Self-Enhancing Effects of Exposure to Thin-Body Images

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Abstract: Objective: This study examines the effect of thin-body media images on mood, self-esteem, and self-image ratings of restrained and unrestrained eaters. A secondary purpose was to examine whether these effects were influenced by exposure duration. Method: Under the guise of a perception study, participants were exposed to thin-body or control advertisements (e.g., perfume bottles) for either 7 or 150 ms and then completed a questionnaire packet. Results: Restrained eaters reported more favorable self-image and social self-esteem (but not appearance self-esteem) scores after exposure to thin-body images than after exposure to control advertisements. The self-image and social self-esteem scores of unrestrained eaters were unaffected by advertisement type, but their appearance self-esteem scores were lower after exposure to thin-body advertisements. No differences were found for mood ratings and total self-esteem. Discussion: We discuss restraint status as a moderator of the effects of thin-body images on women’s body image. © 2004 by Wiley Periodicals, Inc. Int J Eat Disord 35: 333–341, 2004.

Key words: thin-body images; exposure duration; restrained eaters; unrestrained eaters

INTRODUCTION

Research into the effects of exposure to thin-body media images on women’s feelings about themselves has yielded a number of conflicting findings. Although some researchers (e.g., Borzekowski, Robinson, & Killen, 2000; Cusumano & Thompson, 1997) argued that women’s own body images are unaffected by exposure to thin, idealized images, others have found that exposure to thinness-promoting media images has adverse effects. For example, exposing young women to images of thin, attractive models increases body dissatisfaction and other negative feelings (Heinberg & Thompson, 1995; Stice & Shaw, 1994; see Thompson & Heinberg, 1999, for a review). Harrison and

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Cantor (1997) found that reading fashion magazines is associated with body dissatisfaction and a drive for thinness. They suggested that because the average woman does not look like the images depicted in magazines, comparison processes make her feel dissatisfied with her body.

One weakness of previous research on the impact of thinness-promoting media has been the assumption that all women respond to thin-body images in the same way. Individual differences that may moderate the relation between media exposure and body image are often ignored. Botta (1999), for instance, argued that increased body dissatisfaction as a result of encountering thin-body images should be confined to those who endorse the thin ideal. Similarly, Wilcox and Laird (2000) proposed that only women for whom body shape is salient compare themselves to thin-body images and consequently experience negative feelings about their own bodies.

A recent series of studies supports the notion that not everyone reacts to thin-body images in the same way. In fact, some women feel better about their appearance after looking at thin women. Mills, Polivy, Herman, and Tiggemann (2002) examined dietary restraint status as a moderator of the effect of exposure to thin-body advertisements on women's body image. Restrained eaters are characterized by repeated attempts to lose weight through the restriction of food intake (Herman & Polivy, 1980). In contrast, unrestrained eaters do not engage in food-restriction behaviors and are not driven by weight loss concerns.

Mills et al. (2002) exposed restrained and unrestrained eaters to thin-body, heavy-body, or neutral (i.e., product-only) advertisements under the guise of a market research study and examined the impact of advertisement type on ratings of mood and self-esteem. In general, restrained eaters reported lower total self-esteem and appearance self-esteem than did unrestrained eaters, but restrained eaters exposed to thin-body advertisements reported higher levels of appearance self-esteem than did restrained eaters exposed to heavy-body advertisements. Mills et al. did not find an effect of advertisement type or restraint status on mood. Their interpretation of these results—that thin-body images serve as a motivational mechanism, inspiring restrained eaters to believe that they can achieve their own weight and body-shape goals—is based on the Myers and Biocca (1992) "fantasy effect." Myers and Biocca argued that following exposure to thinness-promoting media images, women imagine themselves in their ideal body. The result is more positive mood and attenuated body size overestimations. This fantasy effect should occur only if women believe that they can achieve their body shape goal. Mills et al. (in press) manipulated the perceived attainability of weight loss. In parallel fashion, the current study examined whether the extent of women's preexisting beliefs that they can achieve their body size and shape goals moderates the influence of exposure to idealized images.

One of the contentions of Mills et al. (2002) was that when women are asked directly how exposure to images of thin women affect them, they tend to respond negatively. However, when the self-report questions are less obviously connected to the thin images, women are more likely to display the positive or self-enhancing pattern. Mills et al. did not find a perfectly consistent pattern of results across the various dependent measures in their studies, but self-enhancement was the dominant finding. In the current study, we provided an additional test of the effects of exposure to thin-body images on the ratings of mood, self-esteem, and self-image of restrained and unrestrained eaters. We predicted that, in general, restrained eaters would score lower than would unrestrained eaters on these measures, but that following image exposure, these scores would change more for restrained than for unrestrained eaters, since
restrained eaters are more concerned about their size and shape and thus are more invested in comparing themselves with thin models. Because exposure to the images was incidental to the alleged purpose of the study, we expected positive rather than negative reactions on the self-report questionnaires.

