

Article 101

Eating Disorders Among Male College Students

Joseph Birli, Naijian Zhang, and Vickie Ann McCoy

Birli, Joseph, is a Residential Life professional and Adjunct Instructor at West Chester University of Pennsylvania. He has a Master's in Counseling as well as a Doctorate of Education in Leadership and he specializes in relationships, addictions, OCD, behavior management, and psychiatric diagnoses. He has worked as the clinical director of a non-profit agency as well as an instructor of counseling at West Chester University and Eastern University.

Zhang, Naijian, is a Professor in the Department of Counselor Education at West Chester University of Pennsylvania. In addition to his many other publications, he is the editor of the 2011 edition of *Rentz's Student Affairs Practice in Higher Education*.

McCoy, Vickie Ann, is an Associate Professor in the Department of Counselor Education at West Chester University of Pennsylvania. Prior to her position at WCU, Dr. McCoy worked at the Institute for Disability Studies at the University of Southern Mississippi and was the Coordinator of Counseling and Testing Services for Students with Disabilities at Monmouth University in New Jersey.

This study examined the relationships between male college students' perceptions of body image and eating disorders. Data was collected using self-report measures administered to college student volunteers. The relationships between male college students' perceptions of femininity and masculinity, their self-esteem, and eating disorders were also explored. A combination of self-esteem, body image, and masculinity/femininity scores were found to correlate with disordered eating in male college student volunteers. Limitations and applications of the results of the study in working with male college students were discussed.

Eating Disorders Among Male College Students

Ample research points to the prevalence of disordered eating and dieting within our society (Hildebrandt, 2005; Murnen & Smolak, 1997; Touchette et al., 2011; Warner et al., 2007). Such research has attempted to elucidate those factors that contribute to and mitigate the risk of developing disordered eating. Studies have examined the role of such variables as socio-cultural norms, age, ethnicity, gender, sexual orientation, gender related personality traits, self-esteem, and body image in the pathogenesis of eating disorders (Arcelus, & Button, 2007; Cooley & Toray, 2001; Fallon & Rozin, 1985; Jenkins, Hoste, Meyer, & Blissett, 2011; Johnson, Stuckey, Lewis, & Schwartz, 1987;

Kjelsas, & Augestad, 2004; Morgan, & Marsh, 2006). The majority of research has demonstrated a higher incidence of eating disorders, higher dissatisfaction with weight, lower self-esteem and higher body image dissatisfaction scores among females as compared to males (Berscheid, Walster, & Bohrnstedt, 1973; Demarest & Langer, 1996). However, recent reports (Baird & Grieve, 2006; Crisp, 2006; Goldfield, Blouin, & Woodside, 2006; Halliwell & Harvey, 2006; Hospers & Jansen, 2005; Kerremans, Claes, & Bijttebier, 2010; Lindblad, Lindberg, & Hjern, 2006; Meyer & Gast, 2008; Stafford, 2006; Stout & Frame, 2004; Toro, Castro, Gila, & Pombo, 2005) indicate that males are certainly not immune to disordered eating.

History of Disordered Eating in Males

The first documented account of a male with an eating disorder was in a case report published in the year 1689 (Andersen, 1990). Thereafter, the literature pertaining to male disordered eating was sporadic at best until the 1990s when interest, research, and publication surged. According to Sanzone (1999), a study in 1991 found that 5% of individuals diagnosed with eating disorders were male, but by 1999 that had increased to 10%. Seligman and Rogers (1994) reported that in a 1992 survey of 1982 Harvard graduates, eating disorders in women had dropped by half, but among men, they had doubled, while a study of 131 Cornell University lightweight football players, found that 40% engaged in dysfunctional eating patterns (mostly bingeing and purging), with 10% classified as having outright eating disorders. They speculated that this may not indicate that there are more new cases of men with eating disorders, rather, that more men are recognizing and revealing their eating disordered behaviors. In 1995, the National Association of Anorexia Nervosa and Associated Disorders (ANAD) reported that of the 8 million Americans with eating disorders, approximately 1 million were male (Henkel, 1995). By the year 2000, Phillips (2000) suggested that an estimated 3 million men may have eating disorders. Though the accuracy of determining numbers of males with eating disorders varies due to the amount of secrecy and stigma men have about eating disorders, there are reports that conservatively, 1 in 6-10 males have eating disorders (Andersen, Watson, & Schlechte, 2000). Philpott and Sheppard (1998) predicted that eating disorders such as anorexia and bulimia will continue to rise dramatically in the 21st century. In fact, a community study conducted in Australia found that regular binge eating, at least once per week, occurs as frequently among men (3%) as among women (3.4%; Reagan & Hersch, 2005).

