Conceptualizing Body Dissatisfaction in Eating Disorders within a Self-Discrepancy Framework: A Review of Evidence

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Abstract

Body dissatisfaction, the negative subjective evaluation of one's body, is associated with many negative psychological and physical health consequences. One conceptualization of body dissatisfaction includes an experience of discrepancy between perceived actual and ideal body shapes. This paper reviews literature on three facets of body dissatisfaction from the framework of self-discrepancy theory: perceptions of current weight, ideal body weight, and the relative importance of conforming to ideals. We review components of body dissatisfaction among healthy individuals and eating disordered individuals. We also address the conceptualization's relationship among body dissatisfaction, weight history, and dieting to expand the impact of body dissatisfaction research and to provide more information on the nature and treatment of eating disorders.

Keywords: Body Dissatisfaction, Self-Discrepancy Theory, Eating Disorders, Weight History

Introduction

Body dissatisfaction, the negative subjective evaluation of one's body, is associated with a wide variety of negative psychological states and behaviors [1-4]. Body dissatisfaction is common in the general population and prevalent across all age cohorts, highlighting the ubiquity of this negative form of self-evaluation [5]. Individuals who have greater body dissatisfaction may have difficulty with other health-related behaviors, as body dissatisfaction is associated with decreased cancer screening self-exams [6], decreased success in smoking cessation [7], lower health-related quality of life [8], decreased mental health and sexual functioning [9], and higher Body Mass Index (BMI) [10,11]. Further, body dissatisfaction relates to poor mental health markers, including depression [12], anxiety [13], self-esteem [14], and overall quality of life [15]. In contrast to literature highlighting negative effects of body dissatisfaction, a few studies suggest that dissatisfaction may serve to motivate initiation of weight loss and physical activity in middle age adults [16,17]. Thus, some level of discrepancy between perceived self and ideal self may be useful in some circumstances.

For some individuals, however, body dissatisfaction is also strongly associated with the development and maintenance of eating disorders [3,18,19]. Evidence-based theoretical models of eating disorders, including the cognitive behavioral and dual-pathway models, implicate body dissatisfaction as a key risk and maintenance factor [19,20]. Identifying factors that contribute to severe body dissatisfaction could provide insight into how to reduce or prevent it. Self-discrepancy theory, which has recently been applied to models of disordered eating and treatment (e.g., Integrative Cognitive-Affective Therapy, or ICAT, for bulimia nervosa), offers a framework to conceptualize how life experiences and temperamental predispositions can lead to psychological difficulties [21], including body dissatisfaction. The theory posits three domains of the self: the actual self (i.e., what individuals perceive themselves to be), the ought self (i.e., what individuals believe they should achieve), and the ideal self (i.e., what individuals wish to be) [22,23]. Discrepancy between the actual and ideal selves may lead to negative affect and motivate maladaptive behaviors to attempt to rectify this discrepancy. The level of importance placed on the discrepancy is an additional component that influences an individual's level of

dissatisfaction. Within ICAT, self-discrepancy is applied to both interpersonal beliefs and cognitions about the self, as well as to the body. Investigations have supported the idea that individuals with bulimia nervosa (BN) have greater actual-ideal and actual-ought discrepancies than healthy individuals, and that these discrepancies relate to negative mood, body dissatisfaction, and bulimic symptoms [24,25]. Other research supports the presence of body-related self-discrepancy in anorexia nervosa (AN) and binge eating disorder (BED) and its relation to symptom severity [26], suggesting body dissatisfaction as a key transdiagnostic concept in eating disorders.

There is strong support for the hypothesis that body dissatisfaction plays a role in eating disorders, and self-discrepancy theory provides a clear framework for conceptualizing the different facets of body dissatisfaction that contribute to these disorders. However, literature on each component of an actual-ideal discrepancy for the body has not been examined collectively. Moreover, this literature has not been integrated directly with dieting and weight history literature, two closely related key factors in eating disorders.

