with food, eating, calories	.86 (1.66)	1.89	2.38
8. Preoccupation with weight and shape	.98 (1.76)	1.91	2.47
9. Fear of losing control over eating	1.07 (1.95)	1.75	1.57
10. Fear of weight gain	2.06 (2.45)	.75	1.57
11. Feelings of fatness	2.73 (2.46)	.30	-1.59
12. Desire to lose weight	2.87 (2.60)	.15	-1.75
19. Eating in secret	**.32 (.88)**	**3.79**	**16.59**
20. Guilt after eating	1.10 (1.67)	.06	1.45
21. Social eating	.82 (1.43)	1.86	2.74
22. Importance of weight	2.46 (2.16)	.35	-1.28
23. Importance of shape	2.53 (2.14)	.32	-1.28
24. Reaction to prescribed weighing	1.63 (2.02)	.97	-.43
25. Dissatisfaction with weight	2.63 (2.18)	.28	-1.33
26. Dissatisfaction with shape	2.77 (2.11)	.21	-1.29
27. Discomfort seeing body	2.37 (2.13)	.43	-1.19
28. Avoidance of exposure	2.59 (2.22)	.29	-1.37

Note. Skewness (-2.0 to +2.0) and kurtosis (-7.0 + 7.0). Items that are bolded were examined for possible deletion due to high skewness and/or kurtosis for subsequent analyses. SD=standard deviation.

Table 6. Inter-item correlations of the 22-item Eating Disorder Examination Questionnaire (EDE-Q)

Items	Subscale	1	2	3	4	5	6	7	8	9	10	**11**	12	**19**	20	21	**22**	23	24	25	**26**	**27**	28	Total
1	R	-																						
2	R	.50	-																					
3	R	.69	.44	-																				
4	R	.64	.41	.68	-																			
5	R	.54	.58	.50	.50	-																		
6	SC	.56	.41	.53	.46	.50	-																	
7	EC	.39	.39	.40	.40	.49	.35	-																
8	SC/WC	.42	.41	.40	.41	.50	.44	.68	-															
9	EC	.46	.41	.42	.41	.54	.44	.54	.55	-														
10	SC	.54	.41	.52	.45	.53	.63	.44	.54	.63	-													
11	SC	.54	.40	.48	.42	.48	.63	.34	.46	.49	.71	-												
12	WC	.62	.40	.57	.52	.49	.68	.37	.45	.48	.70	**.80**	-											
19	EC	**.21**	**.23**	**.17**	**.19**	**.25**	**.16**	**.33**	**.29**	**.33**	**.23**	**.22**	**.19**	-										
20	EC	.49	.43	.48	.42	.57	.47	.46	.52	.57	.58	.55	.53	.42	-									
21	EC	.28	.29	.26	.24	.41	.30	.37	.40	.45	.40	.36	.35	.42	.58	-								
22	WC	.46	.38	.42	.36	.47	.51	.37	.48	.45	.59	.63	.58	**.22**	.56	.47	-							
23	SC	.44	.36	.42	.38	.47	.52	.38	.47	.46	.58	.62	.55	**.23**	.55	.46	**.89**	-						
24	WC	.33	.30	.28	.23	.38	.35	.33	.42	.40	.48	.53	.46	**.27**	.49	.46	.61	.60	-					
25	WC	.46	.34	.40	.37	.45	.50	.37	.47	.45	.60	.70	.63	**.24**	.54	.44	.77	.73	.67	-				
26	SC	.45	.37	.41	.37	.45	.55	.36	.47	.45	.60	.70	.62	**.23**	.56	.44	.75	.77	.61	**.87**	-			
27	SC	.43	.36	.38	.34	.44	.51	.37	.49	.47	.60	.69	.59	**.27**	.57	.48	.73	.73	.65	.79	**.85**	-		
28	SC	.41	.34	.37	.32	.39	.48	.34	.44	.42	.54	.65	.57	**.25**	.51	.45	.70	.69	.61	.76	.80	**.85**	-	
Total		.71	.57	.66	.61	.69	.73	.58	.67	.68	.80	**.82**	.80	**.36**	.74	.57	**.81**	.79	.67	.82	**.82**	**.81**	.77	-

Note. Items that are bolded were dropped from analyses due to high (≥.80) or low (≤.30) correlations (items 11, 19, 22, 26, 27). Total is the mean score of the 22-items. R=restraint, EC=eating concern, SC=shape concern, and WC=weight concern.

Table 7. EFA Item reduction and factor loadings of the Eating Disorder Examination Questionnaire (EDE-Q)

Items	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3	F1	F2	F3
	Trial 1			Trial 2 (removal of item 2)			Trial 3 (removal of item 10)			Trial 4 (removal of item 21)			Trial 5 (removal of item 5)		
1. Restraint over eating	.04	**.82**	.02	.04	**.81**	.02	.05	**0.81**	.02	.03	**.83**	.00	.03	**.83**	.00
2. Avoidance of eating	.00	.40	.28	-	-	-	-	-	-	-	-	-	-	-	-
3. Food avoidance	-.01	**.80**	.05	-.02	**.81**	.06	-.01	**.81**	.06	-.03	**.84**	.03	.-.04	**.85**	.03
4. Dietary rules	-.07	**.76**	.08	-.08	**.76**	.08	-.08	**.77**	.06	-.09	**.77**	.08	-.10	**.78**	.08
5. Empty stomach	-.04	.35	**.52**	-.02	.33	**.51**	-.01	.34	**.50**	.01	.34	.48	-	-	-
6. Flat stomach	.31	**.50**	.04	.30	**.51**	.05	.30	**.50**	.05	.30	.48	.06	.30	.48	.05
7. Preoccupation with food, eating, calories	-.10	.03	**.78**	-.11	.03	**.79**	-.10	.49	**.79**	-.08	-.01	**.83**	-.08	.00	**.84**
8. Preoccupation with weight and shape	.04	.05	**.70**	.03	.05	**.71**	.04	.06	**.70**	.06	.00	**.75**	.06	.01	**.75**
9. Fear of losing control over eating	.08	.06	**.68**	.06	.06	**.69**	.07	.07	**.67**	.11	.06	**.64**	.11	.08	**.62**
10. Fear of weight gain	.36	.26	.31	.34	.27	.32	-	-	-	-	-	-	-	-	-
12. Desire to lose weight	.45	**.53**	-.01	.43	**.54**	-.01	.42	**.53**	.00	.42	**.52**	.00	.41	**.52**	.00
20. Guilt after eating	.26	.05	**.56**	.24	.05	**.57**	.25	.06	**.56**	.28	.10	.48	.29	.11	.45
21. Social Eating	.34	-.17	.48	.33	-.17	.49	.33	-.16	.49	-	-	-	-	-	-
23. Importance of shape	**.70**	.07	.11	**.70**	.07	.11	**.70**	.08	.11	**.71**	.05	.11	**.72**	.06	.09
24. Reaction to prescribed weighing	**.69**	-.14	.21	**.69**	-.14	.21	**.69**	-.13	.21	**.70**	-.13	.18	**.71**	-.12	.17
25. Dissatisfaction with weight	**.86**	.07	-.03	**.86**	.07	-.03	**.86**	.08	-.03	**.88**	.04	-.03	**.88**	.04	-.03
28. Avoidance of exposure	**.82**	.03	-.03	**.82**	.03	-.03	**.83**	.03	-.03	**.84**	.01	.68	**.83**	.01	-.02

Note. Items bolded met criteria for cutoff ≥0.50 and loaded onto only one factor. F1=factor 1, F2=factor 2, F3=factor 3. Items that were removed from analyses are labeled "-" (items 2, 5, 6, 10, 21). Variance accounted for after Trial 1 = 49.7%. Variance accounted for after Trial 2=51.5%. Variance accounted for after Trial 3=52.7%. Variance accounted for after Trial 4 = 54.8%. Variance accounted for after Trial 5=56.3%. Variance accounted for after Trial 6 = 58.6%.

Table 8. EFA Item reduction and factor loadings of the Eating Disorder Examination Questionnaire (EDE-Q) continuation

Items	F1	F2	F3	F1	F2	F3	F1	F2	F3
	Trial 6 (removal of item 6)			Trial 7 (removal of item 12)			Trial 8 (removal of item 20)		
1. Restraint over eating	.05	**.82**	-.01	.07	**.81**	-.01	.07	**.81**	-.01
2. Avoidance of eating	-	-	-	-	-	-	-	-	-
3. Food avoidance	-.02	**.86**	.01	.00	**.87**	.00	.00	**.87**	-.01
4. Dietary rules	-.08	**.79**	.06	-.06	**.80**	.05	-.06	**.80**	.05
5. Empty stomach	-	-	-	-	-	-	-	-	-
6. Flat stomach	-	-	-	-	-	-	-	-	-
7. Preoccupation with food, eating, calories	-.09	.01	**.83**	-.08	.02	**.83**	-.07	.01	**.85**
8. Preoccupation with weight and shape	.05	.00	**.76**	.05	.00	**.76**	.07	.00	**.75**
9. Fear of losing control over eating	.11	.07	**.63**	.11	.07	**.63**	.15	.10	**.56**
10. Fear of weight gain	-	-	-	-	-	-	-	-	-
12. Desire to lose weight	.41	.47	.03	-	-	-	-	-	-
20. Guilt after eating	.29	.11	.45	.30	.11	.45	-	-	-
21. Social Eating	-	-	-	-	-	-	-	-	-
23. Importance of shape	**.72**	.05	.10	**.73**	.06	.08	**.74**	.06	.07
24. Reaction to prescribed weighing	**.72**	-.11	.15	**.72**	-.11	.15	**.72**	-.10	.13
25. Dissatisfaction with weight	**.89**	.04	-.04	**.89**	.05	-.05	**.90**	.04	-.04
28. Avoidance of exposure	**.84**	.00	-.03	**.84**	.01	-.04	**.84**	.00	-.04

Note. Items bolded met criteria for cutoff ≥0.50 and loaded onto only one factor. F1=factor 1, F2=factor 2, F3=factor 3. Items that were removed from analyses are labeled "-" (items 2, 5, 6, 10, 12, 20, 21). Variance accounted for after Trial 7=60.4%. Total variance explained=63.1%.

