

Western Kentucky University
TopSCHOLAR®

Masters Theses & Specialist Projects

Graduate School

5-2015

Facets of Narcissism in Relation to Muscle Dysmorphia and Eating Disorder Symptomatology

Chanceton K. Littrell

Western Kentucky University, littrellchance@gmail.com

Follow this and additional works at: <http://digitalcommons.wku.edu/theses>



Part of the [Social Psychology Commons](#)

Recommended Citation

Littrell, Chanceton K., "Facets of Narcissism in Relation to Muscle Dysmorphia and Eating Disorder Symptomatology" (2015).
Masters Theses & Specialist Projects. Paper 1493.
<http://digitalcommons.wku.edu/theses/1493>

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact connie.foster@wku.edu.

FACETS OF NARCISSISM IN RELATION TO MUSCLE DYSMORPHIA AND
EATING DISORDER SYMPTOMATOLOGY

A Thesis
Presented to
The Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts

By
Chanceton K. Littrell

May 2015

FACETS OF NARCISSISM IN RELATION TO MUSCLE DYSMORPHIA AND EATING
DISORDER SYMPTOMOTOLOGY

Date Recommended March 27, 2015

Frederick Grieve PhD

Frederick Grieve, Director of Thesis

Pitt Derryberry

Pitt Derryberry

Amy Brausch

Amy Brausch

Curtis 5-7-15
Dean, Graduate Studies and Research Date

ACKNOWLEDGEMENTS

I would first like to thank my family: my mother and father, who have always supported me in my educational and professional endeavors. I would especially like to thank my wife for her continued love and support throughout this arduous process.

I would like to extend my gratitude to my thesis chair, Dr. Frederick Grieve, for dedicating so much time to helping me cultivate my research ideas and subsequently shape them into a finished product. I would also like to extend great thanks to my other committee members, Dr. Pitt Derryberry and Dr. Amy Brausch, for helping me to refine and further improve my thesis. For the time and dedication that have been provided by each of my committee members, I am eternally grateful.

CONTENTS

List of Tables.....	vi
Abstract.....	vii
Introduction.....	1
Muscle Dysmorphia.....	2
Drive for Muscularity.....	9
Facets of Narcissism.....	11
Limitations of Previous Research.....	13
The Current Study.....	14
Method.....	15
Participants.....	15
Measures.....	16
Demographics.....	16
Narcissism.....	16
Muscle Dysmorphia Symptoms.....	17
Drive for Muscularity.....	17
Eating Disorder Symptoms.....	18
Procedure.....	18
Results.....	20
Preliminary Analysis.....	20
Hypothesis Testing.....	23
Exploratory Analysis.....	27
Discussion.....	31

References.....	37
Appendix A.....	49
Appendix B.....	50
Appendix C.....	55
Appendix D.....	56
Appendix E.....	58
Appendix F.....	59
Appendix G.....	62
Appendix H.....	63

LIST OF TABLES

Table 1. Correlations Among MDQ Subscales.....	21
Table 2. Correlations Among NPI-40 Subscales.....	22
Table 3. Means and Standard Deviations for MDQ and NPI-40 Subscales.....	23
Table 4. Correlations Among NPI-40 and MDQ Subscales.....	25
Table 5. Correlations Among DMS and NPI-40 Subscales.....	26
Table 6. Correlations Among EAT-26 and NPI-40 Subscales.....	27
Table 7. Results of Hierarchical Regression for MDQ.....	28
Table 8. Results of Hierarchical Regression for DMS.....	29
Table 9. Results of Hierarchical Regression for EAT-26.....	30

FACETS OF NARCISSISM IN RELATION TO MUSCLE DYSMORPHIA AND
EATING DISORDER SYMPTOMOTOLOGY

Chanceton K. Littrell

May 2015

63 pages

Directed by: Frederick Grieve, Pitt Derryberry, and Amy Brausch

Department of Psychology

Western Kentucky University

Previous research exploring the relationship between muscle dysmorphia, drive for muscularity, and disordered eating behaviors in relation to personality characteristics, particularly narcissism, has yielded interesting, though often conflictual, results. The current study attempts to further explore these relationships through assessing muscle dysmorphia, drive for muscularity, and disordered eating in relation different facets of narcissism: grandiose and hypersensitive. Participants for the current study included 173 male students that were recruited via departmental Study Board. Participants completed demographic information, the Narcissistic Personality Inventory-40, the Hypersensitive Narcissism Scale, the Muscle Dysmorphia Questionnaire, the Drive for Muscularity Scale, and the Eating Attitudes Test-26. Results were indicative of a positive relationship between muscle dysmorphia symptomatology and hypersensitive narcissism, as well as positive relationships between drive for muscularity and facets of grandiose narcissism. Results also indicated that disordered eating, as an individual construct, was not related to narcissism. Results provide direction for the further study of the dimensional structure of the construct of narcissism, as well treatment implications for those suffering from muscle dysmorphia.

Introduction

Historically, the literature pertaining to eating disorders and, more generally, body image has focused on the study of female populations. However, due to changes in societal pressures, men are becoming increasingly more concerned with their own bodies and, as a result, there has been a recent shift in the psychological literature. Rather than focusing solely upon eating disorders, much of the attention to male body image has been devoted to the study of muscle dysmorphia, a disorder in which individuals become preoccupied with and strongly endorse a muscular ideal, yet feel that their bodies are insufficiently lean and muscular (Grieve, 2007; Olivardia, 2001). The disturbance experienced by those suffering from muscle dysmorphia is similar to that of anorexia nervosa. Individuals with muscle dysmorphia perceive themselves as being smaller than they actually are, whereas those suffering from anorexia nervosa perceive themselves as being larger than they actually are; hence, the former terms for the disorder were “reverse anorexia” and “bigorexia” (Olivardia, 2001).

In considering the similarities, as well as the inextricable link between muscle dysmorphia and eating disorders, it is not surprising that muscle dysmorphia has been studied within the same theoretical context (Grieve, 2007; Olivardia, Pope, Borowiecki, & Cohane, 2004; Pope, Katz, & Hudson, 1993). Etiological models of muscle dysmorphia have studied cognitive, behavioral, socioenvironmental, emotional, and psychological factors associated with the manifestation of muscle dysmorphia (Grieve, 2007; Lantz, Rhea, & Mayhew, 2001). Given these similarities, it is hypothesized that individuals with eating disorders and those suffering from muscle dysmorphia have similar psychological profiles. Personality correlates between eating disorders and muscle

dysmorphia have been studied, though to a lesser extent than other psychological and emotional factors, and results suggest that commonalities exist. Factors such as neuroticism, perfectionism, and body and fitness orientation have been shown to be quite similar between those suffering from eating disorders and those suffering from muscle dysmorphia (Davis, Karvinen, & McCreary, 2005).

In spite of the consistently reported link between narcissism and eating disorders (Davis, Claridge, & Cerullo, 1997; Steinberg & Shaw, 1997; Waller, Sines, Meyer, Foster, & Skelton, 2007), the relationship between narcissism and muscle dysmorphia has seen limited and conflicting research attention (Davis et al., 2005). It appears that the issue may be one of specificity rather than the traditional dichotomous categorization often found in research methodology. Much of the research attempting to study narcissism has largely relied upon the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), a self-report measure that assesses narcissism in the traditional sense, as described in the diagnosis of narcissistic personality disorder in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V; APA, 2013; Davis et al., 2005; Gordon & Dombeck, 2010)*. It is imperative that future muscularity research focus on the differentiation between facets of narcissism in order to fully understand the relationship between narcissism and muscle dysmorphia.

Muscle Dysmorphia

Diagnostic criteria for muscle dysmorphia, a specifier for body dysmorphic disorder, were created using the same format as the *Diagnostic and Statistics Manual-V (DSM-V)* in order to aid and facilitate both research and clinical practice (APA, 2013; Olivardia, 2001; Pope, Gruber, Choi, Olivardia, & Phillips, 1997). The proposed

diagnostic criteria include a preoccupation that one's body is not sufficiently lean and muscular. The preoccupation must cause clinically significant distress or impairment in several areas as exhibited by at least two of the following four criteria:

- A) The individual frequently gives up important social, occupational, or recreational activities because of a compulsive need to maintain his or her workout and diet schedule.
- B) The individual avoids situations where his or her body is exposed to others, or endures such situations only with marked distress or intense anxiety.
- C) The preoccupation about the inadequacy of body size or musculature causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- D) The individual continues to work out, diet, or use ergogenic (performance enhancing) substances despite knowledge of adverse physical or psychological consequences.

Lastly, the primary focus of the preoccupation is on being too small or inadequately muscular, as distinguished from fear of being fat as in anorexia nervosa, or a primary preoccupation only with other aspects of appearance as in other forms of body dysmorphic disorder (Pope, Phillips, & Olivardia, 2000; p. 248).

According to Pope and Katz (1994), the prevalence of muscle dysmorphia is estimated to be approximately 10% among weightlifters. Within college populations, many individuals meet subclinical levels of muscle dysmorphia, but their symptoms are not severe enough to meet full diagnostic criteria (Goodale, Watkins, & Cardinal, 2001).

As a result of this, the true prevalence rate of muscle dysmorphia is unknown. Grieve, Wann, Henson, and Ford (2006) found that 22% of college men reported that they currently lift weights three times or more per week and 53% reported that they have lifted at this rate at some point throughout their lives. Similarly, it has been demonstrated that approximately 25% of middle-school-age boys reported regular weight lifting activities with the intent of gaining muscle mass (Smolak, Murnen, & Thompson, 2005). Whereas the relationship between lifting weights in order to gain muscle mass appears to be of significant importance to those with muscle dysmorphia, the link between body mass index (BMI) and muscle dysmorphia has yet to be fully established (Cafri et al., 2005; Grieve, 2007).

