

On Models and Vases: Body Dissatisfaction and Proneness to Social Comparison Effects

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When and why do media-portrayed physically attractive women affect perceivers' self-evaluations? In 6 studies, the authors showed that whether such images affect self-evaluations depends jointly on target features and perceiver features. In Study 1, exposure to a physically attractive target, compared with exposure to an equally attractive model, lowered women's self-evaluations. Study 2 showed that body-dissatisfied women, to a greater extent than body-satisfied women, report that they compare their bodies with other women's bodies. In Study 3, body-dissatisfied women, but not body-satisfied women, were affected by both attractive models and nonmodels. Furthermore, in Study 4, it was body-dissatisfied women, rather than body-satisfied women, who evaluated themselves negatively after exposure to a thin (versus a fat) vase. The authors replicated this result in Study 5 by manipulating, instead of measuring, body dissatisfaction. Finally, Study 6 results suggested that body dissatisfaction increases proneness to social comparison effects because body dissatisfaction increases self-activation.

Keywords: social comparison, comparison relevance, mass media, self-evaluation, body dissatisfaction

Media images of increasingly and, for most women, unrealistically thin and attractive female body shapes are ubiquitous in most Western societies. Research suggests that exposure to these images can affect the way women evaluate themselves. In line with social comparison theory (Festinger, 1954), most researchers believe that such exposures instigate social comparison processes that typically have negative effects on self-evaluation (for a meta-analysis, see Groesz, Levine, & Murnen, 2002).

In a number of experimental studies, it was found that exposure to images of physically attractive women may indeed have detrimental effects on self-evaluation. For example, Stice and Shaw (1994) exposed female participants to pictures depicting ultrathin women, average-sized women, or no women. Exposure to the pictures of the ultrathin women had a negative effect on the various indices of self-evaluation. In a similar vein, Irving (1990) found that exposure to thin women resulted in a lower self-evaluation than did exposure to either average-weight or oversize women.

Polivy and Herman (2002, 2004) argued recently that exposure to the idealized female images that are projected by the mass media can cause women to evaluate themselves negatively and may even impel them to undertake the sort of "remedial" eating patterns that might eventually increase the subsequent risk for the emergence of restrictive dieting and eating pathology. However, in spite of the number of studies that support this view, Polivy and Herman (2004) also noted that "we still do not understand how such sociocultural influences produce disordered eating in any given individual (or why a similar person in the same cultural milieu does not become disordered)" (p. 1).

Consistent with the suggestion that some women may be more vulnerable to the effects of an exposure to the current thin ideal, a number of studies have suggested that images of physically attractive women may indeed affect some women more strongly than they affect others (Groesz et al., 2002; Hausenblas, Janelle, Gardner, & Focht, 2004; Heinberg & Thompson, 1995; Patrick, Neigh-

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bors, & Knee, 2004; Posavac, Posavac, & Posavac, 1998). For example, Posavac et al. (1998) found that the negative effects of exposure to images of physically attractive female body shapes were enhanced for women with relatively high levels of body dissatisfaction. However, it is still unclear why some women are more prone to these contrastive social comparison effects than others. Moreover, researchers that have made an attempt to identify factors that enhance proneness to social comparison effects following an exposure to thin female body shapes have largely conducted the research in a piecemeal fashion and in single-study efforts. Thus, integration of and theoretical explanation of all the accumulated research findings are difficult and are hampered by the lack of a theoretical framework in which past findings can be united. That is, a theory-based explanation of why some women are more vulnerable to the negative self-evaluative effects of images of thin female body shapes is still lacking.

In this research, we attempted to address the following questions: Why does exposure to physically attractive female body shapes affect some women so strongly, whereas for others, these images seem to have a negligible effect? What may moderate the relation between viewing idealized body images and making a negative self-evaluation? To date, these questions have not been investigated in a systematic, theory-inspired manner. We made an attempt to fill this void by considering the comparison relevance of physically attractive female body shapes. Specifically, we investigated the role of the determinants of the occurrence of social comparison effects.

One of social comparison theory's (Festinger, 1954) central propositions is the so-called similarity hypothesis. Under this hypothesis, it is assumed that people will compare themselves with others whom they consider relevant comparison targets rather than compare themselves with less relevant comparison targets. Social comparison studies have shown that comparison relevance is an important prerequisite for social comparison effects to occur (Brown, Novick, Lord, & Richards, 1992; Cash, Cash, & Butters, 1983; Festinger, 1954; Gilbert, Giesler, & Morris, 1995; Lockwood & Kunda, 1997). If a person uses a target stimulus as comparison standard, the person should perceive a categorical similarity between themselves and the target stimulus; that is, the self has to be seen as belonging to the same category as the target stimulus. Because targets who are seen as belonging to the same category are perceived as more relevant comparison standards, they will more readily invite comparison processes than will targets who are seen as belonging to different categories (Cash et al., 1983; Festinger, 1954; Goethals & Darley, 1977; Stapel & Schwinghammer, 2004; Wood, 1989). Put simply, just as people typically do not compare apples with oranges, they are also reluctant to compare themselves with others who are different. Thus, psychology students will more readily compare themselves with other psychology students than with law students (Stapel & Schwinghammer, 2004). But why, then, should women compare themselves with images of unreachably attractive models?

In the present article, we propose that for some women, these images constitute relevant comparison standards, as exemplified by the occurrence of social comparison effects, whereas for others, the images are less relevant comparison standards and are therefore less likely to affect their self-views. We argue that whether social comparison effects occur depends both on who the comparison target is and on who the perceiver of that target is. That is, we suggest that target features and perceiver features jointly determine

whether female body shapes will exert contrastive social comparison effects on their perceivers. Specifically, we propose that the extent to which perceivers of an attractive target are dissatisfied with their body (are body-dissatisfied) will predict whether exposure to that attractive target will affect the perceivers' self-evaluations. Thus, similar to the idea that only a specific category of physically attractive female images will affect self-evaluations (see e.g., Cash et al., 1983; Stapel & Schwinghammer, 2004), in this article, we propose that these images will affect only a specific category of perceivers. It follows from this general proposition that for body-dissatisfied women, images of physically attractive women, including professional models and celebrities, will have greater comparison relevance than those images will have for body-satisfied women. As a consequence, we expected that body-dissatisfied women should be more prone to contrastive social comparison effects after being exposed to images of thin female body shapes.

To summarize, our interaction model assumed that whether viewing a highly attractive target will have an effect on self-evaluation depends both on who that target is and by whom that target is perceived. More specifically, we hypothesized that perceiver body dissatisfaction increases the comparison relevance of a variety of comparison targets, and thus increases proneness to negative social comparison effects.

In this research, we tested our interaction model using a stepwise approach. In Study 1, we focused on target features by addressing the hypothesis that target features affect comparison relevance. We did this by investigating whether the self-evaluative impact of a physically attractive female target depends on whether that target is presented as a professional model. We expected that a physically attractive target will affect women's self-evaluations to a greater extent than will an equally attractive model. In Study 2, we focused on the effect of perceiver features on social comparison by addressing the relation between body dissatisfaction and the relevance of several comparison standards. In Study 3, we addressed the joint influence of target and perceiver features on social comparison effects. Specifically, we investigated whether body-dissatisfied women, as opposed to body-satisfied women, are more prone to social comparison effects after exposure to an attractive female target. In Study 4 we examined the boundaries of comparison relevance by investigating whether body dissatisfaction causes women to treat even inanimate stimuli (vases) as relevant comparison targets. In Study 5, we manipulated, rather than measured, body dissatisfaction and aimed to replicate the results of Study 4. Finally, in Study 6 we attempted to provide an explanation of why body dissatisfaction enhances proneness to social comparison effects by addressing the relation between body dissatisfaction and the cognitive activation of the self.