Table 9. Summary of overall fit statistics in confirmatory factor analysis of the three-factor, ten-item Eating Disorder Examination-Questionnaire (EDE-Q) by gender and race/ethnicity

Model	Characteristic	χ^2 (df)	CFI	TLI	RMSEA [90% CI]	SRMR
3-factor, 10-items	White	88.32 (32)	0.98	0.97	0.072 [0.048, 0.095]	0.053
	Black	57.17 (32)	0.98	0.97	0.064 [0.000, 0.109]	0.050
	Hispanic	72.34 (32)	0.97	0.96	0.072 [0.039, 0.103]	0.055
	Asian	48.98 (32)	0.98	0.98	0.052 [0.000, 0.090]	0.055
	Multiracial	90.00 (32)	0.95	0.92	0.097 [0.069, 0.126]	0.055
	Men	81.82 (32)	0.97	0.96	0.063 [0.036, 0.088]	0.054
	Women	152.59 (32)	0.97	0.96	0.071 [0.058, 0.085]	0.045

Note. χ^2=chi-square; df = degrees of freedom; CFI = Comparative Fit Index (cutoff ≥.90); TLI=Tucker Lewis Index (cutoff ≥.90); RMSEA=Root Mean Square Error of Approximation (cutoff<.08); CI=confidence interval; SRMR=Standardized Root Mean Square Residual (cutoff<.08; Hu and Bentler, 1999). Chi-square was nonsignificant in each subgroup.

Table 10. Measurement invariance of the three-factor, ten-item structure of the Eating Disorder Examination Questionnaire (EDE-Q) across gender and race/ethnicity

Model	χ^2 (df)	CFI	TLI	RMSEA [90% CI]	SRMR	ΔCFI	ΔRMSEA	Difftest χ^2 (df)
Gender								
Configural	339.79 (64) *	0.977	0.967	0.063 [0.055, 0.072]	0.039			
Metric	385.63 (71) *	0.974	0.962	0.064 [0.056, 0.073]	0.049	0.003	-0.001	28.72 (7) *
Scalar	461.42 (78) *	0.967	0.962	0.068 [0.061, 0.076]	0.051	0.007	-0.004	75.34 (7) *
Strict	225.98 (120) *	0.965	0.961	0.069 [0.061, 0.077]	0.059	0.002	-0.001	7.00 (3)
Race/Ethnicity								
Configural	526.51 (160) *	0.972	0.961	0.071 [0.062, 0.080]	0.045			
Metric	558.43 (188) *	0.972	0.967	0.065 [0.056, 0.073]	0.049	0.000	0.006	25.35 (28)
Scalar	616.64 (216) *	0.970	0.968	0.063 [0.056, 0.071]	0.051	0.002	0.002	58.58 (28) *
Strict	728.88 (256) *	0.968	0.971	0.060 [0.052, 0.068]	0.054	0.002	0.003	50.55 (40)

Note. χ^2 =chi-square; df=degrees of freedom; CFI=comparative fit index; TLI=Tucker–Lewis index; RMSEA=root mean square error of approximation; CI=confidence interval; SRMR = Standardized Root Mean Square Residual. *$p<.001$

Table 11. Descriptive statistics for three-factor, ten-item Eating Disorder Examination Questionnaire (EDE-Q), covariates, and frequencies of behavioral indicators

	DR	PEC	SWO	BMI	Depression	Anxiety	Depression & Anxiety	Binge Eating	Vomiting	Laxative Use	Excessive Exercise
Latent Factors											
DR	-	.55*	.53*	.32*	.18*	.20*	.21*	.42*	.16*	.15*	.46*
PEC		-	.58*	.23*	.31*	.35*	.36*	.59*	.29*	.25*	.42*
SWO			-	.35*	.34*	.39*	.40*	.45*	.15*	.13*	.35*
Covariates											
Body Mass Index (BMI)				-	.01	-.01	-.001	.23*	.09*	.08*	.13*
Depression					-	.63*	.90*	.26*	.14*	.08*	.14*
Anxiety						-	.90*	.29*	.18*	.11*	.18*
Depression & Anxiety							-	.30*	.17*	.10*	.18*
Behavioral Indicators											
Binge Eating								-	.31*	.26*	.35*
Vomiting									-	.52*	.26*
Laxative Use										-	.29*
Excessive Exercise											-
Descriptive Data											
Mean (SD) or n (%)	1.79 (1.95)	.95 (1.48)	2.34 (1.87)	24.63 (5.92)	1.31 (1.08)	1.28 (1.06)	1.30 (.97)	650 (32.8%)	140 (7.1%)	137 (6.9%)	688 (34.7%)

Note. DR= dietary restraint; PEC=preoccupation and eating concern; SWO= shape/weight overvaluation. SD=standard deviation. *r_s<0.01.

Table 12. Chi-square results for no occurrence and any occurrence of binge eating and vomiting across race/ethnicity and gender

Characteristics	Binge Eating No (%)	Any (%)	χ^2	Cramer's V	Vomiting No (%)	Any (%)	χ^2	Cramer's V
Race/Ethnicity			6.04	.06			17.15*	.09
White	439 (33.4%)	193 (29.7%)			594 (32.5%)	39 (27.9%)		
Black	142 (10.8%)	66 (10.2%)			180 (9.9%)	28 (20.0%)		
Hispanic	218 (16.6%)	131 (20.2%)			333 (18.2%)	17 (12.1%)		
Asian	276 (21.0%)	148 (22.8%)			389 (21.3%)	34 (24.3%)		
Multiracial	249 (18.3%)	112 (17.2%)			329 (18.0%)	22 (15.7)		
Total	1315	650			1825	140		
Gender								.01
Men	430 (32.7%)	154 (23.7%)	16.89*	.09	546 (29.9%)	39 (27.9%)	.26	
Women	885 (67.3%)	496 (76.3%)			1279 (70.1%)	101 (72.1%)		
Total	1315	650			1825	140		

*p<.05

Table 13. Chi-square results for no occurrence and any occurrence of laxative use and excessive exercise across race/ethnicity and gender

	Laxative Use				Excessive Exercise			
Characteristics	No (%)	Any (%)	χ^2	Cramer's V	No (%)	Any (%)	χ^2	Cramer's V
Race/Ethnicity			19.39*	.09			1.26	.03
White	600 (32.8%)	33 (24.1%)			417 (32.6%)	217 (31.5%)		
Black	178 (9.7%)	29 (21.2%)			137 (10.7%)	71 (10.3%)		
Hispanic	326 (17.8%)	24 (17.5%)			229 (17.9%)	121 (17.6%)		
Asian	393 (21.5%)	30 (21.9%)			278 (21.7%)	147 (21.4%)		
Multiracial	331 (18.1%)	21 (15.3%)			220 (17.2)	132 (19.2%)		
Total	1828	127			1281	688		
Gender								
Men	554 (30.3%)	30 (21.9%)	4.31*	.05	395 (30.8%)	191 (27.8%)	2.02	.03
Women	1274 (69.7%)	107 (78.1%)			886 (69.2%)	497 (72.2%)		
Total	1828	137			1281	688		

*$p<.05$

Table 14. Multivariate analysis of covariance (MANCOVA) by the intersection of race/ethnicity and gender on the three latent factors

	Independent Variables					Multivariate and Univariate Effects	Effect Sizes
	Race/Ethnicity					Significance test	Partial Eta Squared (η_p^2)
Dependent Variables	White *Mean (SD)*	Black *Mean (SD)*	Hispanic *Mean (SD)*	Asian *Mean (SD)*	Multiracial *Mean (SD)*	Pillai's Trace = .03, F=2.06, df=5,493, p<.001[a]	.009
Preoccupation and Eating Concern	.94 (1.41)	.91 (1.45)	.91 (1.38)	.93 (1.43)	1.04 (1.55)	$F(4, 1831)$=1.11, p=.35[b]	.002
Dietary Restraint	1.84 (2.00)	1.64 (1.84)	2.09 (1.95)	1.58 (1.84)	1.82 (1.99)	$F(4, 1831)$=2.57, p<.05[b]	.006
Shape/Weight Overvaluation	2.26 (1.89)	2.02 (1.90)	2.70 (1.85)	2.33 (1.76)	2.44 (1.92)	$F(4, 1831)$=11.35, p<.001[b]	.012
	Gender					Significance test	Partial Eta Squared (η_p^2)
Dependent Variables	Male *Mean (SD)*			Female *Mean (SD)*		Pillai's Trace = .06, F=37.02, df=1.829, p<.001[a]	.057
Preoccupation and Eating Concern	.65 (1.19)			1.07 (1.56)		$F(1, 1831)$=8.95, p<.05[b]	.005
Dietary Restraint	1.64 (1.92)			1.80 (1.95)		$F(1, 1831)$=.25, p =.62[b]	.000
Shape/Weight Overvaluation	1.60 (1.56)			2.68 (1.90)		$F(1, 1831)$=105.32, p<.00[b]	.054