Henkel (1995) states that eating disorders begin to appear in males around their teen years. However, males as young as 8 and as old as 60 have been known to struggle with their eating. According to Lachenmeyer and Muni-Brander (1988), eating disorders and patterns of eating related to them have a tendency to be most prevalent in high school and college age males. Furthermore, males are most likely to develop eating disorders around puberty or a few years later, when they prepare to leave home for college (Pappano, 2000).

It is believed that athletic activities are a major contributing factor to eating disorders in adolescent males because they can foster the need to compulsively exercise in pursuit of the perfect lean body (Henkel, 1995). Pappano (2000) states there is a link between males who participate in sports, such as swimming, running, wrestling, and

gymnastics, and eating disorders because these sports require a lower body weight or a bulkier build to make for a more competitive advantage.

It is apparent that the occurrence of eating disorders among the male population has increased and will likely continue in the future. It is estimated that 6% of reported male eating disorder cases end in death after many males remain silent due to the shame of considering their disordered eating patterns to be female concerns that medical professionals rarely recognize in the male population (Henkel, 1995). According to the *Psychotherapy Letter*, males are less likely to reveal their struggle with an eating disorder and by the time they do, their symptoms tend to be as severe as women's and their concerns just as great regarding body shape, weight, and eating ("Eating disorders strike," 1996). As the pressure mounts for males to adopt more socially acceptable body sizes, there is little wonder that more and more of them will turn towards dysfunctional behavior to attain these standards (Philpott & Sheppard, 1998).

Body Image & Self-esteem

Although the majority of research has provided support for the overwhelmingly high number of eating disorders among females as compared to males, recent research (e.g., Grieve, 2007; Kerremans et al., 2010; O'Dea & Abraham, 2002; Toro et al., 2005) has offered differing conclusions. While ample research has generated support for the high number of female college students with low self-esteem, body image dissatisfaction, and a subsequent desire to be thinner, recent studies (Lofton & Bungum, 2001) demonstrate that male students with normal weights often report a strong desire to gain weight. In their study on the discrepancy between current and ideal body size for male and female undergraduates, Fallon and Rozin (1985) observed that women believe men prefer a thinner figure than they actually do and men think women prefer a heavier physique than they actually prefer.

In addition to the aforementioned body image dissatisfaction, low self-esteem has been cited consistently in the research (Cooley & Toray, 2001) as a predictive variable in the development of disordered eating and increased likelihood of worsening symptoms in subsequent years. Low self-esteem serves as both a risk factor and a result of eating pathology in female college students. Pokrajac-Bulian and Zivcic-Becirevic (2005) found further support for the relationship between body dissatisfaction and self-esteem among female college students. Female Croatian University students reported higher body dissatisfaction and lower self-esteem than their male counterparts. Pokrajac-Bulian and Zivcic-Becirevic propose that the low self-esteem and high body dissatisfaction of female participants may be linked to their inability to achieve the thin societal ideal. Body dissatisfaction was predictive of low self-esteem in female participants while failing to affect the global self-esteem of male participants.

The treatments for eating disorders are closely related to treatments for self-esteem issues and body image dissatisfaction which, according to Grilo and Masheb (2005), correlate to binge eating disorder in both males and females. These authors identify the need for those experiencing self-esteem issues related to body image dissatisfaction to have tendencies to seek elements of control in their lives resulting in disorders that involve eating.

Female and Male Patterns in Cultural Context

There is an increasing prevalence of eating disorders among adolescents and young adults across all ethnic groups in the U.S. and other nations with a great deal of Western influence (Mitchell & Eckert, 1987). As demonstrated by previous research, (e.g., Cash & Brown, 1989; Gleaves et al., 2000), westernized nations are often characterized by intense pressure to conform to a rigid societal ideal of weight which invariably contributes to the higher incidence of eating disorders and body image dissatisfaction in these areas. Thus, cultural norms for physical attractiveness may predict the individual's body image satisfaction and those compensatory behaviors (i.e., dieting, exercising, restricting) that are used to improve body esteem (Cash & Brown, 1989).

Gleaves et al. (2000) found that female college students from universities in Spain and female college students from Southwest U.S. universities experienced a similar level of body size dissatisfaction. Both groups of females desired a body size that was significantly smaller than their current shape. However, the American male participants experienced body dissatisfaction linked to a desire to gain weight rather than lose weight. The authors suggested that the American pressure to achieve the "ideal" contributes to the rising level of body dissatisfaction among university students.

Davis and Katzman (1998) observed similar results in their study of Chinese male and female university students living in Hong Kong and the United States. Females reported a higher degree of body dissatisfaction (females wished to be thinner) and depression while males reported a greater desire to achieve a larger body size than their present shape. Women relied heavily on compensatory behaviors such as dieting while men relied on exercising as a means to achieve a more muscular stature. Davis and Katzman (1998) attribute the high incidence of eating disorders, low self-esteem, and body dissatisfaction among Chinese students in Hong Kong to the high level of stress in this "rapidly developing country" as well as the growing pressure to achieve the physical ideals of Western culture (i.e., men desiring a larger physique and women wanting to be thinner).