Study 1

The goal in Study 1 was to consider the role of target features in predicting whether physically attractive female images will affect self-evaluation. As outlined earlier, relevant comparison standards invite social comparison processes more readily than do less relevant comparison standards. For example, Brown et al. (1992) showed that women's self-evaluations are negatively affected by exposure to attractive women (relevant comparison targets) but not by exposure to attractive men (less relevant comparison targets). Thus, Brown et al. showed that features of the comparison target

(i.e., gender) affect comparison relevance and, as a consequence, affect whether social comparison effects occur. In a similar vein, professional models, as opposed to nonmodels, may constitute less relevant comparison standards, thereby decreasing the likelihood that they will affect self-evaluation. Thus, viewing a physically attractive model may not affect women's self-evaluations ("You are a model, I am a woman"), whereas viewing an equally attractive nonmodel will ("We are both women"). The goal in Study 1 was to test this prediction.

A study by Cash et al. (1983) offered first support for our hypothesis. In that study, female participants who had been exposed to pictures of attractive women evaluated themselves relatively negatively, but self-evaluations were unaffected when the attractive women were portrayed as models in advertisements. Apparently, the female participants perceived the models as less relevant comparison standards and, therefore, had been able to dismiss the implied comparison with the professional models, but they could not do so when they believed the women were not models. A problem in the Cash et al. study was that in the model condition, the researchers attached the names of well-known advertisers (like Calvin Klein and Bloomingdale's) to the pictures to manipulate the women's status as a model. As a consequence, relative to the pictures of nonmodels, participants indicated that they were familiar with the model pictures. As a consequence, it is unclear whether the models did not affect participants' self-evaluation because they were models or because of the familiarity of the images in the model condition. Moreover, we know of no study that has ever reported replicating this important finding. Thus, in Study 1 we attempted to replicate the Cash et al. findings in a more controlled design. That is, we aimed to avoid alternative explanations by manipulating the target's status either by explicitly labeling the target as a professional model in half of the conditions or by not doing so in the nonmodel conditions.

Method

Participants and design. Participants were 85 female students (average age was 24 years, $SD = 2.80$, 93% indicated they were born in the Netherlands). Participants were randomly assigned to the conditions of the 2 (Attractiveness: attractive vs. unattractive) \times 2 (Label: model vs. nonmodel) between-participants design.

Materials and procedure. On the first page of the booklet that the participants received, they were told they would participate in a study of perception and evaluation. They were instructed to look carefully at a picture, which contained either an attractive or an unattractive girl. In the attractive condition, the picture contained a full body shot of a thin girl dressed in a sleeveless dress. In the unattractive condition, the picture depicted a waist-up shot of a heavier girl in a sleeveless shirt.¹ Added to the picture was a short personality description, in which the target's name, hobbies, and favorite animal were reported. Her status as a professional model was mentioned only in the model conditions. In the nonmodel conditions, the target's profession was not specified. After exposure to the target, the participants read the following (see Lockwood & Kunda, 1997, for a similar procedure):

You have just viewed a picture. Previous research has established that human perception and evaluation are to a large extent influenced by people's personality and attitudes. To be able to control for this influence, it is important that you answer the following questions.

Then participants answered, in the following order, three questions that were aimed at measuring self-evaluation: "How attractive do you find yourself?" "How satisfied are you with your appearance?" and "How satisfied are you with yourself?" (Cronbach's $\alpha = .85$). Finally, they were asked, "How attractive do you consider the girl in the picture?" All answers were given on a 7-point scale (1 = *not at all* and 7 = *extremely*). After participants had completed the study, they were thanked, and they received a debriefing explaining the true purpose of the study.

Results and Discussion

Manipulation check. As intended, the attractive target was rated more attractive ($M = 4.74$, $SD = 1.71$) than the unattractive target ($M = 2.57$, $SD = 1.15$), $F(1, 81) = 46.07$, $p < .001$, $\eta^2 = .36$. There was no main effect of label and no interaction effect, all $F_s < 1$.

Main analyses. All analyses were performed using a two-way analysis of variance (ANOVA) of Attractiveness (attractive vs. unattractive) \times Label (model vs. nonmodel). Participants' ethnicity did not influence the results reported in this article and, therefore, will not be discussed further. The mean of the three items measuring self-evaluation was computed as the overall self-evaluation measure. The ANOVA performed on this measure revealed a significant main effect of attractiveness, $F(1, 81) = 19.32$, $p < .001$, $\eta^2 = .19$, indicating that participants exposed to the attractive target rated themselves more negatively ($M = 4.57$, $SD = 1.05$) than did participants exposed to the unattractive target ($M = 5.37$, $SD = 0.61$). It is more important that the predicted interaction between attractiveness and label was significant, $F(1, 81) = 6.47$, $p < .02$, $\eta^2 = .07$. As predicted, this interaction indicated that participants exposed to the attractive target evaluated themselves more negatively when the target was presented as a nonmodel ($M = 4.21$, $SD = 0.90$) than when the target was presented as a model, ($M = 4.95$, $SD = 1.09$), $F(1, 81) = 8.56$, $p < .01$, $\eta^2 = .10$. There was no such effect for the unattractive target, $F < 1$ (for the model: $M = 5.29$, $SD = 0.71$; for the nonmodel: $M = 5.46$, $SD = 0.49$). Also, there was no difference in self-evaluation for participants who had been exposed to the attractive target that was labeled as a model or the unattractive target that was labeled a model, $F(1, 81) = 1.70$, *ns*. Finally, participants who were exposed to the unattractive nonmodel evaluated themselves more positively than did participants exposed to the attractive nonmodel, $F(1, 81) = 24.35$, $p < .001$, $\eta^2 = .23$. In Figure 1, the values for self-evaluation are depicted.

In addition to replicating the important finding reported by Cash et al. (1983), the findings of Study 1 supported our hypothesis that features of physically attractive female targets (is the target a model or not) determine whether those targets lead to social comparison effects. Specifically, Study 1 showed that when confronted with a physically attractive target, self-evaluations were more negative when the target was presented as a nonmodel than when the target was presented as a professional model. Thus, Study 1 results suggest that models are generally treated as less relevant comparison standards than are nonmodels.

¹ The materials used in the studies may be obtained by writing to Debra Trampe.

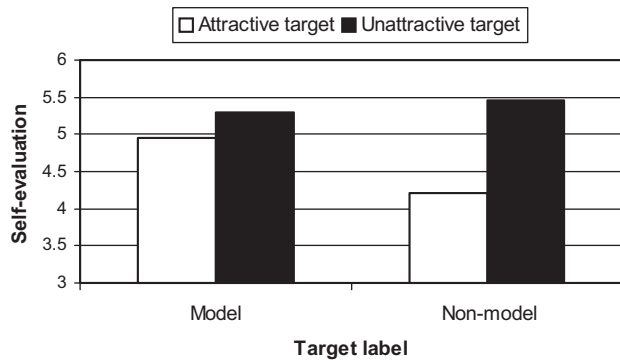


Figure 1. Self-evaluations (on a 7-point scale) as a function of target attractiveness and target label in Study 1 are shown.

