



Cognitive biases to appearance-related stimuli in body dissatisfaction: A systematic review



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HIGHLIGHTS

- Robust support for attention biases associated with body dissatisfaction
- Moderate support for memory and judgment biases associated with body dissatisfaction
- Emerging evidence for “thin” versus “fat” biases associated with body dissatisfaction
- Future directions for research are discussed.

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ABSTRACT

Emerging literature has documented the presence of cognitive biases toward body image related stimuli among individuals with high levels of body image concerns compared to those with low levels of body image concerns. However, the robustness and nature of these cognitive biases are unclear. The aims of this study were to conduct a systematic literature search and perform a critical synthesis of studies examining the relationship between cognitive biases toward body image-related stimuli and body image concerns. Our review identified 32 studies meeting inclusion criteria. Dot-probe, Stroop, free recall, and eye-tracking were among the most frequently used paradigms. The extant literature provides robust support for the presence of attention biases toward body image-related stimuli among individuals with high levels of body dissatisfaction compared to those with lower levels of concerns. Evidence was also found for the existence of judgment biases and memory biases. Furthermore, results suggest that body image-related cognitive biases, and levels of body dissatisfaction can be manipulated. Initial evidence was also found for differential patterns of biases toward “fat” and “thin” stimuli. These findings confirm the importance of considering cognitive biases within etiological models of body image concerns and suggest that these processes might provide novel treatment targets.

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Contents

1. Method	2
1.1. Information sources and search	2
1.2. Article selection and inclusion/exclusion criteria	2
2. Results	2
2.1. Search results	2
2.2. Attention bias	3
2.3. Memory bias	7
2.4. Judgment bias	8
2.5. Biases for “fat” versus “thin” stimuli	8
3. Discussion	9
References	10

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Preoccupation with weight, shape, and appearance, is a central feature of eating disorders, and has been identified as one of the two most significant predictors of eating disorder onset (Stice, Marti, & Durant, 2011). Furthermore, body dissatisfaction has been shown to prospectively predict increased psychopathology and unhealthy behaviors including depression, low self-esteem, smoking, and unhealthy weight control behaviors (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). This is particularly concerning, as the prevalence of body dissatisfaction is extremely high among girls and young women, and, increasingly, among men (Fiske, Fallon, Blissmer, & Redding, 2014; Mond et al., 2013). Cognitive theories of body dissatisfaction suggest that schemas related to appearance, shape, and weight influence the processing of information about body image (Cash & Labarge, 1996; Williamson, White, York-Crowe, & Stewart, 2004). Thus, body image schemas may be accompanied by a number of biases leading to selective attention to, or processing of, body image information in the environment. These selective cognitive processes are, in turn, hypothesized to lead to increased negative emotions regarding body image, and unhealthy behaviors aiming to change shape and weight such as disordered eating (Williamson et al., 2004). Thus, these models posit that cognitive biases may play an important etiological role in body dissatisfaction and associated mental health concerns (Cash & Labarge, 1996; Williamson et al., 2004).

Cognitive biases can affect different cognitive processes including attention and memory, as well as interpretation and judgment. Attentional biases occur when emotionally salient stimuli in the environment are preferentially processed compared to neutral stimuli (MacLeod, Mathews, & Tata, 1986). Much of the research related to cognitive bias has investigated attention as a mechanism associated with psychopathology. However, memory and judgment biases – that is the degree to which emotionally salient stimuli are encoded, recalled, perceived, and processed may also play an important role in psychological disorders (Williamson et al., 2004). Although cognitive theories of body image exist, much of the recent research has characterized the sociocultural influences that play a role in the development of body dissatisfaction, including messages from the media that are frequently augmented by the family and peer environment (Rodgers & Chabrol, 2009; Rodgers, Chabrol, & Paxton, 2011). Sociocultural theories have highlighted how the Western environment is saturated by messages regarding both the importance of appearance and the characteristics of the socially-promoted body ideal (Levine & Murnen, 2009). These messages are conveyed directly through the presence of advertisements for beauty and weight-control products, and media content or conversations focusing on appearance, as well as more subtly through the lack of diversity of body types presented in the media (Levine & Murnen, 2009). This prevalence of environmental appearance-related stimuli might therefore render individuals with these biases particularly vulnerable to body dissatisfaction.

