



## Female body dissatisfaction after exposure to overweight and thin media images: The role of body mass index and neuroticism

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### ABSTRACT

Exposure to thin media images is thought to play a significant role in the development of body image dissatisfaction (BID) amongst females. In this study we examined whether individual differences in body mass index (BMI) and neuroticism can make females more vulnerable to BID upon exposure to overweight media images than thin media images. Female volunteers were randomly assigned to thin or overweight exposure conditions. Before exposure all gave height and weight data and completed a 12-item neuroticism (N) questionnaire. While exposure to thin media images was associated with greater BID, in the overweight exposure condition there was an interaction between BMI and N so that with increasing BMI those higher in N experienced greater BID. Female BID may not, therefore, be solely restricted to exposure to thin media images. The implications for future research, as well as BID prevention programmes, are discussed.

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### 1. Introduction

Within western culture body image dissatisfaction (BID) is considered to be a significant predictor of eating pathology in females (Stice & Shaw, 2002). In light of this relationship researchers have endeavoured to distinguish the factors involved in the development and maintenance of female BID. While a wide range of culprits have been identified, chief amongst them appears to be the omni-present media images of the cultural thin ideal (Thompson & Heinberg, 1999). It is thought that female BID arising from exposure to these images is mediated through a spontaneous, effortless and unintentional process of social comparison (Gilbert, Giesler, & Morris, 1995; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). In the language of social comparison theorists such dissatisfaction, more precisely, can be said to be a manifestation of a contrast effect, whereby self-evaluation is displaced away from the positively evaluated comparison target, i.e. the thinner media image (Blanton, 2001). Given the large number of correlational and experimental studies confirming the link between thin media exposure and female BID, we concur that a social comparison-based contrast effect can be a significant source of BID in females (Groesz, Levine, & Murnen, 2002). However, the impact of exposure to thin media images also appears to vary as a result of individual differences. That is, after exposure to thin media images some females can feel

worse than others about their body, some females may not be affected at all, and, indeed, some females may actually feel better than others about their body (Jones & Buckingham, 2005; Trampe, Stapel, & Siero, 2007). We propose that particular individual differences can also vary the impact of exposure to overweight media images, to the extent that some females are especially vulnerable to BID when confronted with such images.

According to contemporary social comparison theory particular comparisons can, in addition to a contrast effect, also evoke an assimilation effect (Buunk & Gibbons, 2007). An assimilation effect refers to when a comparer's self-evaluation is displaced toward, rather than contrasted away from, the perceived evaluation of the comparison other (Blanton, 2001). Thus assimilation with a comparison other who is evaluated positively results in a more positive self-evaluation for the comparer. Conversely, assimilation with a comparison other who is evaluated negatively results in a more negative self-evaluation for the comparer (Buunk & Ybema, 1997). Consistent with social comparison theory researchers have reported that some females can experience an assimilation effect so that they evaluate themselves more positively after exposure to the more attractive thin media images (Jones & Buckingham, 2005; Mills, Polivy, Herman, & Tiggeman, 2002). While this finding demonstrates that exposure to thin media images may not always result in increased BID, it also raises the possibility of whether an assimilation effect can occur when females compare with overweight media images. In contemporary western culture fatness is perceived as unattractive and obesity is stigmatized, and so

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assimilation with an overweight media image should be associated with greater BID (Brownell, Puhl, Schwartz, & Rudd, 2005). Unfortunately few studies have attempted to address this possibility (Groesz et al., 2002). We find this surprising because there is empirical evidence suggesting comparisons with images of overweight individuals can induce assimilation. For example, Jansen and de Vries (2002) found that pre-attentive exposure to fat models reduced self-esteem, whereas pre-attentive exposure to thin models, or a neutral slide, had no impact upon self-esteem. In addition, Harrison (2000) and Harrison and Cantor (1997) reported that exposure to overweight television characters was associated with both BID and eating symptomatology in females. Significantly these authors did not place their findings within a social comparison framework. However in light of these results we assume that BID can arise in some females as a consequence of assimilation with an overweight comparison target.

