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Turel Tacibaht, Jameson Molly, Gitimu Priscilla, Rowlands Zara, Mincher Jeanine and Pohle-Krauza Rachael

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## **Disordered eating: Influence of body image, sociocultural attitudes, appearance anxiety and depression - a focus on college males and a gender comparison**

Tacibaht Turel, Molly Jameson, Priscilla Gitimu, Zara Rowlands,  
Jeanine Mincher, Rachael Pohle-Krauza

Youngstown State University, Ohio, USA

### **Abstract**

This study is the continuation of a broader eating disorder study with a focus on males, which examines the influence of body image, sociocultural attitudes, appearance anxiety, and depression on disordered eating behaviors among college students. Based on EAT-26 scores, 10.5% of males were at risk of an eating disorder. Body image dissatisfaction was almost as common among males (65.2%) as females (68.6%) and BMI was not a significant predictor of dissatisfaction. Among participants who reported dissatisfaction with their bodies, eating disorder risk was higher among females than males. While there were differences between men and women in general, at-risk men and women showed quite similar self-report ratings on most measures of the SATAQ scale. The main gender difference was that Social Appearance Anxiety and Depression were significant predictors of eating disorder risk among females, but not males. This study indicates that risk of an eating disorder is more prevalent among males than previously reported. The risk is significant for college students as a whole and it is important to have preventative measures before disordered eating behaviors turn into an eating disorder.

## Introduction

Eating disorders are serious life threatening conditions, in which one may be excessively concerned about body shape, appearance and weight, which cause extreme dietary habits that result in poor health outcomes. Eating disorders can be treated more effectively, and expeditiously, when they are detected early. Therefore, it is important to identify disordered eating behaviors before they lead to pathological eating disorders that fit the diagnostic criteria of Diagnostic and Statistical Manual of Mental Disorders, 5<sup>th</sup> edition (DSM-5) (American Psychiatric Association, 2013). Disordered eating behaviors are unhealthy eating habits that may include skipping meals, restrictive dieting and compulsive overeating (Fitzsimmons-Craft, Cio, & Accurso, 2016) as well as intuitive eating, which is more prevalent among males and male athletes, who have misleading perceptions of a healthy diet (Baum, 2006; Glazer 2008). Intuitive eating, rather than restricting overall food intake, tends to revolve around selecting or restricting diet components based on one's own beliefs about how to achieve specific objectives such as increased musculature. Among disordered eating behaviors, habitual dieting is the most common predictor of the development of an eating disorder (Patton, Selzer, Coffey, Carlin, & Wolfe, 1999).

Disordered eating is often related to sociocultural pressures and body image insecurity (Clay, Vignoles, & Dittmar, 2005; Thompson, Van den Berg, Roehrig, Guarda & Heinberg, 2004; Tiggemann, Verri, & Scaravaggi, 2005; White & Halliwell, 2010). One of the significant reasons for body image dissatisfaction and concerns about shape and weight is social appearance anxiety, which typically occurs concurrently with an eating disorder (Levinson & Rodebaugh, 2012). The incidence of depression is also a significant predictor of disordered eating (Liechty &

Lee, 2013). The General strain theory has been used to explain how negative emotions can influence behavior, with some individuals exhibiting aggression outwardly, and others internalizing the negativity that can manifest as depression, anxiety and eating disorders (Leeper Piquero et al, 2010).

Among males, muscle dysmorphia or dissatisfaction with muscularity, may drive them into disordered eating behaviors to achieve increased muscle mass (Parent, 2013; Leeper Piquero et al, 2010). Greek affiliation or fraternity membership, correlated with disordered eating in college males, perhaps influenced by the strain of adhering to the standards of the organization, some of which include physical appearance (Leeper Piquero et al, 2010).

Due to higher number of females affected, it has long been assumed that males were less susceptible to eating disorders, thus females were the targets of most of the previous studies. Prior to the 1980's, little attention had been given to male eating disorders, their diagnoses and treatment. At that time, the most common eating disorder diagnosed among males was Bulimia Nervosa, a condition characterized by bingeing and purging, and over-exercising behaviors (Fernandez-Aranda et al., 2009; APA, 2013). However, over the past few decades, the media and Western society have changed the way men think about their bodies by creating a muscular and fit body image ideal for men. This has increased the incidence of male body dissatisfaction and eating disorders (Gadalla, 2009; Woodside, Garfinkel, Lin, Goering, Kaplan, Goldbloom, & Kennedy, 2001; O'Dea & Abraham, 2002). More males are being diagnosed with Anorexia Nervosa (AN) and Eating Disorders Not Otherwise Specified (EDNOS) (Fernandez-Aranda et al, 2009).

The purpose of this study is to explore disordered eating among males and contribute to a better understanding of how appearance-related issues (body dissatisfaction, social cultural

attitudes towards appearance as portrayed in the media, and social appearance anxiety), and depression influence disordered eating behavior among male college students in comparison to female college students.

### **Theoretical Framework**

Gitimu et al. (2016) studied the associations between appearance issues and depression, and disordered eating among female college students, and evaluated their findings based on three theories: social comparison theory (Festinger, 1954), self-discrepancy theory (Higgins, 1987), and the normative discontent theory (Rodin, Silberstein, & Striegel-Moore, 1984). This study sought to examine the same associations among male college students using these three theories.

#### ***Social Comparison Theory***

The social comparison theory (Festinger, 1954) proposes that there is a drive within individuals to make accurate evaluations regarding their own opinions and abilities, and they achieve this by comparing themselves to other individuals. The comparison may take place as a downward comparison, when the individuals compare themselves to those who are considered lower than them, or as an upward comparison with others superior to one's self. While downward comparisons may elevate self-regard (Gibbons, F. X., 1986), upward comparisons may have the opposite effect (Tesser, A.; Millar, M.; Moore, J., 1988). An upward social comparison takes place when men and women compare their appearances (body size, shape and weight) to other men and women displayed in media images as cultural ideals, which in some cases leads to body image dissatisfaction and extreme eating behaviors (Cooley & Toray, 2001; Kaye, Strober, & Rhodes, 2002), as well as appearance-based anxiety and depression (Myers, Ridolfi, Crowther, & Ciesla, 2012).

#### ***Self-discrepancy Theory***

Higgins (1987), suggests that individuals develop internalized standards (ideal self) to which they compare themselves (actual self as a self-perception). The gap between actual self and ideal self is called self-discrepancy. These discrepancies may lead to emotional vulnerabilities such as depression (Higgins, 1987). According to the Strauman et al. (1991) study, self-discrepancies were shown to be associated with body image dissatisfaction and disordered eating among both men and women. Although males are generally reported to have fewer self-discrepancies and consequential negative effects, the desire to be thinner and leaner, as well as a desire to be heavier and more masculine, may be present among men. This dichotomy in discrepancy scores may cancel each other out and result in lower self-discrepancy scores among men.