One of the primary symptoms of muscle dysmorphia is body dissatisfaction, which refers to the extent to which there exists a discrepancy between one's ideal body and one's perceived actual body. Although body dissatisfaction was formerly considered to be a problem pertaining primarily to women, the number of men reporting body dissatisfaction is rapidly increasing (Olivardia et al., 2004). Furthermore, it has been suggested that this dissatisfaction begins to occur at an early age. Among adolescent boys, approximately 69% report that they are dissatisfied with their bodies because they are incongruent with their ideal body type (Furnham & Calnan, 1998). This trend continues into young adulthood with the majority of college males also reporting dissatisfaction with at least one area of their body. The bodily areas most commonly reported by these individuals included the abdominal region, arms, chest, and to a lesser extent, the shoulders, back, upper legs, and calves (Ridgeway & Tylka, 2005).

Apart from body dissatisfaction, body distortion is also a characteristic symptom of muscle dysmorphia. Among women suffering from anorexia nervosa, there is commonly a body distortion in that these individuals see themselves as larger than they actually are. Muscle dysmorphia involves a similar body distortion; however, the directionality of the distortion is quite different. Among individuals with muscle dysmorphia, the perception is that the individual is smaller or less muscular than he or she actually is (Olivardia, 2001).

Additionally, although not included in the diagnostic criteria proposed by Pope and colleagues (2000), it has been suggested that body mass may serve as a potential indicator upon which a diagnosis of muscle dysmorphia can be made. Although it is not impossible for an individual with low body mass or low levels of muscularity to develop muscle dysmorphia, given the nature of muscle dysmorphia symptomatology, such as frequent weight lifting and preoccupation with increasing muscularity, it is far more likely that those receiving a diagnosis of muscle dysmorphia will have mesomorphic or even hypermesomorphic body types (Grieve, 2007).

Quite similar to eating disorders, the drive to be more muscular is often promoted through social influence on the part of peers, family members, sport participation, schools, health care professionals, and the school systems (Grieve, 2007; Smolak et al, 2005; Stanford & McCabe, 2005). It has been suggested that mass media is the most influential of these social pressures, as it is transmitted via numerous readily available, and virtually unavoidable, outlets; the most prominent of these outlets, of course, are movies, television, and magazines (Groesz, Levine, & Murnen, 2001). The result of this constant media bombardment is that men are subjected to extreme pressure to conform to

cultural ideals that demand bodily standards that are nearly impossible to achieve via natural means (Agliata & Tantleff-Dunn, 2004; Harrison & Cantor, 1997).

The research literature has long reflected the relationship between mass media representations of women and the prevalence of eating disorders; as the media representations promote a thinner ideal female form, the prevalence of eating disorders increases (Harrison & Cantor, 1997). Historically, it was assumed that men were immune to such media pressures, as male portrayals have traditionally reflected a much more realistic body type; however, over the past three decades, mass media portrayals of men have become significantly leaner and more muscular, with the trend moving towards an increasingly more hypermesomorphic form. With this recent shift in the media, the male figure has been brought to the forefront, resulting in increased societal pressures for average men to strive towards achieving a physical form that is unreachable for most (Agliata & Tantleff-Dunn, 2004; Pope, Olivardia, Boroweicki, & Cohane 2001).

Apart from traditional media representations, several other cultural outlets have seen recent changes in their representation of the ideal male form. Much like Barbie for females, action figures have seen significant bodily transformations over the past several decades. In the 1970s, action figures were representative of the average male figure; however, the current market promotes physical forms that are virtually unattainable via natural mechanisms. To further expound upon this theory, Baghurst, Hollander, Nardella, and Haff (2006) extrapolated the measurements of the modern day G.I. Joe and compared these measurements with those of the current Mr. Universe, discovering that G.I. Joe would in fact have a more muscular physique. This suggests that boys are confronted with these pressures from an early age and increases the likelihood that individuals will

incorporate the cultural ideal into their own personal beliefs about how their bodies should look (Pope, Olivardia, Gruber, & Boroweicki, 1999; Norton, Olds, Olive, & Dank, 1996). In addition to the changes in action figures, representations of the male body in print media have also changed significantly over the years; portrayals of the male form in pornographic outlets, such as *Playgirl*, have seen significant increases in leanness and muscularity (Leit, Pope, & Gray, 2001; Spitzer, Henderson, & Zivian, 1999). Furthermore, the number of fitness magazines catering to men, as well as the number of advertisements depicting nude or semi-nude men has also increased significantly (Grieve & Bonneau-Kaya, 2007; Pope et al., 2001). With such a significant presence in virtually every realm of life, there is an obvious threat for men to experience the same sort of societal pressures to which women have always been subjected; the difference is simply a matter of direction. Whereas women are inundated with pressures to be unhealthily thin, men are subjected to pressures to strive towards a more muscular body type. For instance, when men are asked to select their ideal body type, they endorse a larger, more muscular body type than they perceive themselves as actually having. This finding has been demonstrated among both adolescent and college-aged populations (Grieve, Newton, Kelley, Miller, & Kerr, 2005; Pope et al., 1997). Additionally, it has been demonstrated that societal pressures via media influence serve as a significant contributor to weight lifting activities and both legal and illegal supplement use among adolescent males (Smolak et al. 2005; Stanford & McCabe, 2005).

According to Parks and Read (1997), the ideal male form portrayed in the media is one of mesomorphic body type, both tall and muscular with a V-shaped figure. The male preference for and desire to obtain this body type begins to appear and develop at an

alarmingly young age, typically around age six or seven, and tends to increase steadily until it plateaus during adolescence or early adulthood (Collins & Plahn, 1988; Wright & Bradbard, 1980).

It has been suggested that the potential for the development of muscle dysmorphia increases significantly among those who focus on the discrepancy between their ideal and actual body type (Wroblecka, 1997). Social Comparison Theory, developed by Festinger (1954), is often cited to explain impact of social media forces on the development of eating disorders in women and muscle dysmorphia in men (Baird & Grieve, 2006; Lorenzen, Grieve, & Thomas, 2004; Shaw & Waller, 1995). The premise of this theoretical framework is based on the idea that individuals develop their own self-evaluations based upon their subjective comparisons to others. Considering muscle dysmorphia from this theoretical perspective, if male figures in the media become a point of comparison, it is likely that men will view their own bodies in a much more negative light (Grieve, 2007).

According to Grieve (2007), there are several different mechanisms through which media influence can affect body dissatisfaction. One of the proposed mechanisms occurs through the influence of male perceptions of attractiveness. When exposed to images of men that conform to a high level of physical attractiveness, individual standards for attractiveness tend to increase. When individuals then compare their own perceived attractiveness to an ideal standard, there appears to be a comparison effect that typically causes an individual to perceive his or her own body as less attractive, thus increasing body dissatisfaction (Kenrick & Gutierrez, 1980). A secondary mechanism through which media influence affects body dissatisfaction occurs when individuals are

made to feel anxious or self-conscious about a problem pertaining to their physical form, such as not having an ideal, mesomorphic body type, and are then provided a solution to their problem, such as buying a particular product or supplement. Men who are more highly influenced by this particular mechanism of media influence could be more likely to develop muscle dysmorphia symptomatology (Gould, 1987; Grieve, 2007).

The Drive for Muscularity

To date, empirical studies have provided ample evidence in support of the female drive for thinness (Owen & Laurel-Seller, 2000; Polivy & Herman, 2002; Striegel-Moore, McAvay, & Rodin, 1986), which can be defined as an excessive preoccupation with weight, dieting behaviors, and a fear of weight gain (Hausenblas, Janelle, Ellis, Gardner, & Focht, 2004). Research concerning the drive for thinness has demonstrated that this phenomenon is comparatively rare among men (Olivardia, Pope, Mangweth, & Hudson, 1995). Among men who display a drive for thinness, it is most commonly attributable to a need to be light or flexible for athletic or occupational purposes, such as running, swimming, or wrestling (Enns, Drewnowski, & Grinker, 1987; Yates, Leehay, & Shisslak; 1983). Additionally, Duggan & McCreary (2004) suggest that higher drive for thinness is more common among homosexual men than heterosexual men.

As a result of social forces at work throughout Western society, masculinity has become inextricably linked to muscularity (McCreary, Saucier, & Courtenay, 2005). With this sociocultural shift, men have gone from being viewed as relatively unaffected by body image concerns (Feingold & Mazalla, 1998; Garner, Olmstead, & Polivy, 1983; Muth & Cash, 1997) to being preoccupied with obtaining a more muscular form (McCreary et al., 2005). Among homosexual men, it has been suggested that this

preoccupation represents an acceptance of the social ideal; these men feel that they must be muscular in order to confirm that they are indeed men (Duggan & McCreary, 2004). This desire has been termed the drive for muscularity (McCreary & Sasse, 2000); which can be defined as an individual's perception that he or she is not muscular enough, as well as a motivation to obtain a more muscular physique (McCreary, 2007).

Strong evidence exists to support the existence of a drive for muscularity. For example, according to Pope et al. (2000), when compared with actual levels of muscularity, men consistently underestimate their actual degree of muscle mass. Furthermore, when asked to select their ideal body size, men endorse a figure that, on average, has 28 pounds more muscle than their own. Additionally, many adolescent and adult males hold the belief that women are most attracted to a physical form that, on average, has 30 pounds more muscle than their own (Cohn & Adler, 1992; Grieve et al., 2005; Jacobi & Cash, 1994; O'Dea & Abraham, 1999). This drive for muscularity typically pertains to pectorals, biceps and shoulders (McCreary, et al., 2005). Further evidence for this motivation to become more muscular is found grounded in the repeated finding that countless adolescent boys and men, who are of normal weight by medical standards, are dieting in order to gain weight (McCreary, 2002; McCreary & Sadava, 2001; McCreary & Sasse, 2002). From a health-related perspective, there is no actual need for this increase in weight; however, these behaviors are often associated with increased exercise activity aimed at building muscle mass (McCabe, Riciardelli, & Finemore, 2002; O'Dea & Rawstornem, 2001). With these attempts to increase muscle mass, there is also an increased risk of anabolic steroid use (Pope et al., 1997). In spite of the inherent and well-documented risks of steroid use (National Institute on Drug Abuse,

2000), it has been suggested that the rates of steroid use among men is equivalent to the prevalence of bulimia nervosa and surpasses that of anorexia nervosa among their female counterparts (Spitzer et al., 1999).