Femininity and Masculinity

In examining those factors that place males at a greater risk for disordered eating, low self-esteem, and body image concern, researchers (Lakkis, Ricciardelli, & Williams, 1999; Wichstrom, 2006) have examined the relationship between high adherence to feminine traits and risk of developing disordered eating among males. These studies suggest that high valuing of feminine traits (i.e., passivity, low self-esteem and dependence) may place males at a higher risk for disordered eating as they use unhealthy compensatory behaviors as a way to improve self-esteem and achieve the female physical ideal. In their study on the role of sexual orientation and gender related traits in disordered eating, Lakkis and colleagues (1999) observed that gay men experienced a significantly higher degree of body image dissatisfaction than heterosexual men, and sexual orientation served as the largest predictor of eating disordered behavior. The authors suggest that gay males may experience body dissatisfaction when unable to achieve the lean and muscular gay male ideal. In addition, valuing of negative female characteristics which encompass passivity and low self-esteem, was predictive of high scores on disordered eating for male participants.

Exercise behaviors have also been implicated in the research as strongly correlated with disordered eating and self-esteem among males. In their investigation of eating, weight, and exercise behaviors among male college students, O'Dea and Abraham (2002) demonstrated that around 9% to 12% of participants reported body shape dissatisfaction and a desire to achieve a thinner stature. Forty-eight percent of male participants identified exercise as a necessary means for achieving high self-esteem; 14% of participants expressed distress around the "amount of exercise" they were engaging in on a daily basis; 16% of participants engaged in behaviors that meet the criteria for eating and exercise disorders (i.e., vomiting, binge eating, bulimia, and exercising); and 9% engaged in disordered eating. Male participants resembled a similar group of female students in their disordered eating and psychological feelings. O'Dea and Abraham suggest that the dearth of males seeking treatment for eating disorders may be linked to the fact that disordered eating is becoming just as "normative" among male students as it is among female students. Excessive exercise characterized the weight obsession of 8% of the male participants involved in the study. Indeed, the high prevalence of shape concerns, exercise disorders, and body image dissatisfaction among this population supports the need for increased awareness among health care professionals in treating this growing problem. As males strive to achieve norms of masculinity and the muscular stature commonly associated with the male gender role, they report a higher incidence of disordered eating and compulsive exercising (O'Dea & Abraham, 2002). Franco, Tambourrine, Carroll, and Bernal (1988) validated these findings by demonstrating that excessive body building places males at an increased risk for developing eating disorders. They insinuated that body building allows males to achieve the Westernized male physical ideal of being muscular and physically fit and excessive exercise may lead males to become overly preoccupied with their physical appearance, thereby increasing their risk of anorexia or bulimia. Overall, male participants were invested in weighing more than their current state and demonstrated a significantly smaller percentage of disordered eating behavior as compared to females. Lewinsohn, Seeley, Moerk, and Striegel-Moore (2002) observed similar findings in that males scored higher on excessive exercise measures while females scored higher on body dissatisfaction and drive for thinness. Although similar rates of overeating were observed between male and female participants, only females reported negative feelings and a sense of loss of control with regard to overeating episodes. In line with previous research (Striegel-Moore, Leslie, Petrill, Garvin, & Rosenheck, 2000), male participants underreported disordered eating and underutilized mental health treatment when struggling with eating disordered symptoms.

Male College Students at Risk

The prevalence of eating disorders during the college years has been substantiated by an ample body of research throughout the years (Kugu, Akyuz, Dogan, Ersan, & Izgic, 2006; Mintz and Betz, 1988; Nelson & Hughes, 1999; Ously, Cordero, & White, 2008; Stout & Frame, 2004; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989). While eating disorders among women have been a focal point among all age populations, they tend to be most prevalent in college age students. Though studies of college age women have been the norm, recent studies indicate that eating disorders such as anorexia, bulimia,

binge eating and obsessive exercising have been on the rise in college age males and are estimated to have a continued rise into the 21st century (Philpott & Sheppard, 1998).

It is clear that eating disorders have become a serious issue among male college students and look to continue in the future. Therefore, more research on male college students' attitudes toward eating and their perceptions of body image, femininity vs. masculinity, and self-esteem is needed. This study attempted to answer the following questions: Is there a relationship between male college students' perceptions about their body image and eating disorders? Are there any relationships among male college students' perceptions of femininity vs. masculinity, their self-esteem, and eating disorders?

