MEASURING MALE BODY DISSATISFACTION: FACTORIAL AND CONSTRUCT VALIDITY OF THE BODY PARTS SATISFACTION SCALE FOR MEN

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Dissertation Prepared for the Degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

August 2010

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McFarland, Michael Blaine. Measuring male body dissatisfaction: Factorial and construct validity of the Body Parts Satisfaction Scale for Men. Doctor of Philosophy (Counseling Psychology), August 2010, 95 pp., 8 tables, references, 133 titles.

Given the centrality of body dissatisfaction in the manifestation of health risk behaviors (e.g., eating disorders, muscle dysmorphia) and psychological distress in men, the ability to measure it accurately is essential. Across two studies, the psychometric properties and factor structure of a new measure of male body satisfaction were established. The Body Parts Satisfaction Scale for Men (BPSS-M) was found to have three scores: full body muscularity and leanness (18 items), upper body (12 items), and legs (4 items). All three scores were internally and temporally reliable, and support was found for the convergent, discriminant, and concurrent validity of the scores. The BPSS-M represents an advance in the measurement of male body image, providing researchers and clinicians with a versatile and valid way to assess this important construct.

ACKNOWLEDGMENTS

I would like to express my appreciation for the patience, guidance, and ongoing support provided by my major professor throughout this endeavor. I would also like to thank my family and friends for their ongoing encouragement.

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INTRODUCTION

Overview

In comparison to women, research on male body image has been relatively sparse (e.g., Abell & Richards, 1996). However, over the past 20 years researchers have increased their focus on this topic and thus considerably more is now known about men and body image concerns (e.g., Cafri et al., 2005; McCabe & Ricciardelli, 2004; Pope, Phillips, & Olivardia, 2000). For example, recent studies suggest that a male physique defined by leanness and muscularity has become increasingly important in Western society (Furnham, Badmin, & Sneade, 2002). Moreover, men who do not reach this ideal and have a negative body image are at increased risk for psychological disturbances, such as muscle dysmorphia, eating disorders, and depression (Olivardia, Pope, Borowiecki, & Cohane, 2004). Unfortunately, the development of valid and reliable measures of body image concerns has not kept pace with researchers' interests, causing them to rely on measures that were developed for women or on those designed for men, but lacking psychometrically. Thus, the purpose of this study was to develop and test a measure of male body dissatisfaction that addressed the limitations of existing questionnaires and included body issues salient to men (i.e., leanness and muscularity).

Sociocultural Pressures and Male Body Image

Researchers have suggested that society's idealization of a hyper-mesomorphic, hyper-lean male body adversely influences the body image and eating behaviors of male adolescents and men (e.g., Leit, Gray, & Pope, 2002; Spitzer, Henderson, & Zivian, 1999). Pope, Phillips, and Olivardia (2000) demonstrated that young boys are regularly exposed to cartoons, movies, and toys that emphasize an unrealistically muscular and lean masculine image. For example, the

G.I. Joe Extreme action figure, if scaled to 5 feet 10 inches, would have a 55-inch chest and 27-inch biceps, proportions that are virtually impossible to achieve without the use of anabolic steroids (Pope, Phillips, et al., 2000). Leit et al. (2002) demonstrated that, in comparison to a control group, men who were exposed to images of other muscular men experienced increased body dissatisfaction primarily with respect to their own level of muscularity. This finding is consistent with prior studies that have provided evidence regarding the salience of muscularity in men's overall body satisfaction (Pope, Gruber, et al., 2000).

In addition to media influences, a small number of studies have investigated the effects of parents and peers on male adolescents' and men's body image (e.g., Garner, 1997; McCabe & Ricciardelli, 2001; Vincent & McCabe, 2000). For example, Vincent and McCabe (2000) reported that poor relationships with peers and negative comments from peers and mothers regarding body size and shape predicted body dissatisfaction among adolescent boys. Moreover, McCabe and Ricciardelli (2001) found that adolescent boys with high body mass indexes (BMIs) were most likely to perceive their parents as encouraging them to lose weight and increase muscle mass, and were least satisfied with their bodies as compared to low BMI and average BMI groups. Garner (1997) reported that 35% of men in his sample said that being teased during their youth had a negative influence on their current body image.

Over the past two decades, as sociocultural messages regarding the ideal male body have become more prominent, the prevalence of men experiencing body dissatisfaction has increased dramatically. Garner (1997) investigated the cognitions, perceptions, feelings, behaviors, and psychopathology associated with body image among men and women. He reported that men who were dissatisfied with their overall appearance increased from 15% to 43% between 1972 and 1997. Similarly, over the same time period, men's dissatisfaction increased in regard to their

weight (from 35% to 52%), muscle tone (25% to 45%), chest (18% to 38%), and abdomen (36% to 63%). Of the men who were dissatisfied with their weight, 22% wanted to gain weight, whereas 78% wanted to lose weight. Moreover, Garner found that 17% of the men in the full sample would give up more than three years of life to achieve their ideal weight.

The centrality of body image concerns in the development of disordered eating has long been recognized for women (e.g., Furnham et al., 2002; Stice, Nemeroff, & Shaw, 1996; Striegel-Moore, Silberstein, & Rodin, 1986; Tylka, 2004). For men, though, its importance has been more recently acknowledged through conceptual models of body image and eating disturbances (e.g., Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). For example, Cafri et al. (2005) has suggested that, as a direct result of body dissatisfaction, men experience psychological distress, such as depression, anxiety and low self-esteem, and muscle dysmorphia, and engage in a number of different health risk behaviors to achieve the societal body ideal (i.e., lean and muscular), such as anabolic-androgenic steroid use (e.g., Feldman, 2004; Kanayama, Barry, Hudson, & Pope, 2006; Olivardia et al., 2004; Pope, Phillips, et al., 2000; Yesalis, Barsukiewicz, Kopstein, & Bahrke, 1997).

Body image concerns also have been strongly and directly linked to the development of eating disorders in these models (Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). Over the last decade, the prevalence of clinical eating disorders among male adolescents and men has been examined (e.g., Currin, Schmidt, Treasure, & Jick, 2005; Hudson, Hiripi, Pope, & Kessler, 2007; McNulty, 1997; O'Dea & Abraham, 2002; Woodside et al., 2001), with methodologically rigorous studies reporting lifetime prevalence rates of 0.0% to 0.3% for anorexia nervosa (AN), 0.13% to 0.96% for bulimia nervosa (BN), 0.8% to 2.0% for binge eating disorder (BED), and 5.0% to 9.4% for eating disorder not otherwise specified (EDNOS,

excluding BED) (e.g., Hudson et al., 2007). Prevalence rates that are based simply on participant self-report have been higher, including 2.5% for AN, 6.8% for BN, and 40.8% for EDNOS (McNulty, 1997). As body dissatisfaction in men has increased over the past two decades (e.g., Garner, 1997), so too has the risk of eating disturbances in men (e.g., Currin et al., 2005; O'Dea & Abraham, 2002).

Men also engage in a range of subclinical disordered eating behaviors, such as excessive exercising and use of muscle-building supplements that, like eating disorders, result from high levels of body dissatisfaction. For example, over the past 10-15 years a subset of adolescent boys and men, including athletes and bodybuilders, has used anabolic-androgenic steroids (AAS) to artificially increase muscle mass (Pope, Phillips, et al., 2000). According to an ongoing study conducted by the National Institute on Drug Abuse, from 1992 through 2007, annual steroid prevalence rates for 12th grade boys have remained stable (2.1% and 2.2%, respectively; Johnston, O'Malley, Bachman, & Schulenberg, 2008). Furthermore, 4.6% of adult men, ages 19 to 30, have reported steroid usage at some point in their lives. Steroids are highly effective at increasing muscle mass, enabling adolescent boys and men who are dissatisfied with their muscularity to rapidly achieve noticeable results (Pope, Phillips, et al., 2000).

Muscle dysmorphia (MD; Pope, Gruber, Choi, Olivardia, & Phillips, 1997), a specific form of body dysmorphic disorder (BDD), is another negative health outcome related to male body image concerns. According to Pope et al. (1997), men with MD are preoccupied with the concern that they are insufficiently muscular and lean, and engage in potentially dangerous behaviors to increase muscularity, including lifting weights excessively, maintaining a high-volume, muscle-enhancing diet, and using performance enhancing supplements (e.g., steroids). Many studies have identified this pattern of symptoms within men across different countries,

including the United States, Western Europe, and South Africa (e.g., Olivardia, Pope, & Hudson, 2000). It has been estimated that at least 100,000 men in the U.S. meet the criteria for MD (Pope, Phillips, et al., 2000).

In addition to the relationship between poor body image and disorders such as MD, the relationship between body dissatisfaction and psychological distress has been an ongoing area of interest to researchers. For example, one early study found a relationship between higher levels of body satisfaction and lower levels of depression-proneness in men, but not women (McCaulay, Mintz, & Glenn, 1988). A more recent study suggested that men in the U.S. displayed substantial body dissatisfaction, and this dissatisfaction was related to depression, eating disturbances, the use of performance-enhancing substances, and low self-esteem (Olivardia et al., 2004). Moreover, muscle belittlement, which is the perception that one is less muscular than one actually is, figures strongly into the overall construct of male body dissatisfaction (Olivardia et al., 2004). McFarland and Kaminski (2009) reported that lower ratings of overall self-concept and higher levels of depression, anxiety, and interpersonal sensitivity were predictive of body image disturbances in men.

To summarize, sociocultural factors (e.g., media, peer and parental influence), biological factors (e.g., BMI, pubertal growth), sports participation, and social body comparison contribute directly and indirectly to male body image dissatisfaction (Cafri et al., 2005). Furthermore, body image dissatisfaction predisposes men to engage in health risk behaviors (e.g., excessive exercising, eating disorders, muscularity-oriented dieting and behaviors, use of steroids) and experience psychological distress (Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). As sociocultural pressures have grown over the past two decades (e.g., Drummond, 2002; Leit et al., 2002; Pope, Phillips, et al., 2000), so too has the prevalence of body dissatisfaction

and disordered eating attitudes and behaviors (e.g., McCabe & Ricciardelli, 2004; O'Dea & Abraham, 2002; Pope, Phillips, et al., 2000).

Measurement of Body Image in Males

Given the centrality of body dissatisfaction in the manifestation of health risk behaviors and psychological distress in men (e.g., Cafri et al., 2005), the ability to accurately measure this construct becomes essential. Unfortunately, there are few psychometrically valid and reliable measures available that have been designed for men. In fact, based on their review of existing body image measures, Cafri and Thompson (2004) argued for the development of new measures that address the unique experiences of men. They suggested that any new measure of male body image had to specifically address the issue of muscularity and, if a scale focused on body parts, the upper torso had to be included. Although Cafri and Thompson identified the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000; McCreary, Sasse, Saucier, & Dorsch, 2004), Somatomorphic Matrix (SM; Gruber, Pope, Borowiecki, & Cohane, 1999), and Somatomorphic Matrix Modification (SMM; Cafri & Thompson, 2004) as the three most prominent male body image measures, they noted that each one had major limitations.

With respect to the DMS, although the measure assesses muscularity-related body image and behaviors associated with the pursuit of muscularity, it does not assess the dimension of leanness (McCreary & Sasse, 2000; McCreary et al., 2004), an important aspect of men's body satisfaction (e.g., Gruber et al., 1999; Pope, Gruber, et al., 2000; Pope, Phillips, et al., 2000). Moreover, the DMS is limited in terms of the specific body sites evaluated, excluding such body parts as the abdomen, shoulders, back, and buttocks (McCreary & Sasse, 2000; McCreary et al., 2004). Regarding the SM and SMM, both are designed to measure body image satisfaction and perceptual accuracy with overall body muscularity and body fat (i.e., leanness). However, neither

of these measures evaluates satisfaction through ratings of specific body parts. Instead, the measures were designed around a "classic" male physique (i.e., V-shaped upper body, wide shoulders, narrower hips, muscular legs) and therefore may not be appropriate for use with certain groups of men who value different body proportions (e.g., runners or bikers, who commonly have lean, less muscular upper bodies and more muscular legs). Limited psychometric data exists for both the SM and SMM, and the available data suggest that test-retest reliabilities are inadequate (Cafri, Roehrig, & Thompson, 2004; Cafri & Thompson, 2004).

Summary of Problem and Purpose of Study

In summary, although body dissatisfaction is a central factor in theoretical models concerning male body image and eating behavior, existing measures of this construct are limited (Cafri et al., 2004; Cafri & Thompson, 2004). Given the need for a valid, reliable, and easy to use measure of male body satisfaction that addresses body parts (e.g., biceps/triceps, chest) and physical characteristics (i.e., leanness, muscularity) salient to men, an opportunity exists to develop an instrument that meets the criteria and characteristics identified by experts in the field (e.g., Cafri & Thompson, 2004; Gruber et al., 1999; Pope, Phillips, et al., 2000). Specifically, such a measure should focus on (a) multiple body parts, in particular those of the upper body, (b) address muscularity as a central component, and (c) allow for the assessment of leanness. Although no current measure of male body image meets these criteria, a measure developed for women could serve as a starting point. The Body Parts Satisfaction Scale-Revised (Petrie, Tripp, & Harvey, 2002) is an 11-item measure that is based on women's ratings of different body parts to determine their level of satisfaction. Through two studies, Petrie et al. documented that the BPSS-R was a reliable, valid, and user-friendly measure of body satisfaction.

Using the BPSS-R as a model, Petrie identified nine major body parts (e.g., chest, arms [biceps/triceps], and buttocks) and then represented each one along two salient dimensions – muscularity and leanness. In addition to these 18 items (9 regarding muscularity and 9 addressing leanness), he included two physical metrics (i.e., height and weight). These 20 items formed the measure tested in this study. Petrie administered this new measure, the Body Parts Satisfaction Scale for Men (BPSS-M), to 386 undergraduate males at the University of North Texas.

Using this archival dataset, in Study 1 an exploratory factor analysis (EFA) was conducted to determine the factor structure of the 20-item BPSS-M. In addition, the scale's internal consistency was determined as well as its relationship to basic demographic variables, such as age, BMI, and social desirability. In Study 2, the factor structure determined in Study 1 was examined through confirmatory factor analysis (CFA). Once confirmed, the factors' reliability (internal consistency and test-retest) was established. In addition, convergent, discriminant, and concurrent validity were examined. It was expected that the BPSS-M factors would be related to other measures of body image concerns and predictive of other health outcomes, such as disordered eating, drive for muscularity, and psychological well-being.

CHAPTER 2

STUDY 1: EXPLORATORY FACTOR ANALYSIS AND INITIAL RELIABILITY ESTIMATES

Method

Participants

Participants were 189 male undergraduates drawn from a large, public university located in the southwestern U.S. Their mean age was 20.3 years (*SD* = 2.25). In terms of race/ethnicity, 63.5% (*n* = 120) were Caucasian, 13.2% (*n* = 25) Hispanic, 12.7% (*n* = 24) African American, 10.1% (*n* = 19) Asian American/Pacific Islander, and .5% (*n* = 1) American Indian. In terms of academic status, 71 (37.6%) were freshmen, 49 (25.9%) were sophomores, 41 (21.7%) were juniors, 28 (14.8%) and were seniors.