Note: SD = standard deviation; [a,b] denotes multivariate and univariate effects. Covariates appearing in the model include depression and anxiety composite, BMI, and behavioral indicators (binge eating, vomiting, laxative use, excessive exercise).

```
┌─────────────────────────────────────┐
│                                     │
│        Total sample (n=2,186)       │
│                                     │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Participants identifying as Middle │
│   Eastern, Native American, other,   │
│    or prefer not to share (n=63)     │
│            (n=2,123)                 │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Participants identifying as non-   │
│  binary, other, or decline to answer │
│              (n=26)                  │
│            (n=2,111)                 │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│  Participants identifying as <18 or  │
│      >25 years old (n=116)           │
│            (n=1,981)                 │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│           Final sample               │
│            (n=1,981)                 │
│                                     │
└─────────────────────────────────────┘
```
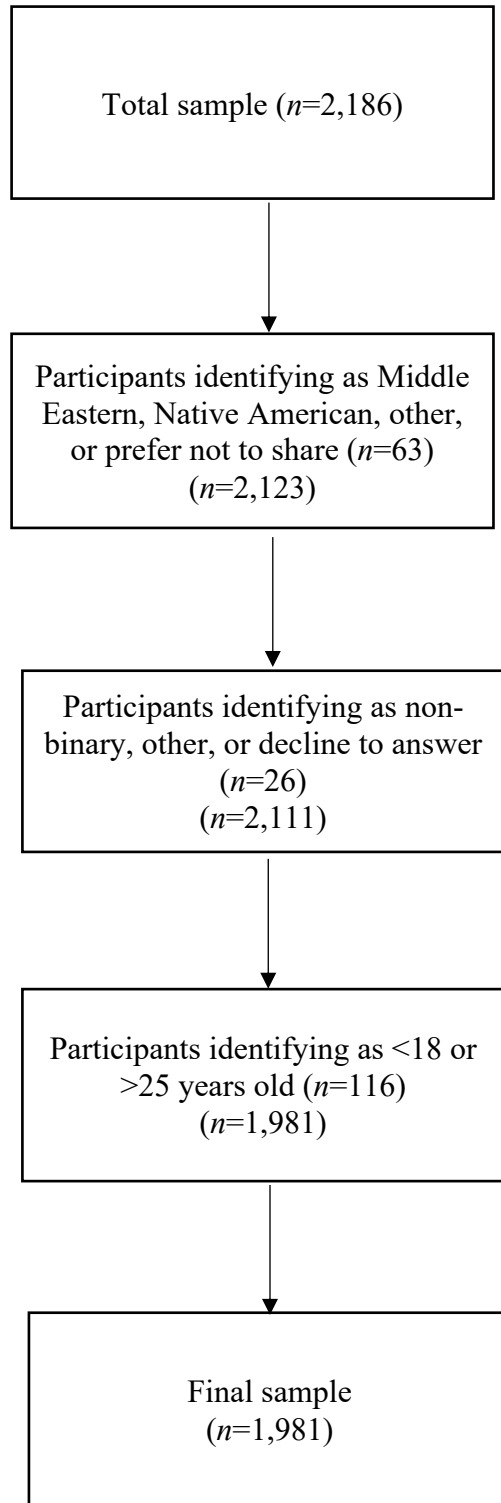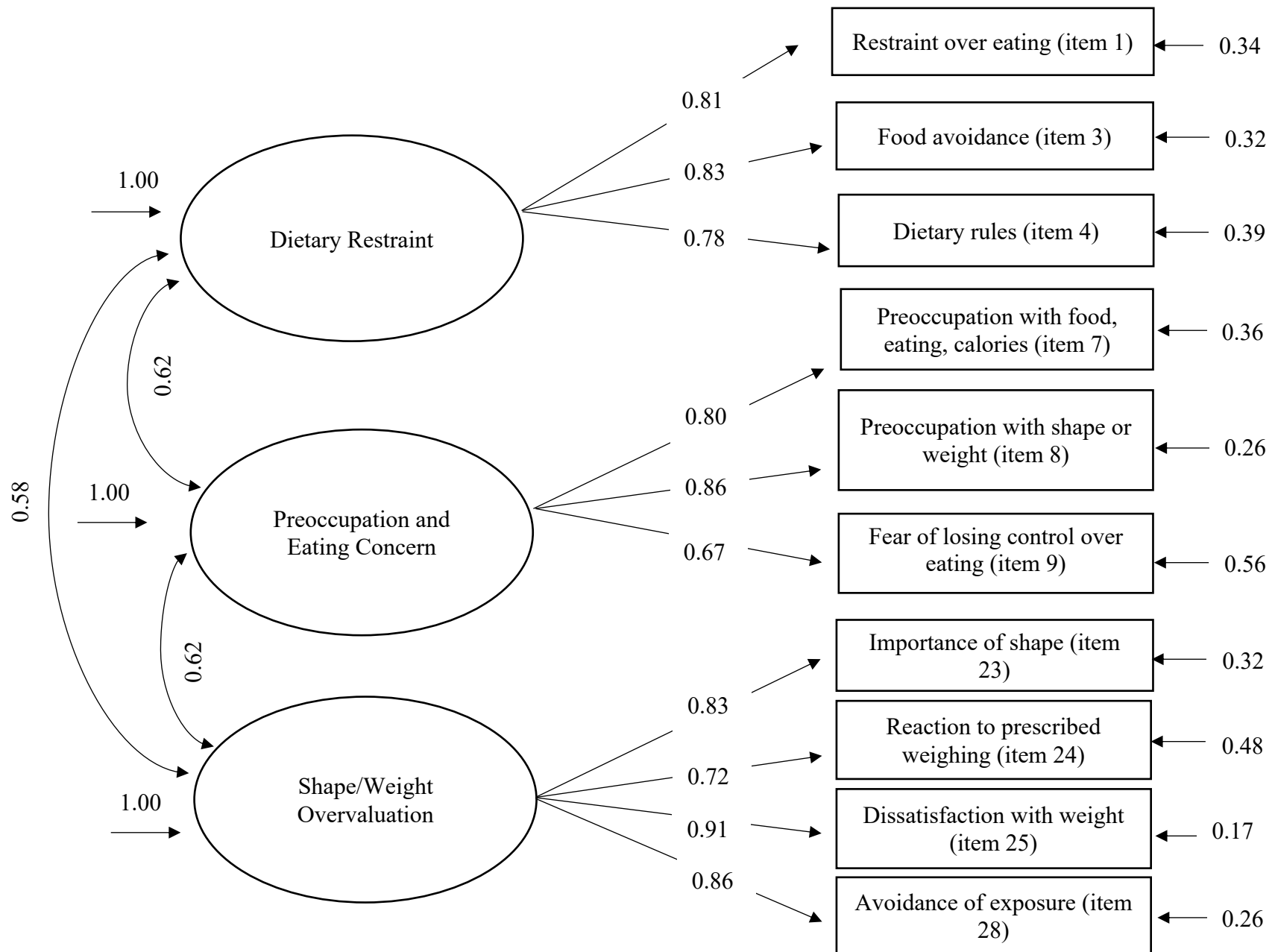
Figure 1. Flow chart for missing data

Figure 2. Confirmatory factor analysis (CFA) of a modified three-factor, ten-item model of the Eating Disorder Examination Questionnaire (EDE-Q) with standardized factor loadings and residuals.

References

Aardoom, J. J., Dingemans, A. E., Slof Op't Landt, M. C., Van Furth, E. F. (2012) Norms and discriminative validity of the Eating Disorder Examination Questionnaire (EDE-Q). *Eating Behaviors, 13*, 305–309. https://doi.org/10.1016/j.eatbeh.2012.09.002

Academy for Eating Disorders. (2012). *Eating disorders: Critical points for early recognition and medical risk management in the care of individuals with Eating Disorders* (2nd ed.). Deerfield, IL: Academic for Eating Disorders.

Alavi, M., Visentin, D. C., Thapa, D. K., Hunt, G. E., Watson, R., & Cleary, M. (2020). Chi-square for model fit in confirmatory factor analysis. *Journal of advanced nursing, 76*(9), 2209–2211. https://doi.org/10.1111/jan.14399

Alegría, M., Woo, M., Cao, Z., Torres, M., Meng, X.-L., & Striegel-Moore, R. (2007). Prevalence and correlates of eating disorders in Latinos in the U.S. *International Journal of Eating Disorders, 40*, 515–521.

Allen, K. L., Byrne, S. M., Lampard, A., Watson, H., & Fursland, A. (2011). Confirmatory factor analysis of the Eating Disorder Examination-Questionnaire (EDE-Q). *Eating Behaviors, 12,* 143-151. https://doi.org/10.1016/j.eatbeh.2011.01.005

American College Health Association (2008). American College Health Association – National College Health Assessment spring 2007 reference group data report (abridged). *Journal of American college health: J of ACH*, *56*(5), 469–479. https://doi.org/10.3200/JACH.56.5.469-480

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Psychological Association. (2019). Racial and ethnic identity. Retrieved from

     https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/racial-ethnic-

     minorities

American Psychological Association. (2017). *Multicultural Guidelines: An Ecological Approach*

     to Context, Identity, and Intersectionality. Retrieved from:

     http://www.apa.org/about/policy/multicultural-guidelines.pdf

Arcelus, J., Mitchell, A. J., Wales, J., Nielsen, S. (2011) Mortality Rates in Patients With

     Anorexia Nervosa and Other Eating Disorders: A Meta-analysis of 36 Studies. *Arch Gen*

     Psychiatry, 68(7), 724–731. https://doi.org/10.1001/archgenpsychiatry.2011.74

Ateş, C., Kaymaz, Ö., Kale, H. E., & Tekindal, M. A. (2019). Comparison of Test Statistics of

     Nonnormal and Unbalanced Samples for Multivariate Analysis of Variance in terms of

     Type-I Error Rates. *Computational and mathematical methods in medicine*, *2019*,

     2173638. https://doi.org/10.1155/2019/2173638

Bardone-Cone, A. M., & Boyd, C. A. (2007). Psychometric properties of eating disorder

     instruments in Black and White young women: internal consistency, temporal stability,

     and validity. *Psychological assessment*, *19*(3), 356–362. https://doi.org/10.1037/1040-

     3590.19.3.356

Barnes, J., Prescott, T., & Muncer, S. (2012). Confirmatory factor analysis for the Eating

     Disorder Examination Questionnaire: Evidence supporting a three-factor model. *Eating*

     Behaviors, 13, 379-381. https://doi:10.1016/j.eatbeh.2012.05.001

Becker, A. E., Thomas, J. J., Bainivualiku, A., Richards, L., Navara, K., Roberts, A. L., Gilman,

     S. E., Striegel-Moore, R. H., Group, H. F. S. (2010). Validity and reliability of a Fijian

translation and adaptation of the Eating Disorder Examination Questionnaire. *Int J Eat Disord 43*, 171–178. https://doi:10.1002/eat.20675

Belon, K. E., McLaughlin, E. A., Smith, J. E., Bryan, A. D., Witkiewitz, K., Lash, D. N., & Winn, J. L. (2015). Testing the measurement invariance of the eating disorder inventory in nonclinical samples of Hispanic and Caucasian Women. *International Journal of Eating Disorders, 48*, 262–270. https://doi.org/10.1002/eat.22286.

Belon, K. E., Smith, J. E., Bryan, A. D., Lash, D. N., Winn, J. L., & Gianini, L. M. (2011). Measurement invariance of the Eating Attitudes Test-26 in Caucasian and Hispanic women. *Eating Behaviors, 12,* 317–320. https://doi.org/10.1016/j.eatbeh.2011.07.007.

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2012). Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: a systematic review of the literature. *The International journal of eating disorders*, *45*(3), 428–438. https://doi.org/10.1002/eat.20931

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2011). Convergence of scores on the interview and questionnaire versions of the Eating Disorder Examination: a meta-analytic review. *Psychological assessment, 23*(3), 714–724. https://doi.org/10.1037/a0023246

Berg, K. C., Frazier, P., & Sherr, L. (2009). Change in eating disorder attitudes and behavior in college women: Prevalence and predictors. *Eating Behaviors, 10*(3), 137–142.