To date, the literature focusing on the relationship between cognitive biases to appearance-related stimuli and body dissatisfaction has had a limited capacity to inform our understanding of the role such cognitive biases in body dissatisfaction. A number of different factors participate in limiting its contribution, including the divergent findings and the unsystematic variation of stimuli type and nature, and experimental protocol. While several reviews of the literature regarding cognitive biases in eating disorders exist, these reviews have largely considered behavioral outcomes in terms of eating behaviors or eating disorder diagnoses, and frequently focused on food-related stimuli (Brooks, Prince, Stahl, Campbell, & Treasure, 2011; Dobson & Dozois, 2004; Faunce, 2002). Sociocultural theories have highlighted how the eating patterns underlying eating disorders, such as restriction, that are associated with cognitive biases toward food stimuli (e.g. Dobson & Dozois, 2004), often result from body dissatisfaction (Rodgers et al., 2011). Furthermore, body shape and weight concerns are a core element of eating pathology and have been shown to be influenced by the visual

environment, including appearance-related stimuli (Glauert, Rhodes, Byrne, Fink, & Grammer, 2009; Williamson et al., 2004). Thus, examining the relationship between cognitive biases to appearance-related stimuli in body dissatisfaction would further contribute to our understanding of the interrelated processes underlying eating disorder psychopathology. However, to date, no synthesis of the literature focusing on cognitive biases to appearance-related stimuli in body dissatisfaction is available. This gap in the literature limits our understanding of the nature and characteristics of these biases, as well as how they may underpin the etiology of body dissatisfaction. The aims of the present study were therefore to conduct a systematic review of studies examining the relationship between cognitive processing of body image-related stimuli and body dissatisfaction, and provide a critical synthesis of their findings.

1. Method

A systematic review of the literature focusing on cognitive biases and body dissatisfaction was conducted following the PRISMA guidelines (Moher, Liberati, Tetzlaff, & Altman, 2009).

1.1. Information sources and search

Articles were collected by searching the electronic databases PsycInfo, PubMed and ScienceDirect. No publication date, geographic region, or language restrictions were utilized. A wide range of search terms were utilized in the literature review search process in order to capture a diversity of research studies on cognitive bias and body dissatisfaction. The search consisted of the following search terms: (body image disturbance OR appearance OR body dissatisfaction OR body concerns OR body image) AND (attention OR cognitive OR attentional OR information processing OR dot-probe OR neural OR Stroop). Articles were collected with corresponding search terms in the title, abstract, or keyword. The final search was conducted on June 7, 2015 by the second author.

1.2. Article selection and inclusion/exclusion criteria

Articles from the three database searches were combined and duplicates were removed by hand. Article titles and keywords were screened in a first step and applicable articles were retrieved. Abstracts of the retrieved articles were assessed for relevance, and review and commentary articles were removed. In addition, the reference sections of eligible articles were hand-searched for supplemental relevant studies.

Given the relative paucity of research in the area, the review process did not mandate specific methodological qualities within the studies. As such, the current systematic review assessed research studies investigating cognitive bias and body dissatisfaction from a broad range of study designs. Articles were eligible for inclusion in the review if they included an experimental assessment of cognitive bias and included at least one measure of body dissatisfaction, which was used for exploring group differences or as a correlate of cognitive biases. Studies including internalization of the thin-ideal as a grouping variable were included in the review due to the high statistical and conceptual overlap between the construct and that of body dissatisfaction (Thompson & Stice, 2001). Studies exploring implicit attitudes as well as body image concerns related to body dysmorphic disorder were excluded from the review.

2. Results

2.1. Search results

A total of 1822 articles were retrieved following the database search and 14 articles were collected through additional sources (e.g., past reviews, reference sections). A duplicate screening procedure recalled 339

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