The men's mean actual and ideal body mass index (BMI) were 25.0 kg/m^2 (*SD* = 4.71) and 24.4 kg/m^2 (*SD* = 3.05), respectively. According to the Center for Disease Control (2009) criteria, 7 men (3.7%) could be categorized as underweight, 103 (54.5%) as normal weight, 50 (26.5%) as overweight, and 29 (15.3%) as obese. Regarding their satisfaction with current body weight, 87 (46.0%) reported being dissatisfied. Of those who were dissatisfied, 57 (65.5%) considered themselves overweight and 30 (34.5%) considered themselves underweight. No participants reported a history of eating disorders (i.e., anorexia nervosa, bulimia nervosa, eating disorder not otherwise specified).

Measures

Body image. The 20-item Body Parts Satisfaction Scale for Men (BPSS-M) was developed for this study based on the Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie et al., 2002), a validated measure for women. The BPSS-M assesses level of satisfaction with

physical appearance as represented through various body parts on which men rate their leanness and muscularity, two essential features of how men view their bodies (Cafri & Thompson, 2004; Gruber et al., 1999; Pope, Phillips, et al., 2000). The measure consists of 18 items addressing leanness and muscularity of nine body parts (e.g., shoulders, chest, and buttocks) and 2 items assessing physical metrics (i.e., height and weight). Participants rate each item using a 6-point Likert scale that ranges from 1, *extremely dissatisfied*, to 6, *extremely satisfied*.

Social desirability. The 12-item Marlowe-Crowne Social Desirability Scale Form B (MCSDS-B; Reynolds, 1982) assesses the degree to which individuals respond in a socially desirable way. Each item is answered using a true-false response. Total scores are determined by summing the number of items endorsed in a socially desirable manner and can range from 0, *low*, to 12, *high*. In a sample of undergraduates, Reynolds reported a Kuder-Richardson-20 (KR-20) coefficient of .75. KR-20 for the current study was .62. In addition, he found that the MCSDS-B correlated significantly with the 33-item standard version of the Marlowe-Crowne Social Desirability Scale (r = .92; Crowne & Marlowe, 1960), and with the Edwards Social Desirability Scale (r = .38; Edwards, 1957).

Demographics. A demographic questionnaire was developed for this study and includes questions on age, ethnicity, and current academic status. In addition, participants provided information regarding their bodies (i.e., present height; present weight; ideal weight; are you satisfied with your current weight [yes or no]?; do you consider yourself to be [overweight or underweight]?; and eating disorder status: have you ever been treated for anorexia nervosa [yes or no]?, bulimia nervosa [yes or no]?, or other eating disorder [yes or no]?).

Procedure

After obtaining approval from the University of North Texas Institutional Review Board for Human Subjects Research, male undergraduates were recruited via the psychology department's Web-based research system (SONA) and class announcements, over the fall and spring semesters, to participate in a study addressing the health behaviors of men. The men participated through a confidential and secure website. After logging into the system, they read the consent form and clicked "I agree" to confirm their understanding of the voluntary nature of the research study. Next, participants were directed to the questionnaires, which included (in this order): the demographic questionnaire, the Marlowe-Crowne Social Desirability Scale Form B (MCSDS-B; Crowne & Marlowe, 1960; Reynolds, 1982), and the Body Parts Satisfaction Scale for Men (BPSS-M). In return for participation, the men received course extra credit consistent with department of psychology guidelines and were entered into a drawing for a $50 cash prize.

Data Analysis

Exploratory factor analysis (EFA) was used to examine the factor structure of the BPSS-M. Given a cases-per-item ratio of 9.5:1, Bartlett's (1950) test of sphericity was used to estimate the probability that item correlations are 0 (Worthington & Whittaker, 2006). In addition, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, which indicates the extent to which a correlation matrix actually contains factors versus chance correlations between a subset of variables, was used to evaluate factorability. KMO values of .60 and higher are adequate for ensuring good factor analysis (Tabachnick & Fidell, 2007).

Principal axis factoring, with squared multiple correlations as the communality estimates, was used as the method of factor extraction. Based on the recommendations of Worthington and Whittaker (2006), multiple approaches were used to determine what factors would be retained:

(a) eigenvalues greater than 1 (Kaiser, 1958); (b) scree plot analysis (Cattell, 1966) to evaluate the relative values of eigenvalues; and (c) conceptual interpretability of factors. Because of the possibility that the factors of the BPSS-M were correlated, a Promax rotation was used. Initial criteria for item retention or deletion included: (a) deleting items with factor loadings of less than .32; (b) deleting items that had cross-loading differences (between highest and lowest) of less than .15; (c) deleting items with absolute loadings higher than a specified value (i.e., .32) on two or more factors; and (d) deleting items with low communalities (i.e., less than .40) for one or more factors (Tabachnick & Fidell, 2007).

Once the factor structure was defined, the internal consistency of each factor was determined using Cronbach's alpha. In addition, the relationships between the factor(s) and basic demographic information (i.e., age and body mass index) as well as social desirability were examined.

Results

For the 20-item BPSS-M, Bartlett's (1950) test of sphericity ($\chi^2 = 5027.82$, $df = 153$, $p < .001$) and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = .90) both provided evidence that item bivariate correlations were adequate for factorability (Tabachnick & Fidell, 2007). Based on the factor extraction and retention procedures described, both one- and two-factor models were considered. The one-factor model explained 73.23% of the variance. One item (height) was dropped due to low communality, and one item (weight) was dropped because it did not fit well conceptually with the leanness and muscularity items. The resulting single factor solution, Full Body Leanness and Muscularity, consisted of 18 items; all factor loadings exceeded .75 and communalities were greater than .55 (see Table 1 below). Internal consistency (Cronbach's alpha) for the one-factor model was .98.

Table 1

*Study 1 Factor Loadings for One-Factor Solution Using Principal Axis Analysis: Means, Standard Deviations, Communalities, Eigenvalues, and Percentages of Variance (*N = *189)*

Item	Description	*M*	*SD*	Factor Loading	h^2
1	Leanness of shoulders	4.17	1.29	.91	.83
2	Muscularity of shoulders	4.00	1.29	.87	.75
3	Leanness of arms (e.g., biceps/triceps)	4.11	1.33	.89	.79
4	Muscularity of arms (e.g., biceps/triceps)	3.82	1.33	.83	.69
5	Leanness of stomach/abdomen	3.65	1.50	.83	.70
6	Muscularity of stomach/abdomen	3.52	1.47	.84	.71
7	Leanness of chest/upper torso	3.84	1.50	.89	.79
8	Muscularity of chest/upper torso	3.66	1.44	.82	.67
9	Leanness of buttocks	4.14	1.41	.82	.67
10	Muscularity of buttocks	4.04	1.39	.82	.67
11	Leanness of back	4.07	1.40	.90	.81
12	Muscularity of back	3.95	1.39	.90	.81
13	Leanness of upper legs (e.g., quadriceps)	4.13	1.42	.88	.78
14	Muscularity of upper legs (e.g., quadriceps)	4.14	1.41	.82	.67
15	Leanness of lower legs (e.g., calves)	4.30	1.33	.79	.62
16	Muscularity of lower legs (e.g., calves)	4.14	1.34	.75	.57
17	Leanness of neck	4.21	1.28	.83	.68
18	Muscularity of neck	4.06	1.31	.85	.72
	Eigenvalues			13.18	
	% of variance			73.23	

Note. h^2 = communality.

α = .98 for entire measure.

The two-factor model initially explained 80.39% of the variance (see Table 2 below). Two items (muscularity of buttocks and leanness of buttocks) did not load significantly on either factor and were dropped. Height and weight also were dropped for the same reasons as reported in the one-factor solution. The two factors – named Upper Body (12 items) and Legs (4 items) – were highly correlated (r = .78). Internal consistencies (Cronbach's alpha) for the two factors were .97 (Upper Body) and .94 (Legs).

Because both solutions were viable, the three scores were examined – Full Body Leanness and Muscularity (18 items; a total score of body parts across the entire body that provided an overall measure of satisfaction with the body); Upper Body (12 items; a factor score that provided a measure of overall satisfaction with the upper body); Legs (4 items; a factor score that provided a measure of overall satisfaction with legs). As expected, the three scores were not significantly correlated with age (rs = -.03 to .04), but were related to actual BMI: Full Body Leanness and Muscularity (r = -.36), Upper Body (r = -.39), and Legs (r = -.23). Although social desirability was significantly correlated with Upper Body, the two variables shared only 2.3% of variance (see Table 3 below).

Full Body Leanness and Muscularity was unrelated to race/ethnicity (i.e., two levels – Caucasian vs. minority), $F(1, 187) = 2.13$, $p = .147$, partial $\eta^2 = .011$, indicating that minority (M = 3.83, SD = 1.13) and nonminority (M = 4.09, SD = 1.20) men in the sample reported comparable levels of satisfaction. For the two factors, the Multivariate Analysis of Variance (MANOVA) was also not significant, Wilks' lambda = .99, $F(2, 186) = 1.22$, $p = .296$, partial η^2 = .013, suggesting that the two groups of men reported similar levels of satisfaction with their upper bodies and with their legs.

Table 2

*Study 1 Factor Loadings for Two-Factor Solution Using Principal Axis Analysis With Promax Rotation: Means, Standard Deviations, Communalities, Eigenvalues, Percentages of Variance, and Internal Consistencies (*N *= 189)*

				Factor Loading		
Item	Description	*M*	*SD*	1	2	h^2
1	Leanness of shoulders	4.17	1.29	**.70**	.26	.83
2	Muscularity of shoulders	4.00	1.29	**.80**	.10	.77
3	Leanness of arms (e.g., biceps/triceps)	4.11	1.33	**.72**	.21	.80
4	Muscularity of arms (e.g., biceps/triceps)	3.82	1.33	**.84**	.02	.73
5	Leanness of stomach/abdomen	3.65	1.50	**.86**	-.01	.73
6	Muscularity of stomach/abdomen	3.52	1.47	**.89**	-.04	.74
7	Leanness of chest/upper torso	3.84	1.50	**.95**	-.04	.84
8	Muscularity of chest/upper torso	3.66	1.44	**.94**	-.11	.73
11	Leanness of back	4.07	1.40	**.63**	.32	.81
12	Muscularity of back	3.95	1.39	**.66**	.27	.80
13	Leanness of upper legs (e.g., quadriceps)	4.13	1.42	.30	**.67**	.84
14	Muscularity of upper legs (e.g., quadriceps)	4.14	1.41	.10	**.80**	.78
15	Leanness of lower legs (e.g., calves)	4.30	1.33	-.12	**1.03**	.88
16	Muscularity of lower legs (e.g., calves)	4.14	1.34	-.02	**.86**	.73
17	Leanness of neck	4.21	1.28	**.66**	.21	.69
18	Muscularity of neck	4.06	1.31	**.71**	.18	.73
	Eigenvalues			11.86	1.01	
	% of variance			74.11	6.28	
	Internal consistencies (α)			.97	.94	
	Factor Correlations					
Factor 1				--	--	
Factor 2				.78	--	

Note. h^2 = communality.

Factor 1 – Satisfaction with Upper Body; Factor 2 – Satisfaction with Legs.

Boldface indicates item loaded on this factor.

Table 3

*Study 1 Correlations of Factor Models with Measured Variables and Demographic Variables (*N *= 189)*

	One-Factor Model	Two-Factor Model	
Variable/Measure	Full Body	Upper Body	Legs
Demographic Variables			
Age	-.01	-.03	.04
Current BMI	-.36**	-.39**	-.23**
Ideal BMI	-.29**	-.32**	-.22**
Social Desirability (MCSDS-B)	.14	.15*	.09

Note. * Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level.

Full body leanness and muscularity also was unrelated to the students' academic status (i.e., four levels – freshman, sophomore, junior, senior), $F(3, 185) = 1.55$, $p = .203$, partial $\eta^2 = .025$, indicating that there were no significant differences in scores between those men who were freshmen ($M = 4.15$, $SD = 1.05$), sophomores ($M = 4.10$, $SD = 1.03$), juniors ($M = 3.70$, $SD = 1.48$), or seniors ($M = 3.87$, $SD = 1.21$). For the two factors, the MANOVA was also not significant, Wilks' lambda = .96, $F(6, 368) = 1.25$, $p = .282$, partial $\eta^2 = .020$, indicating that, across year in school, the men reported comparable levels of satisfaction with the upper bodies and legs.

CHAPTER 3

STUDY 2: CONFIRMATORY FACTOR ANALYSIS AND CONSTRUCT VALIDITY

Method

Participants

Participants were 188 male undergraduates drawn from a large, public university located in the southwestern U.S. Mean age was 20.3 years (*SD* = 2.29). In terms of race/ethnicity, 65.4% (*n* = 123) were Caucasian, 12.8% (*n* = 24) Hispanic, 15.4% (*n* = 29) African American, 5.9% (*n* = 11) Asian American/Pacific Islander, and .5% (*n* = 1) American Indian. Regarding their academic status, 64 (34.0%) were freshmen, 56 (29.8%) sophomores, 38 (20.2%) juniors, and 30 (16.0%) seniors.

The men's mean actual and ideal body mass indexes (BMI) were 24.8 kg/m^2 (*SD* = 4.11) and 24.4 kg/m^2 (*SD* = 3.07), respectively. According to the Center for Disease Control (2009) criteria, three (1.6%) men could be classified as underweight, 105 (55.9%) as normal weight, 54 (28.7%) as overweight, and 26 (13.8%) as obese. Regarding their satisfaction with current body weight, 89 (47.3%) reported being dissatisfied. Of those men who were dissatisfied, 52 (58.4%) considered themselves overweight and 35 (39.3%) underweight; 2 (2.3%) did not specify. One participant reported a history of anorexia nervosa.

Measures

Body image. The Body Parts Satisfaction Scale for Men (BPSS-M) as described and factor analyzed in Study 1 was used. Participants rate each item using a 6-point Likert scale that ranges from 1, *extremely dissatisfied*, to 6, *extremely satisfied*. In addition, three items that addressed aspects of overall body satisfaction (i.e., leanness, muscularity, size and shape of

body) were included. These items were scored on the same 6-point Likert scale and would be used as single-item indicators of body satisfaction for tests of validity. The use of such single item measures is consistent with research done on female body image concern measures (Petrie et al., 2002).

The 10-item Body Shape Questionnaire-Revised-Short (BSQ-R-10; Mazzeo, 1999) assesses salience or strength of negative body image attitudes and beliefs. Participants rate each item using a 6-point Likert scale that ranges from 1, *never*, to 6, *always.* Scores range from 10 to 60; higher scores indicate greater preoccupation with body image. Internal consistency (Cronbach's alpha) has been reported to be .89 in a community sample of 122 men (Russell & Keel, 2002). Cronbach's alpha for the current sample was .95. In terms of criterion validity, Mazzeo reported that the scale had positive correlations (*r*s = .74 and .77, respectively) with the Eating Attitudes Test (EAT-26; Garner, Olmstead, Bohr, & Garfinkel, 1982) and Bulimia Test-Revised (BULIT-R; Thelen, Mintz, & Vander Wal, 1996) in a sample of undergraduate women, demonstrating that disordered eating was significantly related to preoccupation with body image. No validity results were available in samples of men.

The Somatomorphic Matrix Modification (SMM; Cafri & Thompson, 2004), a modification of the original Somatomorphic Matrix (SM; Gruber et al., 1999), assesses body image satisfaction by using 34 illustrated images of the male physique that are arranged in a bi-dimensional matrix of body fat (i.e., leanness) and muscularity. The SMM yields two indexes: muscularity (assesses participant's perceived level of self-muscularity or ideal-muscularity) and perceived body fat (assesses participant's perceived level of self-body fat or ideal-body fat). For this study, participants chose images based on the following statements: (a) "Select the figure that best represents what you currently look like"; and (b) "Select the figure that best represents

the body that you would ideally want to have." From these ratings, measures of individual's real and ideal muscularity and leanness are obtained. Satisfaction with muscularity is determined by calculating the difference between self-perception of current level of muscularity and ideal level of muscularity. Satisfaction with leanness is determined by calculating the difference between self-perception of current level of body fat and ideal level of body fat.

