PROFILES OF BODY IMAGE DISTURBANCE

AND THEIR EXTERNAL CORRELATES

by

ZACHARY JAMES FETTERMAN

KELLY M. STANEK, COMMITTEE CHAIR
KERRY LUKE
STEVE PRENTICE-DUNN
MARTIN SELLBOM

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ABSTRACT

Existing theory and empirical investigations indicate that body image disturbance (BID) is a multidimensional disturbance, composed of several related yet distinguishable components (e.g., cognitive-affective, behavioral, and health/fitness related components; Banefield & McCabe, 2002; Cash, 2002; Maïano, Monthuy-Blanc, & Garbarino, 2009; Thompson et al., 1999; Zanetti, Santonastaso, Sgaravatti, Degortes & Favaro, 2013). There is little research, however, that addresses the common presentations of theorized components of body image in individuals. The present study sought to identify common profiles of BID based on their symptomatic content and investigate how these profiles related to external criteria in a non-clinical sample of 119 young women. Results of latent class analyses revealed three distinct profiles of BID. Follow up analyses suggest that these profiles are related to BID severity and are associated with differences in the degree of endorsement of BID symptoms (i.e., low, moderate, high levels of symptoms) but do not reflect differences in content of BID symptoms (i.e., the same type of symptoms of BID appear in each class). Follow up analyses suggest that severity profiles are associated with significant differences on measures of psychopathology, appearance related teasing, and body mass index. These results suggest that in a non-clinical sample individuals with BID are distinguished by the degree to which they display symptoms of BID but not the type of BID symptoms displayed. Results indicate that clinicians should expect and account for similar degrees of disturbance in multiple areas body image and that BID may be associated with more general forms of distress. Future work should explore how profiles of BID may vary in different samples, particularly samples of eating disordered individuals and men.

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Introduction

Body image is a complex construct, encompassing several diverse concepts. Throughout its study, many different terms (e.g., weight satisfaction, appearance satisfaction, appearance evaluation, body concern, etc.) have been used to describe various aspects of this nebulous construct (Cash & Pruzinsky, 2002a). In modern research and clinical practice, body image may be best understood as one's subjective thoughts, perceptions, and feelings about one's body (Grogan, 2008). Recent considerations of body image, however, are not predominantly focused on general body image, but on the more specific construct of body image disturbance (BID); Latner, Mond, Vallance, & Gleaves, 2012; Tantleff-Dunn, Barnes, Larose, 2011; Thompson, Burke, & Krawczyk, 2012). BID is a disruption in adaptive body image that is characterized by a body image that is psychologically impairing (Cash, 2004; Vallance, 2011). This disruption is comprised of dissatisfaction or distortion in any of the components of body image and/or body image in totality (Paap, 2011). The components of body image are not entirely agreed upon; however, body image experts have commonly proposed that the construct includes affective, behavioral, cognitive, and perceptual features (Thompson et al., 1999). A single conceptualization of the practical components of BID, and particularly typical patterns of presentation of said components, is currently lacking in the field, despite the substantial amount of time body image researchers have spent contemplating and investigating BID. The current project has attempted to supplement existing literature in the field by providing insights regarding common patterns of presentation of BID symptoms via an empirical investigation of commonly displayed "subtypes" or specific manifestations of BID.

In 1984, the phrase "normative discontent" was used to describe the ubiquity of body image dissatisfaction in Western women (Rodin, Silberstein, & Streigel-Moore, 1984). Recent

research suggests that BID is still extremely widespread (estimates range between 23% and 98% of individuals depending upon the metric used to indicate disturbance) and pervading even more populations (Tantleff-Dunn et al., 2011). The high prevalence of BID indicates that it is not simply a problem within psychiatric populations. Though BID is related to eating disorders, it is a normative phenomenon that is present in the majority of the population to varying degrees and therefore important to study outside the small portion of the population with eating disorders (Ahrberg, Trojca, Nasrawi, & Vocks, 2011; Rodin et al., 1984; Tantleff-Dunn, 2011; Zanetti et al., 2013). The prevalence of BID is particularly troubling given its association with reduced quality of life and measures of psychopathology (Cash, Phillips, Santos, & Hrabosky, 2004; Vallance, 2011). In light of the pervasiveness of BID in non-clinical samples and its negative consequences, understanding the dimensions that compromise the construct and how those dimensions relate in terms of presentation within individuals is exceedingly important. Obtaining more precise information regarding manifestations of BID and related criteria would be a meaningful step in allowing clinicians and researchers to be as effective and efficient as possible by honing interventions for specific issues and investigating more nuanced and sophisticated research questions related to BID. In addition, an investigation of the psychosocial correlates of BID profiles (e.g. anxiety, depression, appearance related teasing, etc.) may offer insight to guide future research and increase efficacy in clinical practice related to BID.

Background

Any attempt to scientifically investigate body image and its disturbance is confronted with the complexity of the construct. While body image – and BID by extension – was originally considered unidimensional, modern theoretical models and research support a multidimensional conceptualization of BID (Banefield & McCabe, 2002; Cash & Pruzinsky,

2002; Maïano, Monthuy-Blanc, & Garbarino, 2009; Thompson et al., 1999; Zanetti et al., 2013). Attempts to identify each of these multiple dimensions of body image have yielded some consensus, typically including cognitive, affective, behavioral, and perceptual features. The cognitive component encompasses thoughts regarding one's body, the affective component includes feelings and attitudes related to body image, the behavioral component is concerned with behavioral manifestations of shape and weight concern, and the perceptual component of BID includes distortions in one's evaluation of his or her body size or appearance (Thompson et al., 1999). This general consensus has yet to translate into a single commonly used model of body image, however. For example, a health and fitness related component of BID involving a desire for healthy eating and physical fitness has been suggested by some researchers but is far from a ubiquitous inclusion in BID models (Cash, 2000). Even without a single theoretical model, research statistically supporting the multidimensional nature of the construct does exist; such research does not, however, describe precisely what each dimension represents (Banfield & McCabe, 2002; Zanetti et al., 2013). Focused investigations of particular facets of BID have thus far been the most helpful in describing the components of BID; such investigations are presented below.

Behavioral BID.

A behavioral component of body image is widely assumed and seems to be readily identifiable. The behavioral aspect of BID is present in well-established models (Thompson et al., 1999) and continues to appear in more current literature (Thompson et al., 2012). As the name implies, behavioral BID is composed of behavioral manifestations of disturbance in an individual's body image, particularly behavioral manifestations related to the overvaluation of size or weight (Grilo et al., 2005). Behavioral manifestations of BID are commonly broken into

two broad categories: body checking behaviors and body avoidance behaviors (Latner et al., 2012).

Body checking may take many forms. Individuals may check their overall appearance, specific body parts, or check their body in an idiosyncratic method (Reas, Whisenhunt, Netemeyer, & Williamson, 2002). Specific checking behaviors may include pinching skinfolds to measure fatness, feeling body areas for bones, frequent weighing, and trying on specific clothes to assess fit (Reas, White, & Grilo, 2006). Additional checking behaviors include checking one's appearance in reflective surfaces, comparing one's body to others, and seeking assurance from others regarding one's body (Calugi, Grave, Ghisi, & Sanavio, 2006). It is theorized that body checking is an attempt to alleviate the stress associated with BID, though this preoccupation with one's body and compulsory checking may actually produce and maintain body related stress (Calugi et al., 2006; Reas et al., 2002).

Body image avoidance is another primary feature of behavioral BID. Body image avoidance behaviors have long been understood as actions taken to avoid situations that incite negative body image evaluation and concern regarding an individual's physical appearance (Rosen, Srebnik, Saltzberg, & Wendt, 1991). Statistical investigations of the aspects of body image avoidance indicate that the disturbance is associated with wearing certain types of clothing to disguise one's body, inhibited social activities, restrained eating, and atypical grooming habits (Maïano et al., 2009). Such findings support the originally hypothesized features of body image avoidance such as abstaining from social outings, wearing oversized clothing, reduced physical intimacy, and eating less (Rosen et al., 1991). Although body checking represents increased fixation on one's body and body avoidance is an attempt to avoid body exposure, these behavioral features of body image are highly correlated (Latner et al., 2012). Individuals with

behaviorally disturbed body image often vacillate between heightened awareness of their bodies through body checking and attempted avoidance of their bodies through body avoidance (Shafran, Fairburn, Robinson, & Lask, 2004).

Cognitive-Affective BID.

A cognitive-affective component is another seemingly ubiquitous facet of BID models. In traditional models of body image –separate from BID - a cognitive component has been understood to exist independently of an affective component (Cash et al., 2004; Thompson et al., 1999). In literature specifically considering BID, however, this component is sometimes described as cognitive-affective (Ahrberg et al., 2011; Maïano et al., 2009). This merger is intuitive in the context of a disturbance in body image. Whereas models of body image are neutral and thus allow for positive or negative feelings regarding one's body, BID implies negative affectivity and evaluation. Because negative evaluation and affect is an inherent and invariable part of BID, considering it as an independent component is unnecessary. Given the precedent of viewing affects and attitudes alongside cognitions in BID (Ahrberg et al., 2011; Maïano, 2009), the present study will consider a joint cognitive-affective component of body image.

Cognitive-affective BID includes thoughts, attitudes, and evaluations of one's body and appearance (Ahrberg et al., 2011). A central feature of cognitive-affective BID is body dissatisfaction. Body dissatisfaction represents the negative evaluation and following discontent regarding one's body and has been understood as the disparity between one's perceived body/ appearance and one's ideal body/appearance (Maxwell & Cole, 2012; Warren et al., 2008). Researchers note that body image dissatisfaction is more than a superficial, aesthetically oriented concern and is associated with serious psychological problems (Maxwell & Cole, 2012).

Cognitive-affective BID also includes some level of weight, shape, and/or general appearance concern that frequently manifests as an uncommonly distorted, negative, and influential view of an individual's body that is salient to the individual (Ahrberg et al., 2011; Sinton et al., 2011).

Statistically focused reviews of cognitive-affective BID suggest multiple features of cognitive disturbance. Researchers have suggested that this component of BID is composed of factors including one's evaluation of his or her own body, comparison of one's body to external sources, thoughts and feelings regarding changing ones body, and extreme distortions in body perception (Di Piertro & da Silveira, 2009). Overall, research suggests that a cognitive-affective component of BID is easily empirically identifiable (Dowson & Henderson, 2001).

Health/Fitness Related BID.

Among the multiple theorized dimensions of BID, one that is less commonly examined is a health/fitness related disturbance. A health/fitness component of body image is under researched and currently not well understood. Existing literature suggests that health related BID involves feelings of overall physical health and vulnerability to illness while fitness related BID involves feelings of physical fitness and competence (Cash, 2000). While research related to health concerns in BID is scarce, a precedent for the connection of health-related concerns and body image pathology has been established in the study of orthorexia. Orthorexia is a relatively new label for pathology surrounding the desire for purity of food and inflexibility and obsessiveness regarding healthy foods (Borgida, 2012; Fidan, Ertekin, Isikay, & Kirpinar, 2010). Though this pathology is currently conceptualized as a variation of an eating disorder, BID has been conceptualized as a less severe form of eating disorder pathology suggesting that similar processes may exist in these constructs (Ahrberg et al., 2011). Research has also related health anxiety to BID, though it is unclear if this health related disturbance is distinct from cognitive

disturbances (Hadjistavropoulos & Lawrence, 2007). Current interest in psychopathological concepts like orthorexia makes the consideration of a health/fitness related BID timely and potentially beneficial to the field. Investigating health/fitness BID alongside more traditional components of BID should offer insight into how this newly theorized component relates to or is potentially distinct from well-established aspects of BID.