Blinder, B. J., Cumella, E. J., & Sanathara, V. A. (2006). Psychiatric Comorbidities of Female Inpatients With Eating Disorders. Psychosomatic Medicine, 68(3), 454–462. https://doi.org/10.1097/01.psy.0000221254.77675.f5

Borgogna, N. C., Brenner, R. E., & McDermott, R. C. (2021). Sexuality and gender invariance of

    the PHQ-9 and GAD-7: Implications for 16 identity groups. Journal of affective

    disorders, 278, 122–130. https://doi.org/10.1016/j.jad.2020.09.069

Bruce, K. R., Koerner, N. M., Steiger, H., & Young, S. N. (2003). Laxative misuse and

    behavioral disinhibition in bulimia nervosa. *The International journal of eating*

    disorders, *33*(1), 92–97. https://doi.org/10.1002/eat.10116

Bühren, K., Schwarte, R., Fluck, F., Timmesfeld, N., Krei, M., Egberts, K., Pfeiffer, E.,

    Fleischhaker, C., Wewetzer, C., & Herpertz-Dahlmann, B. (2014). Comorbid psychiatric

    disorders in female adolescents with first-onset anorexia nervosa. *European eating*

    disorders review: the journal of the Eating Disorders Association, 22(1), 39–44.

    https://doi.org/10.1002/erv.2254

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications,*

    and programming. New York: Routledge

Calugi, S., Milanese, C., Sartirana, M., El Ghoch, M., Sartori, F., Geccherle, E., . . . Dalle Grave,

    R. (2016). The Eating Disorder Examination Questionnaire: Reliability and validity of

    the Italian version. *Eating and Weight Disorder, 22*, 509- 514.

    https://doi.org/10.1007/s40519-016- 0276-6

Centers for Disease Control and Prevention. (2009). *Adult BMI.* Retrieved from

    http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

Chan, C. W., & Leung, S. F. (2015). Validation of the Eating Disorder Examination

    Questionnaire: an online version. *Journal of human nutrition and dietetics: the official*

    journal of the British Dietetic Association, *28*(6), 659–665.

    https://doi.org/10.1111/jhn.12275

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling, 14*(3), 464-504. https://doi.org/10.1080/10705510701301834

Clay. D., Vignoles, V.L., Dittmar, H. (2005). Body image and self-esteem among adolescent girls: Testing the influence of sociocultural factors. *Journal of Research on Adolescence, 15,* 451-477.

Cooper, Z., Cooper, P. J., & Fairburn, C. G. (1989). The validity of the Eating Disorder Examination and its subscales. *The British Journal of Psychiatry, 154,* 807–812. https://doi.org/10.1192/bjp.154.6.807

Cooper, Z., & Fairburn, C. G. (1987). The Eating Disorder Examination: A semi-structured interview for the assessment of the specific psychopathology of eating disorders. *International Journal of Eating Disorders, 6,* 1-8.

Crossley, K. L., Cornelissen, P. L., & Tovée, M. J. (2012). What is an attractive body? Using an interactive 3D program to create the ideal body for you and your partner. *PloS one*, *7*(11), e50601. https://doi.org/10.1371/journal.pone.0050601

Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research Review: What we have learned about the causes of eating disorders – a synthesis of sociocultural, psychological, and biological research. *Journal of child psychology and psychiatry, and allied disciplines*, *56*(11), 1141–1164. https://doi.org/10.1111/jcpp.12441

Davidov, E., Meuleman, B., Cieciuch, J. Schmidt, P. & Billiet, J. (2014). Measurement Equivalence in Cross-National Research. *Annual Review of Sociology, 40*(1), 55–75. https://doi.org/10.1146/annurev-soc-071913-043137.

Darcy, A. M., Hardy, K. K., Crosby, R. D., Lock, J., & Peebles, R. (2013). Factor structure of the

    Eating Disorder Examination Questionnaire (EDE-Q) in male and female college

    athletes. *Body Image, 10,* 399-405. https://doi.org/10.1016/j.bodyim.2013.01.008

Derenne, J. L., & Baresin, E. V. (2006). Body image, media and eating disorders. *Academic*

    Psychiatry, 30, 257–261.

Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating Disorder Symptoms

    Among College Students: Prevalence, Persistence, Correlates, and Treatment-Seeking.

    Journal of American College Health, 59(8), 700–707. https://doi.org/

    10.1080/07448481.2010.546461

Everitt B.S. & Dunn G. (1991). *Applied Multivariate Data Analysis.* Edward Arnold. London.

    pp. 219-220.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use

    of exploratory factor analysis in psychological research. *Psychological methods, 4(*3),

    272-299. https://doi.org/10.1037/1082-989X.4.3.272

Fairburn, C., & Cooper, Z. (1993). The eating disorder examination (12th edition). In C.

    Fairburn, & G. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment.* New

    York: Guilford Press.

Fairburn, C., Cooper, Z., & O'Connor, M. (2008). Eating disorders examination (16.0D). In C.

    Fairburn (Ed.), *Cognitive behavior therapy and eating disorders.* New York: Guilford

    Press

Fallon, E. A., Harris, B. S., & Johnson, P. (2014). Prevalence of body dissatisfaction among a

    United States adult sample. *Eating Behaviors, 15*(1), 151–158.

    https://doi.org/10.1016/j.eatbeh.2013.11.007

Fan, X., & Sivo, S. A. (2007). Sensitivity of fit indices to model misspecification and model types. *Multivariate Behavioral Research, 42*(3), 509–529. https://doi.org/10.1080/00273170701382864

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling, 6*, 56-83. https://doi.org/10.1080/10705519909540119

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191.

Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice, 40*(5), 532–538. https://doi.org/10.1037/a0015808

Field, A., Miles, J., & Field, Z. (2013). *Discovering statistics using r*. SAGE Publications Ltd.

Fitzsimmons-Craft, E. E., Karam, A. M., Monterubio, G. E., Taylor, C. B., & Wilfley, D. E. (2019). Screening for Eating Disorders on College Campuses: a Review of the Recent Literature. *Current psychiatry reports*, *21*(10), 101. https://doi.org/10.1007/s11920-019-1093-1

Forcano, L., Alvarez, E., Santamaría, J. J., Jimenez-Murcia, S., Granero, R., Penelo, E., Alonso, P., Sánchez, I., Menchón, J. M., Ulman, F., Bulik, C. M., & Fernández-Aranda, F. (2011). Suicide attempts in anorexia nervosa subtypes. *Comprehensive psychiatry*, *52*(4), 352–358. https://doi.org/10.1016/j.comppsych.2010.09.003

Franko, D. L., Jenkins, A., Roehrig, J. P., Luce, K. H., Crowther, J. H., & Rodgers, R. F. (2012). Psychometric properties of measures of eating disorder risk in Latina college women.

International Journal of Eating Disorders, 45(4), 592-596.

https://doi.org/10.1002/eat.20979

Franko, D. L., & Keel, P. K. (2006). Suicidality in eating disorders: occurrence, correlates, and

clinical implications. *Clinical psychology review*, *26*(6), 769–782.

https://doi.org/10.1016/j.cpr.2006.04.001

Friborg, O., Reas, D. L., Rosenvinge, J. H., & Rø, Ø. (2013). Core pathology of eating disorders

as measured by the Eating Disorder Examination Questionnaire (EDE-Q): The predictive

role of a nested general (g) and primary factors. *International Journal of Methods in

Psychiatric Research, 22*, 195-203. https://doi.org/10.1002/mpr.1389

Furnham, A., Badmin, N., & Sneade, I. (2002). Body image dissatisfaction: gender differences in

eating attitudes, self-esteem, and reasons for exercise. *The Journal of psychology*, *136*(6),

581–596. https://doi.org/10.1080/00223980209604820

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test:

psychometric features and clinical correlates. *Psychol Med, 12,* 871–8.

https://doi.org/10.1017/ S0033291700049163.

Giovazolias, T., Tsaousis, I., & Vallianatou, C. (2013). The factor structure and psychometric

properties of the Greek version of the Eating Disorders Examination Questionnaire

(EDE-Q). *European Journal of Psychological Assessment, 29*(3), 189–

196. https://doi.org/10.1027/1015-5759/a000138

Glazer, K. B., Sonneville, K. R., Micali, N., Swanson, S. A., Crosby, R., Horton, N. J., Eddy, K.

T., & Field, A. E. (2019). The Course of Eating Disorders Involving Bingeing and

Purging Among Adolescent Girls: Prevalence, Stability, and Transitions. *The Journal of*

adolescent health: official publication of the Society for Adolescent Medicine, *64*(2), 165–171. https://doi.org/10.1016/j.jadohealth.2018.09.023

Gluck, M. E., & Geliebter, A. (2002). Racial/ethnic differences in body image and eating behaviors. *Eating behaviors*, *3*(2), 143–151. https://doi.org/10.1016/s1471-0153(01)00052-6

Goel, N. J., Burnette, C. B., & Mazzeo, S. E. (2020). Racial and ethnic differences in the association between parent-oriented perfectionism and disordered eating in college women. *International Journal of Eating Disorders, 53*(2), 191–200. https://doi.org/10.1002/eat.23179

Goeree, M. S., Ham, J. C., & Iorio, D. (2011)*. Race, Social Class, and Bulimia Nervosa.* IZA Discussion Paper No. 5823. Retrieved from http://ftp.iza.org/dp5823.pdf.

Golden, N. H. (2003). Eating disorders in adolescence and their sequelae. *Best practice & research. Clinical obstetrics & gynaecology*, *17*(1), 57–73. https://doi.org/10.1053/ybeog.2003.0344

Golden, N. H., Katzman, D. K., Sawyer, S. M., et al. (2015). Update on the medical management of eating disorders in adolescents. *J Adolesc Health, 56*(4), 370–375

Goldfein, J. A., Walsh, B. T., & Midlarsky, E. (2000). Influence of shape and weight on self-evaluation in bulimia nervosa. *The International journal of eating disorders, 27*(4), 435–445. https://doi.org/10.1002/(sici)1098-108x(200005)27:4<435::aid-eat8>3.0.co;2-2

Gordon, K. H., Castro, Y., Sitnikov, L., & Holm-Denoma, J. M. (2010). Cultural body shape ideals and eating disorder symptoms among white, Latina, and black college women. *Cultural Diversity and Ethnic Minority Psychology, 16,* 135–143. https://doi.org/10.1037/a0018671.