The SM has good construct validity as demonstrated by validations of and extensive revisions to the illustrations based on input from experienced kinanthropists (i.e., experts in the assessment of body composition) (Cafri & Thompson, 2004; Gruber et al., 1999). However, 7-10 day test-retest reliabilities in a sample of 31 male undergraduates were .78 and .79, respectively, for self-muscularity and ideal-body fat, and .34 and .57, respectively, for self-ideal discrepancy scores for both muscularity and body fat (Cafri et al., 2004).

Muscularity drive. The 15-item Drive for Muscularity Scale (DMS; McCreary et al., 2004) assesses muscularity-oriented attitudes and behaviors and consists of two subscales – Muscularity-Oriented Body Image (MBI; 7 items; measures ideation associated with muscularity) and Muscularity Behavior (MB; 7 items; measures behaviors men engage in to increase muscle size and strength) – as well as a Total Drive for Muscularity score (DMS; 14 items; an overall measure of attitudes and behaviors associated with the pursuit of muscularity, which includes all items from both the MB and MBI scales). For each item, participants respond using a 6-point Likert scale that ranges from 1, *never*, to 6, *always*. Each subscale, as well as the overall total score, is the average of the respective items; higher scores represent greater endorsement of that type of muscularity attitudes or behaviors. In a mixed sample of male high school students and men, McCreary et al. (2004) found internal consistency reliabilities (Cronbach's alpha) of .88 (MBI), .81 (MB), and .87 (DMS). Cronbach's alphas for the current

sample were .92 (MBI), .88 (MB), and .92 (DMS). McCreary and Sasse (2000) provided extensive information regarding the scale's construct validity.

Disordered eating. The 36-item Bulimia Test-Revised (BULIT-R; Thelen et al., 1996) assesses bulimic symptomatology as defined by the *American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (1994). Participants rate items on a 5-point Likert scale ranging from 1, *absence of disturbance*, to 5, *severe disturbance*. Only 28 items are scored, so total scores range from 28 to 140 and higher scores reflect increased endorsement of bulimic symptomatology. Internal consistency (Cronbach's alpha) has been reported to be .95 in a community sample of 122 men (Russell & Keel, 2002). Cronbach's alpha for the current sample was .88. In terms of construct validity, Russell and Keel (2002) reported that the scale correlated positively (r = .67) with the Eating Attitudes Test (EAT-26; Garner et al., 1982) in a sample of men. Moreover, in a sample of female undergraduates the BULIT-R accurately identified individuals with bulimia nervosa 91% of the time and correctly identified those *without* bulimia nervosa 96% of the time (Thelen et al., 1996). Providing further evidence for the scale's validity, BULIT-R scores were significantly correlated (r = .73) with bulimic group membership (Thelen et al., 1996). Test-retest reliability over a four to six week period was .83 in a sample of female undergraduates (Brelsford, Hummel, & Barrios, 1992).

The 26-item Eating Attitudes Test (EAT-26; Garner et al., 1982) assesses the presence of disordered eating patterns, specifically attitudes and behaviors with respect to dieting, bulimia and food preoccupation, and oral control. Participants respond to each item on a 6-point Likert type scale, though the three responses that represent the lowest levels of disturbance are scored 0, and the subsequent three responses, 1, 2 and 3. Total scores range from 0 to 78, and higher scores reflect greater disordered attitudes and behaviors. Cronbach's alphas have been found to be .74

in a sample of high school boys (McCreary et al., 2004), and .89 in a community sample of heterosexual and gay men (Russell & Keel, 2002). Macedo et al. (2007) reported a test-retest reliability of .68 in a sample of university males, though they did not specify the timeframe. Cronbach's alpha for the current sample was .74. Garner et al. has provided extensive information regarding the scale's validity.

Dietary restriction. The 9-item Dietary Intent Scale (DIS; Stice, 1998b) assesses dietary restraint, specifically behaviors used to prevent weight gain. Participants respond to each item on a 5-point Likert scale that ranges from 1, *never,* to 5, *always.* Total scores are the average of the nine items; higher scores indicate greater dietary restraint. Stice (1998a) reported a Cronbach's alpha of .95 in a sample of male and female high school seniors. Moreover, Stice (1998b) reported a one-month test-retest reliability coefficient of .92 in a sample of female high school seniors. Cronbach's alpha for the current sample was .93. Providing support for the scale's validity, in a sample of female high school seniors, Stice found that the DIS was correlated strongly with the Restraint Scale (RS; r = .82; Herman & Polivy, 1980) and the Dutch Restrained Eating Scale (DRES; r = .92; van Strien, Frijters, van Staveren, Defares, & Deurenberg, 1986), but less so with the Positive and Negative Affect Scale (r = .42; Watson & Clark, 1992), and predicted a behaviorally based measure of fat-gram consumption (r = -.32; Stice, 1998b).

Negative affect. Twenty-three items from Positive and Negative Affect Scale Expanded Form (PANAS-X-N; Watson & Clark, 1991, 1994) was used to assess levels of fear (e.g., afraid, scared), sadness (e.g., down, blue), hostility (e.g., irritable, angry), and guilt (e.g., blameworthy, guilty). For each item, participants rate on average the extent to which they have experienced each emotion during the past three months on a 5-point Likert scale that ranges from 1, *very*

slightly or not at all, to 5, *extremely*. Each total subscale score is represented by the average score; higher scores represent greater negative emotions on that subscale. Watson and Clark (1994) reported Cronbach's alphas for the Fear, Sadness, Guilt, and Hostility scales of .86, .88, .89, and .86, respectively, using a sample of male and female undergraduates. Cronbach's alphas for the Fear, Sadness, Guilt, and Hostility scales in the current sample were .89, .95, .93, and .87, respectively. In addition, high correlations between PANAS-X scales and the Profile of Mood States scales (POMS; McNair, Lorr, & Droppleman, 1971) were reported in a sample of male and female undergraduates, providing support for the scale's validity (r = .85; Watson & Clark, 1994).

The 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) assesses depressive symptomatology for research in the general population. Participants rate items on a 4-point Likert scale ranging from 0, *rarely or none of the time (less than one day)*, to 3, *most or all of the time (5-7 days)* based on the prior week. Total scores are calculated by adding the values for each item and range from 0 to 60. Higher scores reflect increased distress. Fountoulakis et al. (2007) reported internal consistency (Cronbach's alpha) of .95 and test-retest reliability of .71 in a sample of adult men and women. McCreary & Sasse (2000) reported Cronbach's alpha of .87 in a sample of high school boys. Cronbach's alpha for the current study was .88. Regarding construct validity, the CES-D correlated positively (r = .86) with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) in a sample of college-age men and women (Shean & Baldwin, 2008).

Sociocultural internalization. The 9-item Sociocultural Attitudes towards Appearance Scale-3 General Internalization Scale (SATAQ-3-GI; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) assesses level of internalization of general media influences (i.e.,

TV, magazines, and movies). Participants respond to each item using a 5-point Likert scale ranging from 1, *definitely disagree,* to 5, *definitely agree.* Total scores range from 9 to 45; higher scores reflect greater levels of internalization. Karazsia and Crowther (2008) found a Cronbach's alpha of .94 in a sample of male undergraduates. Cronbach's alpha for the current study was .91. Karazsia and Crowther (2008) also found that the SATAQ-3-GI positively correlated with the DMS Muscularity-Oriented Body Image Subscale (r = .44; McCreary et al., 2004) and the Physical Appearance Comparison Scale (r = .56; Thompson, Heinberg, & Tantleff, 1991), and negatively correlated with the Rosenberg Self-Esteem Scale (r = -.20; Rosenberg, 1965).

Psychological well-being. The 5-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) assesses overall satisfaction with life. Items are scored using a 7-point Likert scale that ranges from 1, *strongly disagree,* to 7, *strongly agree*. Total scores can range from 5 to 35; higher scores indicate greater satisfaction. Diener et al. (1985) reported Cronbach's alpha and two month test-retest reliability of .87 and .82, respectively, in a sample of male and female undergraduates. Cronbach's alpha for the current study was .90. Diener et al. (1985) also provided extensive information about the scale's validity.

The 12-item General Esteem subscale of the Self Description Questionnaire-III (SDQ-III; Marsh, 1992; Marsh & O'Neill, 1984) assesses ratings of effectiveness and capability with individuals who are proud and satisfied with who they are. Participants answer each item on an 8-point Likert scale that ranges from 1, *definitely false,* to 8, *definitely true.* Total scores are the average of the 12 items, and can range from 1 to 8. Higher scores reflect greater self-esteem. Marsh and O'Neill (1984) reported a Cronbach's alpha of .93 in a sample of male and female undergraduates. Cronbach's alpha for the current study was .94. Providing evidence for convergent validity, Byrne and Shavelson (1986) reported significant correlations between the

SDQ-III General Esteem scale and the Affective Perception Inventory (r = .63; Soares & Soares, 1979) and the Rosenberg Self-Esteem Scale (r = .79; Rosenberg, 1965) in a sample of male and female high school students.

Social desirability. The 12-item Marlowe-Crowne Social Desirability Scale Form B (MCSDS-B; Reynolds, 1982) assesses the degree to which individuals respond in a socially desirable way. Each item is answered using a true-false response. Total scores are determined by summing the number of items endorsed in a socially desirable manner and can range from 0, *low*, to 12, *high*. In a sample of undergraduates, Reynolds reported a Kuder-Richardson-20 (KR-20) coefficient of .75. KR-20 for the current study was .71. In addition, he found that the MCSDS-B correlated significantly with the 33-item standard version of the Marlowe-Crowne Social Desirability Scale (r = .92; Crowne & Marlowe, 1960), and with the Edwards Social Desirability Scale (r = .38; Edwards, 1957).

Demographics. A demographic questionnaire was developed for this study and includes questions on age, ethnicity, and current academic status. In addition, participants provided information regarding their bodies (i.e., present height; present weight; ideal weight; are you satisfied with your current weight [yes or no]?; do you consider yourself to be [overweight or underweight]?; and eating disorder status: have you ever been treated for anorexia nervosa [yes or no]?, bulimia nervosa [yes or no]?, or other eating disorder [yes or no]?).

Procedure

After obtaining approval from the University of North Texas Institutional Review Board for Human Subjects Research, male undergraduates were recruited via the psychology department's Web-based research system (SONA) as well as through class announcements to participate in a study addressing male health-related behaviors. Participants completed the study

via a confidential and secure website. After signing into the system, the men read the consent form and then clicked "I agree" to indicate their understanding of their voluntary participation in the study. Next, participants completed the following questionnaires: the Marlowe-Crowne Social Desirability Scale Form B (MCSDS-B; Crowne & Marlowe, 1960; Reynolds, 1982), Eating Attitudes Test-26 (EAT-26; Garner et al., 1982), Bulimia Test-Revised (BULIT-R; Thelen et al., 1996), the Dietary Intent Scale (DIS; Stice, 1998b), Positive and Negative Affect Scale-Expanded Form (PANAS-X-N; Watson & Clark, 1994), Body Shape Questionnaire-Revised-Short (BSQ-R-10; Mazzeo, 1999), Center for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977), General Internalization Scale of the Sociocultural Attitudes towards Appearance Scale-3 (SATAQ-3-GI; Thompson et al., 2004), Satisfaction with Life Scale (SWLS; Diener et al., 1985), General Esteem Scale of the Self Description Questionnaire-III (SDQ-III; Marsh, 1992), Body Parts Satisfaction Scale for Men (BPSS-M), Drive for Muscularity Scale (DMS; McCreary et al., 2004), Somatomorphic Matrix Modification (SMM; Cafri & Thompson, 2004; Gruber et al., 1999), and the demographics questionnaire. In return for participation, the men received course extra credit consistent with department of psychology guidelines and were entered into a drawing for a $50 cash prize. A small subset of the participants (n = 59) were contacted six months following their initial testing and asked to complete the BPSS-M again.

Data Analysis

Confirmatory factor analysis (CFA) via structural equation modeling (SEM) was used to test the factor structure of the BPSS-M (Weston & Gore, 2006; Worthington & Whittaker, 2006). The EQS Structural Equations Program (Bentler, 1995) with the Maximum Likelihood estimation procedure was used and the overall fit of the model was assessed using a combination

of fit indices (Kline, 2005; Worthington & Whittaker, 2006): the chi-square (χ^2) goodness of fit test statistic, the nonnormed fit index (NNFI; Tucker & Lewis, 1973), the root mean square error of approximation (RMSEA; Steiger & Lind, 1980) with a 90% confidence interval, the comparative fit index (CFI; Bentler, 1990), Akaike's information criterion (AIC; Akaike, 1987), and the standardized root mean square residual (SRMR; Bentler, 1995). For the confirmed factors, internal consistency reliabilities were examined using Cronbach's alpha. In addition, six-month test-retest reliability was examined.

Prior to testing the validity of the BPSS-M, distributional properties (i.e., skewness and kurtosis) of all the measures were examined. To test convergent validity of the one- and two-factor solutions, Pearson product-moment correlations between BPSS-M factors and the BSQ-R-10, DMS Muscularity-Oriented Body Image, SMM Self-Ideal Muscularity and Leanness scales, three BPSS-M single item measures of overall body satisfaction (i.e., overall leanness of body, overall level of body's muscularity, and overall size and shape of body), and Analyses of Variance (ANOVAs) of BPSS-M factors and satisfaction with weight were examined (Hoyt, Warbasse, & Chu, 2006). Next, discriminant validity was tested for each factor of the BPSS-M. Specifically, Pearson product-moment correlations between the BPSS-M factors, age, and social desirability, and ANOVAs of BPSS-M factors, year in school, and race/ethnicity were examined. Concurrent validity was evaluated by analyzing correlations between BPSS-M factors and BULIT-R, EAT-26, DIS, DMS-MB, PANAS-X-N, CES-D, SATAQ-3-GI, SWLS, and SDQ-III.

Results

The CFA supported both the one-factor and two-factor models. The overall fit of both models was good (see Table 4 below), and the standardized factor loadings for both solutions were high (see Table 5 below). Internal consistency reliabilities (Cronbach's alpha) were .97

(Full Body Leanness and Muscularity), .96 (Upper Body), and .94 (Legs). In addition, six-month test-retest reliabilities were .73 (Full Body Leanness and Muscularity), .72 (Upper Body), and .70 (Legs). Student's *t*-test indicated a significant difference between the Upper Body (M = 4.01, SD = 1.06) and Legs (M = 4.14, SD = 1.16), t = -2.69, p = .008, Cohen's d = .122. This finding suggests that men, in general, are slightly more satisfied with their legs than their upper bodies.

Moreover, the three BPSS-M measures of overall leanness of body, overall level of body's muscularity, and overall size and shape of body were correlated with the factors. Pearson product-moment correlations demonstrated that these three items were significantly related to the three aforementioned BPSS-M factors: overall satisfaction with leanness (rs = .80, .80, and .68, respectively), overall level of body's muscularity (rs = .81, .82, and .67, respectively), and overall size and shape of body (rs = .85, .83, and .74, respectively).