To be more specific, this study would explore if (a) there was a relationship between age, sex, and ethnicity and development of eating disorders among male college students; (b) if there was a significant relationship between male college students' perception about their body image and eating disorder; (c) if there was a significant relationship between male college students' perceptions of femininity vs. masculinity and the development of eating disorders; and (d) if there was a significant relationship between male college students' self-esteem and their development of eating disorders.

Method

Participants

The study was conducted at a university with an enrollment of approximately 12,000 graduate and undergraduate students on the east coast of the United States. The sample consisted of 154 male, volunteer undergraduate students. The participants ranged in age from 17 to 36 ($M = 20$). Their heights ranged from 5'10" to 6'5" ($M = 5'8"$) and their weights ranged from 120 to 340 pounds ($M = 180.56$). Self-reported racial classifications indicated that 90% of participants were white; 6% were African American; 1% were Asian American; 1% were Hispanic American; and 2% classified themselves as other (e.g., biracial, international). Forty-six percent of participants indicated that they were freshmen, 26% sophomores, 17% juniors, 7% seniors, and 4% had been at college for more than 4 years.

Participants were recruited and selected from residents living on campus, student athletes from the Athletic Department, and clients seeking help in the university's counseling center.

Instruments

The Eating Disorder Inventory-2. The Eating Disorder Inventory-2 (EDI-2; Garner, Olmstead, & Polivy, 1983) was used to assess the attitudes toward eating habits and to determine risk factors for those who may be inclined to struggle with an eating disorder. The EDI-2 has a total of 91 items with a subscale of 8 dimensions and 64 items which has a coefficient of .83 and .93 for a sample of an eating disorder. The provisional subscale consists of 27 items, 3 dimensions and is reported to have a reliability coefficient of .70 and .80 for the sample (Garner et al., 1983). The dimensional subscales for the EDI-2 consist of: Drive for Thinness (7 items), Bulimia (7 items), Body Dissatisfaction (9 items), Ineffectiveness (10 items), Perfectionism (6 items), Interpersonal Distrust (7 items), Interoceptive Awareness (10 items), and Maturity Fear

(8 items). The 3 provisional subscale dimensions are Asceticism (8 items), Impulse Regulation (11 items), and Social Insecurity (8 items). Responses are made on a six point scale indicating *always, usually, often, sometimes, rarely, or never* (Garner et al., 1983). Respondents are to self report what is true about them.

The BEM Inventory. The BEM Inventory, developed by Sandra L. Bem (1975), is a standardized instrument used to assess individuals' perceptions of their masculinity vs. femininity. The instrument provides scores for items on a scale from 1-(never/almost never true) to 7-(always/almost always true). The reported reliability of the BEM has an internal consistency of average $\alpha = .86$ within a four week period and an average $r = .93$ (Bem, 1975). Participants responded to 60 characteristics according to the aforementioned scale. Participants were instructed to rate themselves on 60 characteristics such as dominant, tender, aggressive, shy, compassionate, or sincere, to name a few.

The Self-Esteem Inventory. The Self-Esteem Inventory (Coopersmith, 1967) is a 58-item questionnaire developed to measure attitudes with relation to the individual self that include social, academic, family, and personal experiences. Each item is a forced choice response pattern consisting of *like-me* or *unlike-me*. The reliability coefficient for the scale is .88 concluding a five-week interval.

Demographic Information Sheet. The Demographic Information Sheet contained questions about age, height, weight, ethnicity, academic level, and sexual orientation in addition to one yes/no question used to examine participants' self-perception of body image, "I feel satisfied with the shape of my body."

Procedure

Permission was obtained from the University Institutional Review Board and the participating departments (the Department of Housing and Residence Life, Greek Life, the Athletic Department, and the University Counseling Center). Individual contacts were made with each related department head, residence hall directors, and assistant hall directors. The purpose of the study was explained orally to those individuals and their voluntary assistance was obtained first. Three hundred packets with the instruments and a demographic sheet, as well as a letter of consent explaining the purpose of the study and voluntary participation, were distributed to participants by the assistant hall directors, resident assistants, and counselors from the Counseling Center. Participants were instructed in the letter (1) not to record their names on any of the questionnaires, (2) to seal the envelope after their completion of the questionnaires, and (3) to return their completed packets to the reception desk in the respective residence halls or the department secretaries. One hundred and fifty-four useable packets were returned with a return rate of 51%.

All volunteer participants were requested to complete the following research materials: the EDI, the BEM, the Self-Esteem Inventory, a demographic information sheet with one additional question regarding participants' self-perception of body image. Research materials were coded and confidentiality of participation was safeguarded. The data were recorded and analyzed statistically using multiple regressions.

Results

Descriptive Statistics of Measures

The descriptive results for BDI, androgyny, self-esteem, age, and sex are presented in Table 1. A diagnostic analysis of multicollinearity was performed to detect the intercorrelation among all independent variables in the study. The correlation matrix in Table 1 indicated that there were no issues regarding multicollinearity since the maximum value and the minimum value were -.035 and .276 respectively with a mean of .032. These concerns were excluded based on a correlation of .80 indicating problematic multicollinearity (Pedhazur, 1997).