Perceptual BID.

Historically, models of BID have included a perceptual component in descriptions of the disturbance (Cash et al., 2004; Cash & Pruzinsky, 2002a). The perceptual component of BID has most typically been understood as distortion in one's mental representation of his or her body (Thompson et al., 1999). Often this distortion is operationalized as the measured disparity between an individual's estimate of his or her body size and his or her true body size (Garnder, 1996). Despite the field's historical acceptance of a perceptual facet of BID, a growing body of research has questioned the validity of perceptual BID. Researchers have suggested that perceptual manifestations of BID may be an artifact of and better accounted for by distorted cognitions and dissatisfaction related to cognitive-affective BID (Skrzypek, Wehmeier, & Remschmidt, 2001; Thompson et al., 1999). As modern research continues to shift away from the inclusion of a perceptual component of BID (Hrabosky et al., 2009; Legenbauer, Boardman, & Anderson, 2012), the present study will not consider a distinct perceptual component of BID.

A Person-Centered Approach to Understanding BID

The complexity and multidimensionality of BID have been established (Cash & Pruzinsky, 2002; Mountford, Haase, & Waller, 2007; Thompson et al., 1999, Zanetti et al., 2013); however, there is currently a disconnect between our multifaceted models of BID and the standard clinical approach to evaluation of the disturbance (i.e. relatively focused assessment

instruments). This disconnect may deter researchers and clinicians from achieving a holistic understanding of the clinical presentation of BID. Thus, an empirical investigation including all components of BID will benefit the field. A better understanding of the components of the construct, however, is not the only potential gain to be made. Present investigations of BID tend to be variable-centered without considering the issue of BID in the context of individuals' profiles of BID. For example, existing studies have explored the independent presentation of several components of body image within various populations (Ahrberg et al., 2011), but current research has yet to investigate how the multiple facets of BID present concurrently, and resultantly has not generated profiles that define and distinguish groups of individuals. Though the variable-centered approach to understanding BID is valuable, existing variable-centered research could be supplemented with a person-centered research approach to understanding BID; one in which the typical, multifaceted presentations of BID within individuals are explored. An exploration of the common presentation of and relationships among these components, relative to an investigation of the variables and heterogeneity of the construct, should compliment and add to existing knowledge of BID.

Latent class analysis is a statistical technique that has recently been used to complete person-centered investigations of the manifestations of psychological phenomena (e.g., Bornovalova, Levy, Gratz, & Lejuez, 2010; Forbes, Jon, Miller, & Creamer, 2010; Hallquist & Pilkonis, 2012). The technique identifies typical patterns of the presentation of variables across individuals. In the present study, the analysis was used to identify common patterns of presentation of the various components of BID in individuals. This approach allows the aforementioned type of investigation of BID and its components within individuals.

A person-centered understanding of BID is relevant to clinicians and researchers alike. Enhanced understanding of BID may allow researchers to refine their efforts and study with greater precision. Ideally the greater depth of knowledge regarding BID, particularly in people, will bring clearer and more complete knowledge to the field. Additionally, clinicians could benefit from awareness of the typical profiles of BID they are likely to encounter in their patients. Understanding these profiles and their differential clinical and psychological correlates may allow for the development of specific, and potentially more efficient and efficacious, treatments for each presentation of BID. Furthermore, determining distinctions in profiles of BID could bolster the effectiveness of clinical intervention by allowing clinicians to understand not just the similarities they are likely to see among their patients, but also the differences. Additional information regarding of the most common manifestations of BID and associations between these manifestations and external correlates (e.g. anxiety, depression, OCD symptoms) of the distinct subtypes of BID may facilitate understanding of the development and maintenance of BID. Understanding the factors potentially associated with maintenance and development of BID may aid in prevention, especially before it becomes severe and impairing. Negative body image has been associated with disordered eating, depression, social anxiety and inhibition, impaired sexual functioning, and poor self-esteem (Cash et al., 2004), therefore effectively treating and preventing BID likely leads to improvements in quality of life.

The Present Study

The present study was designed to explore whether there might be differential manifestations of body image disturbance in a non-clinical population. Latent class analysis was used to determine the relationships between the components of BID as they appear across individuals. The ideal number of symptom classes was identified and individuals were grouped

into empirically derived classes that best fit their presentation of BID. Probabilities of belonging to each of the empirically derived classes were also calculated. These classes of BID were then compared on external criteria (including anxiety, depression, obsessive-compulsive symptoms, BMI, alcohol and drug use, appearance-related childhood teasing, intellectual ability, age, and race) in order to give more context and meaning to observed symptom patterns in BID.

The primary analyses in the current study (latent class analysis) were used in an exploratory manner to empirically identify common profiles of disturbed body image. Based on the review of BID literature above and broad psychological research, several potential patterns of BID were anticipated. A primarily cognitive-affective presentation of BID with less elevation in behavioral and health/fitness measures of BID was expected. Though cognitive-affective BID is associated with other forms of BID, the specific features of cognitive-affective BID (negative thoughts and feelings about one's body) are readily distinguishable from other forms of BID (body checking, body avoidance, atypical desire for healthy eating). The identifiable distinction between cognitions and behaviors in combination with cognitive-behavioral theory that asserts cognitions are precursors to behaviors, suggests the possibility of a presentation of BID in which cognitive-affective components alone are elevated (Westbrook, Kennerly, & Kirk, 2011). This may represent a presentation in which cognitive-affective disturbance is present, yet has not observably influenced other components of BID. A presentation of elevated cognitive-affective and behavioral related BID was also expected in light of established relationships between thoughts, feelings and behaviors (Beck, 1964; Hassett & Gevirtz, 2009). The concept of health/fitness BID remains relatively unexplored; however a profile with elevated cognitive-affective and health/fitness related BID was expected based on the same logic as above (i.e., cognitions and affect as precursors to other forms of BID). Such a profile may represent a

variation of combined cognitive-affective and behaviorally related BID in which the disturbance in behavior is present in more socially acceptable (e.g., concern with health) rather than aberrant manner (e.g., social avoidance). Additionally, a pervasive and severe profile of BID, in which all components are elevated, was expected, as was a profile of individuals with relatively little endorsement of any of the features of BID. Such high and low severity clusters have been found in other investigations of subtypes of psychological disorders (Bornovalova, et al.; Hallquist & Pilkonis, 2012). Even in the presence of these expectations, the ultimate goal of the proposed study was to empirically explore potential presentations of BID.

Methods

Procedure

The present study utilized an archival database, originally compiled at a large midwestern university. A total of 119 college females with complete body image data were extracted from the dataset for use in the present analyses. All participants provided informed consent prior to completing the original study. Demographic, clinical, and psychosocial data were gathered by trained research assistants following standardized administration and scoring procedures. The original assessment session lasted approximately two hours and included measurement of height and weight (from which BMI was derived) and administration of various psychological instruments and self-report questionnaires.

Participants

Database participants were originally recruited from an undergraduate research subject pool. Women between the ages of 18 and 26 who were not pregnant were eligible to participate. Though men may be increasingly susceptible to disturbances in body image, research still indicates that females are significantly more likely than males to display eating and body concern (Luevorasirirkul, Boardman, & Anderson, 2012; Skrzypek et al., 2011). Additionally, literature suggests that the experience and expression of BID is not equivalent for men and women (Di Piertro & da Silveira, 2009; Hudson, Hiripi, Pope, & Kessler, 2007; Tantleff-Dunn et al., 2011). For these reasons, men were excluded from the present study. Similarly, a non-clinical sample was selected in order to investigate the natural occurrence of BID and its various manifestations

in a sample that best reflects the majority of the general population. A total of 119 individuals were included in the present analyses. Participants' average age was 19.10 years (*SD*= 1.45) and average education was 13.07 years (*SD*=0.91). The study sample was approximately 68% Caucasian women, 23% African-American women, 7% Asian women, 1% Hispanic/Latina women, and 2% women of other racial/ethnic groups.

Measures

BID Measures.

Behavioral BID.

The Body Checking Questionnaire (BCQ) was developed to measure the behavioral manifestations of negative body image, specifically body checking (Reas et al., 2002). This self-report questionnaire contains 23-items assessing broad ritualistic checking of body shape and size as well as specific measures of overall appearance checking, specific body part checking, and idiosyncratic body checking. Participants indicated on a five-point Likert-type scale the frequency of various checking behaviors, with higher scores suggesting greater BID. Test makers and outside researchers report adequate internal consistency, with respective reliability coefficients for the three subscales (1. *overall appearance checking*, 2. *specific body parts checking*, and 3. *idiosyncratic checking*) greater than or equal to $r = .74$ across several populations (Calugi et al., 2006; Reas et al., 2002; Reas et al., 2006). Psychometric investigations also indicate strong test-retest reliability $r \geq .94$ for BCQ total score (Reas et al., 2002; Calugi et al., 2006). The test's authors assert that the BCQ displays good convergent validity; correlations between the BCQ and the Body Shapes Questionnaire, Eating Attitudes Test, and Body Image Avoidance scale are $r = .86$, .70, and .66 respectively (Reas et al., 2002). Alpha in the present sample was $\alpha = .92$.

The Body Image Avoidance Questionnaire (BIAQ) assesses BID as manifested through behavioral tendencies related to avoiding situations that exacerbate concern for physical appearance (Rosen et al., 1999). The BIAQ is a 19-item self-report that uses a six-point Likert-type scale ranging from 5 (*Always*) to 0 (*Never*) to gauge frequency of body image avoidance. Higher scores indicate greater disturbance in areas such as eating restraint, avoiding certain types of clothing, avoiding certain social activities, and specific grooming and weighing behaviors (Maïano et al., 2009). The test authors report a Cronbach's alpha of α =.89 for the BIAQ, suggesting the test has good internal consistency. Other researchers report adequate internal consistency for alternate forms of the BIAQ, α = .64-.87 (Legenbauer, Vocks, & Schütt-Strömel, 2007; Maïano et al., 2009). Multiple studies report good test-retest reliability, with reliability coefficients of r = .64 - .87 (Legenbauer, Vocks, & Schütt-Strömel, 2007; Maïano et al., 2009). Test makers assert that the BIAQ displays good convergent validity. Correlations between the BIAQ and Body Shape Questionnaire and Shape Concern Scale and Weight Concern Scale of the Eating Disorder Examination are r = .78, .68, and .63 respectively (Rosen et al., 1991). Alpha in the present sample was α = .79.

Cognitive-Affective BID.