Facets of Narcissism

The psychological literature pertaining to the study of narcissism consistently points to the construct as being most accurately represented as two specific facets: a grandiose type and a vulnerable type (Cain, Pincus, & Ansell, 2008; Gordon & Dombeck, 2010). The most commonly represented form is that of grandiose narcissism, which is represented in the *DSM-V* diagnostic criteria for narcissistic personality disorder (APA, 2013). Individuals with narcissistic personality disorder display grandiose thoughts and behaviors, a profound need for admiration, and a general lack of empathy towards others. Individuals with high levels of grandiose narcissism display an inflated sense of self-importance, become preoccupied with desires for unlimited success, power, or beauty, believe they are unique and of abnormally high standing in comparison to others, require excessive admiration, display a sense of entitlement and have unreasonable expectations, are exploitative of others, lack empathy, are envious of others or believe that others envy them, and display arrogant behaviors (APA, 2013). According to Pincus and Lukowitsky (2010), these individuals maintain their positive self-views by devaluing the experiences and beliefs of others; they exaggerate their superiority and react negatively when others are critical of them.

Vulnerable narcissism shares a number of commonalities with grandiose narcissism, insofar as these individuals display a sense of entitlement, grandiose

fantasies, and the exploitation of others (Pinkus & Lukowitsky, 2010). The distinction between vulnerable and grandiose narcissism is evidenced in the defining characteristic of those who display high levels of vulnerable narcissism. These individuals are hypersensitive to the opinions of others, they display a profound desire for approval, they are highly insecure, and they display a poor self-image (Pinkus & Lukowitsky, 2010; Ronningstam, 2009). Instead of establishing their superiority and reacting arrogantly, individuals with high levels of vulnerable narcissism respond to criticism or negative feedback by withdrawing, avoiding, and experiencing pervasive feelings of shame (Dickinson & Pincus, 2003).

In regards to body image research pertaining to narcissism, much of the focus has been on the study of eating disorders, as it has been suggested that excessive attention to one's physical appearance may yield an increase in narcissistic traits and behaviors (Back, Schmukle, & Egloff, 2010; Buffardi & Campbell, 2008; Vazire, Naumann, Rentfrow, & Gosling, 2008). Whereas both facets of narcissism appear to be tied to increased focus on physical appearance, it has been suggested that vulnerable narcissism is far more prominent among those who base their self-worth on their physical appearance (Zeigler-Hill, Clark, & Pickard, 2008). In support of this hypothesis, Davis et al. (1997) found that, among both low and normal weight individuals, while controlling for body mass, weight preoccupation was positively correlated with vulnerable narcissism whereas grandiose narcissism was not. Essentially, among these individuals there is a vulnerable determinant that drives this bodily preoccupation. Furthermore, Back et al. (2010) suggests that the inextricable link between self-worth and physical appearance among vulnerable narcissists is what drives them towards disordered eating

behaviors. From this perspective the body is essentially viewed as a primary source of self-esteem. Vulnerable narcissists, as a means of preserving or maintaining self-esteem, are driven towards weight preoccupation and disordered eating behaviors (Back et al, 2010; Davis et al, 1997). Interestingly, it seems that muscularity research would yield similar conclusions. When narcissism was measured as a unitary construct, Davis et al. (2005) concluded that narcissism was of minimal relevance to the study of muscularity and suggested that only certain aspects of narcissism, such as vanity, were of any real interest. In spite of this proposition, Gordon and Dombek (2010) demonstrated that, among college-aged participants, vulnerable narcissism was positively correlated with disordered eating behaviors. Furthermore, this relationship was mediated by self-worth that is contingent upon physical appearance, in this case, an increased drive for muscularity (Gordon & Dombek, 2010).

Limitations of Previous Research

While there is a substantial amount of literature pertaining to the study of narcissism among individuals who display symptoms of disordered eating, much of the research in this area assesses narcissism as a unitary construct, which has provided for some ambiguity among relationships between variables. The same problems are present throughout the muscularity literature; much of the research that has attempted to assess narcissistic traits has done so measuring narcissism as a unitary construct. This appears to be of significant concern, as recent research in the narcissism literature has suggested that the construct itself is more accurately represented as two distinct facets. Furthermore, the muscularity literature has seen some conflicting evidence that suggests further research is a necessity in order to better understand the relationships between these constructs.

Current Study

The purpose of the current study is to determine the relationship between grandiose and vulnerable facets of narcissism, muscle dysmorphia symptomatology, drive for muscularity, and eating disorder symptomatology. Hypothesis 1 states that there will be a positive correlational relationship between the extent of muscle dysmorphia symptomatology and grandiose narcissism. Hypothesis 2 states that there will be a positive correlational relationship between the drive for muscularity and grandiose narcissism. Hypothesis 3 states that there will be a positive correlational relationship between the extent of eating disorder symptomatology and vulnerable narcissism.

Method

Participants

Participants for this study included 173 male students recruited from undergraduate level Psychology courses at Western Kentucky University via the departmental Study Board. As compensation for their participation, participants were provided with either course credit or extra credit at the discretion of their instructors. Demographic data showed that the mean age of participants in this study was 20.67 ($SD = 6.4$), with a range of 18 to 67; 62 participants chose not to provide their age. The data of the 67-year-old participant was included in the study, as his responses were well within normative range and did not affect results in any significant way. Participants were asked for their height and weight for the calculation of body mass index (BMI; $M = 26.22$, $SD = 5.89$) with a range of 14.22 to 46.51. Of the 173 participants, 137 (79.2%) were Caucasian, 22 (12.7%) were African-American, and 14 (8.1%) were classified as other ethnicities.

Design

As this study is not striving to establish causality, but rather the degree of association between variables, the design is correlational in nature. The dependent variables are the extent of muscle dysmorphia symptomatology, drive for muscularity, and the extent of eating disorder symptomatology. The independent variable is the degree of narcissistic personality traits, more specifically, the degree of vulnerable and grandiose facets of narcissism.

Measures

Demographics. Participants were asked to complete a brief demographic information questionnaire addressing age, gender, ethnicity, height, weight, frequency of working out, and supplement use (See Appendix A).

Narcissism. The Narcissistic Personality Inventory-40 (NPI-40; Raskin & Terry, 1988) is a 40-item self-report measure used to assess seven different components of grandiose narcissism: Authority, Self-Sufficiency, Superiority, Exhibitionism, Exploitativeness, Vanity, and Entitlement. The NPI-40 includes 40 forced-choice dilemmas; one option reflects narcissistic tendencies while the other does not. The NPI-40 includes items such as, option A: “I have a natural talent for influencing people” or option B: “I am not good at influencing people” and option A: “I can usually talk my way out of anything” or option B: “I try to accept the consequences of my behavior.” The final score consists of the total number of narcissistic response options endorsed by the participant, with higher scores reflecting a greater degree of narcissism. The NPI-40 has demonstrated high internal consistency, with a Guttman’s lambda-3 of .83 (Raskin & Terry, 1988). For the current study, a Cronbach’s alpha of .85 was obtained (See Appendix E).

The Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997) is a 10-item self-report measure meant to assess hypersensitive or vulnerable narcissism. The HSNS includes questions such as “I can become entirely absorbed in thinking about my personal affairs, my health, my cares or my relations to others” and “I am secretly ‘put out’ or annoyed when other people come to me with their troubles, asking me for my time and sympathy” that are rated by participants on a Likert-type scale from 1 (*Very*

Uncharacteristic or Untrue, Strongly Disagree) to 5 (*Very Characteristic or True, Strongly Agree*). The final score is obtained by summing participant responses, with higher scores indicating higher degrees of hypersensitive narcissism. Previous research has shown that the HSNS has moderate internal consistency with Cronbach's alpha's ranging from .72 to .75 (Hendin & Cheek, 1997). For the current study, a Cronbach's alpha of .75 was obtained (See Appendix F).

Muscle Dysmorphia Symptoms. The Muscle Dysmorphia Questionnaire (MDQ; Short, 2006) was used to assess muscle dysmorphia symptomatology. The MDQ is a 34-item self-report questionnaire that addresses eight components of muscle dysmorphia: Inadequacy, Preoccupation, Muscularity Drive, Increased Muscularity, Compulsivity, Body Anxiety, Social Sacrifice, and Persistence. The MDQ includes questions such as "I believe bad things happen to me when I miss a workout." Questions on the MDQ are rated by participants on a Likert-type scale from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*), with higher scores being more indicative of muscle dysmorphia symptomatology. Previous research suggests high internal consistency for the MDQ with Cronbach's alphas of .87 and .82 (Chandler, Grieve, Derryberry, & Pegg, 2009; Short, 2006). Furthermore, the MDQ has also been shown to have adequate test-retest reliability, $r = .59$ (Cubberly, 2009). For the current study, a Cronbach's alpha of .90 was obtained (See Appendix B).

Drive for Muscularity. The Drive for Muscularity Scale (DMS; McCreary, Sasse, Saucier, & Dorsch, 2004) is a 15-item self-report measure used to assess drive for muscularity. The DMS includes questions such as "I wish that I were more muscular" and "I think I would feel more confident if I had more muscle mass" that are rated by

participants on a Likert-type scale from 1 (*Always*) to 6 (*Never*). The DMS is a reverse scored measure, which means that lower scores are indicative of a higher drive for muscularity (McCreary, 2007). Among male participants, the DMS has been shown to have high internal consistency with a Cronbach's alpha of .87 (McCreary et al., 2004). For the current study, a Cronbach's alpha of .91 was obtained (See Appendix C).

Eating Disorder Symptoms. The Eating Attitudes Test-26 (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982) is a 26-item self-report measure that assesses eating disorder symptomatology. The EAT-26 includes items such as "I think about burning calories when I exercise" and "I feel that food controls my life" that are rated by participants on a Likert-type scale from 1 (*Always*) to 6 (*Never*). For items 1 through 25, responses indicating "Always," "Usually," or "Often" are scored as 3, 2, and 1, respectively, with other responses receiving a score of 0. Item 26 is reverse coded. A score of 20 or above is indicative of excessive concern regarding dieting, body weight, or eating behaviors (Garner et al., 1982). Previous research has shown that the EAT-26 has high internal consistency for men (Cronbach's alpha of .83) and for women (Cronbach's alpha of .89; Lamanna, Grieve, Derryberry, Hackman, & McClure, 2010). For the current study, a Cronbach's alpha of .93 was obtained (See Appendix D).