A secondary purpose of the current study was to examine the effects of varying the duration of exposure to the critical images. In everyday life, many of our exposures to media images are extremely brief and fleeting, but research into the effects of media exposure on evaluations of one’s own body has generally involved relatively long exposure durations, ranging from several seconds to several minutes. This extended exposure allows time for a deliberate comparison of oneself with the stimulus images and/or for the development of a fantasized self-image. Would very short exposures—precluding the possibility of a deliberate or extended comparison between the self and other—have the same (or any) effect on self-esteem or mood? Would brief exposures have the same effect as longer exposures? If so, then the cumulative effect of media images must be regarded as all the more significant. The current study sought, by manipulating the duration of exposure, to determine whether thin-body images can affect women even if they do not have time for social comparison.

**METHOD**

**Participants**

Participants were 92 female undergraduate students (mean age = 20.25 years, range = 17–39 years) enrolled in Introductory Psychology at the University of Toronto. Participants with scores of 14 or lower on the Restraint Scale were classified as unrestrained eaters and participants scoring 15 or higher were classified as restrained eaters. This 14/15 cut-off is conventional in research with college-age women. There were 45 unrestrained eaters (M = 9.09, SD = 3.60) and 47 restrained eaters (M = 19.38, SD = 3.37). Participants volunteered by signing up on a department of psychology web page or were recruited by telephone by the experimenter. All participants either earned course credit or were paid $5.00.

**Stimuli**

Stimuli consisted of magazine advertisements selected from popular women’s fashion magazines. All advertisements were full-page, color pictures. The thin-body advertisements featured a full view of an attractive, thin woman. Control advertisements featured various products, including fashion accessories and make-up. They did not contain any person or body part. All advertisements were presented on a 17-in. computer screen. In addition, a red triangle on a white background, approximately one half the size of the advertisements, was used as the target in a signal-detection task.

**Measures**

**State Self-Esteem**

The Current Thoughts scale (Heatherton & Polivy, 1991) is a 20-item self-report measure of state self-esteem, with Appearance, Social, and Performance subscales. Participants indicate on a 5-point scale the extent to which each statement is true of them at the moment. Scores on the Performance subscale were not of interest in the current study and are therefore not reported.
Self-Image

The Self-Image Scale (see McFarlane, Polivy, & Herman, 1998, for details) consists of 16 pairs of bipolar adjectives (e.g., attractive–unattractive, strong–weak). Each adjective pair anchors the ends of a line marked off into 11 segments. Participants checked a point along the line to indicate how they perceive themselves at the moment. For scoring purposes, each segment was considered as one whole number and a check between two notches was considered one-half number. The scale was scored in the negative direction, such that higher scores indicated that participants felt closer to the negative pole than to the positive pole.

Mood

Mood was measured using the 66-item Affect Rating Scale (ARS; Atkinson & Polivy, 1976). The ARS consists of affective statements (e.g., “I feel content”). Participants indicated the intensity of each feeling, as they are currently experiencing it, on a 4-point scale. Negative statements were reverse scored to obtain a score of total positive mood.

Dietary Restraint

The Restraint Scale (Herman & Polivy, 1980) is a 10-item self-report questionnaire that assesses weight fluctuations, eating behavior, and attitudes. Individuals who score 15 or higher are classified as restrained eaters. For purposes of this study, three additional questions—How concerned are you with your appearance?, How often do you engage in behaviors to improve your appearance? and How confident are you that these behaviors will improve your appearance?—were appended to the Restraint Scale and scored on 4-point scales. Scores from these three items were not included as part of the restraint score, but were used to estimate appearance concern and attainability beliefs.

Procedure

All participants were run individually through the experimental procedure. The participant was led to believe that she was participating in a shape-perception study investigating how quickly people recognize simple shapes following exposure to complex visual stimuli. The participant was told that she would perform a signal-detection task in which she was to watch for a red triangle and she was instructed to make a specific response when it appeared. This task was included to ensure that participants attended to the experimental stimuli, which were presented on the computer monitor. As part of the cover story, the signal-detection task was described in detail to the participant.