The Body Shape Questionnaire (BSQ) is a 34 item self-report instrument developed to assess concerns about body shape (Cooper, Taylor, Cooper, & Fairburn, 1986). The BSQ requires participants to recall thoughts and feelings about body shape from the previous four weeks. Participants respond to all questions using a six-point Likert-type scale ranging from 1 (*Never*) to 6 (*Always*), with higher scores indicating greater disturbance in thoughts and feelings related to body shape. Multiple studies have found good internal consistency for the BSQ, Cronbach's alpha $\geq$ .88 (Di Piertro & da Silveira, 2009; Rosen, Jones, Ramirez, & Waxman,

1996; Dowson & Henderson, 2001). Researchers have also found good test-retest reliability for the BSQ, with a reliability coefficient of $r = .88$ (Rosen et al., 1996). Additionally, the BSQ displays good convergent validity. Correlations between the BSQ and the Body Dysmorphic Disorder Examination and the Appearance Evaluation, Appearance Orientation, and Body Areas Satisfaction subscales of the Multidimensional Body-Self Relations Questionnaire of $r = .77$, -.67, .29, and -.66 respectively. Alpha in the present sample was $\alpha = .97$.

The Multidimensional Body-Self Relations Questionnaire (MBSRQ) is a 69-item self-report instrument used to assess several dimensions of BID (Cash, 2000). Participants respond to all items on the MBSRQ using a five-point Likert-type scale ranging from 1 (*Very Dissatisfied*) to 5 (*Very Satisfied*). Two of the subscales on the MBSRQ measure cognitive-affective BID. The first such subscale, Appearance Evaluation, assesses one's feelings of attractiveness and satisfaction with his or her physical appearance. Higher scores on Appearance Evaluation indicate greater feelings of physical attractiveness. The second cognitive-affective subscale is Appearance Orientation, a measure of one's investment in his or her physical appearance. Higher scores on Appearance Orientation indicate greater investment in physical appearance. Researchers suggest that both appearance evaluation, $\alpha \geq .88$, appearance orientation, $\alpha \geq .84$, demonstrate strong internal consistency and strong test-retest, $r = .78$-$.90$ and $r = .80$-$.91$, across multiple versions of the instrument (Cash, 2000; Untas, Koleck, Rascle, & Borteyrou, 2009). Researchers have demonstrated acceptable convergent validity between the MBSRQ and other measures of BID (Brown, Cash, & Mikulka, 1990). In the present sample, alpha was $\alpha = .92$ for the Appearance Evaluation scale and $\alpha = .79$ for the Appearance Orientation scale.

The Physical Appearance Comparison Scale (PACS) is a five-item scale designed to measure an individual's inclination to compare his or her appearance to the appearance of others

(Thompson, Heinberg, & Tantleff, 1991). Test maker's report both adequate internal consistency, $\alpha \geq .78$, and test-retest reliability, $r = .72$. Alpha in the present sample was $\alpha = .73$.

Health/Fitness BID.

The Multidimensional Body-Self Relations Questionnaire (Cash, 2000) contains several additional subscales measuring various aspects of BID. The Fitness Orientation subscale measures an individual's investment in physical fitness and athletic competence. Higher scores on Fitness Orientation indicate greater investment in physical fitness. The Health Orientation subscale measures an individual's investment in a physically healthy lifestyle. Higher scores on Health Orientation indicate greater investment in a healthy lifestyle. Test makers report Cronbach's alphas of .90 and .78 respectively for the subscales in females. Reported test-retest reliability was also good with correlations of $r = .94$ and .85 for the respective scales (Fitness Orientation and Health Orientation). Again, the MBSRQ has demonstrated acceptable convergent validity with other measures of BID (Brown et al., 1990). In the present sample, alpha was $\alpha = .53$ for the Health Orientation scale and $\alpha = .90$ for the Fitness Orientation scale.

Additional Measures.

The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item self-report instrument designed to assess depressive symptomology in the general population (Radloff, 1977). The CES-D identifies frequency of depressive symptomatology within the past week using a four-point Likert-type scale ranging from "*Rarely or None of the Time*" to "*Most or all of the Time*". Research indicates that the CES-D has demonstrated acceptable internal consistency, Cronbach's alpha >.80, and satisfactory sensitivity and specificity across a variety of samples (Radloff, 1977; Demirchyan, Petrosyan, and Thompson, 2011; Zhang, Sun, Kong, & Wang, 2012). Alpha in the present sample was $\alpha = .89$.

The Maudsley Obsessional Compulsive Inventory (MOCI) is a 30-item self-report instrument created to measure obsessive-compulsive behavior (Hodgson & Rachman, 1977). The items are all true-false, and the instrument includes measures of checking compulsions, washing/cleaning compulsions, slowness, and doubting. Psychometric investigations report Cronbach's alphas > .70 across varying samples, indicating adequate internal consistency (Hodgson & Rachman, 1977; Sternberger & Burns, 1990). Test makers report good test-retest reliability with a correlation of $r = .80$ (Hodgson & Rachman, 1977). Research has demonstrated adequate convergent and divergent validity for the measure (Sternberger & Burns, 1990). Alpha in the present sample was $\alpha = .83$.

The Physical Appearance Related Teasing Scale is an 18-item self-report measure of weight/size and general appearance teasing (Thompson et al., 1991). All items are presented on five-point Likert-type scale, with higher scores indicating a greater prevalence and impact of teasing. The test's creators report adequate internal consistency, $\alpha = .91$, and test-retest reliability, $r = .86$ (Thompson et al., 1991). Alpha in the present sample was $\alpha = .93$ for the physical appearance teasing total and $\alpha = .93$ for the effect of physical appearance teasing total.

The State-Trait Anxiety Inventory for Adults is a self-report measure of both acute and longstanding anxiety (Spielberger, Gorsuch, & Lushene, 1970). All of the instrument's 40 items are presented on a four-point Likert-type scale with higher scores indicating greater anxiety. Investigators report strong internal consistency with Cronbach's alphas $\geq .89$ across multiple samples (Bergua et al., 2012; Guillen-Riquelmee & Buela-Casal, 2011). Researchers report test-retest reliability coefficients of $r = .40$ and $r = .86$ for state and trait anxiety scales respectively (Rule and Traver, 1983). Alpha in the present sample was $\alpha = .88$ for the trait anxiety scale and $\alpha = .87$ for the state anxiety scale.

The American Version of the National Adult Reading Test (AMNART) estimates level of intellectual ability (Grober & Silwinkski, 1991). The test requires participants to read aloud 45 phonetically irregular words with a range of frequency of usage. Proper pronunciation of more words produces a greater estimate of intellectual ability and norms have been published for 11 different age ranges (Lezak, Howieson, & Loring, 2004). Investigators report good internal consistency for the various versions of the test, $\alpha > .90$. Test-retest reliability, $r \geq .89$, is also good, if the instrument is readministered within the same year. Additionally, correlations between the AMNART and tests of general intellectual status are acceptable (.40-.80; Strauss, Sherman, & Spreen, 2006).

Data Analyses

First, participants' data were screened for outliers, checked for normality, and assessed for missing data. Results of preliminary data analysis indicated the absence of significant outliers and the presence of normally distributed variables as judged by the shape of distribution (variables were assessed by viewing histograms with normal curves as per Field, 2007). Missing data were found on the AMNART total score, the cigarettes per week value, and at the item level for the STAI-T, STAI-S, CES-D, and MOCI. Missing data was replaced with the mean for one participant on the AMNART. Additionally, missing data was replaced with the neutral response for one participant on the measure of cigarettes smoked per week. Similarly, missing data was replaced with the neutral response at the individual item level for six participants on the STAI-T, three participants on the STAI-S, seven participants on the CES-D, and four participants on the MOCI. After preliminary data analysis was complete, 119 participants with complete data were available for primary and follow-up analyses in the present study.

Main analyses included latent class analysis to empirically identify subtypes of BID. In

the present application, this technique was used to identify the most appropriate number of distinct BID classes for the sample and assign each participant to a class according to maximum likelihood estimation (McLachlan & Peel, 2000; Muthen, 2004). In addition to assigning each participant to a class, the latent class analysis produced a conditional probability for membership in each class for each participant. This conditional probability represented the likelihood (ranging from 0 to 1) that each participant belonged in each class. Conditional probabilities offer a nuanced, more continuous way to examine class membership in addition to the categorical approach of assigning each individual to one of the empirically derived classes. Furthermore conditional probabilities account for individual differences in classification uncertainty. Multiple latent class analyses were performed to estimate the fit of increasing class solutions until significant benefits from additional classes were no longer identified. When performing a latent class analysis, several solutions are presented and a fit index is calculated for each solution. A Bayesian information criterion (BIC) was considered in the evaluation of class solutions; smaller BIC values indicate better fitting models. Though a lower BIC does suggest better fit and was used in class solution evaluation, literature indicates that the Lo-Mendell-Rubin likelihood ratio test is a more reliable index for correctly determining the number of classes (Nylund, Asparouhov, & Muthen, 2007). The Lo-Mendell-Rubin likelihood ratio test was therefore ultimately the index used in the present study to determine the optimal number of classes.

Next, a series of class comparison analyses were conducted to determine external correlates of the identified BID classes. These analyses provided descriptive information that aided in interpretation of the empirically identified BID classes. Multivariate analysis of variance (MANOVA) and univariate analysis of variance (ANOVA) were performed to compare

subtypes on BMI, age, and race, as well as measures of body image, anxiety, depression, obsessive-compulsive symptoms, alcohol and tobacco use, appearance-related childhood teasing, and estimated intellectual ability. Statistical assumptions of MANOVA, including independence of observations, random sampling, and normal distribution were met. Two separate MANOVAs were performed, each consisting of conceptually and statistically related dependent variables. The first MANOVA included body image measures and the second included measures related to internalizing symptomology. Correlations between body image ranged from a non-significant r = .004 to a significant r = .884. Correlations between measures of internalizing related symptoms were roughly similar; these correlations were all significant and ranged from r = .192 to r = .919 (See Table 5). Significant MANOVAs were followed by individual univariate ANOVAs comparing empirically identified classes on measures of body image and external criteria. A series of ANOVAs were also performed to evaluate class differences in non-internalizing external criteria related to body image. Non-internalizing external criteria included demographic measures, measures of alcohol and tobacco use, and a measure of body composition. These measures had little conceptual similarity and were therefore analyzed using univariate ANOVAs. Significant ANOVAs were followed by Dunnett's T3 post hoc testing to determine specific class differences on body image and external criteria measures. Dunnett's T3 post hoc testing was selected for its strict control of Type I error relative to other available tests and its utility when equal variance is not assumed (Field, 2009). The assumption of ANOVA including random sampling, independence of observations, normal distribution, and homogeneity of variance were met in the current sample. A chi square test was used to compare class on race. Assumption for the chi square test including random sampling and independent observations were met. Bivariate

correlations were also run comparing conditional probability of belonging to each class with measures of body image and external criteria.