Procedure

After obtaining Institutional Review Board (IRB) approval (See Appendix G), participants were recruited from undergraduate Psychology courses via Study Board to participate in an online study examining eating disorders and muscle dysmorphia. The participants were provided with a link to an online survey. The initial page informed participants that their participation was strictly voluntary, and that they could withdraw

from the study at any time. Furthermore, confidentiality of all of their information and responses was assured. Participants were then directed to the following pages of the online survey containing the following measures, in this order: Demographic Information, NPI-40, HSNS, MDQ, DMS, and EAT-26. Upon completion of the final measure, participants were directed to a debriefing statement, and their participation was concluded.

Results

Preliminary Analysis

The MDQ yielded scores on eight subscales. Cronbach's alpha was calculated for each to ensure internal consistency: Inadequacy (.83), Preoccupation (.84), Muscularity Drive (.60), Increased Muscularity (.59), Compulsivity (.89), Body Anxiety (.39), Social Sacrifice (.72), and Persistence (.80). Pearson bivariate correlations were performed to ensure that the subscales were correlated with one another (See Table 1). The subscale scores were then summed to create a total MDQ score as a measure of muscle dysmorphia symptomatology ($M = 87.50$, $SD = 23.41$) with scores ranging from 34 – 149 (See Table 3 for subscale means and standard deviations).

Table 1

Correlations Among MDQ Subscales

	I	PR	MD	IM	C	BA	SOS	PE
I		.44**	.51**	.30**	.27**	.48**	.41**	.19*
PR			-.09	-.04	.43**	.21**	.81**	.53**
MD				.35**	-.15	.26**	-.07	-.17
IM					.30**	.13	-.06	.20*
C						.14	.40**	.67**
BA							.13	.04
SOS								.44**
PE								

Note. MDQ = Muscle Dysmorphia Questionnaire; I = Inadequacy, PR = Preoccupation, MD = Muscularity Drive, IM = Increased Muscularity, C = Compulsion, BA = Body Anxiety, SOS = Social Sacrifice, PE = Persistence * $p < .05$. , ** $<.01$

The NPI-40 yielded scores on seven subscales. Cronbach's alpha was calculated for each to ensure internal consistency: Authority (.66), Self-Sufficiency (.53), Superiority (.49), Exhibitionism (.59), Exploitativeness (.59), Vanity (.68), and Entitlement (.49). Pearson bivariate correlations were performed to ensure that the subscales were correlated with one another (See Table 2). The subscale scores were then summed to create a total NPI score ($M = 17.15$, $SD = 7.12$) with scores ranging from 1-34 (See Table 3 for subscale means and standard deviations).

Table 2

Correlations Among NPI-40 Subscales

	A	SSY	S	EB	EP	V	EN
A		.43**	.30**	.46**	.38**	.16*	.42**
SSY			.24**	.31**	.30**	.24**	.39**
S				.29**	.18*	.29**	.21**
EB					.41**	.28**	.40**
EP						.18*	.26**
V							.24**
EN							

Note. NPI-40 = Narcissistic Personality Inventory-40; A = Authority, SSY = Self-Sufficiency, S = Superiority, EB = Exhibitionism, EP = Exploitation, V = Vanity, EN = Entitlement * $p < .05$. , ** $<.01$

Table 3

Means and Standard Deviations for MDQ and NPI-40 Subscales

Subscale	M	SD	Subscale	M	SD
I	13.39	5.81	A	4.49	2.31
PR	7.18	3.71	SSY	2.99	1.59
MD	15.81	3.96	S	2.37	1.36
IM	13.11	3.96	EB	1.96	1.65
C	7.67	4.11	EP	2.27	1.51
BA	9.38	2.16	V	.91	1.07
SOS	5.13	2.40	EN	2.17	1.45
PE	7.11	3.69			

Note. Muscle Dysmorphia Questionnaire: I = Inadequacy, PR = Preoccupation, MD = Muscularity Drive, IM = Increased Muscularity, C = Compulsion, BA = Body Anxiety, SOS = Social Sacrifice, PE = Persistence; Narcissistic Personality Inventory-40: A = Authority, SSY = Self-Sufficiency, S = Superiority, EB = Exhibitionism, EP = Exploitation, V = Vanity, EN = Entitlement

This process was replicated with the HSNS ($M = 28.32$, $SD = 6.11$) with scores ranging from 10-44, as well as the DMS ($M = 46.02$, $SD = 15.47$) with scores ranging from 15-90, and EAT-26 ($M = 8.63$, $SD = 6.11$) with scores ranging from 0-75.

Hypothesis Testing

The first hypothesis under study stated that there would be a positive correlational relationship between the extent of muscle dysmorphia symptomatology and grandiose narcissism. A Pearson bivariate correlation was performed to establish the degree and directionality of the relationship. This hypothesis was not supported, as there was no

significant relationship between these two variables, $r = .13$, $p = .12$, $n = 152$. Whereas this relationship is not significant when considering both muscle dysmorphia and grandiose narcissism as unitary constructs, a correlation matrix assessing the relationships between subscales reveals both positive and negative correlations, suggesting that there is a relationship between specific aspects of the two variables at the facet-level (See Table 4). Of particular interest, it appears that the inadequacy, muscularity drive, and body anxiety subscales of the MDQ were negatively correlated with NPI-40 subscales, while the persistence subscale of the MDQ was positively correlated with a number of NPI-40 subscales. The authority and entitlement subscales of the NPI-40 are more highly correlated with the MDQ subscales than others, suggesting that these two facets of narcissism may be of particular interest to the study of muscularity.

Table 4

Correlations Among NPI-40 Subscales and MDQ Subscales

	I	PR	MD	IM	C	BA	SOS	PE
A	-.11	.01	-.22**	.15**	.21**	-.17*	.02	.22**
SSY	-	-.04	-.19*	.14	.06	-.16*	-.05	.12
	.21**							
S	-.19*	-.07	-.19*	-.04	-.04	-.11	-.05	.03
EB	-.01	.14	-.12	.05	.07	-.16	.15	.20*
EP	.05	.14	-.15	.12	.14	.00	.15	.14
V	-.29**	.09	-.31	.03	.14	-.17*	.02	.23**
EN	-.12	.21**	-.21**	.05	.22**	-.16*	.23**	.27**

Notes. X-Axis: I = Inadequacy, PR = Preoccupation, MD = Muscularity Drive, IM = Increased Muscularity, C = Compulsion, BA = Body Anxiety, SOS = Social Sacrifice, PE = Persistence; Y Axis: A = Authority, SS = Self-Sufficiency, S = Superiority, EB = Exhibitionism, EP = Exploitation, V = Vanity, EN = Entitlement * $p < .05$. , ** $<.01$

The second hypothesis stated that there would be a positive correlational relationship between the drive for muscularity and grandiose narcissism. A Pearson bivariate correlation was performed to establish the degree and directionality of the relationship. This hypothesis was supported as results yielded a positive correlation between these two variables, $r = .25$, $p < .001$, $n = 164$. A correlation matrix was also created to observe the relationships between these two constructs at the subscale level (See Table 5).

Table 5

Correlations Among DMS and NPI-40 Subscales

	A	SSY	S	EB	EP	V	EN
BIA	.05	.08	-.09	.19*	.06	.13	.07
MOB	.17*	.19*	.03	.23**	.12**	.35*	.28**

Note. Correlations between subscales for the Drive for Muscularity Scale and the Narcissistic Personality Inventory-40; BIA= Muscularity-Oriented Body Image Attitudes, MOB = Muscularity-Oriented Behaviors; A = Authority, SSY = Self-Sufficiency, S = Superiority, EB = Exhibitionism, EP = Exploitation, V = Vanity, EN = Entitlement
* $p < .05$. , ** $<.01$

The third hypothesis stated that there would be a positive correlational relationship between the extent of eating disorder symptomatology and hypersensitive, or vulnerable, narcissism. Again, a Pearson bivariate correlation was performed to establish the degree and directionality of the relationship. This hypothesis was not supported as results yielded no statistically significant relationship between the two variables, $r = -.12$, $n = 142$, $p = .15$. Additional analyses were performed to see what relationships, if any, existed between grandiose narcissism and eating attitudes. A correlation matrix was created to observe the relationships at the subscale level (See Table 6).

Table 6

Correlations Among EAT-26 and NPI-40 Subscales

	A	SSY	S	EB	EP	V	EN
D	.18*	.12	.07	.15	.09	.16	.25**
BFP	.02	-.02	.06	.15	.07	.18*	.28**
OC	.06	-.02	.10	.15	-.03	.12	.18*

Note. Correlations between subscales for the Eating Attitudes Test-26 and the Narcissistic Personality Inventory-40; D= Dieting, BFP = Bulimia and Food Preoccupation, OC = Oral Control; A = Authority, SSY = Self-Sufficiency, S = Superiority, EB= Exhibitionism, EP = Exploitation, V = Vanity, EN = Entitlement

* $p < .05$. , ** $<.01$

Exploratory Analysis

In order to further evaluate the relationship between facets of narcissism, muscle dysmorphia, drive for muscularity, and eating disorder symptomatology, a series of hierarchical multiple regression equations, in which muscle dysmorphia, drive for muscularity, and eating disorder symptomatology were predicted by facets of narcissism, were performed. The initial regression equation demonstrated that hypersensitive narcissism, $Beta = .48$, $p < .001$, was the only facet of narcissism that was able to predict the extent of muscle dysmorphia symptomatology, ($R^2 = .31$, $F(1, 142) = 7.99$, $p < .001$), at a statistically significant level (See Table 7).