Study 2

In Study 1, we gathered support for our hypothesis that whether social comparison effects occur after exposure to a physically attractive woman depends on the comparison relevance of the attractive target. However, our hypothesis is not limited to target features. We believe that the features of the perceiver, that is, the extent to which women are dissatisfied with their body, also play a role in predicting whether images of attractive female shapes will affect their self-evaluations. Specifically, we hypothesized that body dissatisfaction causes women to more frequently and readily engage in social comparison. If our reasoning that body-dissatisfied women, compared with body-satisfied women, display an enhanced proneness to social comparison effects is correct, we should find an association between body dissatisfaction and the tendency to compare one's own body with the bodies of others. Indeed, previous research (Heinberg & Thompson, 1992; Striegel-Moore, McAvay, & Rodin, 1986; J. K. Thompson & Heinberg, 1993) suggested that women who are dissatisfied with their body may indeed be more inclined to compare their body with the bodies of other women. For example, Heinberg and Thompson (1992) asked participants to rate various groups on a 5-point scale ranging from 1 (*not an important comparison group*) to 5 (*a very important comparison group*). Results showed that dissatisfaction with one's body is related to a tendency to compare one's body with the bodies of classmates and fellow students, a group of comparison targets that could be labeled relevant comparison targets. It is more important that Heinberg and Thompson found that body dissatisfaction was also related to comparing one's body with the bodies of celebrities. However, in this study, factor analysis was used to combine specific comparison targets into a small number of factors. For example, classmates and fellow students were combined to form one comparison factor. As a result, it remains unclear how body dissatisfaction correlates with comparisons with specific relevant targets, like friends, fellow students, other women in general, and family, and specific less relevant comparison targets, like models and celebrities. Also, asking participants to rate how important a particular comparison group is for them seems a less direct measure of comparison tendencies than asking participants to rate how often they compare themselves with each target. Accordingly, we conducted a study in which female college students completed a measure of body dissatisfaction and, some weeks later, indicated how often they com-

pare their body with the bodies of a number of specific other persons: friends, fellow students, other women in general, family, models, and celebrities.

Method

Participants. The participants, 250 female 1st-year psychology students at the University of Groningen (average age was 21 years, $SD = 4.7$, 97% indicated they were born in the Netherlands) completed the questionnaires during mass testing sessions.

Materials. In a first mass testing session, participants completed a measure of body dissatisfaction that was based on the Body Dissatisfaction subscale of the Eating Disorders Inventory (EDI; Garner, Olmstead, & Polivy, 1983; Cronbach's $\alpha = .87$). In the EDI, participants state how often a particular statement about the size and shape of various body parts is true about them (e.g., "I think that my thighs are too large"; "I like the shape of my buttocks"). Answers are given on a 6-point scale (1 = *never* and 6 = *always*) and higher scores reflect more body dissatisfaction.² The EDI and its subscales have sufficient reliability and convergent and discriminant validity (Garner et al., 1983). Originally, the scale included nine items on thighs, stomach, hips, and buttocks. In the present measurement of body dissatisfaction, we have added seven items on arms, breasts, and calves because we believe that in addition to the body parts that are included in the EDI, these body parts are also important in determining whether one is satisfied with one's body.

In another session 4 weeks later, participants ostensibly took part in a study on students' perceptions of their own body and the bodies of others. Embedded in the questionnaire were questions measuring the extent to which participants compared their body with that of others. On a 7-point scale (1 = *never* and 7 = *always*) participants indicated how often they compared their body with those of girlfriends, female students, family, celebrities, models, and other women in general.

After participants had completed the study, they received a debriefing explaining the true purpose of the study. They were also told that the body dissatisfaction measure was, in reality, not part of a national survey but rather a measure of individual differences in body dissatisfaction.

Results and Discussion

The 16 items measuring body dissatisfaction were combined into a composite measure of body dissatisfaction. The correlations showed that the more dissatisfied women were with their body, the more they reported that they compare their own body with that of celebrities ($r = .32$, $p < .001$), models ($r = .23$, $p < .001$), girlfriends ($r = .31$, $p < .001$), female students ($r = .30$, $p < .001$), other women in general ($r = .22$, $p < .001$), and family ($r = .20$, $p < .01$).

² In all of the studies we report, the Body Dissatisfaction subscale is normally distributed and the mean lies around the midpoint of the scale. To give readers an idea about the level of body dissatisfaction in our participant populations, we present here some descriptive statistics by study. For Study 2 ($M = 3.02$, $SD = 0.88$), scores range from 1 to 5.69. For Study 3 ($M = 2.86$, $SD = 0.64$), scores range from 1.63 to 4.88. For Study 4 ($M = 2.86$, $SD = 0.74$), scores range from 1.56 to 4.88.

These correlations showed that the more body-dissatisfied women were, the more they indicated that they compare their body with that of other women, including celebrities and models, on the one hand, and more real-life comparison targets, like friends and fellow students, on the other hand. Thus, the findings of Study 2 provided initial support for our hypothesis that body-dissatisfied women more frequently engage in social comparison. These women seem to compare themselves with a wider range of possible comparison targets than do body-satisfied women. However, correlational data do not allow for conclusions about causality. Moreover, it remained unclear whether body-dissatisfied women are also affected by a wider range of possible comparison targets than are body-satisfied women. Study 3 addressed these issues.

Study 3

In Studies 1 and 2, our hypothesis that both target and perceiver features determine whether women's self-evaluations will be lowered after exposure to attractive female body shapes was tested in two separate steps: In Study 1, we showed that women displayed the typical self-evaluative contrast effect after they had been exposed to an attractive female target, whereas self-evaluations were unaffected when the same target was labeled a professional model. In Study 2, we found that dissatisfaction with one's body is related to a tendency to compare one's own body with the bodies of various female others, ranging from friends to professional models. In Study 3, in one experimental design, we tested our hypothesis that target and perceiver features jointly determine the occurrence of social comparison effects after exposure to physically attractive targets. Our hypothesis would be supported if we showed that self-evaluations of body-dissatisfied women were affected negatively by a physically attractive nonmodel and a physically attractive model, whereas self-evaluations of body-satisfied women were only negatively affected by viewing a physically attractive nonmodel.

In Study 1, we manipulated the target's status as a model or a nonmodel by adding a short personality description to the picture of the target. In the model condition of that study, we manipulated model status very directly by explicitly describing the target as a professional model. However, in daily life, people mostly infer that a target is a model because she appears in an advertisement and not because she is explicitly labeled so. To increase external validity, in Study 3, we manipulated the target label in a more implicit manner, namely, by attaching the name of an unknown perfume brand to the picture, thereby making it look like an advertisement. No such brand name was added to the picture in the nonmodel conditions.

Method

Participants and design. We randomly assigned 132 female participants (average age was 18 years, $SD = 0.96$, 92% indicated they were born in the Netherlands) to one condition of the 2 (Attractiveness: attractive vs. unattractive) \times 2 (Label: model vs. nonmodel) design, with body dissatisfaction as a continuous moderator variable.

Materials and procedure. Participants received a booklet in which they were told they would participate in two unrelated studies. The first study was described as a national survey designed to investigate students' attitude toward their own body. Partici-

pants completed a measure of body dissatisfaction that was based on the Body Dissatisfaction subscale of the EDI (Garner et al., 1983; for a description of the scale, see Study 2). Cronbach's alpha for this scale was .79.

The second study was described as a study of perception and evaluation. This part of the study was similar to the procedure of Study 1, except for the picture participants were exposed to. As in Study 1, participants were instructed to look carefully at a picture, which contained either an attractive or an unattractive woman. In the attractive condition, the picture contained a waist-up shot of a thin girl wearing a top. In the unattractive condition, the picture depicted a waist-up shot of a heavier girl in a sleeveless shirt. In the model conditions, the name of a perfume brand that is unavailable in the Netherlands was added to the picture. In the nonmodel conditions, no brand name was added to the picture. Then participants answered, in the following order, the following questions that were aimed at measuring self-evaluation: "How attractive do you find yourself?" "How satisfied are you with your appearance?" and "How satisfied are you with yourself?" (Cronbach's $\alpha = .76$). Participants were also asked, "How attractive do you find the person depicted in the picture?" All answers were given on a 7-point scale (1 = *not at all* and 7 = *extremely*). After participants completed the study, they received a debriefing explaining the true purpose of the study.³

Results and Discussion

Manipulation check. A two-way ANOVA of Attractiveness (attractive vs. unattractive) \times Label (model vs. nonmodel) was performed on the target attractiveness rating. The attractive target was indeed rated more attractive ($M = 5.19$, $SD = 1.27$) than the unattractive target ($M = 3.48$, $SD = 1.64$), $F(1, 128) = 46.14$, $p < .001$. There was no main effect of label and body dissatisfaction and no interaction effects were significant ($ps > .29$).