Multiple regression was used to analyze the data. The independent variables such as age, sex, and ethnicity were entered and examined at the first entry. It showed that there was no significant relationship between these variables and eating disorders among male college students at the $p < .05$ level, as shown in Table 3. To detect the relationship between self-esteem and eating disorders among male college students, self-esteem was entered next. The results of the analysis demonstrated that a significant effect of independent variable, self-esteem, on the dependent variable, eating disorders, was found, $F(2, 149)$ Change = 9.74, $p < .002$; $F(4, 149) = 4.06$, $p < .004$; $\beta = .244$. At this step the independent variable, self-esteem, accounted for approximately 6% of the variance of the dependent variable eating disorders ($R^2_{ch} = .059$). Lastly, the independent variable, masculinity vs. femininity (androgyny) was entered to examine whether this independent variable, masculinity vs. femininity (androgyny), had a significant effect on the dependent variable, eating disorders. Multiple regression found a significant relationship between the independent variable masculinity vs. femininity (androgyny) and the dependent variable eating disorders among male college students, $F(2, 148)$ Change = 6.66, $p < .01$; $F(5, 148) = 4.7$, $p < .001$; $\beta = -.20$. At this step the independent variable, masculinity vs. femininity (androgyny), accounted for approximately 4% of the variance of the dependent variable eating disorders ($R^2_{ch} = .039$). Hence, the results of the multiple regressions showed a significant relationship between the independent variables, self-esteem and masculinity vs. femininity (androgyny), and the dependent variable, eating disorders respectively, controlling other variables such as age, sex, and ethnicity.

A simple regression was performed between body satisfaction and eating disorder. The results of the regression analysis showed that body satisfaction was a significant predictor of eating disorder $F(1, 153) = 42.24$, $p < .001$, $R^2_{ch} = .217$, $\beta = .466$ (see Table 3). This suggests that those male college students who are not satisfied with their bodies are most likely to develop eating disorders.

Discussion

Interpretation

The results of the current study suggest that there is a significant relationship between low self-esteem experienced by male college students and greater risk of developing an eating disorder. This finding is in line with the literature which cites low self-esteem as more prevalent in students with eating disorders than in control groups (Kugu et al., 2006). This finding suggests that interventions aimed at improving self-

esteem in college age males may also reduce their risk of developing disordered eating patterns.

As suggested by the literature (Edman & Yates, 2005; Lakkis et al., 1999; Wichstrom, 2006), it was also discovered that male college students who tend to experience androgyny issues may experience a higher chance of struggling with their eating habits. This finding suggests that a greater understanding of stereotypical masculine and feminine traits may lead to an improved understanding of the etiology of disordered eating.

Elements of body image, self-esteem, and femininity appear to have been a contributing factor to both male and female eating disordered behaviors. In light of recent research highlighting the rise of male college students' eating disordered behavior, the fact that all three were contributory in both females and males was not surprising. Clearly, it is time for mental health providers in higher education to consider all students, both females and males, as potential candidates for the development of disordered eating patterns and develop assessment and treatment strategies for male students (Coker, Austin, & Schuster, 2010; Stout & Frame, 2004; Toro et al., 2005).

Finally, the results of this study indicated that body image is a significant factor in the development of an eating disorder. However, self-esteem, androgyny, and body image alone were not found to be determining factors in the development of eating disorders. It was the combination factors that contributed to the greatest risk of males developing eating disorders. The previously cited literature would support this combination, thus all three factors must be taken into account when assessing the likelihood of college age males developing disordered eating patterns.

Application

The results of the study have immediate application for professionals working with college students, especially those counselors and psychologists employed by college and university counseling centers. Additionally, professionals from college and university student affairs divisions may benefit from the results of this study as they develop programming for eating disorders geared toward male college students. Understanding the need to assess all students, males in particular, for self-esteem, masculinity/femininity, and body image concerns to predict the possibility co-occurring disordered eating patterns may be invaluable for higher education professionals. This "back door" would allow professionals to identify potential at-risk students without alienating them by asking about disordered eating too directly or too soon.

Athletic programs, LGBT programs, and gender studies programs curricula could be updated to incorporate information about the rising prevalence of male disordered eating and its co-occurrence with low self-esteem, androgyny, and body image concerns. Also, just as some universities offer services to women through a Women's Center Department, male students could be offered some of the same services for issues such as eating disorders through a Male Studies/ Gender Studies Department or through traditional programming sources such as residential life, athletics, Greek Letter Organizations, or counseling centers.

