Body dissatisfaction levels and gender differences in attentional biases toward idealized bodies

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ABSTRACT

Attentional bias toward idealized bodies (men: muscular; women: thin) may cause upward comparisons and increase body dissatisfaction (BD). We investigated attentional biases of 39 men and 41 women with high and low BD toward muscular male bodies and thin female bodies. An eye-tracker measured gaze durations and fixation frequencies while exposing participants to images of thin, normal, muscular, and fat bodies of the same gender. Results revealed longer and more frequent attention toward muscular bodies in high BD men, and toward thin bodies in high BD women. High BD men and women also rated muscular and thin bodies as more attractive than those with low BD. Although men attended to muscular and women attended to thin bodies, both showed an attentional bias toward body types they rated as more attractive. These findings could provide indirect evidence in explaining the relationship between BD and the social comparison theory with attentional bias.

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Introduction

Body dissatisfaction (BD) is a negative, subjective evaluation of one’s physical body (Stice & Shaw, 2002), and plays an important role in the development of eating disorders (Leon, Fulkerson, Perry, & Cudeck, 1993; Thompson, Coovert, & Stormer, 1999). Among young women and men, exposure to mass media images depicting thin women and muscular men as being the “ideal” is associated with increased BD (Bartlett, Vowels, & Saucier, 2008; Grabe, Ward, & Hyde, 2008). Unfortunately, this ideal is unrealistic and unattainable for many people, and thus, it induces a discrepancy between the ideal image of a body and one’s own body (Peterson, 2007).

One of the main factors in increasing such BD is mass media (Thompson et al., 1999). According to the sociocultural theory (Vygotsky, 1978), individuals who perceive themselves, and who are being perceived by others, are influenced by cultural values. Culture determines the ideal standards of beauty and promotes increasing pressure to embody the ideal image found in media. Mass media thus influences body image dissatisfaction (Thompson et al., 1999). Another model, the social comparison theory (Festinger, 1954), indicates that people compare themselves to others on a variety of dimensions in order to self-evaluate. When the comparison target is inferior to oneself, this causes a downward comparison, which then leads to individuals giving themselves positive self-evaluations. In contrast, when the comparison target is superior to oneself, an upward comparison occurs and individuals give themselves a negative self-evaluation. According to Festinger (1954), individuals who are uncertain of themselves are more likely to make this type of upward comparison with others. In line with this proposal, studies have found that the psychological states, such as depressive moods or low self-esteem, influence people to make more frequent comparisons (e.g., Campbell, 1999; Gibbons & Buunk, 1999; Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994).

Most social comparison studies on body image have focused more on female participants compared to male participants. Past research involving female samples have demonstrated that women who are dissatisfied with their bodies appear to typically engage in an upward comparison process. Moreover, exposure to a thin body is associated with increased BD (Haasenblat, Janelle, Gardner, & Hagan, 2002; Heinberg & Thompson, 1992; Lorenzen, Grieve, & Thomas, 2004). Relatively little research has investigated the impact of exposure to muscular male media images, and the results have been mixed (Diedrichs & Lee, 2010). A meta-analysis of 25 studies has shown that, on average, exposure to muscular bodies is related to lower body satisfaction and body esteem among young men (Bartlett et al., 2008). Yet some researchers have found no impact on the satisfaction level of men’s weight (Hargreaves & Tiggemann, 2009), or their drive for muscularity (Johnson, McCreary, & Mills, 2007). According to Blond’s explanation (2008), men who are satisfied with their own bodies perceive the media standard as attainable and thus, protect themselves against such...
exposure. This means that they are not influenced by an upward comparison. Previous studies examining the impact of male body exposure in the media were conducted to a control group; therefore, body dissatisfaction levels are likely to have a significant effect in males exposed to male media images.

In the upward comparison process, visual attentional bias contributes important functions (Glaue, Rhodes, Fink, & Grammer, 2010). Women with BD appear to engage in an upward comparison process, meaning they compare themselves to thin women and then find themselves insufficient (Cattarin, Thompson, Thomas, & Williams, 2000; Heinberg & Thompson, 1992). It could be expected that people who are dissatisfied with their bodies frequently observe idealized bodies. Hence, they would have more opportunities to compare their own bodies to an idealized body. They would also experience a discrepancy between the ideal image and their own bodies more frequently. Specifically, an attentional bias toward idealized bodies could cause an upward comparison and produce increased BD. Considering the fact that attentional bias has been known to play an important role in the etiology and/or the maintenance of psychopathology (Beck, 1976), an increasing bias might negatively affect the outcomes of social comparison processes, and maintain and/or exacerbate BD (Klof, Jansen, Moreski, Willems, van Grootel, & van der Borgh, 2008). In Bleichert, Nickert, Psych, Caffier, and Tuschen-Caffier (2009), compared to controls, patients with bulimia nervosa fixated longer on comparison bodies with lower Body Mass Index (BMI) and showed decreased body satisfaction after the experiment, which can be interpreted as an upward comparison. This result indicated that disadvantageous social comparison strategies may be related to BD and therefore to the maintenance of bulimia nervosa. Even though attentional biases play a critical role in cognitive-behavioral explanations, their nature and course are not well comprehended because the results of cognitive-experimental studies on BD and eating disorders have been ambiguous.