After receiving instructions for the signal-detection task, the participant completed a preliminary mood questionnaire to establish that no significant group differences existed before the experimental manipulation. The experimenter left the room while the participant completed the mood questionnaire and returned to guide her through a block of practice trials of the signal-detection task. In this block, four control advertisements and one red triangle were presented randomly for 7s each. Following the block of practice trials, the participant began the exposure phase of the study.

Each participant was assigned randomly to one of three experimental conditions. Each condition involved exposure to 30 magazine advertisements and six red triangles randomly presented one at a time. A 1-s blank screen was presented between each stimulus item. In the control (no exposure) condition, the participant was shown 30 product advertisements, each presented for 7s. In the long-exposure condition, the participant
was exposed to 15 control and 15 thin-body advertisements, also presented for 7s each. The short-exposure condition was identical to the long-exposure condition, except that each advertisement was presented for 150 ms. (In the short-exposure condition, the signal-detection task was naturally more difficult, and thereby further reduced the participant’s ability to engage in social comparison with the models depicted in the brief images.)

Following the exposure phase of the study, the experimenter returned and presented the participant with a packet of questionnaires containing the State Self-Esteem, Self-Image, and Affect Rating scales. These questionnaires were introduced as tools to assess factors that could affect task performance. The participant was given 10 min to complete the questionnaires. The experimenter then returned to collect the questionnaires and informed the participant that the study was over.

Finally, the participant was asked to voluntarily complete “an additional questionnaire being developed by another researcher.” At this point, the participant completed the Restraint Scale with its three appended questions, whereupon the experimenter returned to debrief and thank her.

RESULTS

Ten participants claimed, during either the suspicion-probing or debriefing phase, to be suspicious. Where the inclusion of data from participants reporting suspicion made a significant difference in the results, an additional analysis excluding their data was performed (see below).

Mood

Two-way (Exposure Condition × Restraint Status) analyses of variance (ANOVAs) revealed no main or interaction effects of condition or restraint status on participants’ mood before or after exposure to the ads, $F < 1$.

Total State Self-Esteem

Restrained eaters reported lower total state self-esteem ($M = 69.9, SD = 10.9$) than did unrestrained eaters ($M = 76.3, SD = 11.0$), $F(1, 86) = 8.11, p < .01$. No other significant main effects or interactions emerged.

Appearance Self-Esteem

Restrained eaters reported lower appearance state self-esteem than did unrestrained eaters, $F(1, 86) = 13.31, p < .001$. This effect was qualified by a significant Restraint × Condition interaction, $F(2, 86) = 4.66, p < .02$, with unrestrained eaters reporting lower appearance self-esteem in the long-exposure condition ($M = 19.1, SD = 3.8$) than in the short-exposure ($M = 23.2, SD = 3.2$) or control condition ($M = 22.9, SD = 3.5$), $F(2, 86) = 6.28, p < .004$. Appearance self-esteem scores among restrained eaters were not affected by exposure condition (Table 1).

Social State Self-Esteem

Restrained eaters reported lower social self-esteem ($M = 24.7, SD = 5.5$) than did unrestrained eaters ($M = 27.1, SD = 5.4$), $F(1, 86) = 4.86, p < .03$. This effect was qualified
by a significant Restraint × Condition interaction, $F_{(2, 86)} = 3.17, p < .05$, with restrained eaters reporting lower social self-esteem ($M = 22.20, SD = 5.68$) than did unrestrained eaters ($M = 28.47, SD = 5.83$) in the control condition, $F_{(1, 86)} = 10.23, p < .003$. Social self-esteem did not significantly differ between restrained and unrestrained eaters or as a function of exposure duration in the short or long exposure conditions.

Because there were no differences between the long and short exposure conditions, we created a new condition called “exposed,” into which scores from participants in both the long and short exposure conditions were collapsed. A 2 × 2 ANOVA using this new condition yielded (in addition to the main effect of restraint described above) a significant Restraint × Condition interaction, $F_{(1, 88)} = 5.73, p < .02$. Restrained eaters exposed to thin-body images reported higher social state self-esteem ($M = 25.9, SD = 5.0$) than did restrained eaters exposed to control ads ($M = 22.2, SD = 5.7$), $F_{(1, 88)} = 4.91, p < .03$. The social state self-esteem of unrestrained eaters was not affected by exposure condition, $F_{(1, 88)} = 1.39, p < .20$ (Table 2).