Table 7

Results of Hierarchical Regression for MDQ

<u>Dependent Variable</u>	<u>B</u>	<u>Std. Error</u>	<u>Beta</u>	<u>R²</u>
MDQ	1.83	.27	.48*	.31*
<u>Predictors</u>				
Authority			.19	
Self Sufficiency			-.12	
Superiority			-.19	
Exhibition			.03	
Exploitation			-.02	
Vanity			-.12	
Entitlement			.09	
Hypersensitive			.48*	

* $p < .001$

A secondary regression equation revealed that exhibitionism, $Beta = .20$, $p = .004$, and vanity, $Beta = .27$, $p < .001$, were able to predict drive for muscularity ($R^2 = .16$, $F(1, 153) = 3.70$, $p < .001$) at a statistically significant level (See Table 8).

Table 8:

Results of Hierarchical Regression for DMS

<u>Dependent Variable</u>	<u>B</u>	<u>Std. Error</u>	<u>Beta</u>	<u>R²</u>
DMS	3.86	.87	.20*	.16*
<u>Predictors</u>				
Authority			.01	
Self Sufficiency			.04	
Superiority			-.18	
Exhibition			.20*	
Exploitation			-.03	
Vanity			.27*	
Entitlement			-.09	
Hypersensitive			.02	

* $p < .001$

A final regression equation revealed that no facets of narcissism were able to predict eating disorder symptomatology (See Table 9) at a statistically significant level ($R^2 = .11$, $F(1, 133) = 1.97$, $p = .06$).

Table 9:

Results of Hierarchical Regression for EAT-26

<u>Dependent Variable</u>	<u>B</u>	<u>Std. Error</u>	<u>Beta</u>	<u>R²</u>
EAT-26	-.28	.15	-.16	.11
<u>Predictors</u>				
Hypersensitive			.16	
Self Sufficiency			-.07	
Superiority			.01	
Exhibition			.05	
Exploitation			-.05	
Vanity			.12	
Entitlement			.26	
Authority			.01	

* p<.001

Discussion

Previous research assessing the relationship between narcissism, muscularity, and disordered eating have yielded both conflicting and ambiguous results (Back, et al, 2010; Davis et al, 1997; Davis et al, 2005; Gordon and Dombek, 2010; Zeigler-Hill, Clark, & Pickard, 2008). One possible explanation for these conflicting and abstruse findings can be found in the fact that much of the literature pertaining to narcissism in relation to muscularity and disordered eating assessed narcissism as a unitary construct; this is of significant concern as much of the narcissism literature has suggested that the construct is more accurately represented as two distinct facets. The current study sought to further evaluate these relationships, not only by assessing narcissism as faceted construct, but by furthering the muscularity literature through the assessment of muscle dysmorphia as it pertains to narcissism.

The first hypothesis stated that there would be a positive correlational relationship between muscle dysmorphia and grandiose narcissism. This hypothesis was not supported, as there was no significant relationship between grandiose narcissism and the extent of muscle dysmorphia symptomatology. However, when the relationships are assessed at the subscale-level, there are a number of significant correlations, both positive and negative in directionality. Among these relationships, the authority and entitlement facets of grandiose narcissism were most highly correlated with muscle dysmorphia symptomatology, which provides support for the work of Davis et al. (2005), which suggests that only certain facets of narcissism are relevant to body image research. This result also lends credence to the growing body of evidence within the narcissism literature (Rosenthal & Hooley, 2010; Rosenthal, Montoya, Ridings, Rieck, & Hooley,

2001) that suggests that numerous items contained within the NPI-40 do not assess grandiose narcissism at its core in regards to the way in which the construct is traditionally operationalized, but are indicative rather of psychological health, specifically self-esteem. Numerous studies (e.g. Campbell, 2001; Miller & Campbell, 2008) have suggested that certain items on the NPI-40 are indicative of normative personality traits such as confidence, assertiveness, and higher levels of self-esteem, which may confound findings in studies that are attempting to evaluate the construct as dictated by its most common and current conceptualization. This is particularly concerning when considering the emotional factors associated with muscle dysmorphia, such as body dissatisfaction and preoccupation with perceived lack of muscularity, which could account for significant subscale-level relationships while confounding observed relationships at the construct level. Within the current study, additional support for this is evidenced by the finding that vulnerable narcissism, though contrary to initial hypotheses, was able to predict the extent of muscle dysmorphia symptomatology at a statistically significant level. It is possible that the conceptualization of this particular facet of narcissism better captures the insecurity, poor self-image, and anxiety that coincides with the lower levels of self-esteem that are often found in those who suffer from muscle dysmorphia (Olivardia et al, 2004).

The second hypothesis stated that there would be a positive correlational relationship between drive for muscularity and grandiose narcissism; results supported this hypothesis. Further analyses revealed that the narcissism subscales of vanity and exhibition uniquely contributed to the relationship between these two variables as they were able to predict drive for muscularity at a statistically significant level. This result

lends support to the findings of Davis et al. (2005), which provides further evidence that only certain characteristics of grandiose narcissism are pertinent to the study of muscularity. In this instance, the subscale facets of vanity and exhibition may be related to drive for muscularity insofar as it is characterized by a general tendency towards preoccupation with the physical form and behaviors meant to increase muscle mass. Additionally, this finding provides further evidence for the aforementioned confound pertaining to self-esteem, as drive for muscularity is an integral component of muscle dysmorphia; however, as a stand-alone construct, drive for muscularity is not characterized by the same distress or anxiety regarding bodily perception.

The third hypothesis stated that there would be a positive correlational relationship between eating disorder symptomatology and vulnerable narcissism. This hypothesis was not supported. Furthermore, when additional analyses were performed, a positive correlational relationship was found between eating disorder symptomatology and grandiose narcissism. This finding is in direct opposition to that of Gordon and Dombek (2010), who found vulnerable narcissism to be positively correlated with eating disorder symptomatology. It is important to note that mean scores for eating disorder symptomatology were significantly below the cut-off score used to screen for disordered eating patterns (Garner, Olmstead, Bohr, & Garfinkel, 1982). It is likely that a sample with a greater extent of pathological eating attitudes and behaviors would display higher levels of vulnerable narcissism due to the emotional factors that typically accompany disordered eating. Another possible explanation for this conflictual finding could be the use of different measures to assess the degree of eating disorder symptomatology. It is plausible that the varying subscale composition of a different measure of eating attitudes

and behavior would better encapsulate the aspects of disordered eating as they pertain to different facets of narcissism. Lastly, it is important to consider that, among males, abnormal eating patterns can be indicative of muscle dysmorphia symptomatology, which could possibly explain the positive correlational relationship between eating disorder symptomatology and grandiose narcissism.

One limitation of the present study is its lack of generalizability. All participants selected for the study were recruited from within a university, and the majority of the participants were Caucasian. This inhibits the generalizability of results to non-student populations and those of different ethnicities. Given this lack of diversity, it is possible that results might have differed if this research was done with participants of different ethnicities.

Secondly, it is important to reiterate the fact that eating disorder symptoms are severely underreported when using self-report measures (Vitousek, Daly, & Heiser, 1990). In consideration of this problem, it is likely that some participants completed the EAT-26 in a manner that would make them appear more socially desirable, and consequently, less symptomatic than they actually are. Though both labor and resource intensive, the addition of a structured clinical interview and/or reporting from friends or family members of participants would help to control for these concerns.

Additionally, as previously mentioned, there are numerous concerns with the validity of the narcissism measures that were used in the current study, particularly the NPI-40. Building upon the discriminant validity concerns regarding the potential confound with self-esteem in the NPI-40, numerous studies have indicated that there is a further negative correlational relationship between items on the NPI and emotional states

characteristic of psychological distress, such as depression, anxiety, and neuroticism (Brown, Budzek, & Tamborski, 2009; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). Furthermore, throughout the narcissism literature, there is a remarkable amount of inconsistency regarding the most accurate and reliable factor structure of the grandiose narcissism construct, with proponents advocating for as few as two factors to the seven factors that were used for the current study. A large share of the ambiguity and conflicting findings within this particular line of research could be attributed to the lack of a standardized dimensional structure within the measure itself.

In spite of conflicting results, there are still important research implications that can be drawn from the current study. The findings that only the exhibitionism and vanity facets of grandiose narcissism, as well as vulnerable narcissism, were related to muscle dysmorphia symptomatology are indicative of a further need to evaluate the dimensional structure of the NPI-40 for use in social/personality research. These findings support the theory proposed by Rosenthal and Hooley (2010), which posits that the measure is confounded by normative self-esteem, which is indicative of psychological health rather than pathological narcissism. Further studies attempting to evaluate relationships between narcissism and muscularity should implement a measure of self-esteem to control for this potential confound. Furthermore, as suggested by those who question the validity of the NPI-40 as an accurate measure of narcissism (Brown, Budzek, & Tamborski, 2009; Rosenthal & Hooley, 2010), the development of additional measures of narcissism are both highly warranted and greatly needed. Given the high rate of conflictual and convoluted findings involving the use of the NPI-40 in social/personality research, it is

plausible that a clear understanding of the construct has been obstructed simply by relying upon the standard accepted methodology used to assess it.

The finding that muscle dysmorphia is related to vulnerable narcissism provides further support for its study within the same theoretical framework as eating disorders. As proposed by Grieve (2007), it is likely that muscle dysmorphia and eating disorders share similar etiological models as there are a number of common factors that may influence their expression. Among these influences, body mass, media influence, low self-esteem, body dissatisfaction, body distortion, and perfectionism appear to be of primary importance. Furthermore, the relationships between these influences, most notably self-esteem and perfectionism, have been shown to exist between both disordered eating and muscle dysmorphia (Lantz, et al. 2001). In consideration of this finding in conjunction with the literature, it is possible that those suffering from muscle dysmorphia may experience a reduction in the extent of symptomatology if they are able to address sources of self-worth within a therapeutic setting, with the postulation that discovering self-worth through internal domains rather than external domains would yield alleviation of symptom severity.

In conclusion, the findings of the present study serve to further elucidate the relationship between facets of narcissism as they pertain to muscle dysmorphia and eating disorder symptomatology to a degree, as evidenced by the positive relationships between certain facets of narcissism and muscle dysmorphia. Specifically, the findings provide evidence in support of a great need to further explore the study of narcissism, particularly in regards to the dimensional structure and subsequent measurement of the construct as it pertains to social/personality research.