Table 4

*Study 2 Goodness-of-Fit Indices of Two Models (*N = *188)*

Model	*df*	χ^2	χ^2 / *df*	NNFI	CFI	AIC	SRMR	RMSEA (90% CI)
One-Factor	97	256.60*	2.65	.94	.96	62.60	.05	.094 (.08 - .11)
Two-Factor	72	207.74*	2.89	.94	.96	63.74	.04	.100 (.08 - .12)

Note. *df* = degrees of freedom; χ^2 = chi square; NNFI = non-normed fit index (> .90 indicates acceptable fit; > .95 indicates good fit); CFI = comparative fit index (> .90 indicates acceptable fit; > .95 indicates good fit); AIC = Akaike's information criterion; SRMR = standardized root mean squared residual (< .10 indicates acceptable fit); RMSEA = root mean square error of approximation (≤.05 indicates good fit); 90% CI = 90% confidence interval.

*p < .0001.

Table 5

Study 2 Standardized Solutions by Confirmatory Factor Analysis for the One- and Two-Factor Models

	One-Factor Model		Two-Factor Model		
	Full Body		Upper Body	Legs	
Item	Factor Loading	Error Var.	Factor Loading	Factor Loading	Error Var.
1. Leanness of shoulders	.820	.572	.830		.558
2. Muscularity of shoulders	.826	.563	.848		.530
3. Leanness of arms	.806	.592	.815		.579
4. Muscularity of arms	.792	.610	.810		.587
5. Leanness of stomach/abdomen	.659	.752	.635		.773
6. Muscularity of stomach/abdomen	.701	.713	.702		.712
7. Leanness of chest/upper torso	.757	.653	.758		.652
8. Muscularity of chest/upper torso	.773	.634	.787		.617
9. Leanness of buttocks	.823	.568			
10. Muscularity of buttocks	.811	.586			
11. Leanness of back	.855	.518	.852		.524
12. Muscularity of back	.905	.425	.906		.423
13. Leanness of upper legs	.827	.562		.822	.569
14. Muscularity of upper legs	.872	.489		.899	.439
15. Leanness of lower legs	.832	.554		.875	.484
16. Muscularity of lower legs	.779	.627		.816	.577
17. Leanness of neck	.798	.603	.788		.616
18. Muscularity of neck	.802	.598	.813		.582

Satisfaction with weight (i.e., two levels – satisfied vs. not satisfied) was used as the independent variable and related to the two different sets of factors. A significant relationship was found with Full Body Leanness and Muscularity, $F(1, 186) = 28.31$, $p < .0001$, partial η^2 =

.132, such that those men who said they were satisfied with their bodies had higher Full Body Leanness and Muscularity scores (M = 4.39, SD = .98) than those who were dissatisfied (M = 3.63, SD = .99). For the two factors, the Multivariate Analysis of Variance (MANOVA) was significant, Wilks' lambda = .87, $F(2, 185) = 13.95$, $p < .0001$, partial $\eta^2 = .131$. Follow-up univariate ANOVAs indicated that the men differed significantly on Upper Body, $F(1, 186) = 28.01$, $p < .0001$, partial $\eta^2 = .131$, and Legs, $F(1, 186) = 16.31$, $p < .0001$, partial $\eta^2 = .081$. Specifically, those men who said they were satisfied with their bodies had higher scores on Upper Body (M = 4.37, SD = 1.00) and Legs (M = 4.46, SD = 1.03) than those who were dissatisfied (Upper Body: M = 3.60, SD = .98; Legs: M = 3.80, SD = 1.21).

Discriminant Validity

As expected, the Full Body Leanness and Muscularity total score and the scores from the two factors – Upper Body and Legs – were not significantly correlated with age (rs = -.01 to .03). Social desirability was significantly correlated only with the Upper Body, though the two variables had only 3.6% of shared variance.

Full Body Leanness and Muscularity was unrelated to race/ethnicity (i.e., two levels – Caucasian vs. minority), $F(1, 186) = .07$, $p = .794$, partial $\eta^2 = .000$, indicating that minority (M = 4.06, SD = 1.12) and nonminority (M = 4.01, SD = 1.02) men in the sample reported comparable levels of satisfaction. For the two factors, the MANOVA was also not significant, Wilks' lambda = .97, $F(2, 185) = 2.78$, $p = .065$, partial $\eta^2 = .029$, suggesting that the two groups of men reported similar levels of satisfaction with their upper bodies and with their legs.

Full body leanness and muscularity also was unrelated to the students' academic status (i.e., four levels – freshman, sophomore, junior, senior), $F(3, 184) = 1.27$, $p = .287$, partial $\eta^2 = .020$, indicating that there were no significant differences in scores between men who reported

being freshmen (*M* = 3.93, *SD* = 1.08), sophomores (*M* = 4.24, *SD* = .98), juniors (*M* = 3.86, *SD* = 1.22), or seniors (*M* = 4.07, *SD* = .90). For the two factors, the MANOVA was also not significant, Wilks' lambda = .97, $F(6, 366) = 1.01$, $p = .421$, partial $\eta^2 = .016$, indicating that, across year in school, the men reported comparable levels of satisfaction with the upper bodies and legs.

Concurrent Validity

The BULIT-R was significantly correlated with Full Body Leanness and Muscularity (*r* = -.35), Upper Body Satisfaction (*r* = -.32), and Legs Satisfaction (*r* = -.33). The EAT-26 was significantly correlated with Full Body and Upper Body, but not so with Legs (*r*s = -.18, -.19, and -.12, respectively). Similarly, the DIS was negatively correlated and significantly correlated with Full Body and Upper Body, but not with Legs (*r*s = -.21, -.24, and -.08, respectively). These findings suggest that all forms of body satisfaction are primarily related to bulimic symptomatology, though full body and upper body satisfaction also predict more restrictive eating behaviors, such as those measured by the EAT and the DIS.

The DMS Muscularity Behaviors Scale was significantly correlated only with Upper Body (*r* = .16). This factor was not related significantly to Full Body or Legs (*r*s = .14, and .03, respectively), suggesting that only satisfaction with upper body was associated with muscularity behaviors such as lifting weights and consuming muscle building supplements.

As expected, the four PANAS-X-N scales significantly correlated with the Full Body, Upper Body, and Legs satisfaction scores: Fear Scale (*r*s = -.22, -.22, and -.17, respectively), Hostility Scale (*r*s = -.28, -.28, and -.27, respectively), Guilt Scale (*r*s = -.29, -.29, and -.23, respectively), and Sadness Scale (*r*s = -.34, -.34, and -.28, respectively). A similar pattern of correlations emerged for the CES-D (Full Body = -.34; Upper Body = -.34; and Legs = -.28) and

for the measure of internalization (Full Body = -.24; Upper Body = -.23; and Legs = -.22). These findings suggest that all forms of satisfaction are related to the experience of fewer negative emotions, less depression, and less internalization of societal ideals about appearance.

Regarding the SWLS (Full Body = .38; Upper Body = .38; and Legs = .35) and SDQ-III (Full Body = .46; Upper Body = .47; and Legs = .38), positive and significant correlations were noted with each measure of satisfaction. These findings suggest that greater satisfaction is related to more general satisfaction with life and feeling more positively about oneself, in terms of self-esteem.

CHAPTER 4

DISCUSSION

Review of Findings

Across the two studies, internally consistent and valid one-factor – Full Body Muscularity and Leanness (18 items), and two-factor – Upper Body (12 items) and Legs (4 items), models were supported. The Full Body Muscularity and Leanness factor provides a total score of male body satisfaction based on individuals' ratings of leanness and muscularity of the nine different body parts. As an alternative to the Full Body total score, two factor scores – satisfaction with Upper Body (e.g., arms [biceps/triceps], stomach/abdomen) and Legs – can be used. The fact that the two buttock items did not load on either factor may be due to its location on the body (posterior) and the fact that it is less salient for men than for women in terms of body satisfaction (Petrie et al., 2002).

Initial evidence of the scale's reliability is strong and consistent with levels reported for alternative measures of male body image, such as the Drive For Muscularity Scale (DMS; McCreary & Sasse, 2000), and comparable measures of female body satisfaction (Petrie et al., 2002). For example, this study's internal consistencies ranged from .94 to .98, whereas Petrie et al. reported an internal consistency for their body factor (that was determined by ratings of individual body parts) of .90. In comparison, McCreary et al. (2004) reported internal consistencies for the DMS Total scale, Muscularity-Oriented Body Image, and Muscularity Behaviors scales ranged from .81 to 88. Other measures of male body image, particularly the Somatomorphic Matrix (SM), have been limited by poor reliability. With respect to the SM, Cafri & Thompson (2004, p. 599) reported that "for both genders self-ideal discrepancy scores were distinctly unreliable on the muscularity dimension and moderately unreliable on the body

fat dimension." Six-month test-retest reliability results (*r*s = .70 to .73) demonstrated adequate consistency of scores across the three Body Parts Satisfaction Scale for Men (BPSS-M) factors, indicating stability of the measure over time. In contrast, Cafri and Thompson (2004) reported seven-to-ten-day test-retest reliabilities for the SM self-ideal discrepancy scores for both muscularity and body fat of .34 and .57, respectively.

Regarding the scale's convergent validity, the BPSS-M Full Body Muscularity and Leanness, Upper Body, and Legs scores were related in the expected directions with the other measures of body image concerns, such as the Body Shape Questionnaire-Revised-Short (BSQ-10-R), the DMS Muscularity-Oriented Body Image Scale, and the three BPSS-M overall body satisfaction items. Similarly, Petrie et al. (2002) found that the body factor of the Body Parts Satisfaction Scale-Revised (BPSS-R) for women was significantly related to the BSQ, the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 1994a), the Situational Inventory of Body-Image Dysphoria (SIBID; Cash, 1994b), and the Body Parts Satisfaction Scale (BPSS; Berscheid, Walster, & Bohrnstedt, 1973). In addition, the relationships between the Full Body and Upper Body scores and the other measures were consistently stronger than those with the Legs factor. These results suggest that the lower body may be less important than the upper body in men's assessment of body satisfaction, even though the men reported slightly more satisfaction with their legs than their upper bodies. This finding is consistent with past research indicating that the upper torso is a particular area of concern for men with respect to body image (Garner, 1997; Thompson & Tantleff, 1992). Overall, these findings suggest that the BPSS-M scores are measuring body satisfaction and doing so in a way that provides information that is unique from other measures of body image concerns (i.e., BSQ-10-R) and muscularity (i.e., DMS Muscularity-Oriented Body Image).

With respect to discriminant validity, the Full Body, Upper Body, and Legs scores were not significantly related to age, race/ethnicity (i.e., minority, non-minority), or academic status (i.e., freshman, sophomore, junior, senior). Moreover, correlations between the BPSS-M scores and social desirability were small, such that they shared less than 4% of the variance. These findings indicate that the BPSS-M's measures of body satisfaction are not being influenced by social desirability and are consistent across different groups of men (and thus not particularly affected by age, academic status, or race/ethnicity). For Study 1, body mass index (BMI) was related significantly to the three BPSS-M scores, such that men who were physically larger reported less satisfaction with their bodies. In Study 2, however, BMI was unrelated to any of the BPSS-M scores. The inconsistent relationships between BMI and body satisfaction is consistent with past research with men (Ricciardelli & McCabe, 2003). Unlike for women, where a larger BMI is associated with greater body fat, for men a larger BMI could indicate more lean muscle mass or higher levels of body fat. This fact may explain why men's body composition, as measured by BMI, is equivocal in its relationship to satisfaction.

Regarding concurrent validity, the BPSS-M scores were negatively related to measures of depression and negative affect as expected. Specifically, men who reported higher levels of satisfaction with their overall body, upper body, and legs experienced lower levels of fear, hostility, guilt, sadness, and depression. These findings are supported by past research that has associated lower body satisfaction with higher levels of affective disturbances, such as depression and suicidality (e.g., Brausch & Muehlenkamp, 2007; Olivardia et al., 2004). Moreover, the findings are supported by existing theoretical models that explicate the relationship between body satisfaction and psychological functioning (e.g., Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). Dissatisfaction emerges from men's bodies not

approximating the societal ideal, and depression and negative affect result from men becoming disgusted with themselves because their bodies have let them down.

The BPSS-M scores also were related negatively to measures of eating disturbances, dietary restriction, and muscle-building behaviors. Men with lower levels of satisfaction with their overall body, upper body, and legs reported higher levels of bulimic symptoms. Only the Full Body and Upper Body scores, however, were related significantly to the Eating Attitudes Test (EAT-26) and Dietary Intent Scale (DIS), suggesting that men with lower levels of satisfaction with their overall body and upper body are slightly more likely to restrict their food intake than those who report more satisfaction. Like women (Brannan & Petrie, 2008; Stice, 2001), men's body satisfaction (particularly that emanating from upper or full body) is most strongly related to bulimic-type symptoms and less so with behaviors that are restrictive in nature. In a two-year longitudinal study of adolescent females, Stice (2001) found that initial body dissatisfaction predicted subsequent increases in dieting behaviors and negative affect, which in turn resulted in increases in bulimic behaviors. In future research, it will be important to assess whether these relationships between body dissatisfaction, negative affect, dieting, and bulimic symptoms are similar for men.

The low positive correlations between the Full Body and Upper Body scores and the DMS Muscularity Behaviors Scale are somewhat surprising. Current research has linked body dissatisfaction to muscularity enhancing behaviors, such as excessive weightlifting and anabolic-androgenic steroid use (e.g., Goldfield, Blouin, & Woodside, 2006; Olivardia et al., 2004), though these findings have frequently been within samples of male bodybuilders. Men in general, however, may be less driven to enhance their muscularity through extreme behaviors as a result of being dissatisfied with their bodies or may be satisfied by smaller muscularity gains in

their bodies. In addition, the men were significantly, though only slightly, more satisfied with their legs than their upper body. Although not divided in exactly the same manner, women consistently report being less satisfied with their bodies in comparison to their faces (Petrie et al., 2002), so the idea that individuals may be more satisfied with certain body areas has been found across genders. For men, the upper body is central in their body dissatisfaction because of how the ideal body is portrayed in the media ("classic V," with broad shoulders, muscular chest, back and arms, a well defined torso, and narrow hips) and because this ideal is almost impossible for men to reach without a consistent weightlifting program and the use of muscle-enhancing substances, such as steroids (e.g., Gruber et al., 1999; Pope, Phillips, et al., 2000). The societal ideal for men's lower bodies emphasizes tone and leanness more so than muscularity and is achievable with less extreme measures. In future research, it will be important to test the relative utility of upper body and lower body satisfaction in predicting disordered eating attitudes and behaviors among men.

In addition, the BPSS-M total score and two factor scores were negatively related to a measure of general internalization of sociocultural attitudes, which is consistent with past research (e.g., Baghurst, Hollander, Nardella, & Haff, 2006; Leit et al., 2002; McCabe & Ricciardelli, 2001; Pope, Phillips, et al., 2000; Spitzer et al., 1999). Men who reported greater internalization of sociocultural ideals about appearance, weight, and body shape also were more dissatisfied with their bodies. Men who internalize societal body ideals use those ideals in their self-evaluation of appearance and body size/shape. Because most men fall far short of the societal ideal (e.g., Dutton, 1995; Olivardia et al., 2004; Thompson & Tantleff, 1992), they may feel let down by their bodies and experience dissatisfaction with how they look. Thus, like for

women, sociocultural internalization may serve as a risk factor in the development of men's body dissatisfaction.

Finally, consistent with past research (e.g., Abell & Richards, 1996; Furnham et al., 2002; Olivardia et al., 2004), the BPSS-M total score and two factor scores were positively related to measures of self-esteem and satisfaction with life. Men who are dissatisfied with the size and shape of their bodies also report being less satisfied with their lives in general and less positive in their feelings about themselves. Given the increasing presence of an idealized male physique in U.S. society and its centrality in determining a man's level of attractiveness, success, and masculinity (e.g., Leit et al., 2002; Pope, Phillips, et al., 2000; Spitzer et al., 1999), it is not surprising that men feel badly about themselves in general when their bodies do not compare to these ideals.