### ***Normative Discontent***

The Normative Discontent concept suggests that body weight dissatisfaction is the norm rather than an exception among women, with most women feeling negatively about their own weights and body shapes (Rodin, Silberstein, & Striegel-Moore, 1984). Tantleff-Dunn et al., (2011) assessed this concept for both men and women, submitting that normative discontent has become a stereotype for both sexes. While fat and caloric restrictions were considered more normative for women than men, a drive to be muscular among men was seen as an even more pervasive stereotype (Comte et al, 2015; Fernandez-Aranda et al, 2009; Leeper Piquero, 2010).

## **Appearance Issues**

### **Disordered Eating and Body Image Satisfaction**

People who portray positive body images appreciate their distinctive features and possess respect for their own bodies (Wood-Barcalow, Tylka, & Augustus-Horvath, 2010). According to

several studies focusing on body image of females, women who have positive body images, have a broader definition of beauty, are able to filter negative media influences to maintain a realistic perspective, and hence, are less prone to eating disorders (Wood-Barcalow et al, 2010). Being dissatisfied with one's body or having a rigid body image ideal tends to have associations with eating disorders (Wendell, Masuda, and Le, 2012; Hill, Masuda & Latzman, 2013).

While the effects of body image satisfaction/dissatisfaction and eating disorders are similar among males and females, there are significant differences between the two genders in terms of body image ideals. Among females, body dissatisfaction and having positive feelings about thinness have been associated with disordered eating behaviors (Fairburn, Cooper, & Shafran, 2003). Similarly, Ahern et al (2008) claimed that associating thinness with positive attributes and thin internalization (the SATAQ; Thompson et al., 2004), significantly correlated with body dissatisfaction, drive for thinness, and restrained eating. However, among males, the drive for muscularity is the main source of concern regarding the body image (Cash 1997; Mayville, Williamson, White, Netemeyer, & Drab, 2002; Edwards & Laudner, 2000). While women try to achieve thinness, men seem to strive more for more lean body mass (Harvey and Robinson, 2003).

According to the National Eating Disorders Association (2017); anorexia, commonly diagnosed among females, is characterized by extremely distorted self-image, extreme thinness, irrational fear of weight gain, minimal food consumption, and compensatory behaviors such as purging and over-exercising. Other studies (Pope, Katz, & Hudson, 1993; Pope, Gruber, Choi, Olivardia, & Phillips, 1997; Pope et al., 2000; Pope, Phillips & Olivardia, 2000) suggest that males suffer from "reverse anorexia", a type of body dysmorphic disorder generally referred to

as “muscle dysmorphia” (BDD; Pope et al., 1993; Olivardia, 2001; Pope et al., 2000; Pope et al., 1997, Pope, Olivardia, Gruber, & Borowiecki, 1999; Phillips, O'Sullivan, & Pope, 1997) .

Muscle dysmorphia is similar to eating disorders in many ways. Just as anorexic females are preoccupied with the perception that their body is not sufficiently thin, males with BDD are fixated on distorted self-image, believing that their bodies are not sufficiently muscular or lean (Olivardia, 2001; Pope, et al., 2000; Olivardia, Pope, & Hudson, 2000; Phillips et al., 1997; & Pope et al., 1997). Consequently, there is severe body image dissatisfaction, which then leads to extreme behaviors such as abnormal eating patterns, excessive exercising, and social isolation (Pope et al., 1997).

Body weight and Body Mass Index (BMI) have also been implicated as important predictors of body dissatisfaction (Gardner, Brown, & Boice, 2012). According to Pignitore et al. (1997), among college males and females alike, respondents who had higher BMIs experienced greater dissatisfaction with their bodies. There were similar findings among Chinese men and women (Xu, et al, 2010), which may suggest that BMI is positively correlated to body dissatisfaction regardless of cultural differences. Notably, in these studies, females with higher BMIs experienced a significantly higher level of body dissatisfaction than males. Regardless of age group, several studies noted similar findings (McCabe M. A. and Ricciardelli, L.A., 2004). Sands et al. (1997) found that among 10-11 year-old children, twice as many girls indicated a desire to be thinner than boys, and this was more likely among children with higher BMIs. Body dissatisfaction was even higher among obese children between the ages of 9 to 11 ½ years with a greater concern about body image among girls than boys (Vander Wal and Thelen, 2000).

Although a substantial number of these studies imply that females attach greater importance to body image than males, and females are more dissatisfied with their bodies than



males, these results should be evaluated with caution. There are other studies with conflicting findings, indicating that gender differences are much more complex than past research suggests (McCabe M. A. and Ricciardelli, L.A., 2004). Many previous studies on body image dissatisfaction focus on the desire to be thinner, but fail to evaluate the desire to be more muscular or leaner while maintaining the same body weight. In some studies, the terms “body weight” and “body shape”, as well as weight change, are used interchangeably, which creates greater confusion about the conclusions that can be derived from these studies. One frequent and consistent conclusion in past research among males, is that the percentage of men who would like to lose weight and become thinner, is about the same as the percentage of men who would like to gain weight and become larger (Drewnowski, & Yee, 1987, Silberstein, Striegel-Moore, Timko, Rodin, 1988, Drewnoski et al, 1995). When both the desire to lose weight and the desire to gain weight were considered, as in the Abel and Richards study (1996), college men were more dissatisfied with their body weights than college women, and those men predominantly indicated a desire to be heavier.

Another reason to be cautious about previously published literature, which suggests that women place more importance on body image than men, is the impact of gender roles assumed by these individuals. Many studies suggest that body dissatisfaction and eating disorder symptoms vary as a function of gender and sexual orientation (Beren et al. 1996; Martins et al. 2007), and that gender role has been accepted as an important predictor of body image dissatisfaction among men and women (McCabe and Ricciardelli, 2004). Men who aspire to more masculine roles and try to achieve the ideal male body exhibit less body dissatisfaction (Davids and Green, 2011). Similarly, women who aspire to more masculine roles have a more favorable self-image than feminine men (Jackson, Sullivan, Rostker, 1988).

Some studies indicate that gay men are more likely to be preoccupied with their physical appearance, and display higher levels of body dissatisfaction and disordered eating behaviors than heterosexual men (Feldman and Meyer 2007; Levesque and Vichesky 2006; Martins et al. 2007; Yelland and Tiggemann 2003). Davids and Green (2011) reported that bisexual men displayed similar levels of body dissatisfaction and eating disorder symptoms as gay men, however, there was no significant difference in body dissatisfaction between bisexual, lesbian, and heterosexual women. The main predictor of body dissatisfaction among all women in general was BMI (Davids & Green, 2011; Xu, et al, 2010).

One of the main differences between men and women regarding BMI is that women tend to be dissatisfied with their bodies and to adopt restrictive dieting practices regardless of body size and BMI, while men are more likely to diet only if they have higher BMIs (Lafrance Robinson, Kosmerly, Mansfield-Green, & Lafrance, 2013).

H1: College males at risk of acquiring an eating disorder (EAT 26 score  $\geq 20$ ) will have significantly larger differences between their ideal and current body shapes, as measured by the Stunkard Body Figural Scale (SBFS), compared to male students who are at less risk of acquiring an eating disorder (EAT 26 score  $< 20$ ).

H2: The mean BMI of males at risk of acquiring an eating disorder (EAT 26 score  $\geq 20$ ) will differ significantly from the mean BMI of college male students at less risk of acquiring an eating disorder (EAT 26 score  $< 20$ ).