### Self-Image

A marginally significant Condition × Restraint interaction effect was obtained for self-image, $F_{(2, 85)} = 2.30, p < .06$. A two-way ANOVA conducted with the new, collapsed exposure condition, however, produced a significant Condition × Restraint interaction, $F_{(1, 87)} = 5.15, p < .03$. Restrained eaters exposed to thin-body images tended to report more positive self-image ($M = 66.8, SD = 22.3$) than did restrained eaters exposed to control advertisements ($M = 78.8, SD = 19.5$), $F_{(1, 87)} = 3.59, p < .07$. The self-image of unrestrained eaters did not significantly differ by exposure condition (Table 3).

### Table 1. Mean appearance state self-esteem (±SD) as a function of exposure condition and restraint status

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Short (150 ms) Exposure</th>
<th>Long (7s) Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestrained eaters</td>
<td>22.87 ± 3.44 (n = 15)</td>
<td>23.19 ± 3.20 (n = 16)</td>
<td>19.13 ± 3.81 (n = 16)</td>
</tr>
<tr>
<td>Restrained eaters</td>
<td>17.47 ± 3.50 (n = 15)</td>
<td>19.93 ± 2.43 (n = 15)</td>
<td>19.40 ± 5.11 (n = 15)</td>
</tr>
</tbody>
</table>

### Table 2. Mean state social self-esteem (±SD) as a function of exposure condition and restraint status

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Exposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestrained eaters</td>
<td>28.47 ± 5.83 (n = 15)</td>
<td>26.50 ± 5.18 (n = 32)</td>
</tr>
<tr>
<td>Restrained eaters</td>
<td>22.20 ± 5.68 (n = 15)</td>
<td>25.93 ± 5.04 (n = 30)</td>
</tr>
</tbody>
</table>

1A two-way ANOVA conducted after omitting suspicious participants yielded a nonsignificant Condition × Restraint interaction for social self-esteem, $F_{(2, 77)} = 2.30, p < .11$. This weaker effect is probably the result of the loss of statistical power because the means obtained from both the full and reduced samples were approximately the same.

2Degrees of freedom in the analysis of self-image were reduced by 1 owing to missing data from one participant.
**Moderator Variables**

We examined the three variables (appearance concern, frequency of appearance-improvement behaviors, and confidence in appearance-improvement behaviors) added to the Restraint Scale. Not surprisingly, restrained eaters were significantly more concerned with their appearance ($M = 2.8, SD = .8$) than were unrestrained eaters ($M = 2.3, SD = .8$), $F(1, 86) = 5.68, p < .01$. They also reported performing appearance-improvement behaviors significantly more often ($M = 3.0, SD = .8$) than did unrestrained eaters ($M = 2.5, SD = 1.0$), $F(1, 86) = 5.00, p < .03$, but did not express more confidence in their ability to improve their appearance than did unrestrained eaters.

Because these three variables were intercorrelated ($r$ ranging from .28 to .47), we combined them into a single concern/effort variable, weighting all three equally. Dichotomizing the concern/effort variable at the median, we entered it as a third variable in the preceding two-way analyses, but in no case did it moderate the Restraint × Condition interaction, in the sense of producing a significant three-way interaction. Concern for appearance and efforts to change one’s appearance, then, do not contribute to the prediction of self-esteem or self-image independently of their association with dietary restraint.

**DISCUSSION**

In general, the results of the current study indicate that restrained eaters do not manifest an adverse reaction when exposed to thin-body media images. Overall, restrained eaters viewed themselves less positively than did unrestrained eaters. They reported lower total, appearance, and social state self-esteem and a more negative self-image. They also expressed more concern with their appearance than did unrestrained eaters. When exposed to the thin-body images, however, restrained eaters did not react negatively in any respect. In fact, restrained eaters’ self-image and social self-esteem improved after viewing pictures of thin women. Their appearance self-esteem did not improve, but neither did it decline, as was the case for unrestrained eaters. In short, restrained eaters showed no negative effects and some positive effects of exposure to thin-body images. Unrestrained eaters showed no positive effects and one negative effect (appearance self-esteem). In general, then, the results of the current study support the finding of Mills et al. (2002) that restraint status moderates the effect of exposure to thinness-promoting images on the viewer’s own body image, with restrained eaters more likely to feel better about themselves than worse.

Our results differed from the Mills et al. results in some respects. Mills et al. did not examine social self-esteem, which produced the largest effect in our study. They found absolute enhancement of appearance self-esteem for restrained eaters exposed to thin-body images, whereas we found only relative enhancement (i.e., restrained eaters did not
show the adverse effect that unrestrained eaters showed). Clearly, there are some mild discrepancies between studies (and between the various studies included in the Mills et al. study). The various measures showing self-enhancement may only partially capture the central underlying construct that responds positively to exposure to thin-body images. Still, there seems to be little doubt that self-enhancement of one sort or another is the dominant response among restrained eaters.