In summary, three scores were supported – a full score comprised of the 18 items (Full Body), as well as Upper Body (12 items) and Legs (4 items) factors. These scores were found to be internally consistent and stable over a six-month time period. Concerning the scales' validity, the measures were correlated significantly and in the expected directions with existing measures of body image concern, providing evidence that the BPSS-M actually is measuring what was intended. The measures also were unrelated to age, race/ethnicity, year in school, and social desirability, which establishes the BPSS-M as a measure that can be used across different subgroups of men. Finally, the scores were related concurrently to a wide range of disordered eating attitudes and behaviors and to different psychological outcomes. As expected, dissatisfaction was associated with more disordered eating symptoms, greater internalization of the societal ideal regarding appearance and body shape, higher levels of depression and negative affect, and lower self-esteem and satisfaction with life.

Clinical Implications

Several clinical implications can be derived from this study. First, given the indications of increasing body dissatisfaction in men in general, and college men in particular (e.g., McCabe & Ricciardelli, 2004), clinicians should consider screening clients for symptoms of body image concerns and, if present, examine whether the men are experiencing eating disturbances, including binge eating, bulimia, and muscle dysmorphia (MD). Given that the rate of steroid use in boys and men is greater than the rate of anorexia and equivalent to the rate of bulimia in girls and women (Spitzer et al., 1999), increased attention to male body image issues is clearly warranted. Men presenting with body dissatisfaction also should be assessed for symptoms of dysthymia, depression, and anxiety, as body dissatisfaction, eating disturbances, and affective disturbances co-occur frequently. Second, clinicians could use a measure of body image concerns, such as the BPSS-M, and not rely on visual cues, stereotypes, or personal biases about how a man "should" look. For example, some men may not have achieved hyper-muscular, hyper-lean physiques but still have symptoms associated with muscle dysmorphia; that is, they may be thin, overweight, or obese, yet still have an internal dissatisfaction with their bodies (i.e., not muscular enough) and be driven to engage in behaviors, such as overexercising, ingesting muscle-building protein powders and supplements, and using anabolic-androgenic steroids, to change their bodies to more closely approximate the male ideal. Similarly, men who engage in restrictive eating or over-exercise behaviors may not be excessively thin. Third, college counselors should be aware that some young adult men who appear to have achieved the hyper-muscular, hyper-lean physique *may not* have MD. That is, body type is not a strong predictor of this disorder. In fact, many men may have obtained (and pursue) a lean, muscular physique through healthy eating and exercise. Finally, clinicians should keep in mind that potent societal

factors (e.g., media images) continually reinforce the desirability of the hyper-mesomorphic and lean ideal body image for boys and men. In response, practitioners should work to counter these messages with clients by normalizing an "average" physique and encouraging a "healthy" lifestyle, as well as by modeling acceptance of one's existing body size and shape.

Limitations and Directions for Future Research

There are several limitations of this study that deserve mention. First, the participants, although diverse in terms of race/ethnicity and year in school, were obtained from one university so generalizability will be limited to samples with similar characteristics. Thus, additional research is needed to test the BPSS-M in different groups of men (e.g., adolescents, older men, athletes, minorities, gay men) to determine if the factor structure is invariant and applies across groups.

Second, although two independent samples were used to determine and confirm the factor structure of the measure, the study's design was cross-sectional, thus no comments about the predictive validity of the scale can be made. Although concurrent validity was established, longitudinal studies are needed to determine the directionality of the relationships between body satisfaction and the various health outcomes. For example, given that the BPSS-M scores and Center for Epidemiologic Studies Depression Scale (CES-D) were negatively correlated, it remains unclear whether decreases in body satisfaction result in increases in depressive symptoms, or vice versa. Moreover, the BPSS-M could be incorporated into longitudinal studies as a measure of body satisfaction and used to test existing theoretical models of male body image issues and resulting negative outcomes (e.g., Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). Such studies can increase our understanding of the antecedents and consequences, risks, and protective factors associated with body dissatisfaction in men. Though

more difficult to conduct, future longitudinal studies would greatly enhance our understanding of the relationships between these constructs.

Third, because the data were collected via internet-based self-report measures, no physical observations regarding the body size of participants could be made. In addition, the study was limited to BMI calculations to assess the body composition of the participants because only height and weight were collected. Because BMI does not take body fat percentage and lean muscle mass into consideration, men with BMIs in the overweight or obese range actually could have had high levels of lean muscle mass rather than excessive adiposity. Future research might compare the BPSS-M against other measures of body composition as well, such as percent body fat or fat-free mass.

Fourth, the BPSS-M does not include all body parts (e.g., face), though it does focus on those thought to be most salient to men (e.g., Cafri & Thompson, 2004; Pope, Phillips, et al., 2000; Ricciardelli & McCabe, 2004). In addition, this study did not examine the extent to which personality and psychological variables might moderate the influences of body dissatisfaction on disordered eating, such as bulimic symptoms. This line of inquiry is supported by research conducted with women (e.g., Brannan & Petrie, 2008; Stice et al., 1996), suggesting that similar moderating effects may exist for men. Potential moderators to test include neuroticism, social support, body surveillance, perfectionism, and psychological well-being.

Conclusion

In summary, the findings of Exploratory and Confirmatory Factor Analyses demonstrate that the BPSS-M one-factor and two-factor models have strong psychometric properties. Moreover, test-retest reliabilities are acceptable for both models, and convergent, discriminant, and concurrent validity estimates provide additional psychometric support for the BPSS-M.

Thus, given the need for a brief, valid measure of male body satisfaction that addresses the dimensions of both muscularity and leanness across body parts, the BPSS-M shows promise in fulfilling this need. Future studies, both cross-sectional and longitudinal, which utilize the BPSS-M in different male populations, particularly when developing and testing theoretical models of male body image and eating disturbances (e.g., structural equation modeling), will provide opportunities to further validate the measure while advancing our understanding of the role of body dissatisfaction in the development of related health risk behaviors.

APPENDIX A

LITERATURE REVIEW

Measuring Male Body Dissatisfaction: Factorial and Construct Validity of the Body Parts Satisfaction Scale for Men

In comparison to women, research into male body image disturbance has been relatively limited (Abell & Richards, 1996). However, over the past 20 years researchers have become more interested in the topic and thus considerably more is now known about men and body image concerns. For example, recent studies suggest that the male mesomorphic physique has become increasingly important in Western society (Furnham et al., 2002). Moreover, men who do not reach this ideal and have a negative body image are at increased risk for psychological disturbances, such as muscle dysmorphia, eating disorders, and depression (Olivardia et al., 2004).

Historically female body image disturbance has been conceptualized based on a paradigm emphasizing the importance of thinness, whereas men generally have been more concerned with muscularity (McCreary & Sasse, 2000). Over the past few decades valuation of the lean and muscular male physique has increased, particularly influenced by images promoted through visual media, such as men's fitness magazines, advertisements, and male action toys (Pope, Phillips, et al., 2000). Leit, Gray, & Pope (2002) argued that this media influence has contributed to an increase in the number of men experiencing dissatisfaction with muscularity and an increase in the incidence of men with clinically significant body image disturbances.

With this rising incidence of male body dissatisfaction, it has become imperative that reliable and valid measures be developed for assessing the perceptual, cognitive, and behavioral aspects of male body dissatisfaction. In their review of body image measures, Cafri and Thompson (2004) suggested that few of the existing male measures were adequate, identifying the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000; McCreary et al., 2004), Somatomorphic Matrix (SM; Gruber et al., 1999), and Somatomorphic Matrix Modification

(SMM; Cafri & Thompson, 2004) as the three with the best psychometric properties and that could best measure and represent male body image concerns. Even so, they suggested that these three measures were insufficient to capture the construct of body image concerns and that additional measures needed to be developed. They argued that any new measure of male body image had to specifically address the issue of muscularity and, if a scale focused on body parts, the upper torso had to be included. Given the limited availability of reliable and valid measures designed to assess male body image and that existing measures do not provide a broad, body-centric measure of satisfaction, an attitudinal conception of body image, the opportunity exists to develop additional measures that are psychometrically sound and that follow the guidelines set forth by Cafri and Thompson as well as other experts in the field (e.g., Gruber et al., 1999; Pope, Phillips, et al., 2000).

In the sections that follow, I will discuss changes in the sociocultural environment affecting men, including trends in prevalence of body image concerns in men. I will present an overview of the sociocultural models of body image and eating disturbances (BIED) in men with an emphasis on the relationship between body image concerns and negative health-related behaviors, such as eating disorders, muscle dysmorphia, steroid use, cosmetic surgery, and psychological distress (e.g., depression, anxiety, low self-esteem). In the next section, I will discuss the limitations of current research regarding BIED in men, including a review of current male body image measures and the rationale for developing a new measure for body dissatisfaction for men. Finally, I will present the purpose and hypotheses of the study.

Sociocultural Pressures Affecting Male Body Image

Increasingly, research points to the role of the media in shaping cultural attitudes toward ideal male and female body images. As the female body image has become increasingly thin

over the last three decades, the incidence of eating disorders in women has increased (Leit et al., 2002). Likewise, the cultural physical body ideal for men may be reaching an unhealthy extreme that negatively influences the incidence of body image problems and related disorders.

Historically, ideals of beauty were typically disseminated in the form of art, literature, and music and were widely perceived to be romanticized and unattainable; however, today's use of electronic visual media has blurred the boundaries between fantasy and reality (Freedman, 1986; Labre, 2005). Extensive use of photo enhancing techniques (e.g., airbrushing) present perfected images of models as realistic and achievable (Labre, 2005). Furthermore, numerous television programs, magazines, and web sites promote diet and exercise regimens to obtain these idealized physiques. In a study categorizing the contents of *Men's Health* and *Men's Fitness* magazines published between 1999 and 2003, 96% of the male images were characterized by low body fat and 82% were characterized by high muscularity. Moreover, the content of the articles and advertisements focused primarily on appearance rather than physical performance or fitness (Labre, 2005).

In another example of media images promoting an increasingly idealized male body image, over a 25 year period the body sizes of Playgirl centerfold models as measured by body mass index (BMI) and fat-free mass index (FFMI; Kouri, Pope, Katz, & Oliva, 1995) became increasingly "dense", muscular, and lean (Leit, Pope, & Gray, 2001). Specifically, the BMI of the centerfold models was positively correlated with the publication date ($r = .29$, $p < .01$), indicating increased body "density," whereas body fat was negatively correlated with the publication date ($r = -.34$, $p < .01$), indicating increased leanness. Furthermore, the models' muscularity as measured by FFMI showed greater increases than BMI ($r = .38$, $p < .01$). Moreover, 8 out of 115 (7%) of these models had a FFMI greater than 25, indicating that they

had achieved their hyper-mesomorphic physique through the use of anabolic-androgenic steroids (Pope, Phillips, et al., 2000).

Researchers have suggested that society's idealization of a hyper-mesomorphic, hyper-lean male body adversely affects the body image and eating behaviors of adolescent and adult males (e.g., Botta, 2003; Leit et al., 2002; Spitzer et al., 1999). For example, Botta (2003) examined how different types of magazine reading habits, social comparison styles, and level of critical body image processing predict body image and eating disturbances (BIED) in adolescent boys and girls. He found that exposure to media images of idealized physiques was a key predictor of BIED in adolescent boys. Specifically, fashion magazine reading was related to decreased concern with muscularity and decreased body satisfaction and health/fitness magazine reading was related to increased concern with muscularity; sports magazine reading was unrelated. However, boys who read sports magazines and engaged in a high degree of comparisons with the images in the magazines had decreased body satisfaction as compared to males who engaged in a low level of social comparisons. Furthermore, adolescent males who engaged in social comparisons of their bodies with media images were significantly more likely to engage in increased "muscularity behaviors" (e.g., thinking about or taking pills to gain muscle, taking supplements to increase muscle mass, and being committed to gaining muscularity). These adolescent males also exhibited significantly increased drive for thinness, and were at risk for engaging in bulimic (e.g., binge eating, vomiting, and using laxatives to lose weight) as well as anorexic (e.g., avoiding eating when hungry, taking pills to suppress appetite, and smoking when hungry to avoid eating) behaviors. Finally, boys who thought about why the magazine models have the bodies they do had increased anorexic behaviors, increased bulimic behaviors, and increased drive for thinness.

In another study exploring the role of the media in male BIED, Leit et al. (2002) investigated the relationship between exposure to media images of muscular men and body image perceptions in a sample of 82 college men. The researchers exposed men to advertisements featuring muscular men, and then administered a computerized measure of body image perception, the Somatomorphic Matrix (Gruber et al., 1999; Pope, Gruber, et al., 2000). As compared to the control group, the experimental group had a significantly greater discrepancy between current and ideal body shapes as well as between their current body shape and their estimate of the average man's body shape (Leit et al., 2002). The participants' dissatisfaction was primarily related to level of muscularity rather than body fat, a finding that is consistent with prior studies providing evidence of the importance of muscularity over body fat in men's body image satisfaction (Pope, Gruber, et al., 2000).

Providing additional support for the idea that Western society emphasizes an increasingly hyper-muscular male ideal, Pope, Phillips, and Olivardia (2000) demonstrated that young boys are exposed to cartoons, movies, and toys that emphasize this unrealistic masculine image. Using the physical evolution of the GI Joe action figure as an illustrative example, they found that the first G.I. Joe, introduced in 1964, if scaled to 5 feet 10 inches, would have a 44-inch chest and 12-inch biceps. This can be contrasted with the G.I. Joe Extreme, introduced in the mid-1990s, which would have a 55-inch chest and 27-inch biceps if it were similarly-scaled. These toys represent idealized body images that are virtually impossible to achieve without the use of performance enhancing drugs, such as anabolic steroids.

In addition to media influences, a small number of studies have investigated the role of parent and peer influence in adolescent and adult male body image (e.g., McCabe & Ricciardelli, 2001; O'Koon, 1997; Vincent & McCabe, 2000). For example, O'Koon (1997) examined the role

of parent and peer attachment in self-image in a sample of 72 adolescent males. He found that level of peer attachment had a greater effect on body image than parent attachment, although parent attachment remained important. Furthermore, Vincent and McCabe (2000) reported that poor relationships with peers and negative comments from peers and mothers predicted body dissatisfaction in a sample of 297 adolescent boys. Garner (1997) found that 35% of men endorsed teasing by others as having shaped their body image during their youth in a sample of 542 men. Moreover, McCabe & Ricciardelli (2001) investigated the impact of parents, peers, and the media on body dissatisfaction in a sample of 622 adolescent males and found that parents, both mother and father, played a significant role in strategies to gain weight and increase muscle mass as well as lose weight.

As sociocultural influences over the past several decades have increasingly emphasized the attainment of an idealized male physique, the prevalence of men experiencing body dissatisfaction has increased dramatically (Garner, 1997). Garner (1997) investigated the cognitions, perceptions, feelings, behaviors, and psychopathology associated with body image in a sample of 3,452 women and 548 men. He reported that men who were dissatisfied with their overall appearance increased from 15% to 43% between 1972 and 1997. Similarly, over the same time period men's dissatisfaction with their weight increased from 35% to 52%; muscle tone dissatisfaction increased from 25% to 45%; chest dissatisfaction increased from 18% to 38%, and abdomen dissatisfaction increased from 36% to 63%. Of the men who were dissatisfied with their weight, 22% wanted to gain weight, whereas 78% wanted to lose weight. Moreover, he found that 17% of men would give up more than three years of life to achieve their ideal weight.