### **Disordered Eating and Social Cultural Attitudes toward Appearance**

Both men and women experience significant pressure from sociocultural influences such as messages from family, peers, media, and broader society, which may play an important role in shaping body image ideals for beauty and attractiveness. One of the most influential messages

comes in the form of media images. Western popular culture repeatedly exposes males and females to idealized and sexualized body images at an early age, which causes internalization of rarely attainable body types and shapes as attractive ideals (Greenwood & Lippman, 2010). This type of exposure mainly occurs through frequent media consumption, in the form of fashion magazines and television viewing, and is correlated with body dissatisfaction, concerns about weight, self-consciousness, and disordered eating behaviors (Grabe, Ward, & Hyde, 2008). The introduction of the World Wide Web and explosion of social media, are likely to increase the negative effects on people who compare their bodies to media-promoted ideals.

Contemporary ideals of beauty juxtapose toned and extremely fit appearance against extreme thinness for females (Homan, McHugh, Wells, Watson, & King, 2012; Grogan, 2008). In contrast, male standards for attractiveness displayed in the media, include a muscular and somewhat larger body image, with low body fat (Law & Labre, 2002). Media content analyses show that male models in fashion magazines have become more muscular and leaner over time (Leit, Pope, & Gray, 2001).

The attractive female body displayed in magazines progressively become thinner in the span between the 1950s to the 2000s, resulting in the creation of the thin-ideal as the most desirable body image among women (Garner, Garfinkel, Schwartz, & Thompson, 1980; Seifert, 2005; Wiseman, Gray, Mosimann, & Ahrens, 1992). Many of the earlier studies that focus on the desire to be thin, have suggested that females are generally more dissatisfied with their bodies than males. However, some studies report that males tend to express concerns regarding being underweight, unlike their female counterparts who are primarily concerned about being overweight (Levinson et al., 1986). Therefore, research that primarily focuses on the desire to lose weight and become thinner, while overlooking the desire to be larger, has to be evaluated

with caution, and the influence of socio-cultural attitudes on men and women needs to be studied with a more comprehensive approach.

Research suggests that media-exerted standards of attractiveness cause body dissatisfaction only if these ideals are internalized (Swami, Taylor, & Carvalho, 2011). Among females, reading fashion magazines has an impact on the internalization of the thin ideal, however it does not necessarily cause body dissatisfaction and disordered eating (Tiggemann, Verri, and Scaravaggi, 2005). Among males too, viewing media images alone may not cause body dissatisfaction unless these images are internalized. Many studies indicate a level of internalization of unrealistically thin or muscular body ideals among females and males, respectively. Regardless of how close women are to desirable body weight and size, many women find themselves larger than the thin ideal and express a desire to lose weight (Tod, Edwards, & Hall, 2013). Men experience a similar dissatisfaction according to earlier studies, which found that males perceive that the male body image considered ideal by both men and women, is bulkier than their current body form (Cohn and Adler, 1992; Demarest and Allen, 2000). The socio-cultural view of men's bodies adhering to a lean mesomorphic muscular ideal, is reinforced by images of the male body in magazines and on television, especially football programs that portray the male body as a weapon or an object of admiration (Trujillo, 1995).

Upward comparison, which is the tendency to compare self to others one considers superior, also plays an important role in the perceptions of body image. Many studies suggest that females frequently compare themselves to ultra-thin and slender models, actresses or celebrities who are thinner than they are (Homan et al., 2012). Since images of these figures are often unrealistic and their body types and weights hard to achieve, comparing self to them leads to negative emotional and behavioral consequences (Tiggemann & McGill, 2004; Heinberg &

Thompson, 1995). Women also associate physical appearance, often in the form of thinness, with success, power and happiness because such social value messages come from society and the media (Strahan, Wilson, Cressman, & Buote, 2006). Thus, the tendency to diet and desire to lose weight, are perceived necessary to assure a certain social position, and to compete for societal advantages (Gatward, 2007; Conley & Boardman, 2007).

Upward comparison does not result in such self-critical attitudes among males. In contrast to women, men see their bodies in a more positive light and feel more hopeful to achieve ideal shape (Franzoi, Kessenich, & Sugrue, 1989; Powell, Matacin, & Stuart, 2001). There are two possible explanations for these findings. Firstly, men are less likely than women to encounter unattainable body image ideals in the mass media, on a regular basis (Dittmar, 2005; Murnen, Smolak, Mills, & Good, 2003). Furthermore, for men, the pressure to match the body image ideals does not necessarily constitute a risk for losing social status since cultural messages are not as critical in others' evaluations of them (Schooler & Ward, 2006).

Another socio-cultural attitude that influences males' perceptions of body image is the societal pressure and the association between muscularity and masculinity. This association creates an important relationship between a man's body image and his sense of self (Mishkind et al., 1986). Consequently, men who fail to achieve a muscular body form become vulnerable and often experience anxiety, as well as high levels of body image dissatisfaction (Gillet and White, 1992). Heightened levels of body image concerns and masculine body ideal stress among gay and bisexual men, is strongly associated to minority stress factors such as internalized homophobia, stigma and anti-gay physical attack (Kimmel and Mahalik, 2005).

Males' and females' perceptions of body image are also impacted by parental feedback. According to a study by Schwartz et al. (1999), the feedback from parents on body image has a

stronger impact among college women than college men. This finding may indicate that men are not as influenced by their parents' opinions due to higher self-esteem than women, or that parents put less pressure on males to conform to socio-cultural ideals on body image (McCabe and Ricciardelli, 2004).

Parents with an eating disorder (ED) psychopathology may also be a predictive, risk or protection factor for the ED behaviors in childhood and adolescence (Cimino et al., 2016; Lydecker & Grillo, 2016; Tierney et al., 2011). Although associations between parents ED features and children's ED behaviors have been reported, most studies focus on young children and not adults.

A study by Haworth-Hoepfner (2000) suggested that eating disorders do not emerge as an influence of a single socio-cultural influence, however they emerge under the combination of multiple conditions such as a critical family environment, coercive parental control, and a main discourse on weight.

H3: College males at risk of acquiring an eating disorder ( EAT 26 score  $\geq 20$ ) will score significantly higher in the SATAQ-3 scale compared to college males not at risk of acquiring an eating disorder ( EAT 26 score  $< 20$ ).

### **Disordered Eating and Appearance Anxiety, and Depression**

Anxiety invokes many unpleasant feelings, such as worry, distress, uncertainty, fear and loss of control. Social anxiety disorder is characterized by a significant and persistent fear of social situations or performance evaluations, which may result in humiliation or embarrassment (APA 2000). Social physique anxiety (SPA) refers to anxiety experienced by individuals when

they are being evaluated based on their physical appearance (Hart, Leary, & Rejeski, 1989) and constitutes an important dimension of body image. SPA has been positively associated with body image dissatisfaction and depression (Diehl, Johnson, Rogers, & Petrie, 1998; Frederick & Morrison, 1998). Social physique anxiety is addressed in the framework of social appearance anxiety (SAA), which is the fear of being evaluated negatively by others based on one's overall appearance (Hart et al., 2008). Social appearance anxiety includes a more comprehensive concept of physical appearance, extending from general physical characteristics such as height, weight, and muscle structure, to personal characteristics such as complexion and shape of the face (Argon, 2014). In some individuals, social appearance anxiety generates and reinforces a negative body image perception, however it differs from body image dissatisfaction.