One possible individual difference factor that could theoretically promote an assimilation effect on exposure to an overweight comparison target is body mass (body mass index; BMI). Cross-sectional research has found BMI to be a consistent predictor of female BID across varying age groups (McLaren, Kuh, Hardy, & Gauvin, 2004). One would expect that this relationship arises, primarily, as a result of frequent comparisons with omnipresent media images of the cultural thin ideal. However, some experimental studies demonstrate that BMI is not always associated with BID when females are exposed to thin media images (Durkin & Paxton, 2002). One explanation for this could be that the extreme nature of thin media images prevents many women with a higher BMI from regarding such images as relevant comparison targets (Trampe et al., 2007). A central tenet of social comparison theory is that people are more affected by comparisons with similar others because these comparison targets are more meaningful and informative than comparisons with exceptional others (Blanton, 2001). As a consequence exposure to thin media images may have little impact on females with a higher BMI because they recognise that the discrepancy between their own body size and that of the thin media image is too great to be meaningful. Accordingly it may be that the relationship between BMI and female BID is more often a result of exposure to overweight media images. That is, larger women may actually perceive relatively greater similarity between their own BMI and that of an overweight other, and in so doing may be relatively more affected by this form of comparison. Following this reasoning, we predict that BMI will moderate the impact of exposure to overweight media images, so that with increasing BMI females will be more vulnerable to BID after exposure to such images than after exposure to thin media images.

Although BMI is a consistent predictor of BID its relationship with general psychological well-being and eating pathology is less reliable (Friedman & Brownell, 1995; Stice, 2002). We speculate that this is because the moderating effects of BMI on BID, in response to comparison information, may not be enough to generate the severe BID that underpins psychological disturbance. One candidate that could theoretically exacerbate the negative effects of BMI is neuroticism [N] (Claridge & Davis, 2001; Tylka, 2004). N is one of the five basic personality dimensions, and refers to the tendency to experience negative distressing emotions, low self-esteem, and helplessness (Costa & McCrae, 1987). The body image literature has identified N as an important factor in the development of BID and related eating pathology in females (Tylka, 2004). It is thought that N impacts on BID by intensifying the negative effects of other variables (Claridge & Davis, 2001; Tylka, 2004). Building on this reasoning we suggest that the brittle ego-defences, and self-defeating tendencies, of those higher in N will exacerbate the influence of BMI on BID after exposure to images of overweight others. As a result we predict an interaction between N and BMI, to the degree that with increasing levels of both N and BMI females

should be more vulnerable to BID after exposure to overweight media images, than after exposure to thin media images.

## 2. Methods

### 2.1. Participants

A total of 177 female university students participated in this study. However, because they did not completely fill out their questionnaire 5 participants were subsequently removed from the study. The mean age of the remaining participants was 21.21 years ( $SD = 2.28$ ). Their BMI ranged from 18.03 to 31.30 (mean ( $M$ ) = 23.0, standard deviation ( $SD$ ) = 2.37).

### 2.2. Measures

#### 2.2.1. State weight/size dissatisfaction visual analogue scale (Heinberg & Thompson, 1995)

State BID was operationalized as state weight/size dissatisfaction and was measured using the 100 point weight/size dissatisfaction visual analogue scale (VAS). Participants were instructed to place a mark on a 100 mm line to indicate their level of weight/size dissatisfaction (from no weight/size dissatisfaction to extreme weight/size dissatisfaction). The weight/size VAS has been found to be sensitive to controlled experimental manipulations involving media images (Heinberg & Thompson, 1995).

#### 2.3. Neuroticism

The 12-item neuroticism subscale from the Eysenck personality scales (EPS; Eysenck & Eysenck, 1991) was used to indicate N. Eysenck and Eysenck (1991) reported that the N subscale has satisfactory internal reliability ( $\alpha = .80$ ). Participants responded with “yes” or “no” to each statement. Internal reliability of the 12-item N scale in this study was .86 which is similar to that found in previous studies (e.g. Buunk, Van der Zee, & VanYperen, 2001; Van der Zee, Buunk, & Sanderman, 1998).

#### 2.4. Body mass index (BMI)

Participant BMI was calculated using the self-reported height and weight obtained on the questionnaire. Previous researchers using BMI have demonstrated that self-reported height and weight tends to vary by only 1–3.5% from people's actual height and weight (Bowman & DeLucia, 1992).

### 2.5. Stimulus materials

#### 2.5.1. Thin media images

A total of 40 images of females in swimsuit and/or bikini attire were collected by the principal investigators from popular fashion magazines. To remove any confounding effects of facial attractiveness the heads of the models were removed. The images were then rated by 20 college-aged females on how representative of the cultural thin ideal the images were using a 7-point Likert scale ranging from 1 (*not at all representative*) to 7 (*extremely representative*). It was made clear that by a cultural thin ideal we meant a physique that was thin, slender and had little body fat. Those physiques receiving the 6 highest scores ( $M = 5.5$ ,  $SD = 1.12$ ) were then used as the experimental stimuli.

#### 2.5.2. Overweight media images

A total of 30 images of overweight females in bikini or swimsuit attire were collected from specialist plus size fashion magazines and internet sites. As before the model's heads were detached from

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