Gorrell, S., & Murray, S. B. (2019). Eating Disorders in Males. *Child and adolescent psychiatric clinics of North America, 28*(4), 641–651. https://doi.org/10.1016/j.chc.2019.05.012

Grabe, S., & Hyde, J. S. (2006). Ethnicity and body dissatisfaction among women in the United States: A meta-analysis. *Psychological Bulletin, 132*(4), 622–640. https://doi.org/10.1037/0033-2909.132.4.622

Graham, A. K., Trockel, M., Weisman, H., Fitzsimmons-Craft, E. E., Balantekin, K. N., Wilfley, D. E., & Taylor, C. B. (2019). A screening tool for detecting eating disorder risk and diagnostic symptoms among college-age women. *Journal of American college health: J of ACH*, *67*(4), 357–366. https://doi.org/10.1080/07448481.2018.1483936

Grieder, S., & Steiner, M. D. (2021). Algorithmic jingle jungle: A comparison of implementations of principal axis factoring and promax rotation in R and SPSS. *Behavior research methods*, 10.3758/s13428-021-01581-x. Advance online publication. https://doi.org/10.3758/s13428-021-01581-x

Grilo, C. M., Crosby, R. D., Peterson, C. B., Masheb, R. M., White, M. A., Crow, S. J., . . . Mitchell, J. E. (2010). Factor structure of the Eating Disorder Examination interview in patients with binge-eating disorder. *Obesity, 18,* 977-981. https://doi.org/10.1038/oby.2009.321

Grilo, C. M., Henderson, K. E., Bell, R. L., & Crosby, R. D. (2013). Eating Disorder Examination-Questionnaire factor structure and construct validity in bariatric surgery candidates. *Obesity Surgery, 23*, 657-662. https://doi.org/10.1007/s11695-012-0840-8

Grilo, C. M., Reas, D. L., Hopwood, C. J., Crosby, R. D. (2015). Factor structure and construct validity of the Eating Disorder Examination Questionnaire in college students: further

support for a modified brief version. *Int J Eat Disord, 48,* 284–9. https://doi.org/10. 1002/eat.22358

Habashy, J., & Culbert, K. M. (2019). The Role of Distinct Facets of Perfectionism and Sociocultural Idealization of Thinness on Disordered Eating Symptoms. *Journal of Social and Clinical Psychology, 38*, 343-365. https://doi.org/10.1521/jscp.2019.38.4.343

Hart, L. M., Granillo, M. T., Jorm, A. F., & Paxton, S. J. (2011). Unmet need for treatment in eating disorders: A systematic review of eating disorder specific treatment seeking among community cases. *Clinical Psychological Reviews, 31*(5), 727-735, https://doi.org/10.1016,j.cpr.2011.03.004

Hawkins, N., Richards, P. S., Granley, H. M., & Stein, D. M. (2004). The impact of exposure to the thin-ideal media image on women. *Eating disorders, 12*(1), 35–50. https://doi.org/10.1080/10640260490267751

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor Retention Decisions in Exploratory Factor Analysis: a Tutorial on Parallel Analysis. *Organizational Research Methods, 7*(2), 191–205. https://doi.org/10.1177/1094428104263675

Hilbert, A., de Zwaan, M., & Braehler, E. (2012). How frequent are eating disturbances in the population? Norms of the eating disorder examination-questionnaire. *PloS one*, *7*(1), e29125. https://doi.org/10.1371/journal.pone.0029125

Hilbert, A., Tuschen-Caffier, B., Karwautz, A., Niederhofer, H., & Munsch, S. (2007). Eating Disorder Examination-Questionnaire. *Diagnostica, 53,* 144-154. https://doi.org/10.1026/0012-1924.53.3.144

Hildebrandt, T., Alfano, L., & Langenbucher, J. W. (2010). Body image disturbance in 1000

    male appearance and performance enhancing drug users. *Journal of Psychiatric*

    Research, 44 (13), 841–846.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis.

    Psychometrika, 30(2):179–185.

Hrabosky, J. I., White, M. A., Masheb, R. M., Rothschild, B. S., Burke-Martindale, C. H., &

    Grilo, C. M. (2008). Psychometric evaluation of the Eating Disorder Examination-

    Questionnaire for bariatric surgery candidates. *Obesity, 16,* 763-769.

    https://doi.org/10.1038/oby.2008.3

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis:

    Conventional criteria versus new alternatives. *Structural Equation Modeling: A*

    Multidisciplinary Journal, 6, 1–55. https://doi.org/10.1080/10705519909540118.

Hu, L.,& Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to

    underparameterized model misspecification. *Psychological Methods, 3*, 424–453.

    https://doi.org/10.1037/1082-989X.3.4.424

Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of

    eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry,*

    61, 348–358.

IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, NY: IBM

    Corp

Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H. C., & Agras, W. S. (2004). Coming

    to terms with risk factors for eating disorders: application of risk terminology and

    suggestions for a general taxonomy. *Psychological bulletin, 130*(1), 19.

Jenkins, P. E., & Davey, E. (2020). The brief (seven-item) eating disorder examination-questionnaire: Evaluation of a non-nested version in men and women. *The International journal of eating disorders*, *53*(11), 1809–1817. https://doi.org/10.1002/eat.23360

Jones, L. A., & Cook-Cottone, C. (2013). Media and cultural influences in African-American girls' eating disorder risk. *ISRN preventive medicine*, *2013*, 319701. https://doi.org/10.5402/2013/319701

Jorgensen, T. D., Pornprasertmanit, S., Schoemann, A. M., & Rosseel, Y. (2021). semTools: Useful tools for structural equation modeling. R package version 0.5-5. Retrieved from https://CRAN.R-project.org/package=semTools

Jupp, V. (2006). *The SAGE dictionary of social research methods* (Vols. 1-0). London: SAGE Publications, Ltd https://doi.org/10.4135/9780857020116

Kaiser, H.F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141–151.

Kaiser, H.F. (1974) An index of factorial simplicity. *Psychometrika, 39,* 31-36.

Kalisvaart, J. L., & Hergenroeder, A. C. (2007). Hospitalization of patients with eating disorders on adolescent medical units is threatened by current reimbursement systems. *International journal of adolescent medicine and health, 19*(2), 155–165. https://doi.org/10.1515/ijamh.2007.19.2.155

Kelly, N. R., Mitchell, K. S., Gow, R. W., Trace, S. E., Lydecker, J. A., Bair, C. E., & Mazzeo, S. (2012). An evaluation of the reliability and construct validity of eating disorder measures in white and black women. *Psychological Assessment, 24*, 608–617. https://doi.org/10.1037/a0026457.

Kessler, R. C., Berglund, P. A., Chiu, W. T., Deitz, A. C., Hudson, J. I., Shahly, V., Aguilar-

    Gaxiola, S., Alonso, J., Angermeyer, M. C., Benjet, C., Bruffaerts, R., de Girolamo, G.,

    de Graaf, R., Maria Haro, J., Kovess-Masfety, V., O'Neill, S., Posada-Villa, J., Sasu, C.,

    Scott, K., Viana, M. C., … Xavier, M. (2013). The prevalence and correlates of binge

    eating disorder in the World Health Organization World Mental Health

    Surveys. *Biological psychiatry, 73*(9), 904–914.

    https://doi.org/10.1016/j.biopsych.2012.11.020

Keys, A., Brožek, J., Henschel, A., Mickelsen, O., & Taylor, H. L. (1950). *The biology of human*

    starvation (Vol. 1-2). Minneapolis: University of Minnesota Press.

Kliem, S., Mößle, T., Zenger, M., Strauß, B., Brähler, E., & Hilbert, A. 2016). The Eating

    Disorder Examination-Questionnaire 8: A brief measure of eating disorder

    psychopathology (EDEQ8). *International Journal of Eating Disorder, 49*, 613-616.

    https://doi.org/10.1002/eat.22487

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford

    Press.

Kline, R. B. (2010). *Principles and Practice of Structural Equation Modeling* (3rd ed.). New

    York: Guilford Press.

Klump, K. L., Bulik, C. M., Kaye, W. H., Treasure, J., & Tyson, E. (2009). Academy for

    eating disorders position paper: Eating disorders are serious mental illnesses.

    International Journal of Eating Disorders, 42, 97–103.

Kraeft, J. J., Uppot, R. N., & Heffess, A. M. (2013). Imaging findings in anorexia nervosa.

    American Journal of Roentgenology, 200, 328–334.

Kyriazos, T.A. (2018). Applied psychometrics: sample size and sample power considera-

tions in factor analysis (EFA, CFA) and SEM in general. *Psychology* 9, 2207–2230.

https://doi.org/10.4236/psych.2018.98126.

Lamzabi, I., Syed, S., Reddy, V. B., Jain, R., Harbhajanka, A., & Arunkumar, P. (2015).

Myocardial changes in a patient with anorexia nervosa: A case report and review of

literature. *American Journal of Clinical Pathology, 143*, 734–737

Le Grange, D., Swanson, S. A., Crow, S. J., & Merikangas, K. R. (2012). Eating disorder not

otherwise specified presentation in the US population. *The International journal of eating

disorders*, *45*(5), 711–718. https://doi.org/10.1002/eat.22006

Lee-Winn, A., Mendelson, T., & Mojtabai, R. (2014). Racial/Ethnic disparities in binge eating:

disorder prevalence, symptom presentation, and help-seeking among Asian Americans

and non-Latino Whites. *American journal of public health*, *104*(7), 1263–1265.

https://doi.org/10.2105/AJPH.2014.301932

Lev-Ari, L., Bachner-Melman, R., & Zohar, A. H. (2021). Eating Disorder Examination

Questionnaire (EDE-Q-13): expanding on the short form. *Journal of eating

disorders*, 9(1), 57. https://doi.org/10.1186/s40337-021-00403-x

Levine, M. P., & Smolak, L. (2006). *The prevention of eating problems and eating disorders:

Theory, research and practice*. Mahwah, NJ: Lawrence Erlbaum Associates.

Levine, M. P., Smolak, L., & Hayden, H. (1994). The relation of sociocultural factors to

eating attitudes and behaviors among middle school girls. *The Journal Of Early

Adolescence, 14*(4), 471-490. https://doi.org/10.1177/027243169401400400.

Lim, S., & Jahng, S. (2019). Determining the number of factors using parallel analysis and its

recent variants. *Psychological Methods, 24*(4), 452–467.

https://doi.org/10.1037/met0000230

Lipson, S., & Sonneville, K. (2017). Eating disorder symptoms among undergraduate and

    graduate students at 12 US colleges and universities. *Eating Behaviors, 24*, 81–88

Luce, K. H., & Crowther, J. H. (1999). The reliability of the Eating Disorder Examination-Self-

    Report Questionnaire Version (EDE-Q). *The International journal of eating*

    disorders, *25*(3), 349–351. https://doi.org/10.1002/(sici)1098-

    108x(199904)25:3<349::aid-eat15>3.0.co;2-m

Luce, K. H., Crowther, J. H., & Michele Pole, M. (2008). Eating Disorder Examination

    Questionnaire (EDE-Q): Norms for Undergraduate Women. *European Eating Disorders*

    Review, 22(6), 439–442. http://doi.org/10.1002/erv.2324

Luong, R., & Kay Flake, J. (2021). Measurement Invariance Testing Using Confirmatory Factor

    Analysis and Alignment Optimization: A Tutorial for Transparent Analysis Planning and

    Reporting. *Psychological Methods*, 1–65.

Machado, P. P., Martins, C., Vaz, A. R., Conceição, E., Bastos, A. P., & Gonçalves, S. (2014).

    Eating disorder examination questionnaire: psychometric properties and norms for the

    Portuguese population. *European eating disorders review : the journal of the Eating*

    Disorders Association, *22*(6), 448–453. https://doi.org/10.1002/erv.2318

Marques, L., Alegría, M., Becker, A., Chen, C., Fang, A., Chosak, A., & Diniz, J. (2011).

    Comparative prevalence, correlates of impairment, and service utilization for eating

    disorders across US ethnic groups: Implications for reducing ethnic disparities in health

    care access for eating disorders. *International Journal of Eating Disorders, 44*, 412-420.