Results

Latent Class Analyses

A latent class analysis was performed on all body image measures. A 1-class solution yielded a log likelihood of -4059.008 and a BIC of 8244.771. A 2-class solution yielded a log likelihood of -3531.769, a BIC of 7254.704, and entropy (a measure of the proportion of overall classification quality) = 0.978. A 3-class solution yielded a log likelihood of -3419.205, a BIC of 7096.482, and entropy = 0.952. A 4-class solution yielded a log likelihood of -3366.251, a BIC of 7057.483, and entropy = 0.963. Further results of analyses suggest that a 3-class solution is optimal. A Lo-Mendall-Rubin adjusted likelihood ratio test used to compare the 2-class and 1-class solution suggested the 2-class solution was superior, adjusted Lo–Mendell–Rubin $2LL_{Diff}$ (14) = 445.629, $p < .05$. A Lo-Mendall-Rubin adjusted likelihood ratio test used to compare the 3-class and 2-class solution suggested the 3-class solution was superior, adjusted Lo–Mendell–Rubin $2LL_{Diff}$ (14) = 221.814.629, $p < .05$. No solution greater than the 3-class solution indicated better fit. The results from a Lo-Mendall-Rubin adjusted likelihood ratio test used to compare the 4-class and 3-class solution were not significant and did not suggest the 4-class solution was superior, adjusted Lo–Mendell–Rubin $2LL_{Diff}$ (14) = 104.348, $p > .05$. Results of the ultimate class solution indicated that the assumptions of latent class analysis were met, though this study remains limited by a relatively small *n*. Assessing frequencies of classes in the final solution indicated that classes were relatively normally distributed and results suggest a sample composed of a mixture of several distinct classes.

Follow Up Analyses

Class comparisons on BID measures.

An initial MANOVA comparing BID classes on measures of body image was significant, F (16, 220) = 13.14, $p < .001$. Results of Box's test of Equality of Covariance Matrices indicated that assumption of homogeneity was not met ($p < 0.001$), however the adequate sample size and class sizes suggest that the results of the MANOVA remain interpretable (Field, 2007). Separate univariate ANOVAs revealed significant class differences on BID measures including the *BCQ, BIAQ, BSQ, MBSRQ Appearance Evaluation Scale, MBSRQ Appearance Orientation Scale,* and the *PACS* but not *MBSRQ Fitness Orientation Scale or MBSRQ Health Orientation Scale* (See Table 1). Overall these results suggest that the three empirically identified BID classes were distinguished by different levels of endorsement on all measures of cognitive-affective and behavioral body image. On health and fitness measures of body image, however, classes did not display significantly different levels of symptom endorsement. Follow-up Dunnett's T3 post hoc testing was performed after significant ANOVAs to examine specific differences between classes. Results of post hoc testing indicated that *class one* was associated with relatively low levels of endorsement on measures of cognitive-affective and behavioral measures of body image disturbance including the *BCQ, BIAQ, BSQ, the MBSRQ Appearance Evaluation Scale,* the *PACS* compared to moderate levels of endorsement on said measures in *class two,* and high levels of endorsement in *class three*. An exception to the pattern of low levels of endorsement in *class one*, moderate levels of endorsement in *class two*, and high levels of endorsement in *class three* was seen on one measure of cognitive-affective body image, the *MBSRQ Appearance Orientation Scale*. Post hoc testing for this measure indicated that *class one* showed significantly lower levels of endorsement on the *MBSRQ Appearance Orientation Scale* than

class two and *class three*, but *class two* and *class three* did not significantly differ from one another (See Table 1).

Results of bivariate correlations comparing conditional probability of belonging to a class with levels of endorsement on body image measures were largely consistent with significant differences found in post hoc testing. Results of these analyses indicated that conditional probability of belonging *class one* is significantly negatively correlated with levels of endorsement of BID symptoms on the *BCQ, BIAQ, BSQ, MBSRQ Appearance Orientation Scale,* and the *PACS* on which higher scores indicate greater BID. *Class one* was positively correlated with scores *MBSRQ Appearance Evaluation Scale* on which higher scores indicated greater feelings of attractiveness and satisfaction with appearance. Correlations are relatively strong and range from r = -.297 to r = -.820, and include a correlation of r = .644 for the *MBSRQ Appearance Evaluation Scale*. Conditional probability of belonging to *class two* demonstrates fewer significant correlations and weaker correlations with endorsement of BID symptoms than either *class one* or *class three*. Conditional probability of belonging to *class two* is significantly positively correlated with the levels of endorsement on the *BIAQ, BSQ,* and the *PACs* and significantly negatively correlated with levels of endorsement on the *MBSRQ Appearance Evaluation Scale*. Correlations between conditional probability of belonging to *class two* are relatively weak and range from r =.192 to r =.305, and include a correlations of r = -.307 for the *MBSRQ Appearance Evaluation Scale*. Conditional probability of belonging to *class three* is associated with relatively strong, positive correlations with BID measures including the *BCQ, BIAQ, BSQ, MBSRQ Appearance Orientation Scale,* and the *PACS*. Conditional probability of belonging to *class three* displays a negative correlation with the *MBSRQ Appearance Evaluation Scale*. This indicates greater likelihood of belonging to class

three is associated with greater endorsement of BID symptoms. Correlations range from r =.205 to r =.759, and include a correlation of r = -.507 for the *MBSRQ Appearance Evaluation Scale* (See Table 4).

Class comparisons on measures relating to internalizing symptoms.

A separate MANOVA comparing BID classes on external criteria related to internalizing symptoms was significant, F (12, 224) = 5.77, $p < .001$. Results of Box's test of Equality of Covariance Matrices indicated that assumption of homogeneity was not met ($p < 0.001$), however the adequate sample size and class sizes suggest that results of the MANOVA remain interpretable (Field, 2007). Separate univariate ANOVAs revealed significant class differences on external criteria measures related to internalizing symptoms including the *CES-D, MOCI, PARTS Teasing Total, PARTS Effect of Teasing Total, STAI-S,* and *STAI-T* (See Table 2). These results suggest that all three empirically identified body image classes displayed differences on measures of depression, anxiety, obsessive-compulsive symptoms, and appearance related teasing. Dunnett's T3 post hoc testing revealed that *class one* was associated with low levels of endorsement on measures of anxiety, depression, and physical appearance related teasing including the *CES-D, STAI-S,* and *STAI-T,* compared to moderate levels of endorsement of said measures in *class two,* and relatively high levels of endorsement in *class three*. The *PARTS Teasing Total* and *PARTS Effect of Teasing Total*, measures of experiences and impact of physical appearance related teasing did not conform to the above pattern; instead post hoc testing for this measure indicated that *class one* showed significantly lower levels of endorsement than *class two* and *class three,* but *class two* and *class three* did not significantly differ from one another. Post hoc tests indicated that levels of symptom endorsement on the MOCI were not significantly different between empirically identified classes (See Table 2).

Results of bivariate correlations comparing conditional probability of belonging to a class with scores on internalizing measures were largely consistent with significant differences found in post hoc testing. Results of these analyses indicated that conditional probability of belonging to *class one* is significantly negatively correlated with levels of endorsement of internalizing related symptoms on the *CES-D, MOCI, PARTS Teasing Total, PARTS Effect of Teasing Total, STAI-T,* and *STAI-S.* Correlations are relatively strong and range from *r = -.281* to *r = -.490* indicating greater likelihood of belonging to *class one* is associated with less depression, anxiety, obsessive- compulsive symptoms, and experience and perceived effect of physical appearance related teasing. Conditional probability of belonging to *class two* demonstrates fewer significant correlations and weaker correlations with endorsement of internalizing symptoms than either *class one* or *class three*. Conditional probability of belonging to *class two* is significantly correlated with the levels of endorsement only on the *PARTS Effect of Teasing Total* (*r* =.199). Conditional probability of belonging to *class three* is associated relatively strong, positive correlations with internalizing related measures including the *CES-D, MOCI, PARTS Teasing Total, PARTS Effect of Teasing Total, STAI-S,* and *STAI-T*. This indicates greater likelihood of belonging to class three is associated with greater endorsement of depression, anxiety, obsessive-compulsive symptoms and physical appearance related teasing and its effects. Correlations range from *r* =.183 to *r* =.456 (See Table 4).

Class comparisons on non-internalizing measures.

A series of ANOVAs was performed comparing BID classes on external criteria related to non-internalizing constructs. These separate univariate ANOVAS revealed significant class differences only on BMI, F (2, 116) = 9.386, $p < .001$ (See Table 3). Levene's Test of Equality of Variances indicated that equal variance could be assumed (p >.05). Additionally, results

remained significant after a Bonferroni correction was employed to account potentially inflated Type I error associated with running a series of ANOVAs. The results indicated that the empirically identified body image classes were associated with differences in BMI. The three empirically identified classes did not display significant differences in age, an estimate of intellectual ability, or tobacco or alcohol use. Dunnett's T3 post hoc testing indicated that for *BMI*, *class one* was associated with significantly lower values than *class two* and *class three*, but *class two* and *class three* did not significantly differ from one another (See Table 3). A chi-square test was also performed in order to compare empirically identified classes on race. Results of the test indicated no significant differences between classes, χ^2 (8) = 14.61, p = .067.

Results of bivariate correlations comparing conditional probability of belonging to a class with scores on non-internalizing measures were also largely consistent with significant differences found in post hoc testing. Results of these analyses indicated that conditional probability of belonging to *class one* is significantly negatively correlated with BMI but not other non-internalizing measures. The correlation between conditional probability of belonging to *class one* and *BMI* is r = -.356, indicating greater likelihood of belonging to *class one* is associated lower *BMI*. Conditional probability of belonging to *class two* a significant but weaker correlation with *BMI* in the opposite direction, r = .197. Conditional probability of belonging to *class three* is associated relatively strong, positive correlation with *BMI*, *r=.242*, indicating higher *BMI* is associated with greater likelihood of belonging to *class three* (See Table 4).

Discussion

The present study sought to explore the idea that BID may be a variable disturbance that manifests in several distinct presentations. Results of the present latent class analysis support the existence of three classes of BID, which are seemingly related to and distinguished by severity; manifestations of BID include a class that displays relatively low levels of endorsement on cognitive-affective and behavioral measures of body image disturbance, a class with moderate levels of endorsement on these measures, and a class with relatively high levels of endorsement on these measures. Follow-up analyses did not indicate the existence of BID profiles with differential patterns of endorsement across the symptomatic components of body image (e.g., cognitive-affective, behavioral, and health/fitness components). That is, the present findings did not indicate the existence of BID subtypes defined by elevations in specific components of BID (e.g. a cognitive-affective subtype, a cognitive-affective and behavioral subtype, and/or cognitive affective and health/fitness subtype). Rather, elevations across cognitive-affective and behavioral measures of body image are consistently low in the first class, consistently moderate in the second class, and consistently high in the third class. Notably, health and fitness measures of BID did not display significantly different patterns of elevation across empirically identified classes, suggesting that endorsement of health/fitness BID symptoms was relatively consistent across all identified BID subtypes.