Main analyses. The mean of the 3 items measuring self-evaluation was computed as the overall self-evaluation measure. We then computed the mean of the 16 items measuring body dissatisfaction and standardized this measure so that $M = 0$ and $SD = 1$. We performed a regression analysis of the composite measure of self-evaluation on attractiveness, label, and body dissatisfaction and of the interactions between these variables. This analysis revealed that the predicted three-way interaction was significant, $B = -1.03$, $t(124) = -4.09$, $p < .001$. Following Aiken and West (1991), we selected data points for estimating regression lines at one standard deviation above the mean (labeled

³ The experimental paradigm that we used in Study 3 and in further studies reported here represents a classic paradigm in social comparison and social cognition research (see for example, Bargh & Chartrand, 2000; Stapel, Koomen, & Zeelenberg, 1998; E. P. Thompson, Roman, Moskowitz, Chaiken, & Bargh, 1994). That is, a large number of other researchers have used a similar, unrelated studies procedure. Stapel and Koomen (2000), Stapel, Koomen, and Zeelenberg (1998), and Stapel and Suls (2004) have explicitly tested and found that when they used a procedure similar to the one that we used, participants in these past studies were unaware of the relation between the various tasks and the true purpose of the study. Participants in these studies completed several items tapping their suspicion regarding the purpose of the experiment and the possible relation between the two studies that they have participated in. These suspicion checks show that the procedure was successful in making participants believe that they are participating in two unrelated studies.

body-dissatisfied women) and at one standard deviation below the mean (labeled body-satisfied women). Figures 2A and 2B depict simple regression lines of self-evaluation as a function of target attractiveness and label for body-dissatisfied (+1 *SD*) and body-satisfied (−1 *SD*) women. Further analyses indicated that, as expected, body-dissatisfied women evaluated themselves relatively negatively after exposure to an attractive target, regardless of whether the attractive target was presented as a model or a nonmodel, $F(1, 124) = 0.48, ns$. For the unattractive target, target label did not differentially affect body-dissatisfied women's self-evaluations either $F(1, 124) = 0.03, ns$. However, for body-satisfied women, self-evaluations were lower following exposure to the physically attractive target who was presented as a nonmodel compared with a model, $F(1, 124) = 23.61, p < .001$. Unexpectedly, body-satisfied women evaluated themselves more negatively after exposure to the unattractive target when the target was presented as a model than when the target was presented as a nonmodel, $F(1, 124) = 6.55, p < .05$.

The results confirm our hypothesis that body-dissatisfied women are more readily affected by exposure to physically attractive female physiques than are body-satisfied women. That is, body-dissatisfied women's self-evaluations were negatively affected by exposure to both an attractive model and an attractive nonmodel. In contrast, for body-satisfied women, exposure to an attractive nonmodel lowered their self-evaluations, whereas expo-

sure to an attractive model did not. Thus, Study 3 showed that body-dissatisfied women, relative to body-satisfied women, are more likely to show contrastive social comparison effects after viewing physically attractive female images.⁴

Study 4

In the first three studies, we gathered evidence for our hypothesis that whether exposure to images of thin female body shapes will affect self-evaluations depends on the comparison relevance of these images. We proposed that comparison relevance is determined by the features of the comparison target (is the target a model or not, Study 1) and by the features of the perceiver of the target (the extent to which women are dissatisfied with their body, Study 2). In Study 3, we replicated and extended the findings of the first two studies by demonstrating in one experimental design that body-dissatisfied women are affected by a wider range of comparison targets than are body-satisfied women. Specifically, we found that women who were relatively dissatisfied with their body (but not women who were relatively satisfied with their body) showed contrastive social comparison effects after being presented with a professional model, a target that would logically be considered a less relevant comparison standard. This led us to inquire about the boundaries of this finding. After all, although a model may be considered a less relevant comparison standard, one could argue that a model is still a fellow human, and hence, a model may constitute only a relatively less relevant comparison standard. What would happen when we exposed body-dissatisfied women to a clearly irrelevant comparison standard? For example, would body-dissatisfied, as opposed to body-satisfied, women also treat a thin object as a relevant comparison standard?

Hypothesizing that even objects may constitute relevant comparison targets for a specific group of women implies that comparison relevance is determined by the social nature of perceivers and not necessarily by the social nature of the target. That is, we propose that the social part of social comparison is primarily defined by the social-cognitive nature of perceivers and not necessarily by the nature of comparison targets. Thus, for a woman who is dissatisfied with her body, a target, whether human or nonhuman, that bears some resemblance to a thin female body shape may constitute a relevant comparison standard. This implies that body-dissatisfied women may be affected not only by thin human targets, as shown in Study 3, but by thin nonhuman targets, like objects. This broader view on social comparison theory fits with current conceptualizations of social comparison, in which it is increasingly recognized that comparison targets do not necessarily

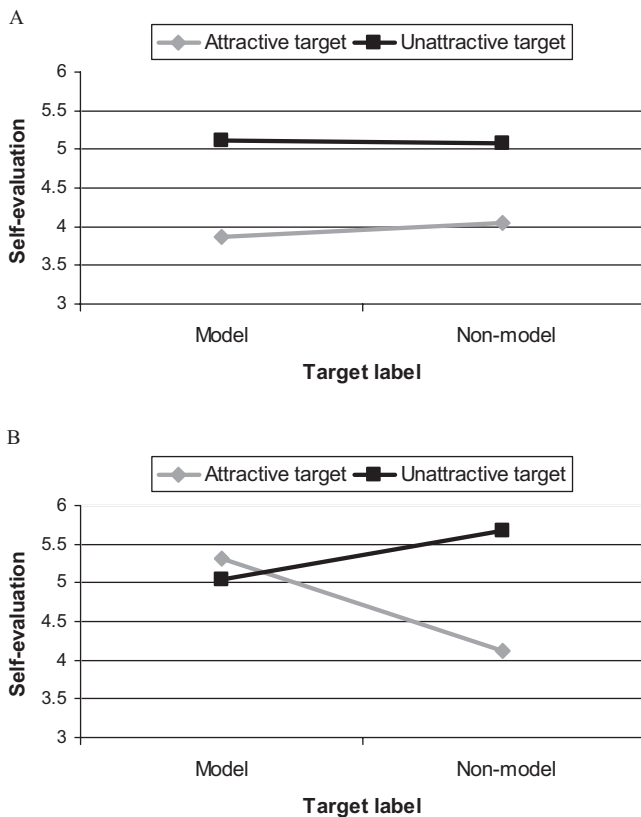


Figure 2. A: Self-evaluations (on a 7-point scale) as a function of target attractiveness and target label for body-dissatisfied women in Study 3 are shown. B: Self-evaluations (on a 7-point scale) as a function of target attractiveness and target label for body-satisfied women in Study 3 are shown.