Certain subgroups of men are at heightened risk for body dissatisfaction and associated eating disturbances because of additional weight, body, and appearance pressures that are present

for them. One such group is gay men (Kaminski, Chapman, Haynes, & Own, 2005). A prominent theory regarding the increased probability of a gay orientation in males with eating disorders derives from several studies documenting that the gay community places a higher value on a thin body type than do heterosexual male groups (Anderson, 1999). However, Drewnowski and Yee (1987) found that gay males with BIED were equally divided between those wanting to decrease their weight and those wanting to increase their weight and muscularity. More recently, Yelland and Tiggemann (2003) found that the gay male ideal involves being *both* thin and muscular, such that gay men exhibit a greater drive for muscularity than heterosexual men and an equivalent drive for thinness to that of heterosexual women.

Male college athletes are another group that may be at increased risk for BIED because of unique pressures in their environment (e.g., Raudenbush & Meyer, 2003). When comparing college athletes across track/cross-country, swimming, basketball, soccer, and lacrosse, athletes chose significantly different figure drawings between the teams to represent their actual body type, their ideal physique, and their perceptions of the physique most attractive to the opposite sex. Specifically, soccer and lacrosse players chose ideal physiques that were more muscular than what they perceived was attractive to the opposite sex; track/cross country and basketball players chose ideal physiques of equivalent muscularity to the physique they perceived was attractive to the opposite sex; and swimmers chose ideal physiques that were less muscular than what they perceived was attractive to the opposite sex. Across all of these sports, athletes indicated their actual physique was less muscular than both their ideal physique and the body type they perceived as attractive to the opposite sex. Furthermore, soccer and lacrosse players were more apt than the other sports players to use muscle mass/weight gain supplements, and those athletes who used supplements spent more time per week engaged in weight training than

those athletes who did not use supplements. The authors suggested that the athletes' desire for increased muscularity could provide the foundation for the development of future body image dissatisfaction and eating disturbances (Raudenbush & Meyer, 2003).

In summary, over the past several decades, the sociocultural environment in Western society, as shaped by the media, parents, and peers, has increasingly emphasized a mesomorphic, lean physique as the ideal male body (e.g., Leit et al., 2001; McCabe & Ricciardelli, 2001; O'Koon, 1997; Pope, Phillips, et al., 2000). At the same time these sociocultural pressures have increased, there has been a dramatic increase in the prevalence of body dissatisfaction among adolescent and adult men (e.g., Garner, 1997; Leit et al., 2002; McCabe & Ricciardelli, 2001; Pope, Phillips, et al., 2000; Ricciardelli & McCabe, 2004; Spitzer et al., 1999). Furthermore, certain groups of men, particularly those who experience sociocultural environments that are particularly body or appearance-focused (e.g., gay men, athletes), appear to be at greater risk for experiencing body image and eating disturbances (e.g., Kaminski et al., 2005; Raudenbush & Meyer, 2003; Yelland & Tiggemann, 2003). Taken together, these findings suggest that men are not immune, as once thought, from sociocultural pressures and that these pressures, though emphasizing a different type of ideal physique than present for women, likely contribute to men's increasing levels of body image dissatisfaction.

Theoretical Models of BIED in Men

Over the last five years theorists have developed models to explicate the various factors that influence the expression of BIED in men (e.g., Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). For example, Ricciardelli & McCabe (2004) proposed a model to explain the correlates and risk factors associated with eating disturbances and drive for muscularity among adolescent boys. Their biopsychosocial model was separated into psychological factors (i.e.,

body image concerns, negative affect, sexual orientation, self-esteem, perfectionism, alcohol and other drugs), sociocultural factors (i.e., socioeconomic status, race-ethnicity, pressure from parents and peers, pressure from the media, sports emphasizing leanness, exercise for weight control, parent and peer relations, teasing, abuse), biological factors (i.e., BMI, pubertal timing, pubertal growth), and disordered eating (i.e., binge eating, extreme weight loss strategies, exercise dependence). In their model, biological factors directly influence psychological factors; both biological factors and psychological factors influence disordered eating directly as well as indirectly in interaction with sociocultural factors. They noted that several of the variables within the model were consistent with those found to be associated with disordered eating among girls, including BMI, self-esteem, negative affect, perceived pressure to lose weight from parents and peers, perfectionism, drug use, and participation in a sport that emphasizes leanness (Ricciardelli & McCabe, 2004). Of the variables comprising this model, only two variables, BMI and pressure from parents and peers, have both cross-sectional and longitudinal support regarding their relationships with disordered eating in boys and men.

Similarly, Grieve (2007) proposed a biopsychosocial model to explain the relationships between variables influencing the development of muscle dysmorphia (MD) in males. The four components of this model were: physiological factors (i.e., BMI), psychological factors (i.e., body dissatisfaction, ideal body internalization, body distortion, perfectionism, self-esteem), emotional factors (i.e., negative affect), and socioenvironmental factors (i.e., sport participation, media influences). The author emphasized that the variables interact with each other in complex ways. Furthermore, the author noted that many of the empirical relationships within the model had not yet been examined and that cross-sectional and longitudinal studies were needed to test the proposed relationships among the variables.

Cafri et al. (2005) developed a seven-factor model that posited the relationships among factors contributing to BIED in males. The model depicts relationships between these seven components, which include: biological factors (i.e., BMI, pubertal timing, pubertal growth), societal factors (i.e., media influence, peer and parental influence, peer popularity, teasing), social body comparison, psychological function (i.e., self-esteem, negative affect), sports (i.e., organized team sports, weightlifting, informal team sports), body image dissatisfaction (i.e., body fat, muscularity), and health risk behaviors (i.e., steroids, steroid precursors, ephedrine, dieting to gain weight, dieting to lose weight, dieting to increase muscularity). This model integrates many of the aspects of the prior two models (i.e., Grieve, 2007; Ricciardelli & McCabe, 2004). In this model, biological factors directly influence societal factors, social body comparison, and body image dissatisfaction; societal factors directly influence social body comparison, which directly influences body image dissatisfaction, which directly influences health risk behaviors; sports participation directly influences social body comparison, body image dissatisfaction, and health risk behaviors; and psychological functioning shares a bidirectional relationship with health risk behaviors. Similar to the previously described models, many of the relationships between these variables have not yet been empirically investigated (Cafri et al., 2005).

Across each of these models, body image concerns are central to the manifestation of health risk behaviors, such as eating disorders, muscle dysmorphia, steroid and other muscle supplement use, and negative psychological outcomes, such as anxiety, depression, and poor self-esteem (Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). Specifically, body image dissatisfaction is hypothesized to mediate the influences of the other factors on the development of these negative behavioral and psychological outcomes. In the next section, I

discuss these health risk behaviors and psychological outcomes and their link to body image concerns.

Health Risk Behaviors and Psychological Outcomes

As discussed previously, over the past several decades sociocultural pressures from the media, parents, and peers emphasizing the importance of the male mesomorphic, lean physique have contributed to growing body dissatisfaction among adolescent and adult men in Western society (e.g., Cafri et al., 2005; Grieve, 2007; Leit et al., 2002; McCabe & Ricciardelli, 2001; Pope, Phillips, et al., 2000; Ricciardelli & McCabe, 2004; Spitzer et al., 1999). Theoretically, as a result of this body dissatisfaction, men are engaging in a number of different health risk behaviors to achieve this idealized physique. Whereas body dissatisfied women are susceptible to eating disorders (e.g., anorexia nervosa and bulimia) (e.g., Hoek, 2006; Stice et al., 1996), men appear vulnerable to a variety of health-related behaviors in addition to eating disturbances including muscle dysmorphia, the use of anabolic-androgenic steroids, cosmetic surgery, and psychological distress (e.g., depression, anxiety, low self-esteem) (e.g., Feldman, 2004; Kanayama et al., 2006; Olivardia et al., 2004; Pope, Phillips, et al., 2000; Yesalis et al., 1997).

Eating Disorders

Over the last decade, many clinical eating disorder prevalence studies have focused on adolescent and adult males using community based, population based, and convenience samples (Currin et al., 2005; Hay, Loukas, & Philpot, 2005; Hoek, 2006; Hudson et al., 2007; Kjelsås, Bjørnstrøm, & Götestam, 2004; McNulty, 1997; Schuckit et al., 1996; Woodside et al., 2001). Studies utilizing rigorous diagnostic procedures (e.g., structured interviews) have revealed prevalence rates of 0.0% to 0.3% for anorexia nervosa (AN), 0.13% to 0.96% for bulimia nervosa (BN), 0.8% to 2.0% for binge eating disorder (BED), and 5.0% to 9.4% for eating

disorder not otherwise specified (EDNOS, excluding BED) (McNulty, 1997). Studies utilizing self reports, however, have reported higher prevalence rates, including 2.5% for AN, 6.8% for BN, and 40.8% for EDNOS (McNulty, 1997). In a sample of male college students, O'Dea and Abraham (2002) found that 20% of the participants displayed eating attitudes and behaviors characteristic of disturbed eating and eating disorders. In addition, 3% met clinical diagnosis for binge eating, 3% for self-induced vomiting, 2% for bulimia nervosa, and 8% for exercise disorders. Of the 9% who reported disordered eating, none had sought treatment. Although prevalence rates for clinical eating disorders in women are much higher than in men, with 3 to 12 times more women with AN, 3 to 18 times more women with BN, and 1.5 times more women with BED (Currin et al., 2005; Hudson et al., 2007; Woodside et al., 2004), men still do experience disordered eating that is problematic, potentially life threatening, and likely influenced by their increasingly high levels of body dissatisfaction.

Steroid Use

In an effort to enhance performance in sports, and perhaps to obtain the hyper-mesomorphic ideal promoted by the media, adolescent boys and men have increasingly turned to anabolic-androgenic steroids (AAS) to artificially increase muscle mass (Pope, Phillips, et al., 2000). According to an ongoing study conducted by the National Institute on Drug Abuse, from 1992 through 2007, lifetime prevalence of steroid use by 12^{th} graders, both boys and girls combined, remained relatively stable (2.1% and 2.2%, respectively; Johnston et al., 2008). However, in 2007 the lifetime prevalence of steroid use for 12^{th} grade boys was higher than girls (3.6% versus .8%, respectively). Furthermore, 4.6% of adult men, ages 19 to 30, reported steroid usage at some point in their lives. Pope, Phillips, et al. (2000) estimated that between 2 million and 3 million American men have used steroids at some point in their lives.

Several perceived positive attributes of AAS contribute to their widespread use by American adolescent boys and men (Pope, Phillips, et al., 2000). First, steroids are highly effective at increasing muscle mass, and some of the muscle gains achieved through steroids are maintained long after use has ceased. As a result, steroids offer the promise of increased muscularity, improved athletic performance, and enhanced physique for a period of time that extends beyond the actual drug use, provided the user continues to work out to maintain these gains. Second, drug testing often misses many steroids and performance enhancing substances. By utilizing steroids during the off-season to achieve strength and performance gains and then terminating usage during the competition season, athletes can gain an edge against the competition with little fear of discovery by officials governing their chosen sport. Third, there are typically minimal short-term non-psychiatric medical risks. The primary short-term physiological risks include gynecomastia (e.g., enlarged breast tissue or "bitch tits"), acne that resolves after steroid usage, and temporarily decreased testicular size and function. Many men perceive these potential risks as offset by the potential benefits (Pope, Phillips, et al., 2000). Studies investigating the motivations for steroid usage among different groups of athletes and non-athletes have produced different results (e.g., Blouin & Goldfield, 1995; Cohen, Collins, Darkes, & Gwartney, 2007; Yesalis et al., 1997). For example, Yesalis et al. (1997) found that adolescent athletes used steroids to improve athletic performance, whereas adolescent non-athletes used steroids to improve physical appearance. Blouin and Goldfield (1995) reported that among bodybuilders using steroids, the primary reason was to improve physical appearance. Among adult non-athletes, the primary reasons for steroid usage were increases in skeletal muscle mass, gains in strength, and improvements in physical attractiveness (Cohen et al., 2007).

Numerous studies suggest that athletes are at risk for steroid use (e.g., Blouin & Goldfield, 1995; Brower, Blow, Young, & Hill, 1991; Komoroski & Rickert, 1992; Yesalis et al., 1997). When bodybuilders, runners, and martial artists were compared on measures of BIED and steroid use, bodybuilders had greater body dissatisfaction, a higher desire for muscle bulk, a higher desire for thinness, increased bulimic tendencies, and the greatest use of steroids compared to the other athletes (Blouin & Goldfield, 1995). Moreover, the bodybuilders reported significant elevations on measures of ineffectiveness and perfectionism as well as lower self-esteem as compared to the other athletes. In addition, when compared to non-users, men using steroids reported significantly greater maturity fears and greater numbers of bulimic behaviors (Blouin & Goldfield, 1995).

Steroid use has also been associated with symptoms of substance dependence as defined by the *American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision* (*DSM-IV-TR*, 2000; Brower et al., 1991). These symptoms include: "(1) more substance taken than intended; (2) desire yet unable to cut down or control use; (3) large time expenditure on substance-related activity; (4) frequent intoxication or withdrawal symptoms when expected to function or when physically hazardous; (5) social, work, or leisure activities replaced by AAS use; (6) continued AAS use despite problems caused or worsened by use; (7) tolerance; (8) withdrawal symptoms; and (9) substance used to relieve or avoid withdrawal symptoms" (Brower et al., 1991, p. 763). Of 49 male steroid users in a community based study, at least one symptom of substance dependence was endorsed by 94% of the participants (Brower et al., 1991). Three or more symptoms of dependence, required by the *DSM-IV-TR* for a diagnosis of substance dependence, were endorsed by 28 (57%) of the participants. Moreover, 4 participants (8.2%) reported at least six symptoms. Of the symptoms

reported, withdrawal was the most common, endorsed by 84% of the sample. Physiological symptoms of withdrawal included fatigue, insomnia, headaches, and decreased sex drive. Psychological symptoms of withdrawal from AAS included depression, anorexia, restlessness, dissatisfaction with body image, and a desire to resume taking steroids. Moreover, participants continued to perceive themselves as being insufficiently muscular after using steroids. In fact, not feeling muscular enough and using larger doses of steroids were predictors of dependence. Brower et al. (1991) suggested that steroid dependence is driven more by negative reinforcement (i.e., attempting to avoid feeling insufficiently muscular) than by positive reinforcement (i.e., improvement in physical and psychological aspects).

Cosmetic Surgery

Although plastic (cosmetic) surgery historically has been reserved primarily for individuals with prominent physical deformities or disfigurations (e.g., Feldman, 2004; Menninger, 1937), in recent years the field has expanded to serve individuals with a broad range of less severe physical imperfections (Feldman, 2004). Increasingly, individuals who are dissatisfied with one or more physical features are turning to cosmetic surgery to correct these perceived flaws (American Society of Plastic Surgeons, 2008d; Feldman, 2004). Broadcast media regularly present cosmetic surgery as a viable option for rapidly improving physical appearance. For example, reality television series including *The Swan* (Galan, 2004), *Dr. 90210* (Bull, 2008), *I Want a Famous Face* (Cowin, 2005), and *Extreme Makeover* (Schultz, 2007) present episodic case examples of dramatic physical transformations achieved in large part through cosmetic procedures. Furthermore, the prime time television drama *Nip/Tuck* (Murphy, Shephard, & Robin, 2008) depicts storylines in which characters undergoing cosmetic surgery

achieve a wide range of aesthetically enhanced physical changes and associated improvements in quality of life.