Overall, these results support the idea that BID is a unitary disturbance that may manifest in several levels of severity. This disturbance in body image is unitary in that each of the

components of BID (e.g., various cognitive-affective, behavioral, and health/fitness aspects of body image) are present within each profile, though cognitive-affective and behavioral components of body image present at different levels between classes. This finding is consistent with theory and literature that suggest BID is a multidimensional disturbance and adds incrementally to current theory by indicating that the multiple components of body image generally coexist within individuals. For example, individuals that experience high levels of body checking behaviors are also likely to display high levels of body image avoidance, concern about body shape, lower evaluation of appearance etc. One cognitive-affective measure of BID, related to investment in physical appearance, slightly deviated from pattern described above. The low severity BID class did display less investment in appearance (e.g., less concern regarding one's physical appearance) than moderate and high severity BID classes, but moderate and high severity BID classes did not display differences from one another in investment in appearance. This finding suggests that investment in one's physical appearance does not display the same relationship with severity of BID class as other measures of body image. This difference may be explained by other measures of body image being more related to evaluation and appraisal of one's body rather than simple importance placed on how one looks.

In general, results indicate that in this sample cognitive-affective BID and behavioral BID were relatively highly related to one another (i.e., majority of correlations are medium or large in size; see Table 5) and the degree of their combined presence formed the basis of each of the different BID severity classes. The finding that cognitive-affective and behavioral BID do not appear independent of one another follows the underlying premise of cognitive-behavioral theory, which suggests that thoughts, feelings, and behaviors all inform one another and are thus likely to be related (Beck, 1964; Hassett & Gevirtz, 2009). It may be that in this sample

individuals' thoughts about their bodies and/or appearance (e.g., concern with body shape, highly valuing appearance) promoted behavioral tendencies related to disturbed body image (e.g., wearing loose fitting clothes, avoiding social situations that draw attention to one's body) and that these behaviors created a cyclical pattern by inciting more cognitive and affective preoccupation within affected individuals. If cognitive-behavioral theory related to the cycle of thoughts, feelings, and behaviors translates to body image processes, it is natural that the cognitive-affective and behavioral components of BID would together form the basis of body image classes.

It seems that in the present study, health and fitness related measures of body image did little to contribute to distinctions between body image profiles (i.e., neither displayed significant differences between identified severity profiles). This is in stark contrast to cognitive-affective and behavioral measures, every one of which displayed differences between severity classes. Health and fitness measures of body image were correlated with one another in the current sample (r = .575, p <.001); however, health related body image was not significantly related to any cognitive-affective or behavioral measures of body image and fitness related body image was significantly correlated with only the MBSRQ Appearance Evaluation scale (r = .193, p <.05). Health and fitness aspects of body image may still represent meaningful components of BID, but in the current sample they are unrelated to more traditional components of body image and may represent a distinct phenomena. Overall, present results suggest that investment and concern regarding health and fitness are unrelated to and may represent a different construct than cognitive-affective and behavioral BID.

The presence of distinct classes of BID related to severity is consistent with existing investigations of distinct classes of disturbance within other areas of psychopathology, such as

borderline personality disorder (Bornovalova et al., 2010; Hallquist & Pilkonis, 2012). Research on borderline personality disorder utilizing methods similar to the present study indicates that naturally formed classes related to severity of observed symptomology can distinguish individuals with borderline personality disorder from one another. Such findings of severity classes help support the idea that psychopathology in general, and in the present case a disturbance in body image, may be best conceptualized as existing on a continuum. That is a continuum, as opposed to a dichotomous conceptualization, may more accurately reflect the natural spectrum in severity of psychopathology related to many mental health disorders (Widiger & Clark, 2000). Though present analyses ultimately grouped individuals into distinct body image profiles and therefore results do not represent a perfect analogue of psychopathology and disturbance on a spectrum, grouping individuals at multiple levels of severity in a disturbance does conceptually approach the idea of continuous rather than categorical disturbance. Severity profiles are a recognition that symptoms of disturbances are present in varying degrees in all individuals, and not present in some and absent in others. Therefore, multiple severity classes may represent the best practical means of capturing the natural range of symptoms associated with the expression of BID in this study and perhaps in psychopathology in general.

In terms of external criteria, significant differences between severity profiles consistently showed that the level of endorsement of disturbance on measures of body image was related to corresponding level of endorsement of depressive symptoms and state and trait anxiety. Less BID was associated with lower endorsement of experience and impact of physical appearance related teasing, however moderate and high BID severity were not associated with significant differences in experience or impact of appearance related teasing. Furthermore, less

endorsement of BID symptoms was associated with lower BMI of participants in this sample, though moderate and high endorsement of BID symptoms was not associated with significant differences in BMI. This pattern of results indicates that in this sample, lower BMI and less experience and impact of teasing were associated with less BID symptom endorsement, but moderate and high elevations in BMI and experience and effect of teasing were associated with similar BID symptoms. This pattern of findings suggests that lower BMI and experience and effect of teasing are related less experience of BID but it cannot be assumed that moderate and high BMI and experience and effect of teasing suggest the presence of greater BID. In general, these results suggest that body image disturbance is related to increases in self-report of general symptoms of psychopathology (particularly in the context of internalizing related measures) and, in a less nuanced way, more exposure to negative external evaluation of physical appearance and greater impact of this evaluation and higher BMI. Such associations are expected given research indicating BID's relationship with increased depression and anxiety, reduced quality of life, and higher BMI (Bullen et al., 2012; Holsen, Jones, Birkland, 2012; Ping, Pan, Zhou, Tian, 2011). The identification of external criteria related to body image disturbance is an important finding. Knowing which criteria and to what degree external criteria are related to body image disturbance allows for the identification of BID based on factors that may more commonly be evaluated in the psychological community.

External criteria measures that were not associated with significant differences in relation to BID severity profiles included measures of estimated intellectual ability, alcohol and tobacco consumption, race, and age. It seems that the external criteria that displayed significant differences among BID severity class were largely measures of psychopathology (in particular state and trait anxiety and depression) or were conceptually related to the BID construct by

directly measuring appearance related experiences and body composition (appearance related teasing and BMI). The external measures not associated with class severity may be relatively less related to pathology (a continuous measure of alcoholic drinks and cigarettes consumed per week) and less theoretically related to body image disturbance (e.g., an estimate of intelligence or measures or basic demographics). The fact that external criteria, including externalizing behaviors and concrete, physical attributes were present in similar levels across all severity classes while internalizing symptoms displayed differences among classes, may inform the conceptualization of the BID construct. More specifically, these results might indicate that the general experience and foundation of body image occurs at the level of internal processes. Such processes include thoughts and emotions that may be measured through self-disclosure based on introspection, but are not related to measureable changes in general non-internalizing criteria (e.g., smoking tobacco and consuming alcohol). Additionally age and race do not appear to be related to BID symptoms endorsement, however, this pattern of results may reflect homogeneity in sample characteristics and restriction of range. Finally, it appears that individuals' levels of intellectual functioning are not associated with different endorsement of BID symptoms.

Results indicating distinct severity classes of BID must be interpreted with several considerations in mind. First, the non-clinical nature of the sample should be considered. While severe BID may often be present in individuals with eating disorders, the notion of "normative discontent" related to body image suggests that BID may affect large portions of the population, including people that do not have eating disorders (Rodin, Silberstein, & Streigel-Moore, 1984; Tantleff-Dunn et al., 2011). Additionally, the manifestations of BID that exists in non-clinical and community samples may be significantly different from the BID common in eating disordered populations and differentially related to external criteria. For instance, bulimia

nervosa is an eating disorder with a strong, well-defined behavioral component. It therefore makes sense that individuals with bulimia disordered may be prone to relatively extreme elevations in a single component of BID (e.g., a behavioral BID) and display more moderate elevation in other BID component (e.g., cognitive-affective BID). Similarly, research suggests that BID might be expressed differently in men and women (Di Piertro & da Silveira, 2009; Hudson, Hiripi, Pope, & Kessler, 2007; Tantleff-Dunn et al., 2011). In light of these limitations in generalizability, future research could meaningfully add to the field by investigating potential profiles of BID in clinical samples and in men.

Another important consideration in interpreting the meaning of the severity profiles involves the personality style of respondents. Previous work in psychological research indicates that demoralization can have a pervasive influence on other psychological constructs and influence the measurement of those constructs (Tellegen et al., 2006). In this sample general distress in participants may have influenced the measurement of other psychological constructs including measures of BID. Though demoralization was not measured in this study, in the present sample the best way to estimate demoralization may be by using scores on the CES-D. In the present study, CES-D scores were significantly correlated with seven of the eight measures of BID (correlations range from r = -.202 to r = *.563)*, including measures of cognitive-affective, behavioral, and health/fitness BID (See Table 5). It is plausible that if demoralization influenced most measures of BID, then participants' pattern of responses to body image measures would reflect endorsement of many measures of BID at similar levels but not distinction in the type of BID content endorsed.

Another possible factor contributing to results is respondent's response style, which may be exacerbated in the context of the research setting. Individuals in a subject pool responding to

psychological assessments for credit may be unmotivated to respond to assessments in a careful, considered manner based on thoughtful self-reflection. Instead subject pool participants may be more inclined than other populations to display a consistent style of responding (e.g., low, moderate, or high endorsement) in order to complete assessment in a less time consuming, but potentially less meaningful manner.

Limitations

The present study was limited in several ways. First, as previously mentioned, the sample being studied was non-clinical, so while findings carry important implications for similar community populations, they cannot also be generalized to patient populations (e.g., anorexia, bulimia). Some literature suggests that BID and eating disorders are related and may exist on the same spectrum, with BID representing a milder form of the true clinical disturbance, an eating disorder (Ahrberg, 2011; Smolak, 2002; Zanetti et al., 2012). It is possible that the use of a non-clinical sample may have led to restriction in the prevalence and severity of BID, which may have potentially masked differences in both the severity and expression of BID that may occur when examining clinical samples and eating disordered individuals. Despite limitations in generalizability to an eating disorder population, results are applicable to a larger, though perhaps less functionally impaired, population.

Another limitation is the relative homogeneity of the current sample. Using participants from a subject pool led to a sample that is similar in key demographic characteristics, such as age, education, and race. Because of the sample used, the present study was not able to consider variations in BID related to age, race, and education. Furthermore the participants were, to some degree, immersed in the same subculture at the time of data collection. Attending the same university may have created a shared culture surrounding the participants and thus lead to a

similar manifestation of BID. For example, the cultural context of the university the participants attended may have to some extent shaped the participant's body image in similar ways and led to less variation in manifestations of BID than would be expected in the general population.

Additionally, the lack of multiple measures of health and fitness BID is less than ideal. Cognitive-affective and behavioral BID were measured in this study using multiple instruments and instruments created by different individuals at different times in the study of BID. This variability in measures employed may better capture the entirety of intended constructs by being less limited to one individual's or chronological period's theoretical conceptualization of BID. The breadth and depth of the measurement of cognitive-affective and behavioral BID may therefore have exceeded the measurement of health related body image and fitness related body image, each of which were assessed using a single metric drawn from the same instrument.