The current study's first aim, therefore, is to clarify the nature of body dissatisfaction among those with eating disorders while using a self-discrepancy framework. To our knowledge, no studies have reviewed the literature on the self-discrepancy in perceived, actual, and desired body size across eating disorders. Therefore, this review provides novel insight into the nature of this discrepancy among different eating disorders and offers information relevant to the treatment of these conditions. For example, the discrepancy between perceived and desired sizes can influence a patient's willingness to cope with weight fluctuations or to gain weight, and may therefore be an important treatment target. The current review first focuses on the difference between an individual's perception of their own body and "ideal body". Although self-discrepancy theory recognizes that "ought" and "ideal" selves may diverge, the current review collapses research on the "ought" and "ideal" phenomena into an overall "ideal body" construct as they have not been consistently differentiated in prior literature. As a secondary part of this first aim, we also consider how the judgement of importance one places on this discrepancy influences an individual's risk of eating pathology.

A second aim of the study is to place this conceptualization of body dissatisfaction in the context of actual weight history, as previous studies of body dissatisfaction do not consistently consider relevant weight history variables. We place our conceptualization of body dissatisfaction within the framework of the weight suppression and dieting literature, with the goal of integrating how one feels about their body with objective measures of weight history and behaviors that cause actual weight loss. By connecting this psychological construct to its physical and behavioral partners, we aim to cultivate a greater understanding of the full influence and scope of body dissatisfaction on the development and maintenance of eating pathology.

Methods

The current study offers a narrative review of body image and ideal body size among those without and with eating disorders. The comprehensive literature search of perceptions of the body and body ideals followed the methods detailed below. Additional articles not captured in the initial literature search, particularly regarding the discussion of weight history, were included based on their relevance to the theory-based narrative of this paper.

Literature Search

The current review used the search engines Pubmed, PsychInfo, and Google Scholar. For collecting studies on perception of the body or body image, the “body schema”, “body image”, “body image distortion”, “actual body size”, and “body size estimation” were searched alongside each of the terms “eating disorders”, “anorexia nervosa”, “bulimia nervosa”, “binge eating disorder”, and “normal weight healthy control”. For gathering articles on body ideals, the terms “ideal weight,” “ideal body size,” “desired weight” were searched alone and alongside the terms “eating disorders,” “anorexia nervosa,” “bulimia nervosa,” and “binge eating disorder.” In total, we performed 40 searches, replicated across three databases. Additional articles not returned in these searches were identified by searching references of relevant studies.

Inclusion/Exclusion Criteria

Articles were retained if they met one of the following inclusion criteria: a) included patients with AN, BN, or BED; b) included recovered eating disorder patients; c) studied body ideal or specifically included an objective or self-report measure of body perception or body weight; d) discussed the nature of body dissatisfaction. Articles were excluded if they focused only on individuals with obesity without an eating disorder, or if participants exhibited mild eating disorder symptoms (i.e., if participants did not experience any frequency of threshold symptoms such as severe restriction, binge eating, or purging), unless the study was specifically focused on healthy samples.

Article Extraction

Initial searches produced a vast multitude of articles given the broad search parameters. As such, the first 100 hits from each of the searches described above were further examined to determine whether they met criteria for our review. Additionally, we included in our review other articles and authors who 1) were cited in this initial group of relevant articles and/or 2) cited this initial group of articles, if appropriate per our criteria. After screening these articles for relevance to the current study, 52 articles that met our inclusion criteria were retained and reviewed. Due to the variability in methodology and sample size, sample characteristics from the articles are presented in Table 1.

Actual Self: Body Schema and Body Image

Both individuals' body schema (i.e., neural representation of their own body in space) [27] and their body image (i.e., overall perception of their body on a conscious level) [28] contribute to their perception of their physical 'actual' selves. The following section reviews inaccuracies in body representation among healthy individuals and eating-disordered individuals.

Body Image Among Individuals Without an Eating Disorder

Varying levels of body image distortion exist among healthy individuals. One study found that 18% of normal-weight participants inaccurately identified as being overweight [29]. Likewise, a study investigating misperceptions of body shape in university students from Germany and Lithuania showed that 27% of the sample perceived themselves to be normal or even overweight despite being medically underweight [30]. Further, one study found that although less than 10% of their undergraduate sample

was overweight, more than half of participants self-identified as slightly or significantly overweight, a phenomenon that was more pronounced among women [31]. This misclassification of weight status does appear to depend somewhat on gender, as several large epidemiologic studies have shown that women tend to overestimate their weight status and men tend to underestimate their weight status [32,33]. This misperception also appears to extend to individuals' views of others' bodies, as one study found that young women incorrectly classified pictures of bodies as larger than their actual representation [34]. These results support the notion that healthy females' perception of 'normal weight' has become more consistent with a thinner or smaller body. In sum, it is clear that many individuals without an eating disorder experience some body image distortion, both of their own and others' bodies.