It has been suggested that self-enhancement arises when individuals imagine themselves in their ideal body (Mills et al., 2002; Myers & Biocca, 1992). Although it was predicted that enhancement would occur only to the extent that participants were confident that they could achieve their ideal appearance, the results of the current study suggest that this is not necessarily the case. Restrained eaters in this study exhibited self-enhancement (and unrestrained eaters did not) even though restrained eaters ($M = 2.40$) and unrestrained eaters ($M = 2.38$) did not differ in attainability scores. (These means are relatively high, inasmuch as the attainability scale ranged from 0 to 4.) Thus, it appears that idealization and self-enhancement may be independent of attainability beliefs.

Another factor that did not moderate restrained eaters’ self-enhancement was the duration of exposure to the thin-body images. Presenting the images for as little as 150 ms was just as effective as presenting them for a full 7s. This finding suggests that the self-enhancement effect does not require extended cognitive processing of the image for the image to have a psychological impact. It is possible that the first few times that one is exposed to such images, one must engage in full processing of the image and whatever social comparison processes it triggers. Our data cannot speak to that issue. Nevertheless, our data do suggest that eventually, even if not initially, thin-body images automatically elicit a particular evaluation of one’s self, without the individual having to actively engage in social comparison and without the individual having been previously exposed to the particular image. (Most of these images were undoubtedly novel for most participants.) To the extent that such images take on this automatic function, their pervasiveness (and invasiveness) in women’s everyday lives is all the more noteworthy. Images that induce self-evaluative changes need not be examined at length. Fleeting glances, which presumably outnumber extended examinations by a wide margin in daily living, are just as potent.

The self-enhancement effect is normally interpreted as a manifestation of a fantasized projection of one’s self into an idealized scenario (or body shape). The thin-body image induces hope, a positive reaction. A possible alternative explanation for the self-enhancement that both we and Mills et al. (2002) obtained, however, hinges on the notion that the thin-body image acts as a threat more than an inspiration. Perhaps, restrained eaters respond to these images with self-enhancement as a way of actively denying the threat. Self-enhancement, then, may be the result of overcompensation for the threat posed by thin-body images. Such images are likely to be especially threatening for restrained eaters, who cope with the threat by conjuring up—or at least reporting—a more positive self-image. Teasing apart the inspirational and defensive explanations for self-enhancement in restrained eaters will require more sophisticated research than has been conducted so far. Restrained eaters’ generally high attainability scores are consistent with the notion that they believe that they can change in the direction of the ideal. There remains a lingering possibility, though, that expressions of high attainability beliefs may themselves serve a defensive function and not reflect a genuine belief.

Whatever explanation is advanced, however, it must take into account the particular motivational state of the restrained eater. Despite equally high attainability beliefs, unrestrained eaters did not show any evidence of self-enhancement and a 7-s exposure to the thin-body images actually had a negative effect on their appearance state self-
esteem, as might be expected in individuals who engage in normal social comparison and negative contrast. That this effect did not occur with the very brief exposure suggests that such comparisons may not have become “automatic” for unrestrained eaters, for whom appearance is relatively less important. Restrained eaters’ investment in their body shape appears to be crucial for self-enhancement, whether self-enhancement is driven by inspiration or threat.

The current study, although providing further evidence for self-enhancement in restrained eaters exposed to thin-body images, does not exculpate such images from a possible role in the development of eating problems. Whether these images induce self-castigation (demanding dieting), or, as now seems more likely, they induce a pleasant fantasy (inspiring dieting), the behavioral result (dieting) is probably the same, even if the affective tone differs. By the same token, however, the results of the current study do not support the suggestion that media images play a primary role in the development of problem eating. Although exposure to thin-body images reduced the appearance self-esteem of unrestrained eaters, there is as yet no evidence that such negative contrast effects prompt unrestrained eaters to undertake weight loss behaviors. Indeed, the unrestrained eaters in the current study remained unrestrained despite several years of repeated exposure to such images in their everyday lives. Even if unrestrained eaters do not seek out such images with the avidity of restrained eaters, there is no doubt that they must encounter idealized images with great regularity. Although exposure to thin-body images may contribute to problem eating, then, its contribution is by no means simple or obvious (Polivy & Herman, 2002).

REFERENCES