In social appearance anxiety, dissatisfaction is not merely the result of an individual's personal dissatisfaction with their body image, but is also influenced by the fear of negative evaluation by others (Sahin, 2012). Fear of being evaluated negatively by others is associated with body image disturbance and maladaptive appearance schemas such as disordered eating behaviors and excessive exercising (Coles et al., 2006; Hinrichsen, Waller, & van Gerko, 2004; Pinto & Phillips, 2005). Eating disorders such as bulimia nervosa, anorexia nervosa, and body dysmorphic disorder have been associated with social appearance anxiety (APA, 2000). The Social Appearance Anxiety Scale (SAAS), created by Hart, Leary, and Rejeski (1989), was found to be a dependable assessor of negative body image. Individuals who scored higher on SAAS had greater disparity between self-reported actual and ideal physical attributes.

Individuals with higher SAAS scores indicated feelings of attractiveness, a greater emphasis on appearance and were preoccupied with being or becoming overweight (Hart et. al, 2008).

A 2008 study reported that men's dissatisfaction with their body image has tripled over the last 30 years (Kassarr, 2008), as drive for muscularity has become an important facet of men's body image (Chattaraman, Simmons & Ulrich, 2013). Men with muscle dysmorphia are especially preoccupied with the idea that they are insufficiently lean and muscular, which leads them to exercise excessively to increase muscularity and use performance enhancing supplements such as steroids (Pope et al., 1997). Among both men and women, steroid users are more likely to be involved in sports, which require maintenance of a certain weight; however male steroid users are more likely to have eating disorders and to use unhealthy means of maintaining weight control (Irving et al., 2002).

Earlier studies have also reported that while anxiety, eating behaviors, bingeing, vomiting, depressed mood, and obsessional symptoms were similar between men and women, excessive physical activity was greater among males (Sharp et al., 1994). Both male and female patients with binge eating disorder had similar rates of reported concurrent depression (Barry et al., 2002; Fontenelle, Mendlowicz, de Menezes, et al., 2003). Many previous studies indicated associations between depression and disordered eating behaviors (Gadalla, 2008; Liechty & Lee, 2013; Fink, Bodell, Smith, & Joiner, 2013; Ostrovsky, Swencionis, Wylie-Rosett, & Isasi, 2013). A study among college males reported that higher symptoms of depression, anxiety, and interpersonal sensitivity, and lower overall self-esteem predicted body dissatisfaction, as well as muscle dysmorphia symptoms, while interpersonal sensitivity and depression were unique predictors of muscle dysmorphia symptoms (McFarland, Kaminski, 2009).

Gay men were found to have a higher rate of anxiety, fear of being fat, as well as binge-eating problems, and negative body image perception compared to heterosexual men (Yager, Kurtzman, Landsverk, & Wiesmier, 1988), in addition to higher rates of depression, lower self-



esteem and discomfort in their sexual orientation, which leads to increased dissatisfaction and eating disorder symptoms (Russell & Keel, 2002).

H4: College males at risk for disordered eating (EAT 26 score  $\geq 20$ ) will have significantly higher social appearance anxiety (as measured by scores on the SAAS) than college males not at-risk for disordered eating (EAT 26 < 20).

***The culminating inquiry:***

- 1) Among the influences on disordered eating examined in this study, which influencing factor is the greatest predictor of disordered eating; body image perception (ideal body shape vs. current body shape), BMI, sociocultural attitudes towards appearance, social appearance anxiety, or depression?
- 2) How do these results compare to females?

## **Materials and Methods**

### **Measures**

A questionnaire composed of demographic items (i.e., age, gender, major, ethnicity, level of education, current and desired weight, and height) and the following five scales were used.

**Stunkard Body Figure Scale (BFS)** (Stunkard, Sorensen, and Schulsinger, 1983): This survey is widely used in research regarding body dissatisfaction. For this particular study, participants were asked to compare a set of nine drawings depicting increasing body size, and to circle their perceived current body shape and desired body shape. Body-shape drawings were assigned a series of ascending scores, and 'Body Dissatisfaction' was calculated based on the difference between current shape and the ideal shape scores. If the difference between current

shape and ideal shape score was greater than zero, then the individual exhibited some level of body dissatisfaction with a larger differential indicating high body dissatisfaction. The BFS has a concurrent validity of .99, a test-retest reliability for the current size of 0.90, and 0.88 for ideal size (Gardner & Brown, 2010).

**The Eating Attitudes Test (EAT-26)** (Garner, Olmsted, Bohr, and Garfinkle, 1982), has been used extensively in research as a reliable measure of identifying the presence of symptoms that are consistent with either a possible eating disorder or disordered eating behavior. Individuals who score 20 or greater ( $EAT-26 \geq 20$ ) are considered to be at risk of having an eating disorder (Garner et al.). When used clinically, the EAT-26 is interpreted cautiously, but in non-clinical samples such as in the current study, it is appropriate to dichotomize participants as at-risk and not-at-risk for group comparisons (Anstine & Grinenko, 2000; Jones, Bennett, Olmsted, Lawson, & Rodin, 2001). The EAT-26 scale comprises four dimensions, which include dieting, bulimia, food preoccupation, and oral control. An example of a question in EAT-26 is 'I have gone on eating binges where I feel that I may not be able to stop.' Each item is rated on a scale of 0-3 as follows: never=0, rarely=0, sometimes=0, often=1, usually=2, and always=3. Only item 26 was reverse coded since a positive answer to the question indicated a lower chance of an eating disorder unlike the rest of the questions.

#### **Social Cultural Attitudes Towards Appearance Questionnaire (SATAQ-3)**

(Thompson et al., 2004): SATAQ- 3 is a measure of agreement with societal appearance standards (Calogero, Davis, & Thompson, 2004), with-3 subscales that have exhibited excellent convergent validity with measures of body image and eating disturbance (Thomson et al. 2004). The questionnaire has also exhibited strong psychometric properties in samples of Caucasian, African American, Asian, and Hispanic college women in the USA. The SATAQ-3 showed

excellent reliability, reporting Cronbach's alpha values for the total score of .97 for all four ethnic groups (Warren, Rakhkovskaya, & Gleaves, 2013). The 30-item questionnaire assesses four aspects of media influence on individuals using four subscales: (1) Internalization-General (the support and acceptance of media messages concerning unrealistic aesthetic ideals); (2) Internalization-Athlete (approval and acceptance of an athletic body ideal); (3) Pressure (apparent pressure from various media to strive for ideals of attractiveness); and (4) Information (the level to which various media are reflected as a significant source of information about appearance). The subscales of the SATAQ-3 have been considerably associated with appearance disorder (Thompson et al., 2004). An example of a question in SATAQ-3 is 'I compare my appearance to the appearance of TV and movie stars.' Participants responded to each question using a five-point scale (5= definitely agree, 4= mostly agree, 3= neither agree nor disagree, 2= mostly disagree, 1= definitely disagree). Higher scores on the SATAQ-3 indicate that there are higher levels of involvement in social cultural attitudes towards appearance.