Body Image Among Individuals with AN and BN

Distortions in body shape evaluations have also been observed in individuals with AN and BN. Several studies have documented the overestimation of body size (e.g., body figure rating scale or weight estimates) in AN and BN patients [35-40], although a few studies have failed to replicate these findings suggesting that more information is required to make firm claims about body size estimation [41,42].

One factor that may contribute to this overestimation among individuals with eating disorders is their flawed sensory perception, including deficits in tactile perception, of their bodies. Research has shown that individuals with AN have a lower threshold for sensing pressure on their abdomen and perceive two-point tactile stimuli on their body to have a larger gap than actually exists. This effect is particularly pronounced for the abdominal area, a region of the body that many eating disorder patients perceive as being too large [43-45]. Some of these tactile differences also appear to relate to greater body dissatisfaction [45]. More recently, research suggests that individuals with AN also exhibit abnormal proprioception; that is, they inaccurately perceive their bodies' relationship to objects in space [46-50]. For example, a study that investigated the way in which individuals with AN walked through doorway-like entries showed that these patients oriented themselves as if they were physically wider than they actually were [47]. These results suggest that eating disordered individuals often believe themselves to be larger than their objective bodies, a belief that leads to unconscious processing of this misrepresentation

(i.e., body schema) that affects motor movement. The findings imply that body schema and body image distortion impact both conscious cognitions as well as unconscious actions, which may make these distortions more difficult to target in treatment.

Relatedly, the integration of sensory information appears to be distinctly impaired among individuals with AN. For example, a study using a size-weight illusion task concluded that individuals with AN may have reduced integration of proprioceptive and visual information, providing a possible explanation for the observation that looking in a mirror does not improve these individuals' accuracy in perceiving their body size [51]. A study that used a rubber hand illusion paradigm similarly found that participants with AN exhibited greater proprioceptive drift and embodiment than healthy controls, providing more evidence of a deficit in the integration of visuo-tactile-proprioceptive information among individuals with AN [52]. These differences in the perceptual experiences of tactile stimulation may help explain inaccuracies in perceived body size among individuals with AN.

Body image distortion also exists in individuals with BN, with some studies positing that body image distortion is more pronounced in patients with BN than with AN, although findings are inconsistent [53,54]. For example, in a study using a photo distortion technique and a motion distortion device to measure body image distortion, individuals with BN overestimated their own body dimensions and believed their motion patterns reflected a higher BMI more so than controls [55]. Another study used a computer program that allowed participants to morph the fatness or muscularity of their bodies [35]. Overestimation of body fat was found among individuals with AN and BN, although individuals with AN showed a significantly greater overestimation of body fat than individuals with BN or healthy controls. These findings may have important treatment implications, as an accurate appraisal of current body shape is often a precursor to successful change, meaning that a greater body distortion may make behavioral change during treatment challenging.

Although limited in scope and diverse in methodology, recent neuroimaging research has provided corroborating evidence that individuals with eating disorders exhibit body image distortion to a greater degree than healthy individuals. These studies have demonstrated aberrant functionality,

connectivity, and grey matter volume in regions and networks associated both with the representation of bodies generally and within an individual's body schema [56]. Various theories have attempted to explain trends in these unique activation patterns, such as the possibility that there are deficits in visuospatial processing that could contribute to body image disturbance [48,50,57] or that general differences in body-image processing brain circuits are problematic among those with eating disorders [58]. These differential activation patterns have been identified in regions associated with the cognitive, motivational, and emotional components of body image among both those with AN and BN compared to healthy controls. For example, two studies found that the lateral fusiform gyrus and parietal cortex, regions associated with body image processing, were less activated in patients with AN and BN compared to healthy controls [58,59]. Initial findings suggest that different eating disorders may have activation patterns that reflect distinctive processing of their bodies [60-62]. Given the novelty of this type of work as well as the frequent small sample sizes and differing methodologies, more research is needed to replicate and clarify the differences in activation patterns in these relevant brain regions. Thus far, however, preliminary neuroimaging research indicates that these differences may contribute to the overestimation of body size and provides further evidence of body distortion among individuals with an eating disorder.