References

- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th Edition). Washington, D.C.
- Agliatta, D., & Tantleff-Dunn, S. (2004). The impact of media exposure on males' body image. *Journal of Social and Clinical Psychology, 23*, 7-22.
- Back, M., Schmukle, S., & Egloff, B. (2010). Why are narcissists so charming at first sight? Decoding the narcissism-popularity link at zero acquaintance. *Journal of Personality and Social Psychology, 98*, 132–145.
- Baghurst, T., Hollander, D., Nardella, B., & Haff, G. (2006). Change in sociocultural ideal male physique: An examination of past and present action figures. *Body Image, 3*, 87-91.
- Baird, A., & Grieve, F. (2006). Exposure to male models in advertisements leads to a decrease in men's body dissatisfaction. *North American Journal of Psychology, 8*, 115-122.
- Brown, R. P., Budzek, K., & Tamborski, M. (2009). On the meaning and measure of narcissism. *Personality and Social Psychology Bulletin, 35*, 951–964.
- Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking websites. *Personality and Social Psychology Bulletin, 34*, 1303–1314.
- Cafri, G., Thompson, J., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review, 25*, 215-239.

- Cain, N., Pincus, A., & Ansell, E. (2008). Narcissism at the crossroads: Phenotypic description of pathological narcissism across clinical theory, social/personality psychology, and psychiatric diagnosis. *Clinical Psychology Review, 28*, 638–656.
- Campbell, W. K. (2001). Is narcissism really so bad? *Psychological Inquiry, 12*, 214–216.
- Chandler, C., Grieve, F., Derryberry, W., & Pegg, P. (2009). Are symptoms of anxiety and obsessive-compulsive disorder related to symptoms of muscle dysmorphia? *International Journal of Men's Health, 8*, 143-154.
- Cohn, L., & Adler, N. (1992). Female and male perceptions of ideal body shapes: Distorted views among Caucasian college students. *Psychology of Women Quarterly, 16*, 69-79.
- Collins, J., & Plahn, M. (1988). Recognition accuracy, stereotypic preference, aversion and subjective judgment of body appearance in adolescents and young adults. *Journal of Youth and Adolescence, 17*, 317-332.
- Cubberly, R. (2009). *Evaluating the reliability and validity of the muscle dysmorphia inventory*. Unpublished master's thesis, Western Kentucky University, Bowling Green, KY.
- Davis, C., Claridge, G., & Cerullo, D. (1997). Personality factors and weight preoccupation: A continuum approach to the association between eating disorders and personality disorders. *Journal of Psychiatric Research, 31*, 467–480.

- Davis, C., Karvinen, K., & McCreary D. (2005). Personality correlates of a drive for muscularity in young men. *Personality and Individual Differences, 39*, 349-359.
- Dickinson, K., & Pincus, A. (2003). Interpersonal analysis of grandiose and vulnerable narcissism. *Journal of Personality Disorders, 17*, 188–207.
- Duggan, S., & McCreary, D. (2004). Body image, eating disorders, and drive for muscularity in gay and heterosexual men: The influence of media images. *Journal of Homosexuality, 47*, 45-58.
- Enns, M., Drewnowski, A., & Grinker, J. (1987). Body composition, body size estimation, and attitudes toward eating in male college athletes. *Psychosomatic Medicine, 49*, 56-64.
- Feingold, A., & Mazalla, R. (1998). Gender differences in body image are increasing. *Psychological Science, 9*, 190-195.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.
- Furnham, A., & Calnan, A. (1998). Eating disturbance, self-esteem, reasons for exercising and body weight dissatisfaction in adolescent males. *European Eating Disorder Review, 6*, 58-72.
- Garner, D., Olmsted, M., Bohr, Y., & Garfinkel, P. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*, 871-878.

- Garner, D., Olmstead, M., & Polivy, J. (1983). Development and validation of multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2, 15-34.
- Goodale, K., Watkins, P., & Cardinal, B. (2001). Muscle dysmorphia: A new form of eating disorder? *American Journal of Health Education*, 32, 260-266.
- Gordon, K., & Dombeck, J. (2010). The associations between two facets of narcissism and eating disorder symptoms. *Eating Behaviors*, 11, 288-292.
- Gould, S. (1987). Gender differences in advertising response and self-consciousness variables. *Sex Roles*, 16, 215-225.
- Grieve, F. (2007). A conceptual model of factors contributing to the development of muscle dysmorphia. *Eating Disorders*, 15, 63-80.
- Grieve, F., & Bonneau-Kaya, C. (2007). The relationship of muscle building articles in men's magazines to weight loss articles in women's magazines. *North American Journal of Psychology*, 9, 97-102.
- Grieve, F., Newton, C., Kelley, L., Miller, R., & Kerr, N. (2005). The preferred male body shapes of college men and women. *Individual Differences Research*, 3, 188-192.
- Grieve, F., Wann, D., Henson, C., & Ford, P. (2006). Healthy and unhealthy weight management practices in collegiate men and women. *Journal of Sport Behavior*, 29, 229-241.

- Groesz, L. M., Levine, M. P., & Murnen, S. K. (2001). The effect of experimental presentation of thin media images on body satisfaction: A meta-analytic review. *International Journal of Eating Disorders, 31*, 1-16.
- Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*, 40-67.
- Hausenblas, H., Janelle, C., Ellis Gardner, R., & Focht, B. (2004). Viewing physique slides: Affective responses of women at high and low drive for thinness. *Journal of Social and Clinical Psychology, 23*, 45-60.
- Hendin, H., & Cheek, J. (1997). Assessing hypersensitive narcissism: A reexamination of Murray's narcissism scale. *Journal of Research in Personality, 31*, 588-599.
- Jacobi, L., & Cash, T. (1994). In pursuit of the perfect appearance: Discrepancies among self-ideal percepts of multiple physical attributes. *Journal of Applied Social Psychology, 24*, 379-396.
- Kenrick, D., & Gutierrez, S. (1980). Contrast effects and judgments of physical attractiveness: When beauty becomes a social problem. *Journal of Personality and Social Psychology, 25*, 131-140.
- Lamanna, J., Grieve, F., Derryberry, W., Hakman, M., & McClure, A. (2010). Antecedents of eating disorders and muscle dysmorphia in a non-clinical sample. *Eating and Weight Disorders, 15*, 23-33.
- Lantz, C. D., Rhea, D. J., & Mayhew, J. L. (2001). The drive for size: A psycho-behavioral model of muscle dysmorphia. *International Sports Journal, 5*, 71-86.

- Leit, R., Pope, H., Gray, J. (2001). Cultural expectations of muscularity in men: The evolution of Playgirl centerfolds. *International Journal of Eating Disorders*, 29, 90-93.
- Lorenzen, L., Grieve, F., & Thomas, A. (2004). Exposure to muscular male models decreases men's body satisfaction. *Sex Roles*, 51, 743-806
- McCabe, M., Ricciardelli, L., & Finemore, J. (2002). The role of puberty, media and popularity with peers on strategies to increase weight, decrease weight and increase muscle tone among adolescent boys and girls. *Journal of Psychosomatic Research*, 52, 145–153.
- McCreary, D. (2002). Gender and age differences in the relationship between body mass index and perceived weight: Exploring the paradox. *International Journal of Men's Health*, 1, 31-42.
- McCreary, D. (2007). The drive for muscularity scale: Description, psychometrics, and research findings. In J. Thompson & G. Cafri (Eds.) *The Muscular Ideal* (pp. 87-106). Washington, DC: American Psychological Association.
- McCreary, D., & Sadava, S. (2001). Gender differences in relationships among perceived attractiveness, life satisfaction, and health in adults as a function of body mass index and perceived weight. *Psychology of Men and Masculinity*, 2, 108-116.
- McCreary, D., & Sasse, D. (2000). An exploration of the drive for muscularity in adolescent boys and girls. *Journal of American College Health*, 48, 297–304.

- McCreary, D., & Sasse, D. (2002). Gender differences in high school students' dieting behavior and their correlates. *International Journal of Men's Health, 1*, 195-213.
- McCreary, D., Sasse, D., Saucier, D., & Dorsch, K. (2004). Measuring the drive for muscularity: factorial validity of the drive for muscularity scale in men and women. *Psychology of Men & Masculinity, 5*, 49–58.
- McCreary, D., Saucier, D., & Courtenay, W. (2005). The drive for muscularity and masculinity: testing the associations among gender role traits, behaviors, attitudes, and conflict. *Psychology of Men and Masculinity, 6*, 83-94.
- Miller, J. D., & Campbell, W. K. (2008). Comparing clinical and social–personality conceptualizations of narcissism. *Journal of Personality, 76*, 449–476.
- Muth, J., & Cash, T. (1997). Body-image attitudes: What difference does gender make? *Journal of Applied Social Psychology, 27*, 1438-1452.
- National Institute on Drug Abuse. (2000). *Anabolic steroid abuse* (NIH Publication No. 00-3721). Washington, DC: U.S. Department of Health and Human Services.
- Norton, K., Olds, T., Olive S., & Dank, S. (1996). Ken and Barbie at life size. *Sex Roles, 34*, 287-294.
- O'Dea, J., & Abraham, S. (1999). Onset of disordered eating attitudes and behaviors in early adolescence: Interplay of pubertal status, gender, weight, and age. *Adolescence, 34*, 671-679.

- O'Dea, J., Rawstorne, P. (2001). Male adolescents identify their weight gain practices, reasons for desired weight gain, and sources of weight gain information. *Journal of the American Dietetic Association, 101*, 105-107.
- Olivardia, R. (2001). Mirror, mirror on the wall, who's the largest of them all? The features and phenomenology of muscle dysmorphia. *Harvard Review of Psychiatry, 9*, 254-259.
- Olivardia, R., Pope, H., Borowiecki, J., & Cohane, G. (2004). Biceps and body image: The relationship between muscularity and self-esteem, depression, and eating disorder symptoms. *Psychology of Men and Masculinity, 5*, 112-120.
- Olivardia, R., Pope, H., Mangweth, B., & Hudson, J. (1995). Eating disorders in college men. *American Journal of Psychiatry, 152*, 1279-1285.
- Owen, P., & Laurel-Seller, E. (2000). Weight and shape ideals: Thin is dangerously in. *Journal of Applied Social Psychology, 30*, 979-990.
- Parks P., & Read, M. (1997). Adolescent male athletes: Body image, diet, and exercise. *Adolescence, 32*, 593-603.
- Pincus, A., & Lukowitsky, M. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology, 6*, 421-426.
- Polivy, J., & Herman, P. (2002). Causes of eating disorders. *Annual Review of Psychology, 53*, 537-544.