McEntee, M. L., Serier, K. N., Smith, J. M., & Smith, J. E. (2020). The sum is greater than its

    parts: Intersectionality and measurement validity of the eating disorder examination

questionnaire (ede-q) in latinx undergraduates in the united states. *Sex Roles: A Journal of Research.* Advance online publication. https://doi.org/10.1007/s11199-020-01149-7

Mehler, P. S., & Rylander, M. (2015). Bulimia Nervosa – medical complications. *Journal of eating disorders, 3*, 12. https://doi.org/10.1186/s40337-015-0044-4

Mitchison, D., Hay, P., Slewa-Younan, S., & Mond, J. (2014). The changing demographic profile of eating disorder behaviors in the community. *BMC Public Health, 14*(1). https://doi.org/10.1186/1471-2458-14-943

Mitchison, D., & Mond, J. (2015). Epidemiology of eating disorders, eating disordered behaviour, and body image disturbance in males: A narrative review. *Journal of Eating Disorders, 3*, 20. https://doi.org/10.1186/s40337-015-0058-y

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006). Eating Disorder Examination Questionnaire (EDE-Q): Norms for young adult women. *Behaviour Research and Therapy, 44,* 53–62. https://doi.org/10.1016/j.brat.2004.12.003

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. (2004). Temporal stability of the Eating Disorder Examination Questionnaire. *The International journal of eating disorders*, *36*(2), 195–203. https://doi.org/10.1002/eat.20017

Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. (2004). Validity of the Eating Disorder Examination Questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour research and therapy*, *42*(5), 551–567. https://doi.org/10.1016/S0005-7967(03)00161-X

Morgan, J. F., Reid, F., Lacey, J. H. (1993). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ, 319,* 1467–8. https://doi.org/10.1136/bmj.319.7223.1467.

Mulders-Jones, B., Mitchsion, D., Girosi, F., & Hay, P. (2017). Socioeconomic correlates of

    eating disorder symptoms in an Australian population-based sample. *PloS One, 12*(1),

    e0170603. https://doi.org/10.1371/journal.pone.0170603

Murray, S. B., Griffiths, S., & Mond, J. M. (2016). Evolving eating disorder psychopathology:

    Conceptualising muscularity oriented disordered eating. *British Journal of Psychiatry,*

    208, 414-415. https://doi.org/10.1192/bjp.bp.115.168427

Murray, S. B., Nagata, J. M., Griffiths, S., Calzo, J. P., Brown, T. A., Mitchison, D., Blashill, A.

    J., & Mond, J. M. (2017). The enigma of male eating disorders: A critical review and s

    ynthesis. *Clinical psychology review*, *57*, 1–11. https://doi.org/10.1016/j.cpr.2017.08.001

Narrow, W. E., Clarke, D. E., Kuramoto, S. J., Kraemer, H. C., Kupfer, D. J., Greiner, L., &

    Regier, D. A. (2013). DSM-5 field trials in the United States and Canada, part III:

    Development and reliability testing of a cross-cutting symptom assessment for DSM-

    5. *The American Journal of Psychiatry, 170*(1), 71–82.

    https://doi.org/10.1176/appi.ajp.2012.12071000

National Eating Disorders Association. (2017). *Here's How Colleges Across the Country Raised*

    Awareness this #NEDAwareness Week! Weblog; Available

    from: https://www.nationaleatingdisorders.org/blog/how-colleges-across-country-raised-

    awareness-nedawareness-week

Nicholls, D. E., Lynn, R., Viner, R. M. (2011). Childhood eating disorders: British national

    surveillance study. *Br J Psychiatry, 198*(4), 295–301

Olson, K. L., Lillis, J., Panza, E., Wing, R. R., Quinn, D. M., & Puhl, R. R. (2020). Body shape

    concerns across racial and ethnic groups among adults in the United States: More

similarities than differences. *Body Image, 35*, 108–113.

https://doi.org/10.1016/j.bodyim.2020.08.013

Parker, L. L., & Harriger, J. A. (2020). Eating disorders and disordered eating behaviors in the

LGBT population: a review of the literature. *Journal of eating disorders, 8,* 51.

https://doi.org/10.1186/s40337-020-00327-y

Parker, K., Mitchell, S., O'Brien, P., & Brennan, L. (2016). Psychometric evaluation of

disordered eating measures in bariatric surgery candidates. *Obesity Surgery, 26*, 563-575.

https://doi.org/10.1007/s11695-015-1780-x

Parker, K., Mitchell, S., O'Brien, P., & Brennan, L. (2015). Psychometric evaluation of

disordered eating measures in bariatric surgery patients. *Eating Behaviors, 19*, 39-48.

https://doi.org/10.1016/j.eatbeh.2015.05.007

Payton, G. J. (2014). Men of color and eating disorders. In M. L. Miville & A. D. Ferguson

(Eds.), *Handbook of race-ethnicity and gender in psychology.* (pp. 361–378). Springer

Science + Business Media. https://doi.org/10.1007/978-1-4614-8860-6_17

Penelo, E., Negrete, A., Portell, M., & Raich, R. M. (2013). Psychometric properties of the

Eating Disorder Examination Questionnaire (EDE-Q) and norms for rural and urban

adolescent males and females in Mexico. *PloS one*, *8*(12), e83245.

https://doi.org/10.1371/journal.pone.0083245

Peterson, C. B., Crosby, R. D., Wonderlich, S. A., Joiner, T., Crow, S. J., Mitchell, J. E.,

Bardone-Cone, A. M., Klein, M., & le Grange, D. (2007). Psychometric properties of the

eating disorder examination-questionnaire: factor structure and internal consistency. *The*

International journal of eating disorders, *40*(4), 386–389.

https://doi.org/10.1002/eat.20373

Phillips, K. E., Kelly-Weeder, S., & Farrell, K. (2016). Binge eating behavior in college students: What is a binge? *Applied nursing research: ANR*, *30*, 7–11. https://doi.org/10.1016/j.apnr.2015.10.011

Putnick, D. L., & Bornstein, M. H. (2016). Measurement Invariance Conventions and Reporting: The State of the Art and Future Directions for Psychological Research. *Developmental review: DR*, *41*, 71–90. https://doi.org/10.1016/j.dr.2016.06.004

R Core Team (2021). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing, Vienna, Austria. URL http://www.R-project.org/.

Racine, S. E., Hebert, K. R., & Benning, S. D. (2018). Emotional reactivity and appraisal of food in relation to eating disorder cognitions and behaviours: Evidence to support the motivational conflict hypothesis. European Eating Disorders Review, 26(1), 3–10. https://doi.org/10.1002/erv.2567

Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology, 25*, 111–163. https://doi.org/10.2307/271063.

Rand-Giovannetti, D., Cicero, D. C., Mond, J. M., & Latner, J. D. (2020). Psychometric properties of the Eating Disorder Examination–Questionnaire (EDE-Q): A confirmatory factor analysis and assessment of measurement invariance by sex. *Assessment, 27*(1), 164–177. https://doi.org/10.1177/1073191117738046

Reas, D. L., Grilo, C. M., & Masheb, R. M. (2006). Reliability of the Eating Disorder Examination-Questionnaire in patients with binge eating disorder. *Behaviour research and therapy*, *44*(1), 43–51. https://doi.org/10.1016/j.brat.2005.01.004

Reas, D. L., Wisting, L., Kapstad, H., & Lask, B. (2011). Convergent validity of the eating disorder examination and the eating disorder examination-questionnaire among university

women in Norway. *European eating disorders review: the journal of the Eating Disorders Association*, *19*(4), 357–361. https://doi.org/10.1002/erv.1068

Reed, G. M., First, M. B., Kogan, C. S., Hyman, S. E., Gureje, O., Gaebel, W., Maj, M., Stein, D. J., Maercker, A., Tyrer, P., Claudino, A., Garralda, E., Salvador-Carulla, L., Ray, R., Saunders, J. B., Dua, T., Poznyak, V., Medina-Mora, M. E., Pike, K. M., Ayuso-Mateos, J. L., … Saxena, S. (2019). Innovations and changes in the ICD-11 classification of mental, behavioural and neurodevelopmental disorders. *World psychiatry: official journal of the World Psychiatric Association (WPA), 18*(1), 3–19. https://doi.org/10.1002/wps.20611

Reinking, M. F., & Alexander, L. E. (2005). Prevalence of Disordered-Eating Behaviors in Undergraduate Female Collegiate Athletes and Nonathletes. *Journal of athletic training*, *40*(1), 47–51.

Rø, O., Reas, D. L., & Lask, B. (2010). Norms for the Eating Disorder Examination Questionnaire among female university students in Norway. *Nordic journal of psychiatry*, *64*(6), 428–432. https://doi.org/10.3109/08039481003797235

Rose, J. S., Vaewsorn, A., Rosselli-Navarra, F. Terrence-Wilson, G. Striegel-Weissman, R. (2013). Test-retest reliability of the eating disorder examination-questionnaire (EDE-Q) in a college sample. *J Eat Disord*, *1*(42), https://doi.org/10.1186/2050-2974-1-42

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software, 48*(2), 1-36. http://dx.doi.org/10.18637/jss.v048.i02

Ryu, E. (2011). Effects of skewness and kurtosis on normal-theory based maximum likelihood test statistic in multilevel structural equation modeling. *Behavioral Research Methods, 43,* 1066-1074. https://doi.org/10.3758/s13428-011-0115-7

Satorra, A., and Bentler, P. M. (1988). "Scaling corrections for chi-square statistics in covariance structure analysis," in *Proceedings of the Business and Economic Statistics Section,* (Alexandria, VA: American Statistical Association), 308–313.

Schaefer, L. M., Smith, K. E., Leonard, R., Wetterneck, C., Smith, B., Farrell, N., … Thompson, J. K. (2018). Identifying a male clinical cutoff on the Eating Disorder Examination-Questionnaire (EDE-Q). *International Journal of Eating Disorders, 51*, 1357–1360. https://doi.org/10.1002/eat.22972

Serier, K. N., Smith, J. E., & Yeater, E. A. (2018). Confirmatory factor analysis and measurement invariance of the Eating Disorder Examination Questionnaire (EDE-Q) in a non-clinical sample of non-Hispanic White and Hispanic women. *Eating behaviors*, *31*, 53–59. https://doi.org/10.1016/j.eatbeh.2018.08.004

Shi, D., Lee, T., & Maydeu-Olivares, A. (2019). Understanding the Model Size Effect on SEM Fit Indices. *Educational and psychological measurement, 79*(2), 310–334. https://doi.org/10.1177/0013164418783530

Smink, F. R. E., van Hoeken, D., Oldehinkel, A. J., & Hoek, H. W. (2014). Prevalence and severity of DSM-5 eating disorders in a community cohort of adolescents. *International Journal of Eating Disorders, 47*(6), 610–619. https://doi.org/10.1002/eat.22316

Solmi, F., Hotopf, M., Hatch, S.L. Treasure, J., & Micali, N. (2016). Eating disorders in a multi-ethnic inner-city UK sample: prevalence, comorbidity and service use. *Soc Psychiatry Psychiatr Epidemiol*, 51**,** 369–381. https://doi.org/10.1007/s00127-015-1146-7

Stice E. (2016). Interactive and Mediational Etiologic Models of Eating Disorder Onset: Evidence from Prospective Studies. *Annual Review of Clinical Psychology, 12,* 359–381. https://doi.org/10.1146/annurev-clinpsy-021815-093317

Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the

  proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of

  young women. *Journal of Abnormal Psychology, 122*, 445.