Overall, research indicates that individuals with certain eating disorders, particularly AN, show abnormal activity in regions associated with lower-order visual perception of bodies and in higher-order regions involved in the affective and cognitive regulation of body image.

Body Image Among Individuals with BED

A small number of studies have investigated the misperception of one's own body in BED. One study assessed body image perception among individuals with obesity with and without BED using silhouette body drawings, and, after controlling for BMI, the groups did not differ in distortion [63]. Another study, conducted among women with obesity, asked participants to distort photographs of themselves using a photo distortion technique to investigate body image distortion among women with obesity [64]. Individuals with obesity and BED reported that their body size was larger than it actually was and that they felt larger than they really were in comparison to individuals with obesity without BED.

Similarly, a recent study that also used a photo distortion technique found that obese individuals with BED exhibited greater body image disturbance (cognitive-affective and behavioral) than obese persons without an eating disorder [65]. This finding may be a reflection of a greater self-discrepancy among individuals with an eating disorder partially due to a misinterpretation of their body size as being larger than it is.

Conclusions About Body Image

Findings from the current literature suggest that there is some body image distortion among healthy individuals without eating disorders but that individuals with eating disorders likely have particularly inaccurate perceptions of their bodies. Taken in the discrepancy framework, the findings support the possibility that these individuals have a greater distortion in their perceived body size. In turn, this could contribute to a greater discrepancy between actual and ideal self and perpetuate the development and maintenance of eating pathology.

Ideal Self: Different Perceptions of the Ideal Body

In attempts to discern whether one's perceived self meets an acceptable standard, individuals must compare themselves to a standard of attractiveness that they endorse. Thus, a second component of body self-discrepancy is the size or weight that an individual considers the ideal. Below, we review literature focused on the ideal body among individuals without and with an eating disorder.

Ideal Body Among Individuals Without an Eating Disorder

Some researchers have long assumed that a common standard of attractiveness in the Western world is the thin ideal, a socially constructed phenomenon that presents ideal beauty as an extremely thin figure for women [66]. Both children and adults have been shown to rate the ideal body as being smaller than their ratings of what is "normal," suggesting that the desire to achieve a smaller-than-normal size persists throughout life for individuals in Western culture [67]. Some theories suggest that popular media plays a large role in creating and spreading the impact of the thin ideal. However, recent research demonstrates that media images of the thin ideal have minimal effects on the majority of viewers, with larger effects among a minority who already exhibit higher levels of body dissatisfaction [68,69], and that

overestimation of the effect of the media may stem from an artificial inflation of effect size due to publication bias [69]. In addition, experimental studies that address previous confounds, such as by masking the purpose of the study to participants, support the idea that the media may not play a major role in body dissatisfaction [70]. Therefore, it is likely that media images have a more limited influence in defining body ideals than previously thought. Overall, these results point to the complexity of body dissatisfaction, and indicate that media presentations of the thin ideal should not be considered a direct cause of body dissatisfaction.

Moreover, the concept of the "thin ideal" may be more complicated than initially thought. For example, recent research argues for the existence of an "athletic" ideal, an ideal more focused on a muscular body that is distinct from the thin ideal, and some initial research suggests that it does not contribute to body dissatisfaction [71]. Relatedly, both adult men and women believe that others are attracted to a body type that is thinner than what they selected as their preferred body size [72,73]. This finding indicates a general population misperception in the nature of a societal thin ideal; specifically, individuals perceive a societal body ideal as smaller than what they believe to be attractive. These results suggest the complexity of the "thin ideal" and that the actual preferred body size among the general population is diverse and may not be as consistently thin as sometimes believed. Simultaneously, this belief that society prefers a thinner body than what the individual prefers may translate into an individual's artificially small personal body size ideal based on a misperception of others' preferences.