- Pope, H., Gruber, A., Choi, P., Olivardia, R., & Phillips, K. (1997). Muscle dysmorphia: An underrecognized form of body dysmorphic disorder. *Psychosomatics*, 38, 548-557.
- Pope, H., & Katz, D. (1994). Psychiatric and medical effects of anabolic-androgenic steroids. A controlled study of 160 athletes. *Archives of General Psychiatry*, 51, 375-382.
- Pope, H., Katz, D., & Hudson, J. (1993). Anorexia nervosa and “reverse anorexia” among 108 male bodybuilders. *Comprehensive Psychiatry*, 34, 406-409.
- Pope, H., Phillips, K., & Olivardia, R. (2000). *The Adonis complex: The secret crisis of male body obsession*. New York: The Free Press.
- Pope, H., Olivardia, R., Boroweicki, J., & Cohane, G. (2001). The growing commercial value of the male body: A longitudinal survey of advertising in women’s magazines. *Psychotherapy and Psychosomatics*, 70, 189-192.
- Pope, H., Olivardia, R., Gruber, A., & Boroweicki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders*, 26, 65-72.
- Raskin, R., & Terry, H. (1988). A principal-components analysis of the narcissistic personality inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890–902.
- Ridgeway, R., & Tylka, T. (2005). College men’s perceptions of ideal body composition and shape. *Psychology of Men and Masculinity*, 6, 209-220.

- Ronningstam, E. (2009). Narcissistic personality disorder: Facing DSM-V. *Psychiatric Annals*, 39, 111–121.
- Rosenthal, S. A., & Hooley, J. M. (2010). Narcissism assessment in social– personality research: Does the association between narcissism and psychological health result from a confound with self-esteem? *Journal of Research in Personality*, 44, 453–465.
- Rosenthal, S. A., Montoya, R. M., Ridings, L. E., Rieck, S. M., & Hooley, J. M. (2011). Further evidence of the narcissistic personality inventory’s validity problems: A meta-analytic investigation, *Journal of Research in Personality*, 45, 408 - 416.
- Sedikides, C., Rudich, E. A., Gregg, A. P., Kumashiro, M., & Rusbult, C. (2004). Are normal narcissists psychologically healthy? Self-esteem matters. *Journal of Personality and Social Psychology*, 87, 400–416.
- Shaw, J., & Waller, G. (1995). The media’s impact on body image: Implications for prevention and treatment. *Eating Disorders: The Journal of Treatment & Prevention*, 3, 115-123.
- Short, J. (2006). *Creating an assessment tool for muscle dysmorphia*. Unpublished master’s thesis, Western Kentucky University, Bowling Green, KY.
- Smolak, L., Murnen, S., & Thompson, J. (2005). Sociocultural influences and muscle building in adolescent boys. *Psychology of Men and Masculinity*, 6, 227-239.
- Spitzer, B., Henderson, K., & Zivian, M. (1999). Gender differences in population versus media body sizes: A comparison over four decades. *Sex Roles*, 40, 545-565.

- Stanford, J., & McCabe, M. (2005). Sociocultural influences on adolescent boys' body image and body change strategies. *Body Image, 2*, 105-113.
- Steinberg, B. E., & Shaw, R. J. (1997). Bulimia as a disturbance of narcissism: Self-esteem and the capacity to self-soothe. *Addictive Behaviors, 22*, 699–710
- Striegel-Moore, R., McAvay, G., & Rodin, J. (1986). Psychological and behavioral correlates of feeling fat in women. *International Journal of Eating Disorders, 5*, 935–947.
- Vazire, S., Naumann, L., Rentfrow, P., & Gosling, S. (2008). Portrait of a narcissist: Manifestations of narcissism in physical appearance. *Journal of Research in Personality, 42*, 1439–1447.
- Vitousek, K.B., Daly, J., & Heiser, C. (1990). Reconstructing the internal world of the eating-disordered individual: Overcoming denial and distortion in self-report. *International Journal of Eating Disorders, 10*, 647-666.
- Waller, G., Sines, J., Meyer, C., Foster, E., & Skelton, A. (2007). Narcissism and narcissistic defenses in the eating disorders. *The International Journal of Eating Disorders, 40*, 143–148.
- Wright, D., & Bradbard, M. (1980). Body build-behavioral stereotypes, self-identification, preference and aversion in Black preschool children. *Perceptual and Motor Skills, 51*, 1047-1050.
- Wroblecka A. (1997). Androgenic-anabolic steroids and body dysmorphia in young men. *Journal of Psychosomatic Research, 42*, 225-234.
- Yates, A., Leehey, K., Shisslak, C. (1983). Running: An analogue of anorexia? *New England Journal of Medicine, 308*, 251-255.

Zeigler-Hill, V., Clark, B., & Pickard, J. (2008). Narcissistic subtypes and contingent self-esteem: Do all narcissists base their self-esteem on the same domains? *Journal of Personality, 76*, 753–774.

APPENDIX A: DEMOGRAPHICS

Directions: Please answer the following questions in an honest manner. **DO NOT** include your name.

- 1. AGE: _____
- 2. ETHNICITY: **African American** **Asian** **Caucasian** **Hispanic**
Native American **Pacific Islander** **Bi-Racial** **Other**
- 3. HEIGHT: _____
- 4. WEIGHT: _____
- 5. How many times per week do you lift weights or work out?
0 **1-2** **3-4** **5-6** **7 or more**
- 7. Do you take any dietary- or fitness-related supplements? **Yes** **No**

***If yes, please list them in the space provided:**

APPENDIX B: NARCISSISTIC PERSONALITY INVENTORY-40

This inventory consists of a number of pairs of statements with which you may or may not identify.

Consider this example:

A. I like having authority over people

B. I don't mind following orders

Which of these two statements is closer to your own feelings about yourself? If you identify more with "liking to have authority over people" than with "not minding following orders", then you would choose option A.

You may identify with both A and B. In this case you should choose the statement which seems closer to yourself. Or, if you do not identify with either statement, select the one which is least objectionable or remote. In other words, read each pair of statements and then choose the one that is closer to your own feelings. Indicate your answer by circling A or B. Please do not skip any items.

1. A. I have a natural talent for influencing people.

B. I am not good at influencing people.

2. A. Modesty doesn't become me.

B. I am essentially a modest person.

3. A. I would do almost anything on a dare.

B. I tend to be a fairly cautious person.

4. A. When people compliment me I sometimes get embarrassed.

B. I know that I am good because everybody keeps telling me so.

5. A. The thought of ruling the world frightens the hell out of me.

B. If I ruled the world it would be a better place.

6. A. I can usually talk my way out of anything.

 B. I try to accept the consequences of my behavior.
7. A. I prefer to blend in with the crowd.

 B. I like to be the center of attention.
8. A. I will be a success.

 B. I am not too concerned about success.
9. A. I am no better or worse than most people.

 B. I think I am a special person.
10. A. I am not sure if I would make a good leader.

 B. I see myself as a good leader.
11. A. I am assertive.

 B. I wish I were more assertive.
12. A. I like to have authority over other people.

 B. I don't mind following orders.
13. A. I find it easy to manipulate people.

 B. I don't like it when I find myself manipulating people.
14. A. I insist upon getting the respect that is due me.

 B. I usually get the respect that I deserve.

15. A. I don't particularly like to show off my body.
B. I like to show off my body.
16. A. I can read people like a book.
B. People are sometimes hard to understand.
17. A. If I feel competent I am willing to take responsibility for making decisions.
B. I like to take responsibility for making decisions.
18. A. I just want to be reasonably happy.
B. I want to amount to something in the eyes of the world.
19. A. My body is nothing special.
B. I like to look at my body.
20. A. I try not to be a show off.
B. I will usually show off if I get the chance.
21. A. I always know what I am doing.
B. Sometimes I am not sure of what I am doing.
22. A. I sometimes depend on people to get things done.
B. I rarely depend on anyone else to get things done.
23. A. Sometimes I tell good stories.
B. Everybody likes to hear my stories.

24. A. I expect a great deal from other people.
- B. I like to do things for other people.
25. A. I will never be satisfied until I get all that I deserve.
- B. I take my satisfactions as they come.
26. A. Compliments embarrass me.
- B. I like to be complimented.
27. A. I have a strong will to power.
- B. Power for its own sake doesn't interest me.
28. A. I don't care about new fads and fashions.
- B. I like to start new fads and fashions.
29. A. I like to look at myself in the mirror.
- B. I am not particularly interested in looking at myself in the mirror.
30. A. I really like to be the center of attention.
- B. It makes me uncomfortable to be the center of attention.
31. A. I can live my life in any way I want to.
- B. People can't always live their lives in terms of what they want.
32. A. Being an authority doesn't mean that much to me.
- B. People always seem to recognize my authority.

33. A. I would prefer to be a leader.
- B. It makes little difference to me whether I am a leader or not.
34. A. I am going to be a great person.
- B. I hope I am going to be successful.
35. A. People sometimes believe what I tell them.
- B. I can make anybody believe anything I want them to.
36. A. I am a born leader.
- B. Leadership is a quality that takes a long time to develop.
37. A. I wish somebody would someday write my biography.
- B. I don't like people to pry into my life for any reason.
38. A. I get upset when people don't notice how I look when I go out in public.
- B. I don't mind blending into the crowd when I go out in public.
39. A. I am more capable than other people.
- B. There is a lot that I can learn from other people.
40. A. I am much like everybody else.
- B. I am an extraordinary person.

APPENDIX C: HYPERSENSITIVE NARCISSISM SCALE

Please answer the following questions by deciding to what extent each item is characteristic of your feelings and behavior. Fill in the blank next to each item by choosing a number from the scale printed below.