This television programming seems to normalize cosmetic surgery as a viable option for improvement of physical appearance. Increases in the volume and breadth of plastic surgeries in the United States seem to mirror the increase in pursuit of these procedures by the general population for cosmetic purposes. Over the eight years from 2000 to 2007, the number of cosmetic procedures, both surgical (e.g., liposuction, facelifts) and minimally invasive (e.g., collagen, Botox® injections), conducted on men and women by members of the American Society of Plastic Surgeons (ASPS) increased 59% (American Society of Plastic Surgeons, 2008a). For example, in 2007, ASPS members performed over 11.8 million cosmetic procedures, representing a 7% increase over 2006.

In recent years, men have availed themselves to an increasing range of cosmetic surgical procedures (Feldman, 2004). Between 1997 and 2003 the number of cosmetic procedures performed on males in the United States more than tripled (Feldman, 2004). During 2007, 1.1 million American men had some form of cosmetic plastic surgery (American Society of Plastic Surgeons, 2008c). This figure represents 9% of the total cosmetic surgery procedures for that year. For men, the top five surgical procedures were nose-reshaping, eyelid surgery, liposuction, breast reduction, and hair transplantation (American Society of Plastic Surgeons, 2008c).

With respect to non-surgical cosmetic procedures for men, the top five procedures in 2007 were Botox® injection, microdermabrasion, laser hair removal, chemical peel, and laser skin resurfacing. These and other popular procedures (e.g., dermal fillers) are designed to reduce the impact of aging (e.g., wrinkle reduction) and achieve currently fashionable aesthetic ideals (e.g., fuller upper lip, hairless torso). Furthermore, other less common cosmetic procedures are

experiencing explosive growth in men, including tummy tucks, lower body lifts, and buttocks lifts, increasing 146%, 273%, and 419%, respectively, from 2000 to 2007 (American Society of Plastic Surgeons, 2008b). Moreover, the breadth of procedures offered to men continues to expand. Although statistics are currently limited for the following surgeries, plastic surgeons are increasingly offering newer procedures including pectoral implants, calf implants, biceps implants, and triceps implants (Chugay, 2008; Feldman, 2004). These newer procedures are designed to enhance the appearance of male musculature. Although controversial, several plastic surgeons also offer penile enlargement procedures (e.g., Rosenthal, 2008).

Although the volume and breadth of cosmetic procedures has continued to increase, research findings are mixed regarding positive psychosocial outcomes for patients seeking cosmetic surgery (e.g., Honigman, Phillips, & Castle, 2004; Meningaud et al., 2003). Honigman et al. conducted a review of 37 studies relevant to psychosocial outcomes for cosmetic surgery patients and concluded that most people seeking cosmetic procedures are psychologically healthy and generally report high rates of satisfaction. However, the study outlined several factors associated with poor psychosocial outcomes: being young, being male, having a minimal deformity, having unrealistic expectations for the outcome, having a previous unsatisfactory cosmetic surgery outcome, pursuing surgery based on relationship concerns, and having a history of anxiety, depression or other psychopathology such as body dysmorphic disorder or narcissistic personality disorder (Honigman et al., 2004).

In a European study designed to assess changes in depression, anxiety, and quality of life as a result of plastic surgery, 100% of patients found the surgery useful (Meningaud et al., 2003). In addition, 87% described positive changes in sense of well being, increased self confidence, joy or satisfaction, looking less fatigued, and disappearance of a “complex”. However, the

sample was significantly more depressed than the general population prior to surgery, and the level of depression was not improved by cosmetic surgery. The authors concluded that cosmetic surgery is statistically ineffective as a treatment for depression. Moreover, they found that quality of life was improved only when assessed with respect to anxiety (Meningaud et al., 2003).

Muscle Dysmorphia

Body dysmorphic disorder (BDD), as defined by the *American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision* (*DSM-IV-TR*, 2000), is a preoccupation with a slight or imagined physical defect, resulting in behaviors such as mirror checking, camouflaging, numerous physician visits, and pursuit of correction through cosmetic surgery. The disorder also causes impairment in occupational, social, or other important areas of daily functioning (e.g., spending hours each day thinking about the perceived defect; avoiding work, school, or public situations; minimizing social interactions). In a study from France involving 132 cosmetic surgery applicants (124 females, 8 males), 9.1% were diagnosed with BDD using the criteria defined in the *DSM-IV-TR* (2000) (Aouizerate et al., 2003); 25% (*n* = 2) of the men received the same diagnosis. Among participants with no or minimal physical defects, 40% were diagnosed with BDD. Due to the high percentage of cosmetic surgery applicants diagnosed with BDD within this small study, the authors emphasized the importance of psychological screening prior to committing to perform the surgery (Aouizerate et al., 2003).

Although BDD did not appear in the *DSM* until the *DSM-III-R* (1987), beginning in the early to mid-1990s, clinicians began to recognize and researchers began to label a specific form of BDD, particularly in men, which was originally described as "reverse anorexia" (Blouin & Goldfield, 1995). Original studies began to discover men, particularly in the bodybuilding

community, who displayed a high degree of body dissatisfaction, in some cases with delusional intensity (e.g., Blouin & Goldfield, 1995; Pope et al., 1997; Veale et al., 1996). Men exhibiting this body image dissatisfaction/distortion were often preoccupied with a high drive to gain muscle bulk, a high drive for thinness, and an increase in bulimic tendencies when compared with other groups of athletes (Veale et al., 1996). Numerous empirical studies confirmed this pattern of symptomatology throughout the United States, Western Europe, and South Africa (e.g., Blouin & Goldfield, 1995; Hitzeroth, Wessels, Zungu-Dirwayi, Oosthuizen, & Stein, 2001; Olivardia et al., 2000). Within the past decade, the scientific community has adopted the label of "muscle dysmorphia" (MD) to describe this disorder (Pope et al., 1997).

To improve the consistency of diagnosis and understanding of MD, Pope et al. (1997) published the following recommended set of diagnostic criteria to distinguish MD from other forms of body dysmorphic disorder:

1. The person has a preoccupation with the idea that one's body is not sufficiently lean and muscular. Characteristic associated behaviors include long hours of lifting weights and excessive attention to diet.

2. The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning, as demonstrated by at least two of the following four criteria: 2a) 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; 2b) the individual avoids situations where his or her body is exposed to others, or endures such situations only with marked distress or intense anxiety; 2c) 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; 2d) the individual continues to work out, diet, or use ergogenic (performance-enhancing) substances despite knowledge of adverse physical or psychological consequences.

3. The primary focus of the preoccupation and behaviors 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 BDD. (p. 556)

Although statistics regarding the prevalence and characteristics of MD are just beginning to emerge, it has been estimated that at least 100,000 men in the U.S. manifest the formal criteria for MD, as listed above (Pope, Phillips, et al., 2000). Olivardia, Pope, and Hudson (2000) conducted a case-control study comparing male weightlifters diagnosed with MD to weightlifters without MD, with the goal of gaining a better understanding of the characteristics that differentiate the two groups. The sample included 24 men, with a mean age of 19.4 years (*SD* = 3.6). The men diagnosed with MD frequently reported embarrassment and shame regarding their physical appearance. In addition, impairment in social and occupational functioning was common in this group. Moreover, 58% of the men in the sample demonstrated limited or no insight into their disorder.

Furthermore, Olivardia et al. (2000) found that 50% of their MD participants displayed prominent pathology on the Yale-Brown Obsessive Compulsive scale. Twelve participants (50%) spent three or more hours a day thinking about their body size and muscularity. In addition, 14 participants (58%) reported that they experienced “moderate” or “severe” avoidance of activities, people, and places because of their perceived defect. Thirteen participants (54%) reported that they had “little” or “no” control over their compulsive dietary and weight training

routines. Use of steroids also was prevalent within this same MD sample, with 11 (46%) of the participants reporting the use of steroids to enhance muscle mass (Olivardia et al., 2000). The mean age for onset of steroid use was 20.3 years (*SD* = 2.9). With 73% of those participants using steroids, the onset of MD occurred at least one year prior to steroid use. These men also reported a high co-morbidity with other psychological disorders (Olivardia et al., 2000). Specifically, 14 participants (58%) had a lifetime history of Major Depressive Disorder or Bipolar Disorder; seven (29%) reported a lifetime history of a *DSM-IV-TR* (2000) Axis I anxiety disorder. Seven (29%) of the men reported a history of Anorexia Nervosa, Bulimia Nervosa, or Binge-Eating Disorder.

Psychological Distress

The relationship between male body satisfaction and affective symptomatology has been an ongoing area of interest to researchers. As early as the late 1980s, researchers began to explore the relationship between body satisfaction and depression in men. One early study found a relationship between higher levels of body satisfaction and lower levels of depression-proneness in men, but not women (McCaulay et al., 1988). A more recent study suggested that American men display substantial body dissatisfaction, and this dissatisfaction is related to depression, eating disturbances, the use of performance-enhancing substances, and low self-esteem (Olivardia et al., 2004). Moreover, muscle belittlement, which is the perception that one is less muscular than one actually is, figures strongly into the overall construct of male body dissatisfaction (Olivardia et al., 2004). McFarland and Kaminski (2009) reported that lower ratings of overall self-concept and higher levels of depression, anxiety, and interpersonal sensitivity were predictive of body image disturbances in men. Furthermore, after controlling for body dissatisfaction, anorexic and bulimic behaviors, obsessive-compulsive symptoms, and risk

factors for interpersonal difficulties were associated with symptoms of MD (McFarland & Kaminski, 2009).

To summarize, sociocultural factors (e.g., media, peer and parental influence), biological factors (e.g., BMI, pubertal growth), sports participation, and social body comparison contribute to male body image dissatisfaction directly, as well as indirectly through interactions between the aforementioned factors (Cafri et al., 2005). Furthermore, body image dissatisfaction predisposes men to engage in health risk behaviors (e.g., muscle dysmorphia, eating disorders, muscularity-oriented dieting and behaviors, use of steroids) and psychological distress (Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). The relationship between psychological functioning and health risk behaviors is bi-directional, with negative affect and poor self-esteem acting as risk factors to health risk behaviors, while engaging in health risk behaviors act as risk factors to increasing psychological distress (Cafri et al., 2005).

Measurement of Body Image in Males

As previously discussed, the few currently available theoretical models that explicate the relationships between psychosocial factors and eating disturbances in men place body image dissatisfaction at the center, indicating it is the primary precursor to a variety of health risk behaviors and psychological distress (Cafri et al., 2005; Grieve, 2007; Ricciardelli & McCabe, 2004). One of the immediate challenges with examining these models is the limited number of reliable and valid measures for men that are associated with these factors. In particular, measures of male body image concerns are lacking, thus limiting the research that can be conducted on men and disordered eating.

In their review of body image measures, Cafri and Thompson (2004) suggested that few are adequate for men and that additional measures need to be developed. The authors argued that

any new measure of male body image had to specifically address the issue of muscularity and, if a scale focused on body parts, the upper torso had to be included. Moreover, the authors identified the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000; McCreary et al., 2004), Somatomorphic Matrix (SM; Gruber et al., 1999), and Somatomorphic Matrix Modification (SMM; Cafri & Thompson, 2004) as the three most effective male body satisfaction measures adhering to their proposed criteria. However, each of these measures has limitations. With respect to the DMS, although the measure assesses muscularity-related body image and behaviors associated with the pursuit of muscularity, the measure does not assess the dimension of leanness (McCreary & Sasse, 2000; McCreary et al., 2004), an important aspect of men's body satisfaction (e.g., Gruber et al., 1999; Pope, Gruber, et al., 2000; Pope, Phillips, et al., 2000). Moreover, the DMS is limited in terms of the specific body sites evaluated, excluding such body parts as the abdomen, shoulders, back, and buttocks (McCreary & Sasse, 2000; McCreary et al., 2004). Regarding the SM and SMM, both are designed to measure body image satisfaction and perceptual accuracy with overall body muscularity and body fat (i.e., leanness). However, neither of these measures evaluates satisfaction through ratings of specific body parts. Instead, the measures were designed around a "classic" male physique (i.e., V-shaped upper body, wide shoulders, narrower hips, muscular legs) and therefore may not be appropriate for use with certain groups of men who value different body proportions (e.g., runners or bikers, who commonly have lean, less muscular upper bodies and more muscular legs). Finally, limited psychometric data exists for both the SM and SMM, and the available reliability data suggest that test-retest reliabilities are inadequate (Cafri et al., 2004; Cafri & Thompson, 2004).

In short, although male body image concerns are a central factor in male BIED theoretical models, existing measures of body image have a variety of limitations (Cafri et al.,

2004; Cafri & Thompson, 2004). Given the need for an effective measure of male body satisfaction, an opportunity exists to develop an instrument that meets the criteria and characteristics identified by experts in the field (e.g., Cafri & Thompson, 2004; Gruber et al., 1999; Pope, Phillips, et al., 2000). Specifically, such an instrument could be modeled after psychometrically sound measures of female body satisfaction (Petrie et al., 2002), using ratings of specific body parts to establish the level of satisfaction one enjoys. Such an approach is useful because it: (a) provides a subjective/attitudinal measure of male body image, which is one of two types of measures historically used in the measurement of body image research (Thompson, 1990); (b) is a direct, face-valid approach to assessing body image concerns; and (c) follows the design of other reliable and valid measures used in women's body image research (e.g., BPSS-R). If this approach were taken with men, however, the measure would need to (a) include a larger number of body parts, (b) address the muscularity of the body parts, and (c) address the leanness of each body part.

In a prior research effort, Petrie et al. (2002) demonstrated factorial and construct validity of the Body Parts Satisfaction Scale-Revised (BPSS-R), an instrument that assesses women's body satisfaction across 14 body parts previously identified and studied by experts (e.g., stomach, buttocks, and upper thighs). Using the BPSS-R as a model, Petrie developed a set of 30 items to assess men's level of satisfaction with physical appearance as represented through various body parts and features that have been identified by experts as important to men (e.g., chest, abdomen, biceps/triceps), whereas body parts less relevant to men were excluded (e.g., upper thighs, hips). Moreover, for each muscle group selected, items assess satisfaction across

the dimensions of muscularity and leanness, which have both been identified as important to men (e.g., Grieve, 2007; McCreary et al., 2004; Pope, Phillips, et al., 2000). This new measure, the Body Parts Satisfaction Scale for Men (BPSS-M) was administered to 386 undergraduate males at the University of North Texas.