Ideal Body Among Individuals with Eating Disorders

Some research suggests that eating disordered individuals' desired weight or figure is substantially smaller than that of healthy individuals, and that a lower desired weight is a precursor to more severe symptoms [18,74,75]. In support of self-discrepancy theory, differences between current and ideal figures have been shown to be greater in groups that also exhibit higher levels of dieting, eating pathology attitudes, bulimic behaviors, and food preoccupation [74]. Furthermore, among healthy girls ages 6 to 14, a larger perceived body size and a smaller idealized body size predicted increases in eating disorder symptom levels [18]. Similarly, eating pathology and AN and BN attitudes and beliefs

significantly predicted a lower ideal body mass, demonstrating a relationship between idealized body size/mass and maladaptive eating attitudes [76].

Ideal body size also seems to be abnormally small for those currently suffering from AN or BN. The thin ideal may be particularly salient to individuals with eating disorders, such that their perception of the thin ideal becomes increasingly inaccurate yet more powerful as they develop a disorder. Chernyak and Lowe determined that, compared to both unrestrained and restrained eaters, individuals with BN had a stronger drive for *objective* thinness, desiring a weight 15% below a medically ideal body weight [75]. In line with such results, another study found that women with AN or BN preferred a smaller amount of ideal body fat (15.80%; 16.00%, respectively), compared to healthy controls (19.30%) [35]. Interestingly, women with either AN or BN acknowledged that men's perception of the ideal body fat percentage in terms of heterosexual attractiveness ideals was higher than their ideal (19.10% and 17.16%, respectively), indicating that attractiveness to potential sexual partners is not a primary motivator of their internalized ideals. It is important to note, however, that there are a few inconsistencies in the findings that all individuals with eating disorders have lower ideals, such as one study that found that individuals with BN may desire a low-healthy BMI like healthy adults and that those with AN desire an underweight or emaciated BMI [77]. These inconsistencies suggest the need for further research on potential moderators that may distinguish which individuals may develop particular body ideals. Although these inconsistencies prevent a firm conclusion on ideals across eating disorder types, it is possible that, in general, individuals with eating disorders' initial subscription to the thin ideal will lead to a misinterpretation of the societal value that thinner is better. Ultimately, their pathological perception of the thin ideal may extend so far beyond societal values that it is no longer related to or motivated by these factors, but by an independent, personal desire to be thin. While eating disorder models have focused on an increased pressure to be thin or the internalization of the thin ideal as primary contributors to eating disorder predisposition [19,78], research on *distortions* of societal ideals has rarely been applied to actual eating disorder models and therefore deserves more attention [3,19,20].

To our knowledge, few studies have specifically examined desired or ideal weights among those with BED, and therefore this area deserves further exploration. However, one study using a photo distortion technique found no significant differences in ideal body images between a group of individuals with both BED and obesity and a group with obesity but not BED [64]. This finding provides initial evidence that individuals with BED may not have smaller body ideals than others at a similar weight.

Role of Low Ideal in Self-Ideal Discrepancy

In studying these low, personal weight ideals, it is also important to consider the self-ideal discrepancy. Interestingly, Benninghoven and colleagues found that individuals with BN exhibited the greatest discrepancies between the perception of their own body and the ideal compared to healthy controls and individuals with AN [35]. Conversely, while individuals with BN believed they had more body fat than they did in reality, individuals with AN in this study perceived their body to be roughly equivalent to or smaller than their ideal, indicating that they may be obtaining psychologically-based reward by maintaining low weight. Within the self-discrepancy framework, this conclusion may indicate that some individuals with AN are either satisfied with their bodies but intensely fear weight gain or that they will soon develop increasingly thinner ideals. This framework may explain the proneness to body dissatisfaction that individuals with AN experience: their over-estimation of their own body size, in combination with an abnormally small ideal, makes them vulnerable to body dissatisfaction after any weight gain.

Although there is no current evidence that individuals with BED have smaller body ideals compared to others, they may still experience excessive body dissatisfaction [64]. Paired with the distortion in their perception of their weight (i.e., believing their size is larger than it is), it is possible that even these “normal” ideals would produce above-average self-ideal discrepancies for individuals with BED.