Previous studies using various measures have demonstrated an attentional bias toward body-related words in women with eating disorders. In a modified Stroop color-naming task, patients with an eating disorder displayed interference when trying to name colors with body or food words compared to neutral words (e.g., Dobson & Dozois, 2004; Lee & Shafran, 2004). In another study using an "odd-one-out" visual search paradigm, patients with an eating disorder were quicker than the controls in detecting body words among neutral words (Smeets, Roefs, Furth, & Jansen, 2008). Studies using dot-probe paradigms have also found that individuals with BD or body image disturbance showed an attentional bias toward body shape-related stimuli (e.g., Rieger, Schotte, Touyz, Beaumont, Griffiths, & Russell, 1998; Rosser, Moss, & Rumsey, 2010) and initial orientation toward fat body-related stimuli (e.g., Shafran, Lee, Cooper, Palmer, & Fairburn, 2007). These findings revealed that an initial orienting of attention toward body information, fat bodies in particular, facilitated groups with eating disorders and body image disturbances. This suggests that women with body image disturbance automatically give their initial visual attention to fat body stimuli. However, methodologies identifying attentional biases, such as visual search and dot-probe paradigms, provide only a discontinuous snapshot of responses after the onset of stimuli, and also fail to explain how attention is arranged prior to behavioral responses (Hermans, Vansteenweghen, & Eelen, 1999).

Studies utilizing an eye-tracking system have shown different results in gaze duration for the initial orientation in women with body image disturbance. Eye-tracking technology is a non-invasive tool that provides an appropriate and direct form of measuring abnormal attention. Using an eye-tracking system, it is possible to measure visuospatial attention processing continually through gaze duration and fixation frequency (Mogg, Millar, & Bradley, 2000). Detection and orienting can be measured with the first fixation, and a maintenance bias can be measured with gaze duration and fixation frequency. Using an eye-tracking system, the results of Jansen, Nederkoorn, and Mulikens’s (2005) and Roefs et al.’s (2008) studies have demonstrated that women with a symptomatic eating disorder and women with a lower level of self-rated attractiveness gave longer attention to their own “ugly” body parts and to others “beautiful” body parts. These results suggest that individuals with body image disturbance show a tendency to experience an upward comparison process, and in reality, they may look at attractive people more than they observe unattractive people. Smeets, Jansen, and Roefs (2011) demonstrated that teaching body dissatisfied women to attend to their own attractive body parts significantly increased their body satisfaction. Although, this suggests that an attentional bias could contribute to the change in BD, no studies have identified attentional bias (maintenance or frequency) with respect to diverse body shape stimuli according to the level of BD using an eye-tracking system. In particular, attentional bias toward body related stimuli in men has yet to be studied. A previous study investigated the relationship between male BD and the attentional bias toward thin bodies using the arrow-probe paradigm while presenting thin or fat male bodies vs. a bottle, but not with muscular idealized bodies (Joseph & Shiffrar, 2010). The characteristics of an attentional bias in men are still unclear because an attentional bias toward idealized muscular male bodies has not been identified.

The aim of this study, therefore, was to identify an attentional bias in men and women using an eye-tracking system, according to their level of BD, when exposed to diverse types of bodies. We presented four different types of bodies simultaneously: thin, normal, muscular, and fat. This paradigm was suggested by Hermans et al. (1999), which displays multiple (more than two) complex visual stimuli that compete for the participant’s attention. Moreover, the visual stimuli are presented for a relatively long period of time (10.5 s), so that each participant was given the opportunity to scan and re-scan the different images. By monitoring both fixation times and fixation frequencies of each image, an attentional bias can be characterized by the amount of time each image was fixated upon (Eizenman et al., 2003).

We predicted that the high BD men that had not been studied previously would show the same attentional bias pattern as that of the high BD women. We therefore hypothesized that the high BD group would show a greater attentional bias (higher gaze duration and frequency) toward idealized bodies of the same gender (women: thin bodies; men: muscular bodies) relative to other body types, compared to the low BD group. Additionally, there have been some results from previous studies that exposure to images of thin women or muscular men produced a higher level of body dissatisfaction and mood disturbance (e.g., Arbour & Martin Ginis, 2006; Birkeland, Thompson, Herbozo, Roehrig, Cafri, & van den Berg, 2005; Hauenblas et al., 2002). In line with this result, we predicted that the high BD group would show greater negative emotions and a higher BD level after the experiment than before the experiment, compared to the low BD group.

**Method**

**Participants**

Eighty eight men ($n = 45$, mean age $= 22.20$, $SD = 2.58$) and women ($n = 43$, mean age $= 21.37$, $SD = 1.71$) university students in Seoul, Korea participated in this study (the calculated sample size with a priori type of power analyses was $34$ for each group). The participants were selected only if they belonged to the upper and lower $15\%$ of the BD level measurements using the Eating Disorder Inventory–2 (EDI-2; Garner, 1991). In a previous study (Jansen et al.,...
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