**Social Appearance Anxiety Scale (SAAS)** (Hart et al., 2008): SAAS is a distinctive predictor and a psychometrically valid assessment of social appearance anxiety regarding one's overall appearance (Hart et al., 2008). The SAAS was created to assess anxiety about being undesirably assessed by others based on one's overall appearance, including body shape. SAAS assesses feelings of unattractiveness, an obsession with being overweight, and the belief that one's looks are fundamentally imperfect and socially intolerable. The SAAS has an established high test-retest reliability and internal consistency. An example of a question in SAAS is 'I am frequently afraid I would not meet others' standards of how I should look.' Participants responded to each question using a five-point scale (5= extremely, 4= very, 3= moderately, 2=

slightly, 1= not at all). Higher scores on the SAAS indicate higher levels of social appearance anxiety.

The original psychometric work designated SAAS as a single-factor scale and SAAS exhibited excellent internal consistency, test–retest reliability, and convergent validity (Hart et al., 2008). Levinson and Rodebaugh (2011) offered supplemental support for the use of the SAAS as a valid measure of social appearance anxiety. In Hart et al (2008), SAAS scores were positively related to depression as measured by BDI. However, in the Levinson and Rodebaugh (2011) study, SAAS scores were not significantly correlated with BMI.

**Beck Depression Inventory (BDI)** (Beck, Steer, & Garbin, 1988): The BDI is used to evaluate cognitive indicators of depression. BDI is a widely-used measure of depression with an internal consistency of  $\alpha=.88$  for nonclinical populations. Scores on this self-reported, 21-item scale range from 0 to 63, with a score of 10 used to discriminate between asymptomatic and symptomatic individuals. Each item on the BDI scale is framed within a range of 0-3: 0 = I do not feel sad; 1= I feel sad; 2 = I am sad all the time and I can't snap out of it; 3 = I am so sad or unhappy that I can't stand it. Participants are directed to select only the most representative response.

**Logistic Regression:** Logistic regression was conducted to examine which of the appearance issues significantly contributed to the model fit and therefore were greatest predictors of disordered eating behavior.

### Procedures

This study was conducted at a Midwestern university in the US and approved by the university's Institutional Review Board. Participants were informed that the purpose of this study was to obtain information that would enhance our understanding of eating disorders. They

completed the packet of surveys, including the questionnaires listed above, in small classroom settings with approximately 20 to 30 students in each session.

### **Participants**

This was part of a larger study, which included a total sample of 518 (148 male and 370 female) participants. The results regarding women were disseminated in an earlier publication (Gitimu et. al., 2016). The total sample for this publication included 148 undergraduate men from a mid-sized state university. After removing participants who failed to complete all scales, the final sample included 131 male college students between the ages of 18 – 56 ( $M = 21.44$ ;  $SD = 5.25$ ). Participants were drawn from all class ranks, with attempts made to equally sample freshman (29.1% of sample), sophomore (36.5%), junior (20.3%), and senior (12.8%) students. A complete description of participant characteristics is available in Table 1.

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[Insert Table 1 Here]

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### **Results**

Prior to running analyses for the purpose of hypothesis testing, internal consistency analyses were conducted on all scales used. All measures had strong or excellent internal consistency (see Table 2 for Cronbach's alpha for all scales). Further, there was examination of the alpha if item deleted analyses of all scales revealed that no items are serving as a drag on reliability. Therefore, the results of all subsequent inferential analyses can be considered robust.

[Insert Table 2 Here]

### ***Disordered Eating Risk and Body Size Dissatisfaction***

Because previous literature has indicated that body dissatisfaction in males could be reflected by ideal body size larger *or* smaller than the current body size, we identified men who fit into both categories as having body dissatisfaction. In the current sample of male participants, 47.7% ( $N = 71$ ), reported an ideal body shape smaller than their current body shape, while 17.5% ( $N = 26$ ) reported an ideal body shape larger than their current body shape. Of the 65.2% of our male sample who was classified as having body dissatisfaction, 13.4% ( $N = 13$ ) reported EAT-26 scores (scores  $\geq 20$ ) that would characterize them as at-risk for disordered eating. There were four (4) men in the sample, however, who were not classified as having body dissatisfaction, but were at risk for disordered eating based on their EAT-26 scores.

To explore H1, an independent sample t-test was conducted with body dissatisfaction as the categorical predictor and scores on the EAT-26 as the continuous outcome variable. The results indicate that men with body dissatisfaction have significantly higher scores on the EAT-26 than men without body dissatisfaction,  $t(141) = -2.14, p = .034, d = .38$ . According to Cohen (1992), this effect size is approaching moderate, indicating that the differences between men at-risk and those not at-risk for disordered eating based on body image may have noteworthy real world implications.

These results provide support for H1: college males classified as having body shape dissatisfaction (as measured by the difference between their ideal body shape and their current body shape on the Stunkard Body Figural Scale) are more likely to be characterized as at-risk for disordered eating (EAT 26 score  $\geq 20$ ) than male students who are classified as having healthy body image (as measured by the difference between their ideal body shape and their current body shape = 0).

### ***Disordered Eating Risk and BMI***

To explore H2: the average body mass index (BMI) of male participants at risk for disordered eating (EAT 26 scores  $\geq 20$ ) will differ significantly from the average BMI for male participants not at risk for disordered eating, an independent sample *t*-test was analyzed. The findings failed to support H2, instead indicating that BMI is similar between men at risk and not at risk for disordered eating,  $t(131) = .051, p = .959, d = .016$ . The average BMI of men not at risk was 30.05 ( $SD = 7.70$ ), while the average BMI of men at-risk was 29.94 ( $SD = 6.14$ ). Further, this effect size ( $d = .016$ ) is small, suggesting that the relationship between disordered eating risk and BMI is negligible in this sample of college-aged men.

### ***Disordered Eating Risk and Sociocultural Attitudes towards Appearance***

To explore the differences between male participants at-risk and those not at-risk for disordered eating using their sociocultural attitudes toward appearance, an independent samples *t*-test was conducted for the SATAQ total score as well as for each of the four subscale scores. For the SATAQ total, men at-risk for acquiring an eating disorder had significantly higher scores than men not at-risk,  $t(131) = -3.188, p = .002, d = .79$ . This effect size is large, indicating a significant magnitude of difference between the groups. Examination of the subscale scores showed that men at-risk for disordered eating scored significantly higher on all subscales of the SATAQ than men not at-risk for disordered eating, with the exception of the Information subscale (see Table 3 for all outcome variable findings). This subscale addresses sources of information regarding attractiveness and fashion (e.g., television commercials, movie stars), and findings indicate that men at-risk and those not at-risk, view sources of information regarding attractiveness and fashion similarly. However, for the remaining subscales, the results indicate that men at-risk for disordered eating are significantly more likely to internalize information about both the thin ideal and the athletic ideal, as well as more likely to feel pressure to be thin

and attractive, than their peers not at-risk for disordered eating. Therefore, these results partially support H3: college males at risk for disordered eating ( EAT 26 score  $\geq 20$ ) will score significantly higher on the Sociocultural Attitudes towards Appearance Scale than college males not at risk for disordered eating ( EAT 26 score  $< 20$ ).