Stice, E., Marti, C. N., Shaw, H., & Jaconis, M. (2010). An 8-year longitudinal study of the

  natural history of threshold, subthreshold, and partial eating disorders from a community

  sample of adolescents. Journal of Abnormal Psychology, 118(3), 587-97.

  https://doi.org/10.1037/a0016481.

Stice, E., Ng, J., & Shaw, H. (2010). Risk factors and prodromal eating pathology. *Journal of*

  Child Psychology and Psychiatry, 51(4), 518–525.

Stice, E., Schupak-Neuberg, E., Shaw, H., & Stein, R. I. (1994). Relation of media exposure to

  eating disorder symptomatology: An examination of mediating mechanisms. *Journal of*

  Abnormal Psychology, 103(4), 836–840

Stice, E., Telch, C. F., Rizvi, S. L. (2000). Development and validation of the Eating Disorder

  Diagnostic Scale: a brief self-report measure of anorexia, bulimia, and binge-eating

  disorder. *Psychol Assessment, 12*, 123–31. https://doi.org/10.1037/1040-3590.12.2.123.

Striegel-Moore, R. H., Dohm, F., Kraemer, H. Taylor, C., Daniels, S., Crawford, P., & Schreiber,

  G. (2003). Eating disorders in White and Black women. *American Journal of Psychiatry,*

  160, 1326-1331

Striegel-Moore, R. H., Rosselli, F., Perrin, N., DeBar, L., Wilson, G. T., May, A., & Kraemer, H.

  C. (2009). Gender difference in the prevalence of eating disorder symptoms. *The*

  International journal of eating disorders, *42*(5), 471–474.

  https://doi.org/10.1002/eat.20625

Striegel-Moore, R. H., Schreiber, G. B., Lo, A., Crawford, P., Obarzanek, E., & Rodin, J. (2000). Eating disorder symptoms in a cohort of 11 to 16-year-old Black and White girls: The NHLBI Growth and Health Study. *International Journal of Eating Disorders, 27*(1), 49–66. https://doi.org/1002/(SICI)1098-108X(200001)27:1<49::AID-EAT6>3.0.CO;2-E

Strother, E., Lemberg, R., Stanford, S. C., & Turberville, D. (2012). Eating Disorders in Men: Underdiagnosed, Undertreated, and Misunderstood. *Eating Disorders, 20*(5), 346-355. https://doi.org/10.1080/10640266.2012.715512

Swanson, S. A., Crow, S. J., Le Grange, D., Swendsen, J., Merikangas, K. R. (2011) Prevalence and Correlates of Eating Disorders in Adolescents: Results From the National Comorbidity Survey Replication Adolescent Supplement. *Arch Gen Psychiatry. 68*(7), 714–723. https://doi.org/10.1001/archgenpsychiatry.2011.22

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics.* Needham Heights, MA: Allyn and Bacon.

Thompson, C. E., & Neville, H. A. (1999). Racism, mental health, and mental health practice. *The Counseling Psychologist, 27* (2), 155–223.

Thompson, J. K., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181–183

Udo, T., Bitley, S., & Grilo, C. M. (2019). Suicide attempts in U.S. adults with lifetime DSM-5 eating disorders. *BMC Medicine, 17*(120). https://doi.org/10.1186/s12916-019-1352-3

Udo, T., & Grilo, C. M. (2018). Prevalence and correlates of DSM-5-defined eating disorders in a nationally representative sample of US adults. *Biological Psychiatry, 84*, 345-354.

U.S. Census Bureau. (2020). Local population changes and nation's racial and ethnic diversity. Retrieved from https://www.census.gov/newsroom/press-releases/2021/population-changes-nations-diversity.html.

van de Schoot, R., Kluytmans, A., Tummers, L., Lugtig, P., Hox, J., & Muth n, B. (2013). Facing off with Scylla and Charybdis: A comparison of scalar, partial, and the novel possibility of approximate measurement invariance. *Frontiers in Psychology, 4*, 770. doi:10.3389/fpsyg.2013.00770

van Zutven, K., Mond, J., Latner, J., & Rodgers, B. (2015). Obesity and psychosocial impairment: Mediating roles of health status, weight/shape concerns and binge eating in a community sample of women and men. *International Journal of Obesity, 39*, 346-352. https://doi.org/10.1038/ijo.2014.100

Velicer, W. F., Eaton, C. A., & Fava, J. L. (2000). Construct explication through factor or component analysis: A review and evaluation of alternative procedures for determining the number of factors or components. In R. D. Goffin & E. Helmes (Eds.), *Problems and solutions in human assessment: Honoring Douglas N. Jackson at seventy*. Norwell, MA: Kluwer Academic.

Villarroel, A. M., Penelo, E., Portell, M., & Raich, R. M. (2011). Screening for eating disorders in undergraduate women: Norms and validity of the Spanish version of the Eating Disorder Examination Questionnaire (EDE-Q). *Journal of Psychopathology and Behavioral Assessment, 33*, 121-128. https://doi.org/10.1007/s10862-009-9177-6

Vince, E., & Walker, I. (2007). A Set of Meta-Analytic Studies on the Factors Associated with Disordered Eating. *The Internet Journal of Family Practice, 5*.

Wade, T. D., Byrne, S., & Bryant-Waugh, R. (2008). The eating disorder examination: Norms and construct validity with young and middle adolescent girls. *International Journal of Eating Disorders, 41,* 551-558. https://doi.org/10.1002/eat.20526

Warren, C. S., Gleaves, D. H., Cepeda-Benito, A., del Carmen Fernandez, M., & Rodriguez-Ruiz, S. (2005). Ethnicity as a Protective Factor against Internalization of a Thin Ideal and Body Dissatisfaction. *International Journal of Eating Disorders, 37*(3), 241–249. https://doi.org/10.1002/eat.20102

Watters, E. (2010). *Crazy like us: The globalization of the American psyche.* New York, NY: Simon and Schuster

Welch, E., Birgegård, A., Parling, T., & Ghaderi, A. (2011). Eating disorder examination questionnaire and clinical impairment assessment questionnaire: general population and clinical norms for young adult women in Sweden. *Behaviour research and therapy*, *49*(2), 85–91. https://doi.org/10.1016/j.brat.2010.10.010

White, H. J., Haycraft, E., Goodwin, H., & Meyer, C. (2014). Eating disorder examination questionnaire: Factor structure for adolescent girls and boys. *International Journal of Eating Disorders, 47*, 99-104. https://doi.org/10.1002/eat.22199

White, S., Reynolds-Malear, J. B., & Cordero, E. (2011). Disordered eating and the use of unhealthy weight control methods in college students: 1995, 2002, and 2008. *Eating Disorders: The Journal of Treatment & Prevention, 19*(4), 323–334. https://doi.org/10.1080/10640266.2011.584805

Wicherts, J. M., & Dolan, C. V. (2010). Measurement invariance in confirmatory factor analysis: An illustration using IQ test performance of minorities. *Educational Measurement: Issues and Practices, 29*(3), 39-47. https://doi.org/10.1111/j.1745-3992.2010.00182.x

Wildes, J., & Forbush, K. (2015). Ethnicity as a risk factor for eating disorders. In M. Levine, &

    L., Smolak (Eds). *The Wiley-Blackwell handbook of eating disorders* (pp. 324-333).

    Oxford, UK: Wiley

Williams, B., Onsman, A., & Brown, T. (2010). Exploratory factor analysis: A five-step guide

    for novices. *Australasian Journal of Paramedicine, 8*(3).

    https://doi.org/10.33151/ajp.8.3.93

Yoon, M., & Lai, M. H. C. (2018). Testing factorial invariance with unbalanced

    samples. *Structural Equation Modeling, 25*(2), 201–

    213. https://doi.org/10.1080/10705511.2017.1387859

Yucel, B., Polat, A., Ikiz, T., Dusgor, B. P., Elif Yavuz, A., & Sertel Berk, O. (2011). The

    Turkish version of the eating disorder examination questionnaire: reliability and validity

    in adolescents. *European eating disorders review: the journal of the Eating Disorders*

    Association, *19*(6), 509–511. https://doi.org/10.1002/erv.1104

<div align="center">

Curriculum Vitae

Jessica Habashy
jessicahabashy@gmail.com

</div>

Education _____

2019 - 2022	University of Nevada, Las Vegas
	Master of Arts in Clinical Psychology
	Thesis: *Psychometric Properties of the Eating Disorder Examination Questionnaire: Factor Analysis and Measurement Invariance by the Intersection of Race and Gender*
	Primary Advisor: Shane Kraus, Ph.D.
	Committee: Stephen Benning, Ph.D., Elizabeth Lawrence, Ph.D., Brenna Renn, Ph.D.
2014 - 2017	University of Nevada, Las Vegas
	Major: Psychology
	Honors College – Research and Creative Honors
	Summa Cum Laude
	Honors Thesis Title: *The Interplay between Perfectionism and Sociocultural Idealization of Thinness on Disordered Eating Symptoms.*
	Primary Advisor: Kristen Culbert, Ph.D.
	Honors Advisor: Daniel Bubb, Ph.D.
	Committee Member: Stephen Benning, Ph.D.

Honors and Awards _____

2021	**GPSA Fall 2021 Student Scholarship**
	Awarded travel scholarship by the Graduate & Professional Student Association.
2021	**AGPA Connect 2021 Student Scholarship**
	Awarded tuition by the Group Foundation for Advancing Mental Health to attend the American Group Psychotherapy Association (AGPA) Connect 2021 conference.
2017	**Second Place Paper Presentation**
	Awarded for outstanding paper presentation entitled: *An investigation of the intersection between perfectionism and sociocultural idealization of thinness on disordered eating symptoms* at the University of Nevada Las Vegas, Psi Chi PSYCHTalks.
2017	**Office of the Executive Vice President and Provost Sponsored Award**

Awarded by the University of Nevada Las Vegas, College of Liberal Arts for the undergraduate research summer funding scholarship in the amount of $1,000.

2017   **First Place Poster Presentation**
            Awarded for best overall poster presentation entitled: *The interactive effects of perfectionism and sociocultural idealization of thinness on disordered eating symptoms* at the Western Regional Honors Council (WRHC) Conference.