Although variability regarding the precise ideals for individuals with eating disorders exists, collectively the research suggests that those with certain eating disorders, particularly AN, strive for ideal weights that are abnormally low. Moreover, a large discrepancy between current and ideal sizes for

individuals with BN may cause distress, particularly when self-evaluation hinges primarily on shape and weight [20]. Similarly, those with BED may exhibit large self-ideal discrepancies due to a perception that their bodies are larger than they are [64]. Individuals with eating disorders who lose weight are likely to place a great importance on their weight given their efforts and the reinforcement experienced from the successful weight loss. As a result, they may intensely fear returning to a greater discrepancy as well as seek the reward associated with the achievement of their body weight ideal.

Conclusions about Ideal Self

The impact of a low ideal body size may be even more complex than research has previously considered. For example, individuals may have distinct preferences for body type or shape beyond a specific ideal weight (i.e., an individual may be focused more intensely on particular body parts or desire a specific silhouette). In addition, eating disorder patients often report a distinction between weights they ought to achieve in the short term and ultimate ideal weights. Similarly, body dissatisfaction may fluctuate throughout the course of an eating disorder due to weight change and length of time that individual has been at a particular weight. While these many distinctions require further research, overall it appears that having a particularly low ideal body weight, as is often observed in individuals with AN or BN, may put an individual at risk of experiencing a greater self-ideal discrepancy which could result in high body dissatisfaction.

Personal Importance of Body Image and Ideal Weight

A final and necessary factor to consider in determining an individual's body dissatisfaction is the amount of importance an individual places on the discrepancy. The idea that the importance one places on the self-ideal discrepancy influences the level of body dissatisfaction is consistent with both the cognitive behavioral and dual-pathway models of eating disorders, which both describe body dissatisfaction and overvaluation of shape and weight as maintenance factors of eating pathology [19,20]. According to these viewpoints, the effect of the discrepancy may be particularly pronounced when body image is already a primary means of self-evaluation or a large component of identity. Cognitive behavioral therapy, for example, argues that "overvaluation" of the importance of shape and weight in judging the self is a

primary maintenance factor for AN and BN [20]. While there may be some individuals who place a large importance in their self-evaluation on shape and weight who do not exhibit eating disorder symptoms, the existence of an investment in shape and weight, when combined with a large discrepancy between perceived and ideal bodies, exacerbates body dissatisfaction, which may or may not lead to an eating disorder. A noteworthy caveat related to this "level of importance" component of body dissatisfaction is that there may be some individuals with a large discrepancy who do not exhibit high body dissatisfaction. Specifically, it is possible that these individuals have a large actual-ideal discrepancy but place little importance on the construct. In these cases, body dissatisfaction may not occur because the amount of energy spent thinking or caring about the discrepancy is low.

Relevance to Eating Disorder Literature: Dieting and Weight Suppression

Body dissatisfaction, as conceptualized above, is clearly relevant to eating disorders given its focus on an individual's relationship with their weight. This relevance is reflected in research on body dissatisfaction and eating disorder models. However, an apparent missing piece to the conceptualization of body dissatisfaction is an individual's actual efforts to lose weight and their objective weight history. It may be important to consider the role of body dissatisfaction in the context of the individual's actual weight and behavioral efforts to lose weight, an approach that is rarely utilized. Specifically, an individual's current weight in addition to their patterns of weight change over time should be considered synchronously with current body dissatisfaction.

Taken together, the two main body dissatisfaction components--an inaccurate perception of one's own body and a distorted, hyper-thin ideal body--can lead to cognitive dissonance, particularly when self-evaluation is dependent on weight and shape. Efforts to control weight and shape may be employed to rectify this discrepancy, a hypothesis consistent with findings that eating disorders often begin with a period of notable weight loss [79]. Beyond the desire for or idealization of a lower weight, a behavioral attempt to lose weight may be a helpful variable in conceptualizing body dissatisfaction. For example, one study found that in children between third and sixth grade, 50% wanted to weigh less but only 16% had attempted to lose weight, indicating a distinction between a mere desire to lose weight and working

toward weight loss [80]. Additionally, studying patients' motivations for dieting may be useful, as research has found psychological distinctions between dieting to lose weight and to avoid weight gain [81].