⁴ It is important to note that in Study 3, as we would have predicted, the results of Study 1 were nicely replicated (thus ignoring the impact of body dissatisfaction). That is, in Study 3 we found a significant main effect of attractiveness, $F(1, 128) = 47.82, p < .001, \eta^2 = .27$, which indicated that the attractive target caused self-evaluations to be more negative ($M = 4.37, SD = 0.84$) than self-evaluations connected with the unattractive target ($M = 5.26, SD = 0.72$). It is more important that the interaction between Attractiveness and Label was also significant, $F(1, 128) = 11.32, p = .001, \eta^2 = .08$. As in Study 1, this interaction indicated that participants' self-evaluations were more positive after exposure to the attractive target when the target was presented as a model ($M = 4.62, SD = 1.01$), compared with when the target was not presented as a model ($M = 4.09, SD = 0.48$), $F(1, 128) = 8.33, p < .01, \eta^2 = .06$.

have to be perceived consciously (Mussweiler, Rüter, & Epstude, 2004; Stapel & Blanton, 2004) or be real comparison targets (Wood, 1996). In fact, comparison targets may be a product of one's motivation or imagination. We propose that dissatisfaction with an important aspect of the self, that is, one's body, may guide information processing. That is, we suggest dissatisfaction with one's body may increase the likelihood that a stimulus is processed in terms of thinness. Thus, for a woman who is dissatisfied with her body, a target that bears some relation to female body shapes may constitute a relevant comparison target. A quote from Striegel-Moore, McAvay, and Rodin (1986) nicely illustrates this hypothesis:

If the self schemas of . . . women who feel fat, for example, revolve around weight, eating, and appearance, then any stimulus related to these domains would become automatically self-relevant and would be processed within the context of the self-schema [of feeling fat]. For these individuals, a schema-relevant stimulus becomes "more" of a stimulus than it is for others because the self schema is implicated in the information processing sequence. (p. 945)

The goal in Study 4 was to test the hypothesis that clearly irrelevant comparison targets are treated as relevant comparison targets by body-dissatisfied women but not by body-satisfied women. That is, in Study 4, we examined whether self-evaluations of body-dissatisfied women, but not body-satisfied women, should be lower following exposure to a thin versus a fat object.

Method

Participants. The participants were 68 female undergraduate students (mean age was 21 years, $SD = 2.68$, 97% indicated they were born in the Netherlands) who participated for partial fulfillment of a course requirement. They were randomly assigned to one of the two experimental conditions (thin object or fat object). In the thin object condition, participants viewed a drawing of a thin vase; whereas in the fat object condition, we exposed participants to a drawing of a fat vase (see Figure 3).

Materials and procedure. After being greeted by a female experimenter, participants were seated in individual cubicles. The procedure was similar to the ones used in Studies 1 and 3. Participants received a booklet, which stated that they would participate in two unrelated studies. In the first study, participants completed a measure of body dissatisfaction that was based on the Body Dissatisfaction subscale of the EDI (Garner et al., 1983; for a description of the scale, see Study 2). Cronbach's alpha for this scale was .86. Again, higher scores reflect more body dissatisfaction. In the second study, participants were exposed to the fat or thin vase, and subsequently, their self-evaluation was measured with the same three items as were used in Studies 1 and 3 (Cronbach's $\alpha = .87$). Finally, participants indicated the extent to which they rated the vase as beautiful, remarkable, and professionally drawn on a 7-point scale (1 = *not at all* and 7 = *extremely*). After participants had completed the study, they received a debriefing explaining the true purpose of the study.

Results and Discussion

Manipulation check. The thin vase was judged more beautiful ($M = 3.89$, $SD = 1.15$) than the fat vase ($M = 3.21$, $SD = 1.62$), $F(1, 65) = 8.63$, $p < .01$, $\eta^2 = .38$. There was no main effect of

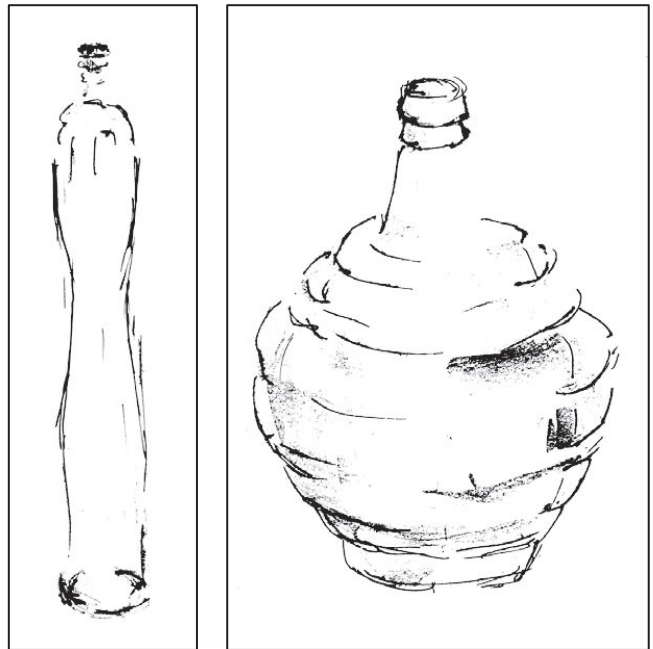


Figure 3. Thin and fat Stapel-Chardon vases used in Studies 4 and 5 are shown.

body dissatisfaction and no interaction ($ps > .16$). There were no significant effects on the questions of how remarkable or how professionally drawn participants judged the vase ($ps > .07$).

Main analyses. The 3 items measuring self-evaluation were transformed into a composite measure, and so were the 16 items measuring body dissatisfaction. After standardizing the body dissatisfaction measure (so that $M = 0$ and $SD = 1$), we performed a regression analysis on the self-evaluation measure with the categorical variable, vase, and the continuous variable, body dissatisfaction, as predictors. This analysis indicated a main effect for body dissatisfaction ($B = -1.21$), $t(65) = -5.06$, $p < .001$, which indicated that the more body-dissatisfied women were, the more they evaluated themselves negatively. There was also a main effect for vase ($B = 0.49$), $t(65) = 3.09$, $p < .005$, which indicated that self-evaluations were more negative after exposure to the thin vase than after exposure to the fat vase. It is more important that the expected interaction between vase and body dissatisfaction was significant ($B = 0.52$), $t(66) = 3.11$, $p < .01$. Following Aiken and West (1991), we selected data points for estimating regression lines at one standard deviation above the mean (labeled body-dissatisfied women) and at one standard deviation below the mean (labeled body-satisfied women). Figure 4 depicts simple regression lines of self-evaluation as a function of type of vase for body-dissatisfied (+1 SD) and body-satisfied (-1 SD) women. Subsequent analyses indicated that, as predicted, body-dissatisfied women evaluated themselves more negatively after exposure to a thin vase compared with a fat vase, $B = 1.00$, $t(66) = 4.26$, $p < .001$. However, for body-satisfied women, self-evaluations did not differ after exposure to either type of vase ($B = -0.03$), $t(66) = -.12$, *ns*.

Consistent with our predictions, the results show that body dissatisfaction enhances the relevance of comparison targets. Moreover, the results of Study 4 show that comparison relevance

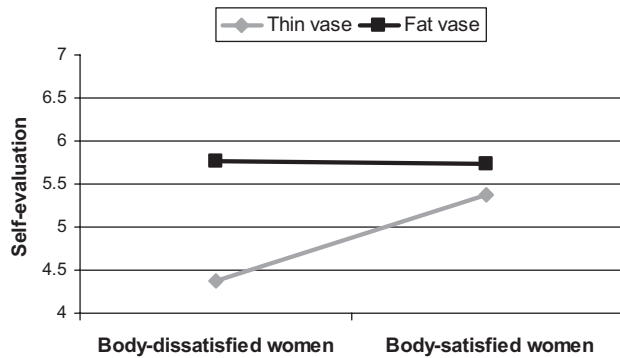


Figure 4. Self-evaluations (on a 7-point scale) as a function of the type of vase for body-dissatisfied and for body-satisfied women in Study 4 are shown.

is not necessarily limited to human targets. Rather, self-evaluations of women who are dissatisfied with their body can also be affected by nonhuman targets like vases. That is, Study 4 results suggest that body-dissatisfied women incorporated the information about the vases into their self-perceptions. Specifically, body-dissatisfied women evaluated themselves more negatively following exposure to a thin, rather than a fat, vase. Body-satisfied women, on the other hand, were not affected by exposure to the vases. Thus, body-satisfied women did not treat the vases as relevant comparison standards. In sum, the Study 4 results provided further support for our hypothesis that body dissatisfaction increases proneness to social comparison effects.