- 1 = very uncharacteristic or untrue, strongly disagree
- 2 = uncharacteristic
- 3 = neutral
- 4 = characteristic
- 5 = very characteristic or true, strongly agree

- ___ 1. I can become entirely absorbed in thinking about my personal affairs, my health, my cares or my relations to others.
- ___ 2. My feelings are easily hurt by ridicule or the slighting remarks of others.
- ___ 3. When I enter a room I often become self-conscious and feel that the eyes of others are upon me.
- ___ 4. I dislike sharing the credit of an achievement with others.
- ___ 5. I feel that I have enough on my hands without worrying about other people's troubles.
- ___ 6. I feel that I am temperamentally different from most people.
- ___ 7. I often interpret the remarks of others in a personal way.
- ___ 8. I easily become wrapped up in my own interests and forget the existence of others.
- ___ 9. I dislike being with a group unless I know that I am appreciated by at least one of those present.
- ___ 10. I am secretly "put out" or annoyed when other people come to me with their troubles, asking me for my time and sympathy.

APPENDIX D: MUSCLE DYSMORPHIA QUESTIONNAIRE

Instructions: Please respond to each of the following statements. Circle the response choice that best describes you.

	Strongly Disagree	Somewhat Disagree	Slightly Disagree	Slightly Agree	Somewhat Agree	Strongly Agree
When I see my reflection in the mirror or a window, I feel badly about my body size or shape	1	2	3	4	5	6
Working out causes problems in my job	1	2	3	4	5	6
I eat specific foods at specific times throughout the day in order to gain muscle mass	1	2	3	4	5	6
When I see muscular men, it makes me feel badly about my body shape or size	1	2	3	4	5	6
I am inclined to continue to work out when I am sick	1	2	3	4	5	6
I am ashamed of my body shape or size	1	2	3	4	5	6
I have difficulty maintaining relationships because of thoughts about my body	1	2	3	4	5	6
I am inclined to continue to work out when I am injured	1	2	3	4	5	6
I have difficulty maintaining relationships because of thoughts of working out	1	2	3	4	5	6
I believe bad things happen in my life when I do not have a specific level of muscularity	1	2	3	4	5	6
Working out causes problems in my romantic relationships	1	2	3	4	5	6
I believe I am more muscular than others	1	2	3	4	5	6
I feel badly when I do not get to work out	1	2	3	4	5	6
I eat by myself	1	2	3	4	5	6
I am inclined to continue to work out against doctor's orders	1	2	3	4	5	6
I am inclined to participate in activities that require wearing swimsuits	1	2	3	4	5	6
I do not believe I am as muscular as others	1	2	3	4	5	6
I want to be more muscular than I currently am	1	2	3	4	5	6
I think I look better when I have large muscles	1	2	3	4	5	6
Working out causes problems in my friendships	1	2	3	4	5	6

I am muscular enough	1	2	3	4	5	6
If I could increase my muscle mass, I would	1	2	3	4	5	6
I have difficulty focusing on schoolwork because of thoughts about my body	1	2	3	4	5	6
I am not muscular enough	1	2	3	4	5	6
Others feel that I am way too focused on my body shape or size	1	2	3	4	5	6
I have difficulty focusing on schoolwork because of thoughts of working out	1	2	3	4	5	6
I feel insecure about my body	1	2	3	4	5	6
I use legal or illegal supplements (creatine or anabolic steroids) to help develop my muscles	1	2	3	4	5	6
I am inclined to participate in activities that require minimal clothing	1	2	3	4	5	6
The less clothing I wear, the more anxious I become	1	2	3	4	5	6
I eat a large amount of protein in order to increase my muscularity	1	2	3	4	5	6
I feel anxious when I deviate from my diet	1	2	3	4	5	6
I believe bad things happen to me when I do not keep my workout schedule	1	2	3	4	5	6
I feel anxious when I miss a workout	1	2	3	4	5	6

APPENDIX E: DRIVE FOR MUSCULARITY SCALE

Instructions: Please respond to each of the following statements. Circle the response choice that best describes you.

	Always	Very Often	Often	Sometimes	Rarely	Never
I wish that I were more muscular	1	2	3	4	5	6
I lift weights to build up muscle	1	2	3	4	5	6
I use protein or energy supplements	1	2	3	4	5	6
I drink weight gain or protein shakes	1	2	3	4	5	6
I try to consume as many calories as I can in a day	1	2	3	4	5	6
I feel guilty if I miss a weight training session	1	2	3	4	5	6
I think I would feel more confident if I had more muscle mass	1	2	3	4	5	6
Other people think I work out with weights too often.	1	2	3	4	5	6
I think that I would look better if I gained 10 pounds in bulk.	1	2	3	4	5	6
I think about taking anabolic steroids.	1	2	3	4	5	6
I think that I would feel stronger if I gained a little more muscle mass.	1	2	3	4	5	6
I think that my weight training schedule interferes with other aspects of my life.	1	2	3	4	5	6
I think that my arms are not muscular enough	1	2	3	4	5	6
I think that my chest is not muscular enough.	1	2	3	4	5	6
I think that my legs are not muscular enough	1	2	3	4	5	6

APPENDIX F: EATING ATTITUDES TEST-26

Please read each item carefully, then for each one, circle the response that best applies to you.

	Always	Usually	Often	Sometimes	Rarely	Never
I am terrified about being overweight.	0	1	2	3	4	5
I avoid eating when I am hungry.	0	1	2	3	4	5
I find myself preoccupied with food.	0	1	2	3	4	5
I have gone on eating binges where I feel I may not be able to stop.	0	1	2	3	4	5
I cut my food into small pieces.	0	1	2	3	4	5
I am aware of the calorie content of foods I eat.	0	1	2	3	4	5
I particularly avoid food with high carbohydrate content (bread, rice, potatoes, etc.)	0	1	2	3	4	5
I feel that others would prefer if I ate more.	0	1	2	3	4	5
I vomit after I have eaten.	0	1	2	3	4	5
I feel extremely guilty after eating.	0	1	2	3	4	5
I am preoccupied with a desire to be thinner.	0	1	2	3	4	5
I think about burning up calories when I exercise.	0	1	2	3	4	5
Other people think I am too thin.	0	1	2	3	4	5

I am preoccupied with the thought of having fat on my body.	0	1	2	3	4	5
I take longer than others to eat my meals.	0	1	2	3	4	5
I avoid foods with sugar in them.	0	1	2	3	4	5
I eat diet foods.	0	1	2	3	4	5
I feel that food controls my life.	0	1	2	3	4	5
I display self-control around food.	0	1	2	3	4	5
I feel that other people pressure me to eat.	0	1	2	3	4	5
I give too much time and thought to food.	0	1	2	3	4	5
I feel uncomfortable after eating sweets.	0	1	2	3	4	5
I engage in dieting behavior.	0	1	2	3	4	5
I like my stomach to be empty.	0	1	2	3	4	5
I have the impulse to vomit after meals.	0	1	2	3	4	5
I enjoy trying rich new foods.	0	1	2	3	4	5

Please respond to each of the following questions:

1. Have you gone on eating binges where you feel that you may not be able to stop? (Eating much more than most people would eat under similar circumstances): Yes____ No____

If yes, on average, how many times per month in the last 6 months? _____

2. Have you ever made yourself sick (vomited) to control your weight or shape? Yes___ No___

3. Have you ever used laxatives, diet pills, or diuretics (water pills) to control your weight or shape? Yes___ No___

If yes, on average, how many times per month in the last 6 months? _____

4. Have you ever been treated for an eating disorder? Yes____ No____

5. Have you recently thought of or attempted suicide? Yes____ No____

APPENDIX G: INFORMED CONSENT

You are being asked to participate in a survey research project. Before continuing as acknowledgement of your permission to participate we would like to explain the following.

1. Your participation is completely voluntary. This means you have the right to not answer any question you do not want to, or to quit at any time without any penalty.
2. For this study, you will remain completely anonymous. That is, you will not be asked to write down any identifying information, such as your name.
3. This study appears to have minimal risks and discomfort. However, there is always a chance that a question could cause discomfort or problems. Please let the researchers know if any questions are upsetting.
4. Benefits of this study include a sense of well being for contributing to scientific research, helping a WKU graduate student, and providing information that will be used to help better understand exercise and eating attitudes and behaviors.
5. During participation you will be asked to complete a section asking about age, ethnicity, height, weight, supplementation, and workout frequency. Also, you will be asked to complete five measures (40 items, 10 items, 34 items, 15 items, 31 items) that evaluate personality characteristics and male body image. These surveys collectively should take about 20 – 25 minutes to complete.
6. Although your individual responses will remain anonymous, your data will be combined with the data of others and may be submitted for publication in scholarly journals or presented at conventions.

Professor Rick Grieve, Ph.D., is the Faculty Sponsor for this research project and can be contacted at (270) 745-4417, with any questions in regards to the study, Monday through Friday from 9:00 am until 4:00 pm. Dr. Grieve's office is located in Gary A. Ransdell Hall room 3028. Questions or complaints about research participants' rights can be directed to the Human Subjects Review Board, Western Kentucky University, Bowling Green, KY 42101, or by phone at (270)-745-4652.

By continuing on to the next page, you acknowledge that you voluntarily agree to participate in this study.

APPENDIX H: DEBRIEFING STATEMENT

Thank you for taking part in this study. This study examines individuals' exercise and eating behaviors and attitudes. You first completed a questionnaire which provided us with basic information about yourself. Next, you completed two questionnaires used to measure characteristics of narcissism. You were then asked to complete two questionnaires used to measure muscle dysmorphia symptoms. Finally, you were asked to complete a questionnaire used to assess eating behaviors and attitudes. The results of this study will be used to examine how narcissistic personality characteristics relate to muscle dysmorphia symptoms. I want to remind you that your responses in this study will remain anonymous. If you have any questions regarding your participation, you may contact the primary investigator, Chance Littrell, at littrellchance@gmail.com, or my supervising professor, Dr. Rick Grieve, at (270) 745-4417. Also, if you feel any discomfort from participating in this study, you may contact the Western Kentucky University Counseling and Testing Center at (270)-745-3195