Though the current study does not explore the reasons for or causes of eating disorders among male college students, it does identify issues that co-exist with disordered eating. Knowledge regarding co-occurring issues pertaining to male eating

disorders is essential in identifying those at risk and subsequently developing interventions to assist in healing from both the disorder and the stigma. Providing services that improve self-esteem, foster healthy body image, and explore masculinity/femininity in a non-judgmental way may help male college students avoid disordered eating as a way of coping and gaining control.

The number of male college students who experience eating disorders continues to rise, and educating male college students on eating disorders become necessary and crucial to their health and safety. Since this issue no longer impacts only female college students, attempts need to be made to lessen/eliminate the stigma of eating disorders at all levels of the college/university, so that male students will be able to seek assistance and identify their eating problems earlier.

Limitations

Limitations of this study include (1) the small number of the sample that participated in the survey; (2) the location restriction of the population, primarily residing in the Northeast area of the United States; (3) voluntary nature of the participation; (4) self-reported information; (5) majority White male participants, and (6) convenient sample. In addition, the questionnaires used for this study have primarily been developed and tested on the female population. Some questions may have been worded with the intention of expecting female responses. Another limitation is that few studies have been done on the male population with regards to eating disorders, perpetuating the stigma and concept that eating disorders are a female issue. Such stigma and concept may have altered how the participants think about this issue and consequently influenced how they answered the questions. Due to the aforementioned shortcomings, caution must be taken when college counselors and student affairs professionals interpret and apply the results of this study.

Suggestions for Future Research

It is essential for further research to be done in this area in an attempt to lessen and eliminate the stigma and late diagnosing of males with eating disorders. Research needs to be conducted on males who have experienced eating disorders and the impact it has had on various aspects of their life, such as academics, athletic activities, socialization, emotional and mental stability, personal relationships, career aspirations, and physical development. It is important that research continue to identify the contributing factors to eating disorders like self-esteem, androgyny, and body image and how these may differ from the factors that contribute to females developing eating disorders. It is imperative for this research to continue to assist those developing programs and interventions in an attempt to identify and treat males at risk of developing an eating disorder. It is suggested that this study be repeated with, at a minimum, a larger more diverse sample, greater geographic variability, a more random sample, and measures other than self-report. Additionally, instruments designed to assess eating disorders in males need to be developed and utilized.

Colleges and universities must stress the importance of services and adopt programs through student and academic affairs to better educate faculty and staff in identification, risk factors, and treatment options with emphasis on the male population; but in order to do so, further research in these areas is warranted. Additional research

which may be helpful in understanding male disordered eating should be conducted beyond the college student demographic to increase understanding of the male population in general. Such sites would include community fitness centers, local YMCAs, community counseling centers, and dietary/nutrition programs. Extensive research in this area is needed to increase the knowledge base and provide better education to the male population and thus reduce the stigma associated with disordered eating patterns.

References

- Arcelus, J., & Button, E. (2007). Clinical and socio-demographic characteristics of university students referred to an eating disorders service. *European Eating Disorders Review, 15*, 146-151.
- Andersen, A. (1990). *Males with eating disorders*. New York, NY: Bunner/Mazel.
- Andersen, A. E., Watson, T., & Schlechte, J. (2000). Osteoporosis and osteopenia in men with eating disorders. *Lancet, 355*(9219), 1967-1971.
- Baird, A. L., & Grieve, F. G. (2006). Exposure to male models in advertisements leads to a decrease in men's body satisfaction. *North American Journal of Psychology, 8*(1), 115-122.
- Bem, S. L. (1975). Sex role adaptability: one consequence of psychological androgyny. *Journal of Personality and Social Psychology, 31*(4), 634-643.
- Berscheid, E., Walster, E., & Bohrnstedt, G. (1973). The happy American body: A survey report. *Psychology Today, 7*(6), 119-131.
- Cash, T. F., & Brown, T. A. (1989). Gender and body image: Stereotypes and realities. *Sex Roles, 21*, 357-368.
- Coker, T. R., Austin, S., & Schuster, M. A. (2010). The health and health care of lesbian, gay, and bisexual adolescents. *Annual Review of Public Health, 31*(1), 457-477. doi:10.1146/annurev.publhealth.012809.103636
- Cooley, E., & Toray, T. (2001). Body image and personality predictors of eating disorder symptoms during the college years. *International Journal of Eating Disorders, 30*, 28-36.
- Coppersmith, S. (1967). *The antecedents of self-esteem*. San Francisco, CA: Freeman.
- Crisp, A. (2006). Anorexia Nervosa in males: Similarities and differences to Anorexia Nervosa in females. *European Eating Disorders Review, 14*, 163-167.
- Davis, C., & Katzman, M. A. (1998). Chinese men and women in the United States and Hong Kong: Body and self-esteem ratings as a prelude to dieting and exercise. *International Journal of Eating Disorders, 23*, 99-102.
- Demarest, J., & Langer, E. (1996). Perception of body shape by underweight, average and overweight men and women. *Perceptual and Motor Skills, 83*, 569-570.
- Eating disorders strike men too. (1996). *Psychotherapy Letter, 18*(4), 1-3.
- Edman, J. L., & Yates, A. (2005). A cross-cultural study of disordered eating attitudes among Filipino and Caucasian Americans. *Eating Disorders, 13*, 279-289.
- Fallon, A. E., & Rozin, P. (1985). Short reports: Sex differences in perceptions of desirable body shape. *Journal of Abnormal Psychology, 94*(1), 102-105.
- Franco, K. S., Tamburrino, M. B., Carroll, B. T., & Bernal, G. A. (1988). Eating attitudes in college males. *International Journal of Eating Disorders, 7*(2), 285-288.

- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2), 15-34.
- Gleaves, D. H., Cepeda-Benito, A., Williams, T. L., Cororve, M. B., Fernandez, M., & Vila, J. (2000). Body image preferences of self and others: A comparison of Spanish and American male and female college students. *Eating Disorders*, 8, 269-282.
- Goldfield, G. S., Blouin, A. G., & Woodside, D. B. (2006). Body image, binge eating, and Bulimia Nervosa in male bodybuilders. *Canadian Journal of Psychiatry*, 52(3), 160-168.
- Grieve, F. G. (2007). A conceptual model of factors contributing to development of muscle dysmorphia. *Eating Disorders*, 15, 63-80.
- Grilo, C., & Masheb, R. (2005). Correlates of body image dissatisfaction in treatment-seeking men and women with binge eating disorder. *International Journal of Eating Disorders*, 38(2), 162-166.
- Halliwel, E., & Harvey, M. (2006). Examination of a sociocultural model of disordered eating among male and female adolescents. *British Journal of Health Psychology*, 11, 235-248.
- Henkel, J. (1995). Conditions men get, too. *FDA Consumer*, 29(6), 20-27.
- Hildebrandt, T. B. (2005). A review of eating disorders in athletes: Recommendations for secondary school prevention and intervention programs. *Journal of Applied School Psychology*, 21, 145-167.
- Hospers, H. J., & Jansen, A. (2005). Why homosexuality is a risk factor for eating disorders in males. *Journal of Social and Clinical Psychology*, 24(8), 1188-1201.
- Jenkins, P. E., Hoste, R., Meyer, C., & Blissett, J. M. (2011). Eating disorders and quality of life: A review of the literature. *Clinical Psychology Review*, 31(1), 113-121. doi:10.1016/j.cpr.2010.08.003
- Johnson, C. L., Stuckey, M. K., Lewis, L. D., & Schwartz, D. M. (1987). Bulimia: A descriptive survey of 316 cases. *International Journal of Eating Disorders*, 2, 3-16.
- Kugu, N., Akyuz, G., Dogan, O., Ersan, E., & Izgic, F. (2006). The prevalence of eating disorders among university students and the relationship with some individual characteristics. *Australian and New Zealand Journal of Psychiatry*, 40, 129-135.
- Kerremans, A., Claes, L., & Bijttebier, P. (2010). Disordered eating in adolescent males and females: Associations with temperament, emotional and behavioral problems and perceived self-competence. *Personality & Individual Differences*, 49(8), 955-960. doi:10.1016/j.paid.2010.08.003
- Kjelsas, E., & Augestad, L. B. (2004). Gender, eating behavior, and personality characteristics in physically active students. *Scandinavian Journal of Medicine & Science in Sports*, 14, 258-268.
- Lakkis, J., Ricciardelli, L. A., & Williams, R. (1999). Role of sexual orientation and gender-related traits in disordered eating. *Sex Roles*, 41(112), 1-16.
- Lachenmeyer, J. R., & Muni-Brander, P. (1988). Eating disorders in a nonclinical adolescent population: Implications for treatment. *Adolescence*, 23(90), 303-312.