Study 5

In Study 4 we showed that individual differences in the extent to which women are dissatisfied with their body widens the range of relevant comparison targets to such an extent that even thin objects can affect body-dissatisfied (but not body-satisfied) women's self-evaluations. Although the results of this study strongly suggest that body dissatisfaction is an important determinant of the occurrence of social comparison effects, we cannot fully rule out the possibility that a construct related to body dissatisfaction may account for our findings. Therefore, to strengthen our claim that body dissatisfaction is the key construct, we should be able to show that manipulating body dissatisfaction would yield the same results as measuring body dissatisfaction did. Accordingly, our next step was to show that by contextually inducing satisfaction or dissatisfaction with one's body, the finding of Study 4 can be replicated. Specifically, consistent with the results of Study 4, we expected self-evaluations to be lower following exposure to a thin vase compared with exposure to a fat vase when dissatisfaction about one's body was induced. In contrast, when women are made to focus on their satisfaction with their body, exposure to either type of vase will not affect self-evaluations.

Method

Participants and design. During a mass testing session at the beginning of the academic year, 218 female undergraduate students (mean age was 21 years, $SD = 3.62$, 96% indicated they were born in the Netherlands) participated in the study. They were randomly assigned to the conditions of the 2 (Context: body-

satisfied vs. body-dissatisfied) \times 2 (Vase: thin vs. fat) factorial design.

Materials and procedure. Similarly to Studies 3 and 4, participants were led to believe that they were participating in two unrelated studies. The first study was presented as a writing assignment in which participants were instructed to write a short essay about what they feel and think when they are either satisfied or dissatisfied with their body. In the body satisfaction condition, participants were instructed to use the following words in their essay: *I, attractive, beautiful, and thin*. In the body dissatisfaction condition, the words were *I, unattractive, ugly, and fat*. Participants were instructed to take their time and to think deeply about why they are either satisfied or dissatisfied with their body. This task was modeled after a similar manipulation used by Stapel and Koomen (2001) and Schwinghammer, Stapel, and Blanton (2006). These authors have used a similar manipulation in their studies on the impact of positive self-images versus negative self-images. These authors reported that participants fully complied with the task they were assigned. Similarly to Study 4, the next study was presented as a study on perception and evaluation. Participants were instructed to carefully look at a drawing of either a thin or a fat vase (see Figure 3). After doing so, we measured self-evaluation ("How attractive do you consider yourself?" "How satisfied are you with your appearance?" "How satisfied are you with yourself?" and "How satisfied are you with your body?" questions appeared in this order). Cronbach's alpha for this measure was .89. Finally, participants rated how beautiful they considered the vase. All answers were given on a 7-point scale (1 = *not at all* and 7 = *extremely*). After participants completed the study, they received a debriefing explaining the true purpose of the study.

Results and Discussion

The four items measuring self-evaluation were combined into a composite measure. All analyses were performed using a 2 (Context: body-satisfied vs. body-dissatisfied) \times 2 (Vase: thin vs. fat) ANOVA.

Manipulation checks. The ANOVA on the self-evaluation measure yielded a main effect of context, $F(1, 214) = 25.71, p < .001, \eta^2 = .11$, which indicated that a participant evaluated herself more positively when she had written about her satisfaction with her body ($M = 5.14, SD = 0.97$) than when she had written about her dissatisfaction with her body ($M = 4.41, SD = 1.02$). The ANOVA on the question of how beautiful participants rated the vase showed that participants rated the thin vase as more beautiful ($M = 4.97, SD = 1.34$) than the fat vase ($M = 3.35, SD = 1.19$), $F(1, 214) = 82.36, p < .001, \eta^2 = .28$. No other effects on this item were significant ($ps > .10$).

Main analyses. The ANOVA on self-evaluation also yielded the predicted interaction between context and vase, $F(1, 214) = 5.02, p < .03, \eta^2 = .02$. In Figure 5, the values for self-evaluation are depicted. Subsequent analyses revealed that, as expected, when participants had written about their satisfaction with their body, there was no difference in self-evaluation after exposure to the thin ($M = 5.24, SD = 0.87$) or the fat vase ($M = 5.07, SD = 1.03$), $F < 1$. However, when participants had written about their dissatisfaction with their body, exposure to the thin vase resulted in lower self-evaluations ($M = 4.23, SD = 0.97$) than did exposure to the

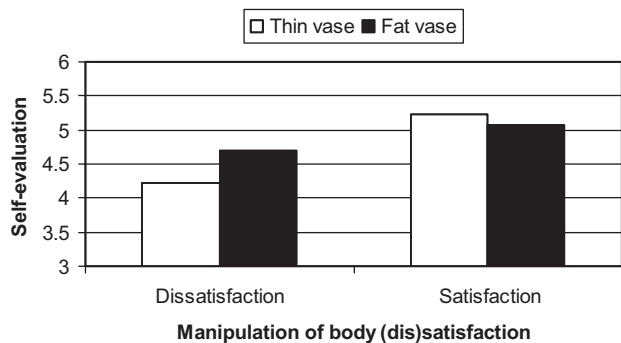


Figure 5. Self-evaluations (on a 7-point scale) as a function of type of vase and body dissatisfaction in Study 5 are shown.

fat vase ($M = 4.69$, $SD = 1.04$), $F(1, 214) = 5.43$, $p < .03$, $\eta^2 = .03$.

These findings have two important implications. First, they show that contextually induced satisfaction or dissatisfaction with one's own body affects whether a given comparison target is used when constructing self-evaluative judgments. Specifically, when participants focused on dissatisfaction with their body, exposure to the vase affected their self-evaluations: After they viewed the thin vase, participants made self-evaluations that were more negative than after they viewed the fat vase. However, viewing the vase did not affect the participants' self-evaluations after the participants focused on their satisfaction with their body; that is, after they wrote about satisfaction with their body, their self-evaluations were not affected by viewing either type of vase. Second, the results strengthen our assumption that body dissatisfaction is one of the key constructs driving our findings. Thus, together with the findings of Studies 3 and 4, which showed that body dissatisfaction moderates the occurrence of contrastive self-evaluations after exposure to thin stimuli, the current findings provide strong support for our hypothesis that body dissatisfaction widens the range of comparison targets that affect self-evaluations.

Study 6

One may wonder exactly why body dissatisfaction increases the comparison relevance of various targets and, as a consequence, increases proneness to social comparison effects. Past research has shown that body dissatisfaction is related to endorsement of the current thin ideal (Stice, Schupak-Neuberg, Shaw, & Stein, 1994; J. K. Thompson & Stice, 2001). Because body-dissatisfied women tend to be concerned about meeting standards and expectations of thinness and attractiveness, they must engage in frequent self-evaluation. Frequently monitoring whether they meet those standards will cause their thoughts about the self to be highly accessible. For example, Heatherton (1993) found that body dissatisfaction is related to preoccupation with the self. Increased activation of the self, in turn, has been shown to increase social comparison tendencies and to strengthen social comparison effects (Mussweiler, Rüter, & Epstude, 2004; Schwinghammer, Stapel, & Blanton, 2006; Stapel & Koomen, 2001; Stapel & Tesser, 2001). Taken together, it is very likely that body dissatisfaction increases proneness to social comparison effects because body dissatisfaction increases self-activation. The goal in Study 6 was to test the hypothesis that body dissatisfaction increases self-activation.