APPENDIX B

SUPPLEMENTAL TABLES

Table B.1

*Study 2 Descriptive Statistics for BPSS-M Factors and Measured Variables (*N = *188)*

Variable	No. Items	*M*	*SD*	Skewness	Kurtosis	Internal Consistency
BPSS-M 1F	18	4.03	1.05	-.15	-.79	.97
BPSS-M 2F Upper	12	4.01	1.06	-.12	-.80	.96
BPSS-M 2F Legs	4	4.14	1.16	-.36	-.43	.94
BPSS-M Leanness	1	3.94	1.20	-.09	-.71	
BPSS-M Muscularity	1	3.84	1.20	-.23	-.57	
BPSS-M Body	1	4.02	1.22	-.35	-.71	
BSQ-10-R	10	19.65	9.63	1.34	1.98	.95
DMS MBI	7	23.28	9.16	.05	-.87	.92
DMS MB	7	16.09	7.82	.85	.15	.88
SMM S-I Muscularity	2	-13.51	19.87	.51	2.67	.70
SMM S-I Leanness	2	-5.51	19.22	.82	3.63	.71
BULIT-R	28	43.34	11.88	2.08	6.78	.88
EAT-26	26	4.30	4.69	2.74	9.98	.74
DIS	9	13.91	6.16	1.19	.63	.93
PANAS-X Fear	6	1.86	.72	.97	.40	.89
PANAS-X Hostility	6	1.98	.77	.70	-.30	.87
PANAS-X Guilt	6	1.93	.91	1.13	.74	.93
PANAS-X Sadness	5	2.16	1.04	.74	-.34	.95
CES-D	20	12.81	8.84	1.11	1.28	.88
SATAQ-3-GI	9	2.59	.93	.23	-.17	.91
SWLS	5	23.12	6.89	-.67	-.18	.90
SDQ-III	12	73.09	15.38	-.41	-.49	.94
MCSDS-B	12	6.30	2.87	-.16	-.90	.71

(table continues)

Table B.1 *(continued)*

Note. BPSS-M 1F = Body Parts Satisfaction Scale for Men 1-Factor Model; BPSS-M 2F Upper = Body Parts Satisfaction Scale for Men 2-Factor Model Upper Body Factor; BPSS-M 2F Legs = Body Parts Satisfaction Scale for Men 2-Factor Model Legs Factor; BPSS-M Leanness = satisfaction with overall leanness item; BPSS-M Muscularity = satisfaction with overall muscularity item; BPSS-M Body = satisfaction with body size and shape item; BSQ-10-R = Body Shape Questionnaire – Revised; DMS MBI = Drive for Muscularity Scale Muscularity-Oriented Body Image Subscale; DMS MB = Drive for Muscularity Scale Muscularity Behaviors Subscale; SMM S-I Muscularity = Somatomorphic Matrix Modification Self-Ideal Muscularity Subscale; SMM S-I Leanness = Somatomorphic Matrix Modification Self-Ideal Leanness Subscale; BULIT-R = Bulimia Test – Revised; EAT-26 = Eating Attitudes Test 26 Total Scale; DIS = Dietary Intent Scale; PANAS-X Fear = Positive and Negative Affect Scale Expanded Form Fear Subscale; PANAS-X Hostility = Positive and Negative Affect Scale Expanded Form Hostility Subscale; PANAS-X Guilt == Positive and Negative Affect Scale Expanded Form Guilt Subscale; PANAS-X Sadness = Positive and Negative Affect Scale Expanded Form Sadness Subscale; CES-D = Center for Epidemiologic Studies Depression Scale; SATAQ-3-GI = Sociocultural Attitudes towards Appearance Scale-3 General Internalization Scale; SWLS = Satisfaction with Life Scale; SDQ-III = Self Description Questionnaire III General Esteem Subscale; MCSDS-B = Marlowe-Crowne Social Desirability Scale Form B.

Table B.2

*Study 2 Correlation Matrix of Measured Variables and Demographic Variables (*N = *188)*

	Variable	1	2	3	4	5	6
1	BPSS-M 1F	--					
2	BPSS-M 2F Upper	.98**	--				
3	BPSS-M 2F Legs	.90**	.81**	--			
4	Age	.02	-.01	.03	--		
5	BMI	-.08	-.09	-.04	.14	--	
6	Ideal BMI	.02	.02	.02	.12	.83**	--
7	BSQ-10-R	-.51**	-.52**	-.38**	.05	.30**	.13
8	DMS MBI	-.31**	-.30**	-.32**	-.03	-.20**	-.01
9	SMM S-I Muscularity	.17*	.18*	.13	.03	.17*	.19*
10	SMM S-I Leanness	.10	.11	.05	-.01	-.33**	-.10
11	BPSS-M Leanness	.80**	.80**	.68**	-.00	-.33**	-.14
12	BPSS-M Muscularity	.81**	.82**	.67**	-.04	.08	.13
13	BPSS-M Body	.85**	.83**	.74**	.01	-.22**	-.08
14	BULIT-R	-.35**	-.32**	-.33**	-.07	.14	.14
15	EAT-26	-.18*	-.19**	-.12	-.03	-.02	-.03
16	DIS	-.21**	-.24**	-.07	.06	.31**	.15
17	DMS MB	.14	.16*	.03	.00	-.03	.21**
18	PANAS-X Fear	-.22**	-.22**	-.17*	-.05	.10	.08
19	PANAS-X Hostility	-.28**	-.28**	-.27**	.02	.05	.04
20	PANAS-X Guilt	-.29**	-.29**	-.23**	-.04	.01	.00
21	PANAS-X Sadness	-.34**	-.34**	-.28**	-.13	.02	-.02
22	CES-D	-.34**	-.34**	-.28**	-.02	-.06	-.05
23	SATAQ-3-GI	-.24**	-.23**	-.22**	.09	-.03	.02
24	SWLS	.38**	.38**	.35**	.03	.17*	.17*
25	SDQ-III	.46**	.47**	.38**	.13	.15*	.22**
26	MCSDS-B	.14	.13	.19**	.06	.19**	.18*

(table continues)

Table B.2 *(continued)*

	Variable	7	8	9	10	11	12	13
1	BPSS-M 1F							
2	BPSS-M 2F Upper							
3	BPSS-M 2F Legs							
4	Age							
5	BMI							
6	Ideal BMI							
7	BSQ-10-R	--						
8	DMS MBI	.19**	--					
9	SMM S-I Muscularity	-.19**	-.27**	--				
10	SMM S-I Leanness	-.34**	.17*	.18*	--			
11	BPSS-M Leanness	-.54**	-.12	.06	.23**	--		
12	BPSS-M Muscularity	-.45**	-.34**	.21**	-.00	.68**	--	
13	BPSS-M Body	-.58**	-.21**	.17*	.19**	.79**	.70**	--
14	BULIT-R	.60**	.27**	-.13	-.18*	-.30**	-.21**	-.40**
15	EAT-26	.48**	.11	-.09	-.10	-.19**	-.20**	-.29**
16	DIS	.70**	.00	-.06	-.36**	-.33**	-.16*	-.28**
17	DMS MB	-.04	.49**	-.02	.00	.20**	.21**	.14
18	PANAS-X Fear	.30**	.12	-.03	-.12	-.19**	-.20**	-.26**
19	PANAS-X Hostility	.38**	.24**	-.14	-.12	-.21**	-.26**	-.27**
20	PANAS-X Guilt	.46**	.24**	-.13	-.09	-.23**	-.29**	-.29**
21	PANAS-X Sadness	.43**	.20**	-.12	-.12	-.27**	-.34**	-.35**
22	CES-D	.42**	.18*	-.17*	-.08	-.24**	-.30**	-.37**
23	SATAQ-3-GI	.31**	.45**	-.19**	.00	-.12	-.25**	-.19**
24	SWLS	-.23**	-.21**	.23**	-.02	.24**	.34**	.40**
25	SDQ-III	-.46**	-.24**	.22**	.12	.35**	.42**	.48**
26	MCSDS-B	-.22**	-.25**	.05	-.02	.03	.16*	.11

(table continues)

Table B.2 *(continued)*

	Variable	14	15	16	17	18	19
1	BPSS-M 1F						
2	BPSS-M 2F Upper						
3	BPSS-M 2F Legs						
4	Age						
5	BMI						
6	Ideal BMI						
7	BSQ-10-R						
8	DMS MBI						
9	SMM S-I Muscularity						
10	SMM S-I Leanness						
11	BPSS-M Leanness						
12	BPSS-M Muscularity						
13	BPSS-M Body						
14	BULIT-R	--					
15	EAT-26	.42**	--				
16	DIS	.42**	.47**	--			
17	DMS MB	.21**	.10	.07	--		
18	PANAS-X Fear	.28**	.15*	.19**	.10	--	
19	PANAS-X Hostility	.39**	.18*	.22**	.16*	.66**	--
20	PANAS-X Guilt	.39**	.26**	.29**	.10	.69**	.66**
21	PANAS-X Sadness	.35**	.24**	.24**	.03	.69**	.64**
22	CES-D	.40**	.25**	.24**	-.01	.60**	.57**
23	SATAQ-3-GI	.30**	.21**	.24**	.32**	.26**	.39**
24	SWLS	-.20**	-.08	-.01	.03	-.31**	-.34**
25	SDQ-III	-.32**	-.23**	-.24**	.05	-.37**	-.43**
26	MCSDS-B	-.29**	-.07	-.07	-.06	-.22**	-.47**

(table continues)

Table B.2 *(continued)*

	Variable	20	21	22	23	24	25	26
1	BPSS-M 1F							
2	BPSS-M 2F Upper							
3	BPSS-M 2F Legs							
4	Age							
5	BMI							
6	Ideal BMI							
7	BSQ-10-R							
8	DMS MBI							
9	SMM S-I Muscularity							
10	SMM S-I Leanness							
11	BPSS-M Leanness							
12	BPSS-M Muscularity							
13	BPSS-M Body							
14	BULIT-R							
15	EAT-26							
16	DIS							
17	DMS MB							
18	PANAS-X Fear							
19	PANAS-X Hostility							
20	PANAS-X Guilt	--						
21	PANAS-X Sadness	.66**	--					
22	CES-D	.57**	.72**	--				
23	SATAQ-3-GI	.30**	.28**	.26**	--			
24	SWLS	-.35**	-.52**	-.55**	-.23**	--		
25	SDQ-III	-.52**	-.54**	-.61**	-.27**	.60**	--	
26	MCSDS-B	-.35**	-.35**	-.33**	-.20**	.26**	.34**	--

(table continues)

Table B.2 *(continued)*

Note. BPSS-M 1F = Body Parts Satisfaction Scale for Men 1-Factor Model; BPSS-M 2F Upper = Body Parts Satisfaction Scale for Men 2-Factor Model Upper Body Factor; BPSS-M 2F Legs = Body Parts Satisfaction Scale for Men 2-Factor Model Legs Factor; BSQ-10-R = Body Shape Questionnaire – Revised; DMS MBI = Drive for Muscularity Scale Muscularity-Oriented Body Image Subscale; DMS MB = Drive for Muscularity Scale Muscularity Behaviors Subscale; SMM S-I Muscularity = Somatomorphic Matrix Modification Self-Ideal Muscularity Subscale; SMM S-I Leanness = Somatomorphic Matrix Modification Self-Ideal Leanness Subscale; BPSS-M Leanness = satisfaction with overall leanness item; BPSS-M Muscularity = satisfaction with overall muscularity item; BPSS-M Body = satisfaction with body size and shape item; BULIT-R = Bulimia Test – Revised; EAT-26 = Eating Attitudes Test 26 Total Scale; DIS = Dietary Intent Scale; PANAS-X Fear = Positive and Negative Affect Scale Expanded Form Fear Subscale; PANAS-X Hostility = Positive and Negative Affect Scale Expanded Form Hostility Subscale; PANAS-X Guilt == Positive and Negative Affect Scale Expanded Form Guilt Subscale; PANAS-X Sadness = Positive and Negative Affect Scale Expanded Form Sadness Subscale; CES-D = Center for Epidemiologic Studies Depression Scale; SATAQ-3-GI = Sociocultural Attitudes towards Appearance Scale-3 General Internalization Scale; SWLS = Satisfaction with Life Scale; SDQ-III = Self Description Questionnaire III General Esteem Subscale; MCSDS-B = Marlowe-Crowne Social Desirability Scale Form B.

Table B.3

*Study 2 Correlations of Factor Models with Measured Variables and Demographic Variables (*N *= 188)*

	One-Factor Model	Two-Factor Model	
Variable/Measure	Full Body	Upper Body	Legs
Demographic Variables			
Age	.015	-.004	.030
Current BMI	-.080	-.089	-.038
Ideal BMI	.022	.022	.014
Body Image Measures			
Body Shape Questionnaire	-.507**	-.522**	-.375**
DMS Muscle-Oriented Body Image	-.314**	-.299**	-.321**
DMS Muscularity Behaviors	.137	.156*	.032
SMM Muscularity Satisfac: Self/Ideal	.172*	.180*	.132
SMM Leanness Satisfac: Self/Ideal	.103	.111	.046
BPSSS-M Overall Body Sat. Items			
Overall leanness of body	.804**	.801**	.675**
Overall level of body's muscularity	.812**	.820**	.670**
Overall size and shape of body	.846**	.828**	.74**

(table continues)

Table B.3 *(continued)*

	One-Factor Model	Two-Factor Model	
Variable/Measure	Full Body	Upper Body	Legs
Eating Behavior Measures			
BULIT-R	-.346**	-.320**	-.334**
EAT-26 Total Score	-.181*	-.191**	-.122
Dietary Intent Scale	-.205**	-.235**	-.069
Mood State Measures			
PANAS-X Fear Subscale	-.215**	-.223**	-.172*
PANAS-X Hostility Subscale	-.283**	-.282**	-.273**
PANAS-X Guilt Subscale	-.291**	-.292**	-.234**
PANAS-X Sadness Subscale	-.335**	-.341**	-.277**
CES-D Depression	-.340**	-.340**	-.284**
Self Esteem Measures			
SATAQ General Internalization	-.240**	-.231**	-.222**
Satisfaction with Life Scale	.381**	.378**	.351**
Self Description Questionnaire Total	.462**	.465**	.376**
Social Desirability			
MCSDS-B Social Desirability	.143	.125	.191**
Mean	4.03	4.01	4.14
SD	1.05	1.06	1.16

Note. * Correlation is significant at the 0.05 level.

** Correlation is significant at the 0.01 level.

APPENDIX C

QUESTIONNAIRE

MALE NON-ATHLETE QUESTIONNAIRE

DEMOGRAPHICS

I. Background Information

1. Sex: _____ Male _____Female 2. Age: _____

3. Current Academic Status: ___Freshman ___Sophomore ___Junior ___Senior ___5th Year

4. Race/Ethnicity: _____Caucasian/White _____Hispanic/Mexican American
_____African-American/Black _____American Indian
_____Asian American/Pacific Islander _____Other (specify:_____)

II. Sports History

1. Do you currently play sports on a UNT varsity athletics team? _____Yes _____ No
   a. If yes, which team? _____
2. Do you currently play sports on a competitive club, select, elite-level team? _____ Yes____ No
   a. If yes, what sport(s) do you play? _____
   b. If yes, what competitive level? _____
   c. If yes, what is the name of your team/club? _____
3. Do you currently play recreational sports at UNT? _____ Yes _____ No
   a. If yes, what sports do you play? _____
4. While you were in high school, did you play varsity sports? _____ Yes _____ No
   a. If yes, what sports did you play? _____
5. Being an athlete is an important part of my identity

1	2	3	4	5	6	7
Strongly Disagree						Strongly Agree

III. Weight History

1. Present height: _____ feet _____ inches
2. Present weight: _____ pounds
   a. Length of time at current weight: _____ (months)
3. Ideal weight: _____ pounds
4. My body frame is: _____Small _____Medium _____Large
5. Are you satisfied with your current weight? ____ Yes ____ No
   a. If NO, do you consider yourself to be: ____ overweight ____ underweight

6a. Lowest weight in past 2 years:_____ 6b. Highest weight in past 2 years:_____

7. Have you experienced significant weight fluctuations (changes of more than 10% of your body weight) in the last 12 months? _____ Yes_____ No
   If yes, please explain:_____

8. Have you ever been diagnosed or treated for:

Anorexia Nervosa? _____ Yes _____ No (If YES, indicate when _____)
Bulimia Nervosa? _____ Yes _____ No (If YES, indicate when _____)
Other Eating Disorder _____ Yes _____ No (If YES, indicate when _____)

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