### ***Disordered Eating Risk and Social Appearance Anxiety***

To examine social appearance anxiety between men at-risk and not at-risk for disordered eating, an independent sample t-test was conducted. The results of this test indicate that men at-risk for disordered eating do not have significantly different social appearance anxiety than men not at-risk,  $t(131) = -1.32, p = .189, d = .36$ . This effect size is approaching moderate, again indicating that while null-hypothesis statistical testing failed to show significant differences between the groups, a real-world difference in social appearance anxiety may exist between these groups but additional research is necessary. These results fail to support H4: college males at risk for disordered eating (EAT 26 score  $\geq 20$ ) will have significantly higher social appearance anxiety (as measured by scores on the SAAS) than college males not at-risk for disordered eating (EAT 26 $<$ 20).

To further explore this issue, the data from male participants were compared to that of female participants; in both at-risk and not at-risk groups from both genders. SAAS scores were higher for female participants than for male participants (see Table 3), however, the effect size for each analysis (comparing men and women not at-risk,  $d = .22$ ; men and women at-risk,  $d = .67$ ) does indicate that there is a complicated relationship between gender, risk of disordered eating, and social appearance anxiety warranting further research to untangle the effect for each factor.

### ***Disordered Eating Risk and Depression***



To examine risk for disordered eating and depression, an independent sample *t*-test was analyzed using risk for disordered eating as the predictor and scores on the Beck Depression Inventory (BDI) as the outcome variable. This analysis suggests that there are no differences in depression scores between men at-risk for disordered eating and men not at-risk for disordered eating,  $t(131) = -1.69, p = .093, d = .49$ . The magnitude of the difference between the two groups is moderate (Cohen, 1992), indicating noticeable differences in depression levels between the two groups, again suggesting the import of continued research on this topic. See Table 3 for all descriptive and inferential statistical information.

[Insert Table 3 Here]

### ***The Culminating Inquiry***

The culminating inquiry of the current study is to determine the quality and strength of each predictor (body satisfaction (ideal vs. current body shape), BMI, sociocultural attitudes towards appearance, social appearance anxiety, and depression) on the categorical outcome variable of disordered eating risk (EAT 26 scores, categorized as at-risk or not-at risk according to cutoff scores for the EAT26). To examine the quality of these factors as predictors, a logistic regression was completed. Results of regression analyses indicate that the combination of these variables is not a particularly strong predictor of disordered eating in this college-aged male sample. While the Hosmer and Lemeshow goodness-of-fit test indicates a nonsignificant statistic ( $\chi^2(8) = 10.03, p = .26$ ), suggesting that the model estimates do fit the data well, and the classification table indicates that this model would correctly predict a male's risk for disordered eating 89.6% of the time, additional examination of the logistic regression revealed that only one predictor is responsible for the strength of this prediction, the participants' scores on the SATAQ, the measure of sociocultural attitudes toward appearance, significantly predicted male

college students' risk for disordered eating. The other predictors did not significantly add to the model. See Table 4 for full logistic regression statistics.

[Insert Table 4 Here]

### ***Gender Differences in All Study Variables***

Looking across the sample as a whole, prior to identifying those at-risk and those not at-risk, suggests that female participants report higher levels of most variables compared to male participants. Two study variables did not show gender differences, however: EAT-26 Food Preoccupation subscale ( $t(455) = -1.024, p = .306$ ) and EAT-26 Oral Control subscale ( $t(455) = -0.878, p = .381$ ). Males ( $M = 16.65; SD = 4.6$ ) did self-report higher agreement than women ( $M = 15.55; SD = 5.1$ ) with one subscale from the SATAQ, the Internalization of Athletic Ideal subscale,  $t(455) = 2.157, p = .032$ .

### ***Gender Differences in Study Variables Among At-Risk Participants***

Examination of just participants at-risk for disordered eating ( $N = 75; N \text{ males} = 14, N \text{ females} = 61$ ) revealed that at-risk men and women show quite similar self-report ratings on most measures. Table 5 shows all variables and results, but generally, men and women at-risk for disordered eating were similar in their self-report scores for SATAQ Total score, SATAQ General Internalization, SATAQ Athletic Internalization, SATAQ Information, and the BDI. They did differ on the SAAS and the SATAQ Pressure subscale. At-risk women had higher scores on the SAAS and the SATAQ Pressure than at-risk men, and these effect sizes were moderate to large.

Table 1. Demographics and Descriptives for Males

	% Total sample	At-risk	Not At-risk
Total N	133	10.5% (N=14)	89.5% (N=119)
Race			
Caucasian	80.5%	78.6%	80.7%
African-American	11.3%	7.1%	11.8%
Hispanic	3.8%	0%	4.2%
Native American	1.5%	0%	1.7%
Other	3%	14.3%	1.7%
Marital Status			
Single	97%	100%	96.6%
Married	2.2%	0%	2.2%
Divorced	0.8%	0%	0.8%
Age			
18-22 years	82.7%	85.7%	82.4%
23-30 years	13.7%	14.2%	13.4%
31-40 years	1.6%	0%	1.6%
41 and over	2%	0%	2%
Body shape satisfaction*	44.8%	84.6%	7.7%
Body shape dissatisfaction*	65.2%	13.4%	75.3%

\*Body shape satisfaction and dissatisfaction were determined by the Stunkard Body Figure Scale

Table 2. Internal consistency of scales

Scale	Number of items	Cronbach's Alpha
EAT-26	26	.82
SATAQ	30	.93
SAAS	16	.96
BDI	21	.90

Table 3. Descriptive and Inferential Statistics for Male Participant Outcome Variables and Gender Comparison for SAAS

		<i>M</i>	<i>SD</i>	<i>t</i> -value	<i>p</i> -value	Cohen's <i>d</i>
BMI	At-risk	29.94	6.14	0.051	.959	0.02
	Not at-risk	30.05	7.70			
SATAQ Total	At-risk	92.07	24.85	-3.19	.002**	0.79
	Not at-risk	74.69	18.59			
SATAQ Internalizing Subscale-General	At-risk	28.21	9.81	-3.10	.002**	0.75
	Not at-risk	21.80	7.01			
SATAQ Internalizing Subscale-Athlete	At-risk	18.86	5.78	-1.914	.058*	0.48
	Not at-risk	16.40	4.40			
SATAQ Pressure Subscale	At-risk	19.93	7.41	-3.55	.001**	0.86
	Not at-risk	14.46	5.19			
SATAQ Information Subscale	At-risk	25.07	7.11	-1.54	.127	0.43
	Not at-risk	22.03	6.98			
SAAS	At-risk	35.43	15.55	-1.32	.189	0.36
	Not at-risk	30.13	14.06			
	Women at-risk	47.51	2.03			
	Women not at-risk	33.28	14.21			
BDI	At-risk	9.85	7.44	-1.69	.093	0.49
	Not at-risk	6.27	7.19			