Finally, the use latent class analysis in this study present several limitations. The present study was intended to be an open-ended investigation into possible manifestations of BID, not a confirmation of strong hypotheses regarding multiple presentations of BID. Though there was strong evidence for distinct classes of BID related to severity of impairment based on the current analyses, latent class analysis is ideally intended to confirm the existence of classes that have already been suggested through theory or existing research rather than explore the possibility of previously unidentified classes. Additionally, latent class analysis assumes independence of indicators and some of the utilized indicators were highly correlated. The use of such indicators is likely redundant –although there were conceptual grounds for the inclusion of each of these indicators - and may potentially have contributed to the identification of severity classes. Furthermore, the present study's sample was smaller than is preferred when using latent class analysis (Nylund, 2007). Literature suggests a sample of size of $n = 250$ or greater in order to

protect against error in identification of latent classes. The relatively small sample in the present study suggests present results cannot be interpreted with as much confidence as if the sample were larger.

Conclusions

The current findings carry important clinical implications. First, findings suggest that in a non-clinical sample, BID is best conceptualized as a unitary disturbance, displaying a common symptom content across all individuals with symptoms present at several distinct levels of severity. Such findings suggest that in non-clinical samples individuals may display BID that is similar in kind, but different in degree. Considering distinctions in severity rather than content of disturbance related symptomology may allow clinicians to gauge the holistic experience of BID in the individuals they encounter based on the severity in individual components of BID or external criteria. That is, recognition of behavioral components of BID in a client will inform clinicians understanding of other likely cognitive-affective components or depressive symptoms, etc. Additionally, results indicate that health/fitness aspects of body image exist at similar levels across BID severity classes and that the degree of health/fitness BID is not necessarily related to the degree of cognitive-affective and behavioral BID in an individual. This indicates that clinicians should understand investment in health and fitness as something that occurs consistently across individuals with low, moderate, and high BID and therefore should not be used as an indication of the presence, absence, or severity of BID in clients. Another clinical implication is the relative importance of investment in appearance and evaluation of appearance. Results suggest that the importance clients place on appearance is less related to severe BID than clients' evaluation of their own appearance. With this in mind, clinicians may be particularly mindful of and attentive to clients that have a low opinion of their own appearance relative to

clients that simply find physical appearance to be important. Furthermore, the present study's identification of a specific set of external factors (i.e., depression, multiple forms of anxiety, appearance related teasing and effect of teasing, and BMI) most highly correlated with BID can inform clinicians of potential tangible indicators of BID. For example, clinicians may be able to identify clients that are most likely to experience BID based on the clients' experience of external factors. In addition to serving as indicators of BID, external criteria related to BID may indicate general distress experienced by individuals with BID. It may therefore be important to treat the symptoms of general distress (e.g., anxiety and depression) in order to improve body image and vice versa. For example BID may be an individual's primary disturbance that also manifests as general anxiety. Thus treating said individual's BID could potentially improve his or her anxiety. Furthermore, the finding that BID is associated with more general distress suggests the importance of evaluating body image in individuals that present with common psychopathology such as depression or anxiety. Such evaluation would allow clinicians to treat clients in a more targeted and comprehensive way based on the entirety of their symptom presentation.

Overall, results of the present study suggest that in a non-clinical female sample, BID manifests in several distinct profiles that display similar BID symptomology but different severity in said symptomology. Additionally, results of the study indicate that severity profiles of BID are correlated with severity in external criteria related to psychological functioning, life experiences, and physical factors of individuals. In general, the study added to existing literature by offering insight into the profiles of BID commonly observed in individuals in a non-clinical sample. Future studies should attempt to discern how BID presents in eating disorder samples and how this presentation is different than in non-clinical, community samples. Additionally,

future investigations into the manifestations of body image commonly observed in men would be a valuable addition to the field. Finally, future work should explore the theorized health/fitness dimension of BID and investigate the nature and context of this disturbance.

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Table 1

Overall Means and Class Differences on Body Image Measures

	Overall (*N* = 119)		Class 1 (N = 59)		Class 2 (N = 44)		Class 3 (N =16)				
Measure	M	SD	M	SD	M	SD	M	SD	*F*	*p*	Class Differences
BCQ	51.11	15.49	40.54	6.14	54.73	7.76	80.13	13.92	155.77	< 0.001	1 < 2 < 3
BIAQ	24.13	9.64	17.58	4.25	26.68	5.23	41.25	9.04	126.37	< 0.001	1 < 2 < 3
BSQ	83.67	37.34	53.64	10.84	98.27	15.31	154.25	18.93	370.60	< 0.001	1 < 2 < 3
MBSRQ-AE	3.29	0.95	3.88	0.61	2.93	0.73	2.10	0.90	50.93	< 0.001	1 < 2 < 3
MBSRQ-AO	3.69	0.59	3.52	0.56	3.81	0.57	3.98	0.55	5.77	< 0.01	1 < 2,3
MBSRQ-FO	3.25	0.83	3.38	0.57	2.93	0.73	2.10	0.90	0.06	0.938	1,2,3
MBSRQ-HO	3.35	0.83	3.38	0.57	3.39	1.06	3.09	0.96	.90	0.408	1,2,3
PACS	13.42	4.08	11.47	3.09	14.41	4.01	17.88	2.99	24.56	< 0.001	1 < 2 < 3

Note. BCQ = Body Checking Questionnaire. BIAQ = Body Image Avoidance Questionnaire. BSQ = Body Shapes Questionnaire. MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire- Appearance Evaluation. MBSRQ-AO = Multidimensional Body-Self Relations Questionnaire- Appearance Orientation. MBSRQ-FO = Multidimensional Body-Self Relations Questionnaire- Fitness Orientation. MBSRQ-HO = Multidimensional Body-Self Relations Questionnaire- Health Orientation.

Table 2

Overall Means and Class Differences on Criteria related to Internalizing

	Overall (*N* = 119)		Class 1 (N = 59)		Class 2 (N = 44)		Class 3 (N =16)				
Measure	M	SD	M	SD	M	SD	M	SD	*F*	*p*	Class Differences
CES-D	14.92	10.11	10.32	6.73	16.95	10.16	26.31	10.04	23.71	< 0.001	1 < 2 < 3
MOCI	9.34	5.36	7.92	4.32	10.39	6.11	11.69	5.49	4.74	0.011	1,2,3
PARTS-TT	10.81	13.06	5.80	7.90	12.43	12.63	24.80	18.09	17.82	< 0.001	1 < 2, 3
PARTS-EoTT	12.55	15.42	6.14	9.22	16.43	17.21	25.56	17.54	15.10	< 0.001	1 < 2,3
STAI-S	40.08	10.08	35.97	8.22	42.05	9.94	49.88	8.67	16.87	< 0.001	1 < 2 < 3
STAI-T	42.28	10.59	38.24	9.85	44.14	10.28	52.06	5.25	14.51	< 0.001	1 < 2 < 3

Note. CES-D = Center for Epidemiological Studies- Depression Scale. MOCI = Maudsley Obsessive-Compulsive Inventory. PARTS-TT = Physical Appearance Related Teasing Scale – Teasing Total. PARTS-EoTT = Physical Appearance Related Teasing Scale – Effect of Teasing Total. STAI-S = State-Trait Anxiety Inventory-State. STAI-T = Stait-Trait Anxiety Inventory – Trait.

Table 3

Overall Means and Class Difference on Non-internalizing Criteria

	Overall (*N* = 119)		Class 1 (N = 59)		Class 2 (N = 44)		Class 3 (N =16)				
Measure	M	SD	M	SD	M	SD	M	SD	*F*	*p*	Class Differences
AMNART	26.86	7.26	26.51	8.33	27.61	6.21	26.06	5.74	.396	.674	1,2,3
BMI	24.43	6.13	22.24	5.34	25.99	5.91	28.21	6.66	9.386	< .001	1 < 2,3
Cigarettes/ week	4.77	15.41	2.12	7.64	8.14	21.10	5.31	17.43	1.966	.145	1,2,3
Drinks/ week	2.48	2.30	2.18	2.17	2.98	2.51	2.25	2.11	1.626	.201	1,2,3
Age	19.10	1.45	18.90	1.11	19.34	1.78	19.19	1.45	1.218	.300	1,2,3

Note. AMNART= American Version of the National Adult Reading Test. BMI = Body Mass Index.

Table 4

Conditional Probabilities of Classes correlated with Body Image and External Criteria Measures

Measure	Conditional Probability Class 1 (*N* = 119)		Conditional Probability Class 2 (*N* = 119)		Conditional Probability Class 3 (*N* = 119)	
	Pearson's r	Sig. (2-tailed)	Pearson's r	Sig. (2-tailed)	Pearson's r	Sig. (2-tailed)
BCQ	-.693	<.001	.176	.056	.753	<.001
BIAQ	-.701	<.001	.216	.018	.709	<.001
BSQ	-.820	<.001	.305	.001	.759	<.001
MBSRQ-AE	.644	<.001	-.307	.001	-.503	<.001
MBSRQ-AO	0.297	.001	.161	.080	.205	.026
MBSRQ-FO	-.005	.956	.029	.753	-.032	.726
MBSRQ-HO	.031	.740	.056	.543	-.121	.190
PACS	-.490	<.001	.192	.037	.441	<.001
CES-D	-.468	<.001	.157	.088	.456	<.001
MOCI	-.281	.002	.161	.080	.183	.047
PARTS-TT	-.394	<.001	.095	.303	.435	<.001
PARTS-EoTT	-.430	<.001	.199	.030	.343	<.001
STAI-S	-.428	<.001	.158	.085	.397	<.001
STAI-T	-.403	<.001	.149	.106	.374	<.001
AMNART	-.050	.587	.075	.419	-.030	.745
BMI	-.356	<.001	.197	.032	.242	.008
Cigarettes/week	-.172	.061	.172	.061	.012	.898
Drinks/week	-.121	.191	.153	.096	-.037	.691
Age	-.137	.138	.126	.172	.023	.800

Note. BCQ = Body Checking Questionnaire. BIAQ = Body Image Avoidance Questionnaire. BSQ = Body Shapes Questionnaire. MBSRQ-AE = Multidimensional Body-Self Relations Questionnaire- Appearance Evaluation. MBSRQ-AO = Multidimensional Body-Self Relations Questionnaire- Appearance Orientation. MBSRQ-FO = Multidimensional Body-Self Relations Questionnaire- Fitness Orientation. MBSRQ-HO = Multidimensional Body-Self Relations Questionnaire- Health Orientation. PACS = Physical Appearance Comparison Scale. CES-D = Center for Epidemiological Studies- Depression Scale. MOCI = Maudsley Obsessive-Compulsive Inventory. PARTS-TT = Physical Appearance Related Teasing Scale – Teasing Total. PARTS-EoTT = Physical Appearance Related Teasing Scale –Effect of Teasing Total. STAI-S = State-Trait Anxiety Inventory-State. STAI-T = Stait-Trait Anxiety Inventory – Trait. AMNART = American Version of the National Adult Reading Test. BMI = Body Mass Index.