2014 - 2017 **Dean's Honor List**
            Awarded by the University of Nevada Las Vegas, College of Liberal Arts.

Clinical Experience _____

Summer 2021 – Present   **Student Therapist**
                        Eating Disorder Institute (EDI)
                        Clinical Supervisor: Lindsey Ricciardi, Ph.D.
                                Student therapist at the Eating Disorder Institute of Las Vegas under the supervision of Dr. Ricciardi. Trained in evidence-based treatments for eating disorders including: cognitive behavioral therapy (CBT), family based therapy (FBT), acceptance and commitment therapy (ACT), and dialectical behavior therapy (DBT). Co-facilitated two DBT groups and a multifamily/teen group as well as individual psychotherapy for teens and adults with eating disorders.

Fall 2020 – Summer 2021 **Student Therapist**
                        The PRACTICE, UNLV
                        Clinical Supervisors: Brenna Renn, Ph.D.; Stacy Graves, Ph.D.; Stephen Benning, Ph.D.
                                Student therapist at the PRACTICE, a community mental health clinic under the supervision of Drs. Renn, Benning, and Graves. Trained in evidence-based treatments including: cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT), and dialectical behavior therapy (DBT). Co-facilitated a DBT group, conducted individual psychotherapy and performed psychological assessments for adults.

Research Experience _____

Fall 2021 – Present   **Graduate Research Assistant**
                        Behavioral Addictions Lab, UNLV
                        Research Supervisor: Shane Kraus, Ph.D.

Gather data for various research projects. Revise and maintain IRB submissions. Analyze data for future research projects. Disseminate findings at various research conferences.

Fall 2019 – Spring 2021	**Graduate Research Assistant** Science-to-Service: Growing Representative Outcomes and Understanding Psychotherapy (S2S GROUP) Lab, UNLV Research Supervisor: Noelle Lefforge, Ph.D., MHA, CGP, ABPP Gather data for various research projects. Revise and maintain IRB submissions. Analyze data for future research projects. Prepare reports of research findings.
Spring 2016 – Fall 2018	**Research Assistant** Sex-Differentiated & Translational Research in Eating, Anxiety, & Mood (STREAM) Lab, UNLV Research Supervisor: Kristen Culbert, Ph.D. Recruitment coordinator for a follow-up study entitled: *A Closer Examination of Perfectionism and Culture on Eating Patterns in Women*. Maintain lab documents (i.e., informed consent forms, questionnaires) to ensure lab organization and efficiency and managerial lab tasks (e.g., oversee delivery of supplies). Conduct male and female assessments by administering self-report questionnaires and physiological measures (i.e., finger length scans, height and weight, sweet taste test, hormone collection). Score data for the weekly standardized sweet taste tests.
Summer 2015 – Spring 2016	**Research Assistant** Human Sexuality Lab, UNLV Research Supervisor: Marta Meana, Ph.D. Assist with overseeing eye-tracking device (i.e., calibrating computer screen to ensure reliability) to examine participant's attention to stimuli for human sexuality study in young adult women. Conduct literature searches and administered course credit to participants for participation in the study.

Publications

MANUSCRIPTS

Habashy, J., Benning, S.D., Renn, B.N., Borgogna, N.C., Lawrence, E**.**, & Kraus, S.W. (in progress). Psychometric properties of the eating disorder examination questionnaire: factor analysis and measurement invariance by the intersection of race and gender

Habashy, J., & Culbert, K.M. (2019). The role of distinct facets of perfectionism and

sociocultural idealization of disordered eating symptoms. *Journal of Social and Clinical Psychology, 38*, 343-365

Nahid, R., Akoury, L.M., **Habashy, J.,** Culbert, K.M., & Warren, C.S. (revise and resubmit). Sociocultural correlates of eating pathology in college women from US and Iran: a cross-cultural comparison

Conference Presentations

Paper Presentations

Habashy, J., Way, B.M., Etuk, R., Jennings, T.L., Griffin, K.R., & Kraus, S.W. (June 2022). Double Trouble? Examining the Overlap between Problematic Pornography Use and Disordered Eating Symptoms in College Women. Symposium to be presented at the International Conference on Behavioral Addictions (ICBA), Nottingham, UK.

Way, B.M., Jennings, T.L., Griffin, K., **Habashy, J.,** & Kraus, S.W. (June 2022). Left Out: Examining Compulsive Sexual Behavior and Problematic Pornography Use in Women College Students. Symposium to be presented at the International Conference on Behavioral Addictions (ICBA), Nottingham, UK.

Griffin, K.R., Way, B.M., Jennings, T.L., **Habashy, J.,** Etuk, R., & Kraus, S.W. (June 2022). Strange bedfellows: Religion, problematic Pornography Use, and Purity Culture Symposium to be presented at the International Conference on Behavioral Addictions (ICBA), Nottingham, UK.

Jennings, T.L., Gleason, N., Lyng, T., Finotelli, I., Way, B.M., Griffin, K.R., Kraus, S.W. **Habashy, J.,** Etuk, R., Miner, M., & Coleman, E. (June 2022). Compulsive Sexual Behavior, Religiosity, and Spirituality: A Systematic Review. Symposium to be presented at the International Conference on Behavioral Addictions (ICBA), Nottingham, UK.

Habashy, J., Phrathep, D., Strong, M., & Lefforge, N.L. (August 2020). Routine Outcome Monitoring & Reducing Premature Termination. Symposium presented at the American Psychological Association (APA) Virtual Conference, Washington, DC.

Habashy, J., & Culbert, K.M. (November 2017). An examination of the intersection between distinct facets of perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Paper presented at the Office of Undergraduate Research (OUR) Fall Research Showcase, Las Vegas, NV.

Habashy, J., & Culbert, K.M. (November 2017). An investigation of the intersection between perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Paper presented at the Psi Chi PSYCHTalks, Las Vegas, NV.

Posters

Habashy, J., Etuk, R., Stevens, K., & Kraus, S.W. (October 2021). An Examination of the Association between Problematic Pornography Use and Disordered Eating Symptoms in Men and Women. Poster to be presented at the Society for the Advancement of Sexual Health (SASH) Conference, Seattle, WA.

Etuk, R., **Habashy, J.,** Stevens, K., Culbert, K.M., & Kraus, S.W. (September 2021). Body Dissatisfaction Mediates the Relationship between Problematic Pornography Use and Disordered Eating Behavior in Men and Women. Poster to be presented at the Eating Disorders Research Society (EDRS) Conference, Boston, MA.

Habashy, J., Shlan, R.N., Akoury, L.M., Culbert, K.M., & Warren, C.S. (April 2020). Sociocultural predictors of disordered eating in college women from US and Iran: a cross-cultural comparison. Poster presented at the Western Psychological Association (WPA) Conference, San Francisco, CA.

Akoury, L.M., Shlan, R.N., **Habashy, J.,** Culbert, K.M., & Warren, C.S. (November 2019). Sociocultural predictors of disordered eating in college women from US and Iran: a cross-cultural comparison. Abstract submitted for poster presentation at the 2019 Association for Behavioral and Cognitive Therapies (ABCT) Obesity and Eating Disorders Special Interest Group (OED SIG) meeting in Atlanta, Georgia.

Habashy, J., & Culbert, K.M. (March 2019). An examination of negative attitudes towards obesity and thin-ideal internalization as underlying factors that influence ethnic differences in body dissatisfaction. Poster presented at the International Conference on Eating Disorders (ICED), New York, NY.

Corral, A., **Habashy, J.,** Shope, M.M., & Culbert, K.M. (April 2018). Examining interrelationships between collectivism, caregiver eating messages, and binge eating symptoms in Hispanic/Latina women. Poster presented at the Western Psychological Association (WPA) Conference, Portland, OR.

Habashy, J., & Culbert, K.M. (April 2018). An investigation of the intersection between perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Poster presented at the International Conference on Eating Disorders (ICED), Chicago, IL.

Habashy, J., & Culbert, K.M. (December 2017). The interplay between perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Poster presented at the University of Nevada, Las Vegas Honors College Research Forum, Las Vegas, NV.

Habashy, J., & Culbert, K.M. (April 2017). The interactive effects of perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Poster presented at the Western Psychological Association (WPA) Conference, Sacramento, CA.

Habashy, J., & Culbert, K.M. (April 2017). The interactive effects of perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Poster presented at the Office of Undergraduate Research (OUR) Forum, Las Vegas, NV.

Habashy, J., & Culbert, K.M. (April 2017). The interactive effects of perfectionism and sociocultural idealization of thinness on disordered eating symptoms. Poster presented at Western Regional Honors Council (WRHC) Conference, Ashland, OR.

Professional Affiliations and Memberships _____

Spring 2021   **American Group Psychotherapy Association (AGPA)**

Fall 2019   **Nevada Psychological Association (NPA)**

Spring 2017   **American Psychological Association (APA)**

Spring 2017   **Phi Kappa Phi**

Fall 2016   **Western Psychological Association (WPA)**

Spring 2016   **Psi Chi**

Employment Experience _____

Spring 2022 – Present   **Graduate Assistant**
Eating disorder clinician at the Eating Disorder Institute (EDI). Responsible for conducting assessments as well as individual and group psychotherapy for teens and adults with eating disorders.

Fall 2019 – Present   **Graduate Research Assistant**
Gather data for various research projects. Revise and maintain IRB submissions. Analyze data for future research projects. Prepare reports of research findings.

Spring 2018 – Fall 2018   **Prevent Child Abuse Nevada (PCANV) Outreach Coordinator**
Coordinate statewide Pinwheel for Prevention Awareness events, coordinate statewide advisory council, attend community outreach events, represent PCANV at community meetings, and create agency materials/flyers.

Summer 2015 – Present   **Summer Camp Counselor**
Plan, execute, and supervise camp activities, including arts and crafts, and sports. Mentor and tutor youth on math, reading, and speech.

Professional Training _____

| Spring 2016 | **Biological Safety Training** |
| | Completed online safety trainings on blood borne pathogens, chemical hygiene, personal protective equipment, and biosafety as part of the requirements for STREAM Lab. |

Community Service _____

| Fall 2019 – Present | **Outreach Undergraduate Mentoring Program (OUMP)** |
| | Mentor to undergraduate students from diverse backgrounds who are interested in pursuing a graduate degree in psychology or a related field. |

| Fall 2015 – Present | **Volunteer at Las Vegas Rescue Mission** |
| | Serve meals to recovery residents and the homeless and sort and count donations from a variety of drives (i.e., water bottle drive, canned food drive) |

| Spring 2015 – Present | **Sunday School Teacher** |
| | Plan and teach weekly lessons through a variety of methods (e.g., lectures, interactive activities) to high school students. |

Languages_____

English, Native Proficiency

Coptic, Fluent

Arabic, Conversational