\* significant at  $p < .05$ ; \*\* significant at  $p < .01$

Table 4. Logistic Regression Analysis (males)

Predictor	$\beta$	<i>SE</i> $\beta$	Wald's $\chi^2$	<i>df</i>	<i>p</i>	Odds Ratio
Constant	-6.06	2.16	7.87	1	.005	.005
Body Satisfaction	-.026	.264	.009	1	.923	.975
BMI	-.011	.054	.043	1	.836	.989
Sociocultural Attitudes Toward Appearance	.049	.019	6.302	1	.012*	1.05
Social Appearance Anxiety	-.002	.027	.004	1	.951	.998
Depression	.029	.047	.378	1	.539	1.029

\*significant at  $p < .05$ 

Table 5. Descriptive and Inferential Statistics for At-Risk Males and Females

		<i>M</i>	<i>SD</i>	<i>t</i> -value	<i>p</i> - value	Cohe n's <i>d</i>
BMI	Males at-risk	29.94	6.14	-1.79	.078	
	Females at-risk	26.00	7.70			
SATAQ Total	Males at-risk	92.07	24.85	-1.53	.130	
	Females at-risk	103.21	24.50			
SATAQ Internalizing Subscale-General	Males at-risk	28.21	9.81	-0.94	.348	
	Females at-risk	30.79	9.06			
SATAQ Internalizing Subscale-Athlete	Males at-risk	18.86	5.78	0.144	.886	
	Females at-risk	18.64	4.95			
SATAQ Pressure Subscale	Males at-risk	19.93	7.41	-2.94	.004**	0.84
	Females at-risk	25.85	6.67			
SATAQ Information Subscale	Males at-risk	25.07	7.11	-1.13	.262	
	Females at-risk	27.93	8.84			
SAAS	Males at-risk	35.43	15.55	-2.08	.041*	0.67
	Females at-risk	47.51	20.34			
BDI	Males at-risk	9.85	7.44	-1.10	.274	
	Females at-risk					

\* significant at  $p < .05$ ; \*\* significant at  $p < .01$

## Discussion

This study examined how depression and four appearance issues relate to disordered eating among male college students, providing evidence that college males at risk of disordered eating behavior differed significantly from those less at risk in body dissatisfaction and social cultural attitudes toward appearance, but not in BMI, social appearance anxiety, or depression. When compared to our previous study on college females (Gitimu et al., 2016), these results indicate differences as well as similarities between males and females.

A greater number (68.6%) of females reported an ideal body shape smaller than their current body shape (Gitimu et al., 2016) compared to males (47.7%). However, as discussed in previous studies, there is also a strong desire to have more body mass among men (Harvey and Robinson, 2003). Confirming this argument, 17.5% of men in this study reported an ideal body shape larger than their current body shape. This indicates that a total of approximately 65.2% of male college students were dissatisfied with their body shape. This validates the concern regarding earlier studies that focus on the desire to be thinner and hence report that women have significantly greater body dissatisfaction than men. These findings rather agree with more recent studies, which recognize that body shape dissatisfaction is a growing concern among men as well.

Many previous studies indicated that males and females with a higher BMI, experienced greater dissatisfaction with their bodies (Gardner, Brown, & Boice, 2012; Xu et al., 2010; Pignitore et al., 1997), whereas in this study, BMI was not a significant predictor of body image dissatisfaction or risk of an eating disorder for male college students. This was also the case among females based on previous work reported by Gitimu et al. (2016), indicating that body dissatisfaction can be experienced and disordered eating behaviors may be adopted by both male

and female college students regardless of current BMI. These findings are in contrast with the suggestion that unlike women, men are likely to diet only if they have a higher BMI as reported by Lafrance et al. (2013). It should be noted that BMI does not distinguish between weight from fat and weight from muscle, which may explain this finding. Although BMI has been used as a standard in many healthcare settings for decades, it is not an accurate assessment of fitness or disease risk, nor does it define image ideal (Ades & Savage, 2010; ). In general, the perception promoted by BMI charts is that individuals, whose height-weight ratio places them in the “normal” BMI range of 18.5 – 24.9, are healthy. The CDC cautions practitioners who used BMI as an assessment tool, that it is only a surrogate tool that may indicate ‘fatness’, but does not measure it (CDC, 2015). Yet BMI use persists in assessing risk for chronic diseases like diabetes and cardiovascular disease, for assessing mortality risk with little regard for weight status as a continuum or ethnic variation in disease risk (Ades & Savage, 2010; Misra, 2015). College students, unless they are experiencing chronic diseases, may not perceive BMI as useful in their drive for physical perfection because their primary goals are not tied to disease risk.

Among males who reported dissatisfaction with their body shape, 13.4% of them had EAT-26 scores of 20 or higher, which would characterize them as at-risk for an eating disorder. This ratio was 21.3% among females who experience body dissatisfaction (Gitimu et al., 2016). While the ratio is higher for females than males, among both genders, students who experienced body dissatisfaction had significantly higher EAT-26 scores, and body dissatisfaction was a significant predictor of risk of an eating disorder for both genders. It is also worthwhile to note that 4 of the male students who were identified as at-risk for an eating disorder based on their EAT-26 scores, did not report dissatisfaction with their body shape. It is unclear whether these students are truly satisfied with their body shape or do not recognize their dissatisfaction,

however previous reports indicate that it is possible for males to remain silent about their body image concerns and disordered eating behaviors due to shame, or others' dismissal of these behaviors as female concerns (Henkel, 1995).

Many previous studies have brought attention to the complexity of gender differences (McCabe and Ricciardelli, 2004), suggesting that body dissatisfaction and eating disorder risk may vary as a function of gender roles and sexual orientation, and not merely gender differences (Davids and Green, 2011; Jackson, Sullivan, Rostker, 1988; Beren et al., 1996; Martins et al., 2007). For instance, men who assumed more feminine roles displayed greater body dissatisfaction than both men and women who assumed more masculine roles (Davids and Green, 2011; Jackson, Sullivan, Rostker, 1988). Similarly, gay men were reported to have greater body dissatisfaction than heterosexual men in several studies (Beren et al., 1996; Williamson and Hartley, 1998). Since sexual orientation or gender roles were not reported in this study, further research may be necessary to understand how these contribute to differences between males and females.

The current study results indicate that college males at risk of acquiring an eating disorder, scored significantly higher on the sociocultural attitudes toward appearance scale compared to college males less at risk of an eating disorder. Among women too, sociocultural attitudes toward appearance was a significant predictor of an eating disorder risk (Gitimu et al., 2016). Sociocultural influences, such as messages from peers, family, media and society, shape body image ideals of what is beautiful and attractive for men, as they do for women. Men at risk of an eating disorder are significantly more likely to internalize these often-unattainable ideals and feel more pressure to attain them than men not at risk of acquiring an eating disorder. These findings are similar to findings among women (Gitimu et al., 2016) and support earlier research



that body dissatisfaction that leads to disordered eating behavior occurs only when sociocultural ideals of attractiveness are internalized (Swami, Taylor, & Carvalho, 2011). This internalization includes both the thin, as well as the more athletic ideal for men, in contrast to the thin ideal most prevalent among women (Gitimu et al., 2016).