- Lewinsohn, P. M., Seeley, J. R., Moerk, K. C., & Striegel-Moore, R. H. (2002). Gender differences in eating disorder symptoms in young adults. *International Journal of Eating Disorders*, 32, 426-440.
- Lindblad, F., Lindberg, L., & Hjern, A. (2006). Anorexia Nervosa in young men: A cohort study. *International Journal of Eating Disorders*, 39(8), 662-666.
- Lofton, S., & Bungum, T. (2001). Attitudes and behaviors toward weight, body shape, and eating in male and female college students. *Research Quarterly for Exercise and Sport*, 72, 32-33.
- Mintz, L. B., & Betz, N. E. (1988). Prevalance and correlates of eating behaviors among undergraduate women. *Journal of Counseling Psychology*, 35, 463-471.
- Mitchell, J. E., & Eckert, E. D. (1987). Scope and significance of eating disorders. *Journal of Consulting and Clinical Psychology*, 55, 628-634.
- Morgan, C. D., & Marsh, C. (2006). Bulimia nervosa in an elderly male: A case report. *International Journal of Eating Disorders*, 39, 170-171.
- Murnen, S. K., & Smolak, L. (1997). Femininity, masculinity, and disordered eating: A meta analysis review. *International Journal of Eating Disorders*, 22, 231-243.
- Meyer, T. A., & Gast, J. (2008). The effects of peer influence on disordered eating behavior. *The Journal of School Nursing*, 24(1), 36-42.
- Nelson, W., & Hughes, H. (1999). Anorexic eating attitudes and behaviors of male and female college students. *Adolescence*, 34(135), 621-633.
- O'Dea, J. A., & Abraham, S. (2002). Eating and exercise disorders in young college men. *Journal of American College Health*, 50(6), 273-278.
- Ousley, L., Cordero, E. D., & White, S. (2008). Fat talk among college students: How undergraduates communicate regarding food and body weight, shape & appearance. *Eating Disorders*, 16, 73-84.
- Pappano, L. (2000). Every day I would eat less and less. *Good Housekeeping*, 231(2), 116-124.
- Phillips, K. A. (2000). Correction: Opinion: Pressure to be buff is taking its toll on men. *Bridge News*, p. B.
- Philpott, D., & Sheppard, G. (1998). More than mere vanity. *Guidance and Counseling*, 13(4), 28-39.
- Pokrajac-Bulian, A., & Zivcic-Becirevic, I. (2005). Locus of control and self-esteem as correlates of body dissatisfaction in Croatian university students. *European Eating Disorders Review*, 13, 54-60.
- Reagan, P., & Hersch, J. (2005). Influence of race, gender, and socioeconomic status on binge eating frequency in a population-based sample. *International Journal of Eating Disorders*, 38(3), 252-256.
- Sanzone, M. (1999). Girls, boys, and bodies. *Psychology Today*, 32(4), 12-14.
- Seligmann, J., & Rogers, P. (1994). The pressure to lose. *Newsweek*, 123(18), 60.
- Stafford, D. E. (2006). Fat: A male issue too. *Therapy Today*, 17(5), 27-29.
- Stout, E. J. (2004). Body image disorder in adolescent males: Strategies for school counselors. *Professional School Counseling*, 8(2), 176-181.
- Striegel-Moore, R. H., Leslie, D., Petrill, S. A., Garvin, V., & Rosenheck, R. (2000). One year use and cost of inpatient and outpatient services among female and male patients with an eating disorder. Evidence from a national database of health insurance claims. *International Journal of Eating Disorders*, 27, 381-386.

- Striegel-Moore, R. H., Silberstein, L. R., Frensch, P., & Rodin, J. (1989). A prospective study of disordered eating among college students. *International Journal of Eating Disorders*, 8, 499-509.
- Touchette, E., Henegar, A., Godart, N. T., Pryor, L., Falissard, B., Tremblay, R. E., & Côté, S. M. (2011). Subclinical eating disorders and their comorbidity with mood and anxiety disorders in adolescent girls. *Psychiatry Research*, 185, 185-192. doi:10.1016/j.psychres.2010.04.005
- Toro, J., Castro, J., Gila, A., & Pombo, C. (2005). Assessment of sociocultural influences on the body shape model in adolescent males with anorexia nervosa. *European Eating Disorders Review*, 13, 351-359.
- Warner, C., Warner, C., Matuszak, T., Rachal, J., Flynn, J., & Grieger, T. A. (2007). Disordered eating in entry-level military personnel. *Military Medicine*, 172, 147-151.
- Wichstrom, L. (2006). Sexual orientation as a risk factor for bulimic symptoms. *International Journal of Eating Disorders*, 39(6), 448-453.

Table 1
Means, Standard Deviation, and Correlation Matrix (N=154)

	M	SD	2	3	4
1. EDI	100.05	(33.47)			
2. SE	92.38	(6.16)			
3. BEM	-7.90	(18.87)	-.035		
4. BS	14.27	(9.13)	-.146	.276	

Note: SE=Self-Esteem; BEM=Femininity vs. Masculinity; BS=Body Satisfaction

Table 2
Regression of EDI-2 on Self-esteem and Androgyny (N =154)

Block Variable	R ²	R ² Ch	B	Beta	t
Self-esteem	.053	.053**	1.253	.230	2.92**
Androgyny	.107	.053**	.410	-.231	-3.00**

** p<.001

Table 3
Regression of Bulimia on Body Satisfaction (N=154)

Block Variable	R ²	R ² Ch	B	Beta	t
Body Satisfaction	.217	.217**	.247	.466	6.50**

** p<.001