Furthermore, it is possible that individuals who, even after losing a large amount of weight, believe that they are still much larger than their ideal body, are in greater danger of a more severe disorder. Therefore, self-discrepancy and its components should be considered in conjunction with an additional variable, weight suppression (WS), or the discrepancy between a person's highest past weight and current weight. WS has been shown to be prominent in eating disorder populations and is associated with eating disorder severity, duration, and treatment response, although there are some conflicting findings on the subject [82-85]. WS is also associated with weight gain and, in some cases, binge eating, suggesting that being in a state of WS predisposes eating disordered individuals to regain to a historical high weight [85-88]. In fact, this gradual weight gain seems to be a common weight trajectory in BN, with most individuals with BN eventually surpassing their elevated premorbid weight [79]. Individuals with BN are prone to weight gain, yet any weight gain that pulls them further from their low weight ideal could be particularly distressing and trigger increased symptoms. Given the findings that eating disordered individuals tend to have lower ideal weights, if highly weight suppressed individuals still maintain a large discrepancy between their current perceived weight and ideal weight, they may be at greater risk for more severe symptoms and longer eating disorder duration. All four constituents of WS and self-discrepancy (i.e., highest actual weight, current weight, perceived weight, and desired weight) could be considered together and in different combinations to examine more accurately and qualitatively the relationship that individuals with eating disorders have with their bodies. For example, an individual with an elevated highest-ever weight combined with a low ideal weight may be prone to eating disorder behaviors, particularly if she is highly weight suppressed. Therefore, the interaction between body dissatisfaction and WS should be examined more fully in future research and clinical practice.

A Final Consideration: Genetic Influences on Body Dissatisfaction

It is also important to consider the influence genetics play in producing body dissatisfaction. In one study with 4,667 Finnish twins, genetics were shown to account for roughly 59% of variance in body dissatisfaction when using the Eating Disorder Inventory Subscale, suggesting the notable role genetics plays in influencing this phenomenon [89]. In addition to genetic influence on body dissatisfaction, studies examining genetic effects also find consistent evidence for the role of genetics in thin-ideal internalization [90] and in body weight [91]. Finally, a recent genome-wide association study of AN found evidence for a negative genetic correlation between BMI and AN, indicating that genes relevant to low body weight may also influence risk for AN [92]. As evidence accumulates indicating that genetics influence susceptibility to body weight status, body dissatisfaction, and eating disorders, a conceptualization of how the construct of body discrepancy develops will naturally be influenced by such findings. Likewise, as research on genetic risk for eating pathology progresses, identifying patterns of risk specific to perception of body size and ideal body weight may be fruitful areas of future research to understand the degree to which these components of body discrepancy are genetically influenced. Of note, genetic studies on body dissatisfaction to date have not been able to detect the degree to which genes interact with environmental exposure. It is possible, for instance, that the genetic effects on body dissatisfaction primarily manifest in a culture or environment that places importance on specific body size standards, or that other types of gene by environment interactions inform the development of body discrepancy. While we anticipate that indicators of genetic risk will be useful in identifying at-risk individuals in the future, clinically predictive tools that identify risk for body discrepancy are not yet available.

Conclusion

Current eating disorder models center either on an overvaluation of shape and weight or on high levels of body dissatisfaction, yet fail to address the complex and qualitative nature of individuals' perception of their bodies. This paper integrated literature on an individual's psychological relationship to his or her body and weight. There are a number of contradicting findings and a potential bias in the

publishing of significant rather than null findings, which suggests that the conclusions should be interpreted with caution. However, the literature above can be distilled into several main conclusions.

First, one's own perception of her weight status may not always be accurate and contribute to disordered eating. It appears that healthy women over-estimate their weight and may therefore show a propensity toward body dissatisfaction, and most of them do not develop an eating disorder. There is also evidence that individuals with eating disorders have a distorted perception of their own body size and that these distortions may be reflected in a neurological deficit in bodily awareness, particularly among those with AN. Additionally, some initial research has indicated that individuals with binge eating disorder perceive their bodies to be larger than they actually are, more so than among those with obesity without an eating disorder [64]. These individuals, however, appear to endorse ideals that are roughly equivalent to those with obesity without an eating disorder, suggesting that their self-ideal discrepancy may be larger than average, but not due to an abnormally low ideal. This phenomenon may offer one explanation as to why individuals with binge eating disorder appear to have greater body dissatisfaction than individuals with obesity who do not exhibit disordered eating [65].