Method

Participants and design. Participants in the study were 52 female native Dutch students from the University of Groningen. They were instructed to write about either their satisfaction with their body or their dissatisfaction with their body. They received 4€ (approximately \$5) for their participation.

Materials and procedure. Participants were led to believe they would participate in a number of unrelated studies. First, they wrote about either their satisfaction with their body or their dissatisfaction with their body (for details, see Study 5). Next, in what they believed was an unrelated study, they completed a task designed to measure self-activation. Participants were told that earlier research had shown that when reading a foreign language, people were sometimes able to guess the correct translation of pronouns. Participants were led to believe that they would read a short story in "Wezwe, a language spoken only in New Guinea." Then participants were presented with a short story in a nonexistent language in which 15 pronouns were underlined. They were asked to guess the correct translation of the 15 pronouns. Our main interest was the number of first-person pronouns (*I, me, my*) participants would list. Earlier research has shown that heightened self-activation or self-focus led participants to list relatively more first-person pronouns (see Dijksterhuis & Van Knippenberg, 2000).

Results and Discussion

An ANOVA showed that, as expected, participants listed more first-person pronouns after writing about body dissatisfaction ($M = 6.11$, $SD = 1.50$) than they did after writing about body satisfaction ($M = 5.12$, $SD = 1.86$), $F(1, 50) = 4.51$, $p < .05$, $\eta^2 = .08$. This study supports the hypothesis that body dissatisfaction increases self-activation. Together with the other studies reported here, the results of this study shed more light on the question of why body dissatisfaction increases proneness to social comparison effects: Body dissatisfaction increases the accessibility of self-related cognitions (i.e., self-activation), which in turn increases the tendency to engage in social comparison.

General Discussion

Summary of Findings

The six studies presented here provide important evidence concerning the question of when images projected by the mass media as physically attractive female body shapes exert self-evaluative effects. We hypothesized that the occurrence of social comparison effects after exposure to physically attractive female targets is determined by both target features (whether the target is a model) and perceiver features (the extent to which the perceiver is body-dissatisfied). We have proposed that these two factors jointly influence the comparison relevance of a given comparison standard. The six studies presented here strongly support our view. Study 1 focused on target features and showed that after exposure to a physically attractive target, women's self-evaluations were lower than after exposure to the same target when the target was presented as a professional model. Study 2 focused on the comparison tendencies of perceivers of physically attractive targets. We found that the more women were dissatisfied with their body, the more they reported that they compared their own body with the

bodies of other women, like friends and fellow students, and with the bodies of models and celebrities. In addition to reporting that they compare themselves more, Study 3 showed that body-dissatisfied women are also more readily affected by viewing images of thin female body shapes. That is, body-dissatisfied women evaluated themselves relatively negatively after exposure to a physically attractive target, regardless of whether that target was presented as a model. Body-satisfied women, in contrast, did differentiate between targets that were presented as models and targets that were not presented as models, such that self-evaluations were lower following exposure to the nonmodel as compared with the model. Study 4 provided further evidence that body-dissatisfied women are more prone to social comparison effects by showing that even viewing a thin object lowers these women's self-evaluations. Specifically, Study 4 demonstrated that women who were dissatisfied with their body evaluated themselves more negatively after they saw a thin vase, compared with their self-evaluations after they saw a fat vase. In contrast, body-satisfied women's self-evaluations were not affected by exposure to the thin vase or fat vase. In Study 5, we gained support for our contention that it is body dissatisfaction, specifically, and not a related variable, that is the key construct. That is, by manipulating, rather than measuring, body dissatisfaction in Study 5, we replicated the results of Study 4. In Study 6, the final study, we gained evidence for the idea that body dissatisfaction increases proneness to social comparison effects because body dissatisfaction increases the cognitive activation of the self.

Taken together, the results of the six studies suggest that whether contrastive social comparison effects occur after exposure to images of a physically attractive female target jointly depends on both who the target is and who the perceiver of that target is. Specifically, the studies presented here show that it is especially body-dissatisfied women who are prone to social comparison effects after they view thin body shapes. Moreover, our results suggest that not only do body-dissatisfied women more frequently engage in social comparison than do body-satisfied women but also that body-dissatisfied women compare themselves with a wider range of targets than do body-satisfied women.

Growing Evidence for Differential Media Effects

For some time, researchers have been interested in the effects of exposure to media-portrayed images of physically attractive females individuals (see also recent special issue on body image in the *Journal of Social and Clinical Psychology* edited by Dittmar, 2005). The general assumption guiding this research has been that the effects of such exposures are negative (for example, Heinberg & Thompson, 1995; Irving, 2001; Stice, Schupak-Neuberg, Shaw, & Stein, 1994; Stice & Shaw, 1994). The mass media are viewed as "the loudest and most aggressive purveyors of images and narratives of ideal slender beauty" (Groesz et al., 2002, p. 2). The decrease in the weight of the ideal body for women has even been linked to the increase of eating disorders over the last decades (Stice & Shaw, 1994). As an explanation of the negative effects of the thin ideal on the way women evaluate themselves, social comparison theory has been invoked. It has been argued that comparisons to media-portrayed images of physically attractive females constitute upward social comparisons, which lead to negative self-evaluations (e.g., Cash et al., 1983; Hausenblas et al., 2004; Irving, 1990; Tiggemann & McGill, 2004).

However, our studies suggest a more complex process of media effects. That is, our studies show that not every woman feels bad about herself after confrontation with an attractive target. Rather, a specific group of women displays an enhanced proneness to the self-evaluative effects that result from exposure to thin body shapes. Fortunately, we are not entirely alone in calling into question the omnipresence of detrimental media effects on the media's female audience. A number of recent studies have pointed out that the effects of exposure to thin female body shapes may not be equally adverse for all women. These studies have identified a number of possible moderators of adverse media effects. A review of these studies suggests that women with a preexisting vulnerability to these images, be it because of so-called body image disturbance (Heinberg & Thompson, 1995), a certain level-of-appearance schema (Hargreaves & Tiggemann, 2002), a drive for thinness (Hausenblas et al., 2004), high levels of contingent self-esteem (Patrick, Neighbors, & Knee, 2004), or general body dissatisfaction (Posavac et al., 1998), react most strongly to attractive targets. In a recent meta-analysis on the effect of experimental manipulations of thin body shapes, Groesz et al. (2002) concluded that the effects of viewing attractive targets on self-views was more negative than the effects of viewing average or plus-size targets or cars and houses. However, it is more important that when they examined the studies that had measured body dissatisfaction before experimental exposure, Groesz et al. concluded that the negative effect of such exposures is enhanced for women with preexisting high levels of body dissatisfaction. This conclusion fits well with the present finding that body-dissatisfied women are less strategic in their use of social comparison information than are body-satisfied women. Other evidence that body dissatisfaction affects information processing styles comes from a study involving eye movement registration (Jansen, Nederkoorn, & Mulken, 2005). This study showed that participants who were preoccupied with their body's weight and shape spent more time looking at their own (self-identified) ugly body parts, whereas they focused more on the beautiful body parts of others. For women without this preoccupation, the pattern was reversed; they spent an equal amount of time looking at their own beautiful body parts and others' ugly body parts. Thus, the extent to which the women in this study were satisfied with their body determined the manner in which they treated information about others and themselves.