Table 5

Pearson's Correlations between Body Image Measures and External Criteria for Entire Sample

Variables (N = 119)	BCQ	BIAQ	BSQ	MBSRQ-FO	MBSRQ-HO	MBSRQ-AE	MBSRQ-AO	PACS	CES-D	MOCI
BCQ	1									
BIAQ	0.753**	1								
BSQ	.884**	.856**	1							
MBSRQ-FO	-0.007	.004	-.006	1						
MBSRQ-HO	0.012	-.002	-.028	.575**	1					
MBSRQ-AE	-.475**	-.610**	-.662**	.160	.193*	1				
MBSRQ-AO	.310**	.252**	.325**	-.083	.062	-.054	1			
PACS	.483**	.431**	.566**	-.122	-.052	-.355**	.430**	1		
CES-D	.481**	.518**	.547**	-.259**	-.202*	-.380**	.131	.445**	1	
MOCI	.326**	.237**	.328**	-.052	.004	-.114*	.364**	.283**	.385**	1
PARTS -TT	.412**	.488**	.489**	-.211*	-.201*	-.388**	.115	.285**	.396**	.239**
PARTS-EoTT	.363**	.481**	.455**	-.265**	-.237**	-.420**	.096	.244**	.364**	.192*
STAI-S	.462**	.442**	.495**	-.228*	-.135	-.379**	.201*	.486**	.755**	.416**
STAI-T	.403**	.382**	.479**	-.263**	-.117	-.359**	.190*	.547**	.744**	.453**
AMNART	.045	.052	.055	-.037	-.023	-.032	.090	.086	-.032	-.141
BMI	.215*	.326**	.389**	-.105	-.226*	-.512**	.006	-.020	.073	.069
DRINKS/WK	.101	-.019	.080	-.005	-.089	-.067	.199*	.199*	.044	.006
CIG./WK	.034	.052	.084	-.192*	-.214*	-.202*	.086	.180	.134	.000
AGE	-.036	.162	.117	-.330**	-.377**	-.239**	.023	.178	.250**	.149

Note. **= $p < .01$; * = $p < .05$

Table 5 Continued

Pearson's Correlations between Body Image Measures and External Criteria for Entire Sample

Variables (N = 119)	PARTS -TT	PARTS-EoTT	STAI-S	STAI-T	AMNART	BMI	DRINKS/WK	CIG./WK	AGE
BCQ									
BIAQ									
BSQ									
MBSRQ-FO									
MBSRQ-HO									
MBSRQ-AE									
MBSRQ-AO									
PACS									
CES-D									
MOCI									
PARTS -TT	1								
PARTS-EoTT	.919**	1							
STAI-S	.369**	.331**	1						
STAI-T	.378**	.331**	.808**	1					
AMNART	.145	.138	.013	.052	1				
BMI	.403**	.455**	-.051	.026	-.018	1			
DRINKS/WK	-.022	.031	.140	.157	.087	-.044	1		
CIG./WK	-.050	-.014	.226*	.228*	.118	.040	.309**	1	
AGE	.194*	.230*	.241**	.246**	.126	.238**	-.017	.285**	1

Note. **= $p < .01$; * = $p < .05$

Appendix A

Measures from the Present Study

BCQ:

Circle the number that best describes how often you in engage in these behaviors at the present time.

1 = never
2 = rarely
3 = sometimes
4 = often
5 = very often

1. I check to see if my thighs spread when I'm sitting down.	1	2	3	4	5
2. I pinch my stomach to measure fatness.	1	2	3	4	5
3. I have special clothes which I try on to make sure they still fit.	1	2	3	4	5
4. I check the diameter of my wrist to make sure it's the same size as before.	1	2	3	4	5
5. I check my reflection in glass doors or car windows to see how I look.	1	2	3	4	5
6. I pinch my upper arms to measure fatness.	1	2	3	4	5
7. I touch underneath my chin to make sure I don't have a "double chin."	1	2	3	4	5
8. I look at others to see how my body size compares to their body size.	1	2	3	4	5
9. I rub (or touch) my thighs while sitting to check for fatness.	1	2	3	4	5
10. I check the diameter of my legs to make sure they're the same size as before.	1	2	3	4	5
11. I ask others about their weight or clothing size so I can compare my own weight/size.	1	2	3	4	5
12. I check to see how my bottom looks in the mirror.	1	2	3	4	5
13. I practice sitting and standing in various positions to see how I would look in each position.	1	2	3	4	5
14. I check to see if my thighs rub together.	1	2	3	4	5

15. I try to elicit comments from others about how fat I am.	1	2	3	4	5
16. I try to see if my fat jiggles.	1	2	3	4	5
17. I suck in my gut to see what it is like when my stomach is completely flat.	1	2	3	4	5
18. I check to make sure my rings fit the same way as before.	1	2	3	4	5
19. I look to see if I have cellulite on my thighs when I am sitting down.	1	2	3	4	5
20. I lie down on the floor to see if I can feel my bones touch the floor.	1	2	3	4	5
21. I pull my clothes as tightly as possible around myself to see how I look.	1	2	3	4	5
22. I compare myself to models on TV or in magazines.	1	2	3	4	5
23. I pinch my cheeks to measure fatness.	1	2	3	4	5

BIAQ

Circle the number that best describes how often you engage in these behaviors at the present time.

	Never	Seldom	Sometimes	Often	Always
1. I wear baggy clothes	0	1	2	3	4
2. I wear clothes I do not like	0	1	2	3	4
3. I wear darker clothing	0	1	2	3	4
4. I wear a special set of clothing (e.g. my fat clothes)	0	1	2	3	4
5. I restrict the amount of food I eat	0	1	2	3	4
6. I only eat fruit, vegetables and other low-calorie food	0	1	2	3	4
7. I fast for a day or longer	0	1	2	3	4
8. I do not go out socially if I will be “checked out”	0	1	2	3	4
9. I do not go out socially if the people I am with will discuss weight	0	1	2	3	4
10. I do not go out socially if the people I am with are thinner than me	0	1	2	3	4
11. I do not go out socially if it involves eating.	0	1	2	3	4
12. I weigh myself	0	1	2	3	4
13. I am active	0	1	2	3	4
14. I look at myself in the mirror	0	1	2	3	4
15. I avoid physical intimacy	0	1	2	3	4
16. I wear clothes that will divert attention from my weight	0	1	2	3	4
17. I avoid going clothes shopping	0	1	2	3	4
18. I don’t wear “revealing” clothes (e.g. bathing suits)	0	1	2	3	4
19. I get dressed up or made up	0	1	2	3	4

BSQ-34

We should like to know how you have been feeling about your appearance over the **PAST FOUR WEEKS**. Please read each question and circle the appropriate number to the right. Please answer all the questions.

OVER THE PAST FOUR WEEKS:

	Never	Rarely	Sometimes	Often	Very often	Always
1. Has feeling bored made you brood about your shape?	1	2	3	4	5	6
2. Have you been so worried about your shape that you have been feeling you ought to diet?	1	2	3	4	5	6
3. Have you thought that your thighs, hips or bottom are too large for the rest of you?	1	2	3	4	5	6
4. Have you been afraid that you might become fat (or fatter)?	1	2	3	4	5	6
5. Have you worried about your flesh being not firm enough?	1	2	3	4	5	6
6. Has feeling full (e.g. after eating a large meal) made you feel fat?	1	2	3	4	5	6
7. Have you felt so bad about your shape that you have cried?	1	2	3	4	5	6
8. Have you avoided running because your flesh might wobble?	1	2	3	4	5	6
9. Has being with thin women made you feel self-conscious about your shape?	1	2	3	4	5	6
10. Have you worried about your thighs spreading out when sitting down?	1	2	3	4	5	6
11. Has eating even a small amount of food made you feel fat?	1	2	3	4	5	6

	Never	Rarely	Sometimes	Often	Very often	Always
12. Have you noticed the shape of other women and felt that your own shape compared unfavourably?	1	2	3	4	5	6
13. Has thinking about your shape interfered with your ability to concentrate (e.g. while watching television, reading, listening to conversations)?	1	2	3	4	5	6
14. Has being naked, such as when taking a bath, made you feel fat?	1	2	3	4	5	6
15. Have you avoided wearing clothes which make you particularly aware of the shape of your body?	1	2	3	4	5	6
16. Have you imagined cutting off fleshy areas of your body?	1	2	3	4	5	6
17. Has eating sweets, cakes, or other high calorie food made you feel fat?	1	2	3	4	5	6
18. Have you not gone out to social occasions (e.g. parties) because you have felt bad about your shape?	1	2	3	4	5	6
19. Have you felt excessively large and rounded?	1	2	3	4	5	6
20. Have you felt ashamed of your body?	1	2	3	4	5	6
21. Has worry about your shape made you diet?	1	2	3	4	5	6
22. Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)?	1	2	3	4	5	6
23. Have you thought that you are in the shape you are because you lack self-control?	1	2	3	4	5	6
24. Have you worried about other people seeing rolls of fat around your waist or stomach?	1	2	3	4	5	6
25. Have you felt that it is not fair that other women are thinner than you?	1	2	3	4	5	6

	Never	Rarely	Sometimes	Often	Very often	Always
26. Have you vomited in order to feel thinner?.....	1	2	3	4	5	6
27. When in company have your worried about taking up too much room (e.g. sitting on a sofa, or a bus seat)?.....	1	2	3	4	5	6
28. Have you worried about your flesh being dimply?.....	1	2	3	4	5	6
29. Has seeing your reflection (e.g. in a mirror or shop window) made you feel bad about your shape?.....	1	2	3	4	5	6
30. Have you pinched areas of your body to see how much fat there is?.....	1	2	3	4	5	6
31. Have you avoided situations where people could see your body (e.g. communal changing rooms or swimming baths)?.....	1	2	3	4	5	6
32. Have you taken laxatives in order to feel thinner?.....	1	2	3	4	5	6
33. Have you been particularly self-conscious about your shape when in the company of other people?.....	1	2	3	4	5	6
34. Has worry about your shape made you feel you ought to exercise?.....	1	2	3	4	5	6

CES-D **Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way DURING THE PAST WEEK.**	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	□	□	□	□
2. I did not feel like eating; my appetite was poor.	□	□	□	□
3. I felt that I could not shake off the blues even with help from my family or friends.	□	□	□	□
4. I felt I was just as good as other people.	□	□	□	□
5. I had trouble keeping my mind on what I was doing.	□	□	□	□
6. I felt depressed.	□	□	□	□
7. I felt that everything I did was an effort.	□	□	□	□
8. I felt hopeful about the future.	□	□	□	□
9. I thought my life had been a failure.	□	□	□	□
10. I felt fearful.	□	□	□	□
11. My sleep was restless.	□	□	□	□
12. I was happy.	□	□	□	□
13. I talked less than usual.	□	□	□	□
14. I felt lonely.	□	□	□	□
15. People were unfriendly.	□	□	□	□
16. I enjoyed life.	□	□	□	□

17. I had crying spells.	□	□	□	□
18. I felt sad.	□	□	□	□
19. I felt that people dislike me.	□	□	□	□
20. I could not get “going”.	□	□	□	□

Alcohol Use

A drink of alcohol is defined as 1 can or bottle of beer, 1 glass of wine, 1 wine cooler, or 1 shot of liquor.