Second, while some research argues that Western society posits only one "thin ideal," there is wide debate about the possibility of several different ideals. There appears to be a plethora of perceived ideal body sizes, with some of the smallest ideals belonging to women and to those with eating disorders. The abnormally low ideal observed among eating disordered individuals may lead to particularly high body dissatisfaction among individuals with BN who are at a normal or high weight. This discrepancy, whether developed before or during an eating disorder, may influence efforts to reduce or maintain low weight and therefore propagate eating disorder symptoms.

Another consideration in interpreting body discrepancy is that an individual's perceived importance of their body weight may contribute to their behaviors related to body weight (e.g., restrictive behaviors). Someone who does not place great importance on their body weight may not engage in maladaptive restrictive behaviors even if they have a large self-ideal discrepancy.

Finally, it is important to note that the self-discrepancy is not consistently studied in tandem with objective measures of weight and weight history. The proposed conceptualization of body dissatisfaction, including the misrepresentation of one's current weight or shape and an abnormal shape or weight ideal, takes into account both the construct's complexity and is more directly applicable to literature on weight trajectories in eating disorders.

Clinical Implications

Integrating the components of body dissatisfaction—perceptions of current weight, ideal body weight, and the relative importance of conforming to ideals—both for the individual patient and in research, will allow for a better understanding of the motivations behind eating pathology. While traditional cognitive behavioral approaches aim to challenge the relative importance of achieving an ideal body weight as a measure of personal success, alternative approaches to body dissatisfaction also deserve note. For instance, within a self-discrepancy framework, self-directed styles may be important in determining the degree to which a particular experience of discrepancy then impacts mood and behavior [24]. Recent research, for example, highlights that a self-compassionate approach may be beneficial for addressing experiences of inadequacy [93,94]. Applied to body dissatisfaction, it is possible that engendering a self-compassionate response when faced with feelings of discrepancy between an actual and ideal self could mitigate negative influences of body dissatisfaction [95]. Limited research has explored this possibility empirically.

Overall, taking into account specific weight goals, as well as previous high weights, current weight, and current "actual self" could give greater insight into motivation behind weight loss behaviors, whether pathological or healthy. For those with eating disorders, therapy may involve the identification of abnormally high perception of the actual body or abnormally low ideals. Based on this information, therapy could encourage the rejection of the thin ideal as well as education on actual body size and healthy body size. Patients could receive psychoeducation on the research supporting the existence of a misperception of what people think others are attracted to (i.e., thinking that others are attracted to thinner figures than they actually are) as well as on the ranging preferences in body types. In addition, actual

body size, weight history, markers of health risk, and, in the future, biological and genetic data, can be taken into account when setting weight goals or discussing individual-level body ideals. Further, a key consideration in eating disorder treatment is when and whether patients are aware of their weight. Outpatient cognitive behavioral protocols and family-based treatment generally prescribe once per week unblinded weigh-ins with a therapist, but this recommendation is not common across therapists and higher levels of care [20,96]. The experience of body or body weight discrepancy can provide an ideal opportunity for patients to practice in-vivo distress tolerance skills. Delay, distraction, and self-soothing strategies may assist individuals to cope with this perceived discrepancy between their current and ideal weights [20]. As mirror exposure has been supported as an intervention to improve body image [97,98], future intervention research may build upon this research and explore exposure and distress tolerance to body size perception and weight fluctuation more directly through photo and mirror distortions. Future research should explore these possible interventions. Given the potential information on eating problems and improvements in treatment, it is imperative that this more complex and comprehensive conceptualization of body evaluation and body dissatisfaction be studied and applied in eating pathology.

Compliance with Ethical Standards

On behalf of all authors, the corresponding author states that there are no conflicts of interest. This article does not contain any studies with human participants or animals performed by any of the authors.

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