Thus, taking all relevant studies into account, there is a growing amount of literature that suggests that all women are not equally vulnerable to the negative self-evaluative effects of exposure to attractive targets. However, a clear theory that could explain these findings was not available. That is, it was unclear why a specific group of women is more vulnerable to confrontation with images of ideal body shapes than others. We feel that the present research begins to address this lack in the literature. First, the present set of studies offer a theory, behind the findings of past studies, that suggests that not all women may be equally prone to social comparison effects following exposure to attractive targets. Our findings go beyond previous work by proposing a theory-based explanation and stress the importance of comparison relevance, as determined by both target features and perceiver features, in predicting when and whose self-evaluations will be affected by exposure to physically attractive images. That is, the present set of studies provide evidence for the claim that body-dissatisfied women are so strongly affected by physically attractive targets because they treat a wider range of comparison targets as relevant

comparison targets and, as a consequence, they more readily and more frequently engage in social comparison.

Second, we feel that another contribution of the present research is that it generates previously untested predictions. That is, we know of no studies that have explicitly tested the hypothesis that women low in body satisfaction will compare themselves with a wider range of targets than will women high in body satisfaction and that this enhanced proneness to social comparison effects may even cause body-dissatisfied women to treat inanimate targets (i.e., vases) as relevant comparison targets. Third, in our studies we have used insights and methods that have not previously been used in the relevant field of research. For example, we know of no studies that have manipulated satisfaction or dissatisfaction with one's body, as we do in Studies 5 and 6. Manipulating rather than measuring dissatisfaction with one's body increases confidence that it is body dissatisfaction, and not a construct related to body dissatisfaction, that is the key construct that drives the differential comparison effects that we have observed. Finally, we think it is important to note that the majority of previous studies, such as those reviewed by Groesz et al. (2002), have used a series of slender images, whereas in our studies, participants were exposed to only one image. Despite this methodological difference, the results of our studies are similar to those that were included in the Groesz et al. meta-analysis. We feel that exposing participants to thin body shapes only once and still obtaining self-evaluative effects indicates how strong and pervasive the effects of such exposures on the self can be. Thus, we believe that an additional contribution of our studies is that we show that multiple exposures are not necessary for contrastive self-evaluative effects to occur.

Limitations and Directions for Future Research

Although Study 4 showed that body-dissatisfied, but not body-satisfied, women were negatively affected by exposure to the vase, we cannot be completely certain what produced this finding. That is, the question remains why a vase was successful in activating comparison processes in body-dissatisfied women. As is immediately apparent when one examines the drawings we used in our studies (see Figure 3), the vases represent two distinct female body shapes. That is, the thin vase resembles the hourglass figure that is generally viewed as ideal in Western cultures, whereas the fat vase looks like the apple-shaped woman with its layers reminiscent of the rolls of fat that sometimes occur in obese people. We stress that we do not take our results to suggest that any thin object versus a fat object would create negative self-evaluative effects in women less satisfied with their body. Rather, we believe that these particular drawings generated the observed effects because they are suggestive of feminine body shapes. A question for future research is whether the mere femininity of objects is enough to produce social comparison effects in body-dissatisfied women or, alternatively, whether these objects need to activate specific types of thin schemas or symbolic pictures of imaginary thin women to exert self-evaluative effects.

Our aim was to clarify when and why women are negatively affected by images of slender female individuals. That is, our focus was on the conditions under which comparisons with physically attractive targets result in contrastive effects on the self. In our experiments, we did not include control conditions in which participants were exposed to images that were unrelated to slenderness and beauty. As a result, we can only draw conclusions about

the relative impact of images of attractive versus unattractive female individuals. However, as the results of the six studies presented here show, these effects are straightforward and strong.

A close look at the mean self-evaluation scores in Study 3 reveals that after exposure to the attractive model, self-evaluations of body-satisfied women are almost as high as their self-evaluations after exposure to the unattractive nonmodel (see Figure 2b). We suspect that exposure to the attractive model may have instigated in body-satisfied women a tendency to react defensively to the threatening social comparison information provided by the attractive model. Research by Schwinghammer et al. (2006) and Stapel and Schwinghammer (2004) shows that people can indeed treat social comparison information defensively, in the sense that they do not incorporate threatening information into their self-views. It seems that in our studies, when body-satisfied participants were confronted with an attractive model, they not only refrained from incorporating the social comparison information in their views of themselves, but they may have also tended to overcompensate. This may have caused their self-evaluations to be almost as positive as those of participants who were exposed to the unattractive nonmodel. This is consistent with our idea that body-satisfied women, but not body-dissatisfied women, are more selective in using social comparison information when constructing self-views.

It is interesting that a number of researchers have recently begun to explore the conditions under which exposure to physically attractive females individuals may exert positive, assimilative effects on self-evaluations (e.g., Durkin & Paxton, 2002; Mills, Polivy, Herman, & Tiggemann, 2002; Wilcox & Laird, 2000). This research is important in the further elucidation of the conditions under which viewing images of slender women may enhance rather than decrease self-evaluation. Also, it may help explain why many women enjoy reading beauty and fashion magazines. After all, if research consistently shows that exposure to thin body shapes negatively affects the way women view themselves, then why would some women actively seek out and enjoy these images? And in addition, why would advertisers make use of these images? One possibility is that women may experience a thin fantasy by looking at thin body shapes (cf. Mills et al., 2002). That is, they may (temporarily) imagine themselves as the image, envisioning themselves with a body more in line with their ideal. A factor that may play an important role in this issue may be the extent to which women consider the images in magazines to be attainable. Research by Lockwood and Kunda (1997) suggests that believing that an ideal is attainable results in more positive self-evaluations than believing an ideal is not attainable. Would body-satisfied and body-dissatisfied women differ in their beliefs about how attainable a thin body is? Related to this, another way of explaining when images of thin body shapes may produce positive self-evaluation may be to examine social comparison motives. A recent study (Halliwell & Dittmar, 2005) suggests that having a self-improvement motive may soften the blow that may result from viewing thin body shapes (see also Martin & Kennedy, 1993, 1994). In line with this finding, one could wonder whether body-dissatisfied and body-satisfied women differ in the motives they have when they look through women's magazines.

Of course, further research into the positive and negative effects of exposure to thin body shapes could also be of great help in clinical work and prevention. In this study, individual differences in body dissatisfaction played an important role in the occurrence

of social comparison effects. Our studies showed that body dissatisfaction increases proneness to engage in social comparison with physically attractive others, which typically results in lowered self-evaluations. Some may argue that, in a sense, this process is to some extent circular: Those women who are already dissatisfied with their body are more likely to compare themselves with others, and as a consequence, they feel bad about themselves. However, it is important to remember that we included comparisons with unattractive as well as attractive others, and our results suggests that body-dissatisfied women contrasted their self-evaluations not only with the attractive standard but also with the unattractive standard. Furthermore, it is important to note that body dissatisfaction (one of our independent variables) is not identical to self-evaluation (our main dependent variable). The general measure of self-evaluation pertains to more than body satisfaction. This being said, the question remains, of course, how body-dissatisfied women become body-dissatisfied in the first place. That is, to what extent may body dissatisfaction be caused by an enhanced tendency to compare oneself with others? Of course this question is different from the one that ignited the current research but seems an especially interesting avenue for future research.

Conclusion

In conclusion, in the present set of studies, we found strong support for an interaction model of social comparison effects that posits that the self-evaluative impact of physically attractive female body shapes is jointly determined by target features and perceiver features. Our results show that both who the target is (professional models or normal women) and who the perceiver of that target is (satisfied or dissatisfied with her body) predict whether self-evaluations will be damaged. That is, it is especially those women who are dissatisfied with their body who are likely to suffer negative self-evaluative consequences from exposure to images of physically attractive female individuals.

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