When subscales of the SATAQ scale were examined, results from this study indicate that whether they are at risk or not at risk of acquiring an eating disorder, men are influenced by many sources of information (e.g. TV commercials, fashion magazines, movie stars, etc.) regarding ideals of attractiveness in a similar way. This may mean that in general, men are either not influenced by media images and other sources of information or they are influenced and acquire a similar ideal for attractiveness regardless of risk of acquiring an eating disorder, however they internalize these ideals if they are at risk. This could be explained by earlier findings that viewing sources of information such as fashion magazines may not necessarily cause disordered eating behavior, but influence internalization of ideals of attractiveness (Tiggemann, Verri, & Scaravaggi, 2005). Females who are at risk of an eating disorder are more influenced by sources of information regarding attractiveness ideals than those not at risk (Gitimu et al., 2016).

On the pressure subscale of SATAQ, similar to college women, college men at risk differed significantly from college men not at risk of acquiring an eating disorder. This indicates that college at-risk males feel a greater pressure from peers, family members or the broader society and media sources. Some of the earlier studies suggested that the impact of sociocultural attitudes toward appearance among college women is greater than for college men, merely because college men have higher self-esteem and less pressure from parents than college women (Schwartz et al., 1999). It may not be quite accurate to make this conclusion based on results of

this study, since Sociocultural Attitudes Toward Appearance was the strongest predictor of risk of an eating disorder among males. However, when males and females at-risk of an eating disorder were compared (Table 5), females scored higher on the SATAQ Pressure subscale, which indicates that in general, females feel greater pressure about appearance than males. The findings of this study indicate that men at-risk of an eating disorder do not significantly differ from those not at-risk regarding Social Appearance Anxiety and Depression. This highlights one of the most important differences between males and females in this study. Among females, both Social Appearance Anxiety and Depression were significant predictors of risk of an eating disorder. Even when compared to males at-risk, females at-risk scored higher on SAA and Depression scales.

In contrast to earlier studies, it is possible to conclude from this study that there are more similarities than differences among contemporary males and females than previously reported with regard to satisfaction with appearance and drive to achieve ideals. This may indicate a change in socio-cultural attitudes toward appearance among males, as well as a growing concern of eating disorder risk among males compared to previous eras. In summary, body dissatisfaction and socio-cultural attitudes toward appearance were significant predictors of risk of an eating disorder among both genders. Body image dissatisfaction was almost as common among males (65.2%) as females (68.6%), and was not affected by BMI. The main difference between males and females was the effect of Social Appearance Anxiety and Depression, which were significant predictors of eating disorder risk among females, but not males.

### **Practical Implications**

One of the challenges in this study, and in treatment of eating disorders, is the difficulty in diagnosing patients with this illness. As shown in this study, young men and women may have a risk of acquiring an eating disorder even when they have an ideal BMI. Among males, the misconception that eating disorders are female concerns makes it particularly harder for men to speak openly about the disordered eating behaviors they adopt. This study provides a basis with which to train educators as well as health professionals who interact with college-aged men and women, so that they can detect risk among students early enough for it to be appropriately addressed.

Another important challenge in prevention and treatment of eating disorders is sociocultural attitudes toward appearance, which was the strongest indicator of risk of acquiring an eating disorder among male students in this study. Educating college-aged students on the importance of a healthy body, and promoting awareness that the unhealthy and unrealistic body shape ideals presented in the media are rarely attainable, can play an important role in preventing internalization of these false ideals. Educators can also develop messages to raise awareness among parents, peers, the media and society as a whole, to mitigate pressure and limit such sociocultural influences on young men and women.

### **Limitations**

A more comprehensive study is needed to understand the pressure men feel to attain the thin ideal versus a muscular ideal. A larger sample size for male participants may be necessary to increase the effect size and make more accurate conclusions regarding the combined effect of appearance issues and female and male comparison.

In future studies, it would be helpful to use measures beyond BMI, such as body composition to detect fatness vs. muscularity to have a more comprehensive understanding of

body image issues. It may also be helpful to use scales that assess the presence of orthorexia, a condition in which preoccupation with healthy eating degenerates into extreme, restrictive eating practices. Males desiring muscularity may adopt restrictive eating behaviors that lead to poor health.

Since this study did not collect information regarding gender identification, it was not possible to make conclusions regarding the effect of gender roles and sexual identity on body dissatisfaction and eating disorders. Further research will focus on identifying these complicated differences for a more accurate comparison between males and females.

## **Conclusion**

This study contributes to a deeper understanding of eating disorder risks among male college students, and the correlation of this risk with depression and appearance-related issues such as social appearance anxiety, body dissatisfaction, and sociocultural attitudes toward appearance. For males and females alike, body dissatisfaction and socio-cultural attitudes toward appearance were significant predictors of risk of acquiring an eating disorder regardless of BMI. Social appearance anxiety and depression were not significant predictors of risk among males unlike females. A comparison of male and female college students broadens our perspective that eating disorders are not merely a female issue and may also be affecting a significant number of male students. For male students, the internalized body shape ideals include both a thinner and leaner ideal as well as a larger, more muscular body type, which causes body dissatisfaction in both directions. Therefore, studies focusing on the thin ideal alone may not be sufficient to obtain an accurate evaluation of risk of acquiring an eating disorder among males. Since athletes are particularly subject to defined standards of physical form and performance, this may be a population that should be studied in the future.

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## Public Interest Statement

*'It's just as hard to be a Ken as it is to be a Barbie'*. Did you know that approximately one in three individuals struggling with an unhealthy eating ailment, is male? In fact, males and females are almost even in exhibiting unhealthy eating behaviors like overindulging, vomiting, laxative misuse, and fasting for weight loss (National Eating Disorders Association – NEDA, 2018).

The purpose of this study was to explore unhealthy eating issues and appearance-related choices among male college students in comparison to female college students. This study is a continuation of a broader disordered eating study, with a current focus on males. The study found that appearance displeasure was almost as common among men (65.2%) as it is in women (68.6%). The main gender difference that this study found was that anxiety about appearance and depression, were important predictors of disordered eating risk among females, but not among males.



## Authors' Bios

All authors, except one, are professors at Youngstown State University, in Youngstown, Ohio, USA. This study is a result of the synergy among faculty, who have been working together to examine disordered eating, not only to contribute to the knowledge base on the subject, but also to help their students more effectively. The various expertise complemented each other:

- Dr. Taci Turel and Dr. Priscilla Gitimu are both Associate Professors of Fashion Studies, and they have an in-depth knowledge of body image and appearance issues.
- Dr. Molly Jameson is an Assistant Professor of Psychology at the University of Northern Colorado, and has in-depth understanding of statistics, and psychological issues and measures.
- Dr. Jeanine Mincher, Dr. Zara Rowlands, and Dr. Rachel Pohle-Krauza are all Associate Professors in Dietetics Programs, and they have in-depth knowledge on disordered eating and issues impacting eating patterns and choices.