1. During the past 30 days, how many days per week or per month did you have at least 1 drink of any alcoholic beverage? _____
2. On the days when you drank, about how many drinks did you drink on average? _____
3. Considering all types of alcoholic beverages, how many times during the past 30 days did you have 4 or more drinks on an occasion? _____

Smoking History

1. Have you smoked at least 100 cigarettes in your entire life? YES NO
2. Have you smoked at least part of a cigarette in the last 7 days? YES NO
3. During a typical week, how many cigarettes do you smoke? _____

MBSRQ (©Thomas F. Cash, Ph.D.)

The following pages contain a series of statements about how people might think, feel, or behave. You are asked to indicate the extent to which each statement pertains to you personally. Using the scale below, indicate your answer by entering it to the left of the number of the statement. There are no right or wrong answers. Just give the answer that is most accurate for you. Remember, your responses are confidential, so please be completely honest and answer all items.

1 = Definitely Disagree
2 = Mostly Disagree
3 = Neither Agree nor Disagree
4 = Mostly Agree
5 = Definitely Agree

Indicate the extent to which each statement pertains to you personally.

_____ 1. Before going out in public, I always notice how I look.

_____ 2. I am careful to buy clothes that will make me look my best.

_____ 3. I would pass most physical-fitness tests.

_____ 4. It is important that I have superior physical strength.

_____ 5. My body is sexually appealing.

_____ 6. I am not involved in a regular exercise program.

_____ 7. I am in control of my health.

_____ 8. I know a lot about things that affect my physical health.

_____ 9. I have deliberately developed a healthy lifestyle.

_____ 10. I constantly worry about being or becoming fat.

_____ 11. I like my looks just the way they are.

_____ 12. I check my appearance in a mirror whenever I can.

_____ 13. Before going out, I usually spend a lot of time getting ready.

_____ 14. My physical endurance is good.

_____ 15. Participating in sports is unimportant to me.

_____ 16. I do not actively do things to keep physically fit.

_____ 17. My health is a matter of unexpected ups and downs.

_____ 18. Good health is one of the most important things in my life.

_____ 19. I don't do anything that I know might threaten my health.

_____ 20. I am very conscious of even small changes in my weight.

_____ 21. Most people would consider me good looking.

_____ 22. It is important that I always look good.

_____ 23. I use very few grooming products.

_____ 24. I easily learn physical skills.

_____ 25. Being physically fit is not a strong priority in my life.

_____ 26. I do things to increase my physical strength.

_____ 27. I am seldom physically ill.

_____ 28. I take my health for granted.

_____ 29. I often read books and magazines that pertain to health.

_____ 30. I like the way I look without my clothes on.

_____ 31. I am self-conscious if my grooming isn't right.

_____ 32. I usually wear whatever is handy without caring how it looks.

_____ 33. I do poorly in physical sports or games.

_____ 34. I seldom think about my athletic skills.

_____ 35. I work to improve my physical stamina.

_____ 36. From day to day, I never know how my body will feel.

_____ 37. If I am sick, I don't pay much attention to my symptoms.

_____ 38. I make no special effort to eat a balanced and nutritious diet.

_____ 39. I like the way my clothes fit me.

_____ 40. I don't care what people think about my appearance.

_____ 41. I take special care with my hair grooming.

_____ 42. I dislike my physique.

_____ 43. I don't care to improve my abilities in physical activities.

_____ 44. I try to be physically active.

_____ 45. I often feel vulnerable to sickness.

_____ 46. I pay close attention to my body for any signs of illness.

_____ 47. If I'm coming down with a cold or flu, I just ignore it and go on as usual.

_____ 48. I am physically unattractive.

_____ 49. I never think about my appearance.

_____ 50. I am always trying to improve my physical appearance.

1 = Definitely Disagree
2 = Mostly Disagree
3 = Neither Agree nor Disagree
4 = Mostly Agree
5 = Definitely Agree

_____ 51. I am very well coordinated.

_____ 52. I know a lot about physical fitness.

_____ 53. I play a sport regularly throughout the year.

_____ 54. I am a physically healthy person.

_____ 55. I am very aware of small changes in my physical health.

_____ 56. At the first sign of illness, I seek medical advice.

_____ 57. I am on a weight-loss diet.

For the following 3 items use the response scale given under the item, and enter your answer in the space beside the item.

_____ 58. I have tried to lose weight by fasting or going on crash diets.

1. Never
2. Rarely
3. Sometimes
4. Often
5. Very Often

_____ 59. I think I am:

1. Very Underweight
2. Somewhat Underweight
3. Normal Weight.
4. Somewhat Overweight
5. Very Overweight

_____ 60. From looking at me, most people would think I am:

1. Very Underweight
2. Somewhat Underweight.
3. Normal Weight.
4. Somewhat Overweight
5. Very Overweight

Use this 1 to 5 scale to indicate how dissatisfied or satisfied you are with each of the following areas or aspects of your body.

1. Very Dissatisfied
2. Mostly Dissatisfied
3. Neither Satisfied nor Dissatisfied
4. Mostly Satisfied
5. Very Satisfied

_____ 61. Face (facial features, complexion)

_____ 62. Hair (color, thickness, texture)

_____ 63. Lower torso (buttocks, hips, thighs, legs)

_____ 64. Mid torso (waist, stomach)

_____ 65. Upper torso (chest or breasts, shoulders, arms)

_____ 66. Muscle tone

_____ 67. Weight

_____ 68. Height

_____ 69. Overall appearance

PARTS-(revised)

We are interested in whether you have been teased and how it affected you.
First, for each question rate *how often you think* you were teased using the following scale, *never* (1) to *always* (5).

Never 1	2	Sometimes 3	4	Very Often 5

Second, unless you respond *never* to the question, rate *how upset* you were by the teasing using the following scale, *not upset* (1) to *very upset* (2).

Not Upset 1	2	Somewhat Upset 3	4	Very Upset 5

1. When you were a child, did you feel that your peers were staring at you because of your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
2. When you were a child, did you ever feel like people were making fun of you because of your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
3. Were you ridiculed as a child about your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
4. When you were a child, did people make jokes about your size?	1	2	3	4	5
How upset were you?	1	2	3	4	5
5. When you were a child, were you laughed at for trying out for sports because of your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
6. Did your brothers or other male relatives call you names like “fatso” when they got angry at you?	1	2	3	4	5
How upset were you?	1	2	3	4	5
7. Did your father ever make jokes that referred to you weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
8. Did other kids call you derogatory names that related to your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
9. Did you ever feel like people were pointing at you because of your size or weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5

10. Were you the brunt of family jokes because of your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
11. Did people point you out of a crowd because of your weight?	1	2	3	4	5
How upset were you?	1	2	3	4	5
12. Did you ever hear your classmates snicker or laugh when you walked into a classroom alone?	1	2	3	4	5
How upset were you?	1	2	3	4	5
13. When you were growing up, did people say you dressed funny?	1	2	3	4	5
How upset were you?	1	2	3	4	5
14. Did people say you had funny teeth?	1	2	3	4	5
How upset were you?	1	2	3	4	5
15. Did kids call you funny looking?	1	2	3	4	5
How upset were you?	1	2	3	4	5
16. Did other kids tease you about wearing clothes that didn't match or were out of style?	1	2	3	4	5
How upset were you?	1	2	3	4	5
17. Did other kids make jokes about your hair?	1	2	3	4	5
How upset were you?	1	2	3	4	5
18. When you were a child, were you scoffed at for looking like a weakling?	1	2	3	4	5
How upset were you?	1	2	3	4	5

STAI-S:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel *right now*, that is, *at this moment*.

There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer that seems to describe your *present* feelings best.

1. not at all
2. somewhat
3. moderately so
4. very much so

1. I feel calm.	1	2	3	4
2. I feel secure.	1	2	3	4
3. I am tense.	1	2	3	4
4. I feel strained.	1	2	3	4
5. I feel at ease.	1	2	3	4
6. I feel upset.	1	2	3	4
7. I am presently worrying over possible misfortunes.	1	2	3	4
8. I feel satisfied.	1	2	3	4
9. I feel frightened.	1	2	3	4
10. I feel comfortable.	1	2	3	4
11. I feel self-confident.	1	2	3	4
12. I feel nervous.	1	2	3	4
13. I am jittery.	1	2	3	4
14. I feel indecisive.	1	2	3	4
15. I am relaxed.	1	2	3	4
16. I feel content.	1	2	3	4
17. I am worried.	1	2	3	4
18. I feel confused.	1	2	3	4
19. I feel steady.	1	2	3	4
20. I feel pleasant.	1	2	3	4

STAI-T:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel.

There are no right or wrong answers. Do not spend too much time on any one statement but give the answer that seems to describe how you *generally* feel.

1. almost never
2. sometimes
3. often
4. almost always

1. I feel pleasant.	1	2	3	4
2. I tire quickly.	1	2	3	4
3. I feel like crying.	1	2	3	4
4. I wish I could be as happy as others seem to be.	1	2	3	4
5. I am losing out on things because I can't make up my mind soon enough.	1	2	3	4
6. I feel relaxed.	1	2	3	4
7. I am "calm, cool, and collected."	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them.	1	2	3	4
9. I worry too much over something that really doesn't matter.	1	2	3	4
10. I am happy.	1	2	3	4
11. I am inclined to take things hard.	1	2	3	4
12. I lack self-confidence.	1	2	3	4
13. I feel secure.	1	2	3	4
14. I try to avoid facing a crisis or difficulty.	1	2	3	4
15. I feel blue.	1	2	3	4

16. I am content.	1	2	3	4
17. Some unimportant thoughts run through my mind and bother me.	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind.	1	2	3	4
19. I am a steady person.	1	2	3	4
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

Appendix B

IRB Certificate

EX-12-CM-047 2

JUL 13 2012 PM02:19

UNIVERSITY OF ALABAMA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS
REQUEST FOR APPROVAL OF RESEARCH INVOLVING HUMAN SUBJECTS

I. Identifying information

	Principal Investigator	**Co-Investigator**
Name:	Zachary Fetterman, B.A.	Kelly Stanek, Ph.D.
Department:	Psychology	Psychology
College:	Arts and Sciences	Arts and Sciences
University:	University of Alabama	University of Alabama
Address:	Box 870348, Tuscaloosa, AL	Box 870348, Tuscaloosa, AL
Telephone:	(317) 270-7075	(205) 348-6362
FAX:	(205) 348-8648	(205) 348-8648
E-mail:	zjfetterman@crimson.ua.edu	kmstanek@as.ua.edu

Title of Research Project: Body Image Subtypes

Date Printed: June 13, 2012 **Funding Source**: None

Type of Proposal: _X_New __Revision ___Renewal ___Completed ✓ Exempt

Attach a renewal application

Attach a continuing review of studies form

Please enter the original IRB # at the top of the page

UA faculty or staff member signature:

II. NOTIFICATION OF IRB ACTION (to be completed by IRB):

Type of Review: _____ Full board _____ Expedited

IRB Action:

___Rejected Date:_____

___Tabled Pending Revisions Date:_____

___Approved Pending Revisions Date:_____

✓ Approved—this proposal complies with University and federal regulations for the protection of human subjects.

Approval is effective until the following date: 7-17-13 ES.

Items approved:
___ Research protocol: dated
___ Informed consent: dated
___ Recruitment materials: dated
___ Other: dated

Approval signature Date 7/18/2012