

Social Comparison and Women's Body Satisfaction

Lilly F. Lin and James A. Kulik

University of California, San Diego

Exposure to pictures of thin-ideal female members of the media has been shown to reduce body satisfaction in women, which in turn has been implicated in various eating disorders. This experiment was designed principally to determine how social comparisons with peers affect general self-esteem, body satisfaction, confidence, and anxiety. In a "dating game" scenario, female undergraduates ($N = 67$) were randomly assigned to a thin-peer, oversize-peer, or control (no-photo) condition. Through computer manipulation, photos depicted the same woman's face with either a thin or oversize body shape. Results indicated comparison condition did not affect general self-esteem. However, exposure to the thin peer did reduce body satisfaction and confidence and, for those without a boyfriend, raised anxiety. Exposure to an oversize peer produced no compensatory, elevating effects on body satisfaction and confidence. Such an asymmetric comparison effect may contribute to the high prevalence of body dissatisfaction reported among women.

The shift in society to a preference for thin-figured women has been well-documented (e.g., Davis & Oswalt, 1992; Garner, Garfinkel, Schwartz, & Thompson, 1980; Silverstein, Peterson, & Perdue, 1986; Wiseman, Gray, Mosimann, & Ahrens, 1992). Most believe that the media has been the primary causal agent for this shift toward the thin-ideal (e.g., Anderson & DiDomenico, 1992; Silverstein, Perdue, Peterson, & Kelly, 1986; Striegel-Moore, Silberstein, & Rodin, 1986). In the past 40 years, for example, the dominant body shape of fashion models, Playboy centerfolds, and Miss America Pageant winners has changed from a full, hourglass figure to a thin, tubular one (Garner et al.; Morris, Cooper, & Cooper, 1988; Wiseman et al.).

It has been suggested that the steady diet of extremely thin women featured in the media sets a standard for thinness that most women internalize but few can meet (Nemeroff, Stein, Diehl, & Smilack, 1994). Research relevant to social comparison theory (Festinger, 1954) suggests that when people make upward comparisons (i.e., compare themselves to others who are better off on a particular dimension), the result tends to be a decrement in reported self-regard or well-being (Marsh & Parker, 1984; Morse & Gergen, 1970; Salovey & Rodin, 1984; Tesser, Millar, & Moore, 1988). Thus it has been suggested that exposure to thin-ideal figures in the media may account for the increas-

ingly high levels of body dissatisfaction and eating disorders among women in Western societies (e.g., Halmi, Falk, & Schwartz, 1981; Mazur, 1986; Pike & Rodin, 1991; Thompson & Heinberg, 1993; Wilson & Eldredge, 1992). Consistent with these ideas, a correlational study by Stice, Schupak-Neuberg, Shaw, and Stein (1994) found that greater exposure to media (television and magazines) was associated directly with more eating disorder symptoms and indirectly, through greater internalization of the thin-ideal stereotype, with greater body dissatisfaction. Tiggemann and Pickering (1996) found additionally that amount of time spent watching television soap operas and movies was associated with greater body dissatisfaction, and that time spent watching music videos was associated positively with desires for thinness.

There have been a number of experimental studies that have examined the effects that comparisons with thin-ideal members of the media have on body satisfaction. Irving (1990), for example, exposed college women to sets of slides depicting thin fashion models, average models, or oversize fashion models, and found those who viewed the thin fashion models reported lower overall self-esteem and lower satisfaction with their weight than those who viewed either the average or oversize models. Interestingly, however, the self-esteem and body satisfaction levels of those in the thin model condition were actually quite similar to those of a control group that viewed no photos. This suggests then that the thin-model condition did not lower self-regard so much as the average and oversize-model conditions enhanced feelings about the self. Somewhat different results were obtained

Requests for reprints should be sent to Dr. James A. Kulik, Department of Psychology, University of California, San Diego, La Jolla, CA 92093-0109. E-mail: jkulik@ucsd.edu

by Stice and Shaw (1994), who exposed female undergraduates to magazine pictures of thin, average-size, or no models. Their results indicated that those who viewed the thin models reported more negative affect and greater body dissatisfaction than those in the other conditions, suggesting a deleterious effect of comparison with thin-ideal others (see also Heinberg & Thompson, 1995; Richins, 1991). Negative affect and body dissatisfaction also predicted bulimic symptomology (see also Leon, Fulkerson, Perry, & Cudeck, 1993; Stice et al., 1994, for similar relations with eating pathology).

The primary purpose of this study was to examine how social comparisons with peers influence feelings of body satisfaction among women. This seems a potentially important question given that everyday social comparisons most typically involve peers, not media figures (Wheeler & Miyake, 1992). It is in part because we normally have more frequent exposure, and therefore opportunity, to compare with peers. Exposure aside, peers may also be considered more relevant for self-evaluation and therefore actually preferred for comparison. This follows from Festinger's (1954) social comparison theory, which argues that people have a basic need for self-evaluation, and lacking an objective standard for a reference, will prefer to compare themselves to relatively similar others to obtain maximally accurate, stable self-appraisals.

Consistent with these ideas, there is evidence that college-age women engage in frequent comparisons with surrounding peers to establish an idea of their weight status (Striegel-Moore et al., 1986). There is also correlational evidence consistent with the notion that the higher incidence of eating disorders in college compared to high-school women may stem from increased comparisons with thin-ideal peers and associated lower self-concepts (Hesse-Biber & Marino, 1991). However, to date there has been little experimental work that considers specifically the effects of women's social comparisons with peers on feelings of body satisfaction. This study was designed primarily to address this issue.

OVERVIEW OF THIS STUDY

In this experiment, female undergraduates were led to believe that they, along with another female-student participant, would be getting acquainted with an attractive male participant. Thereafter, the man would decide which would be more desirable to date. Depending on randomized condition, participants had no information about the appearance of the other woman (controls), viewed a photo that depicted the other woman as quite thin, or viewed a photo that depicted the same woman as quite oversized. Social comparison research in other domains has suggested that comparisons with others who are better off or superior on a particular dimension (upward comparisons) can lower self-regard (Marsh & Parker, 1984; Morse & Gergen, 1970; Salovey & Rodin, 1984; Tesser et al., 1988), whereas comparisons with others who are worse off (downward comparisons) can elevate

self-regard (Gibbons, 1986; Hakmiller, 1966; Morse & Gergen, 1970). This suggests in the present context that comparisons with a thin peer may diminish self-regard, whereas comparisons with an oversize peer may enhance self-regard relative to control conditions. The experimental studies of comparisons with media figures, discussed previously, provide somewhat conflicting support for this possibility. Thus we anticipated overall that women in the thin-peer condition would experience lower body satisfaction and confidence in their attractiveness to the man, and perhaps lower self-esteem and higher anxiety compared with those in the control condition. Conversely, we also thought it possible that those in the oversize-peer condition would experience less anxiety and more favorable self-evaluations than those in the control condition.

A secondary goal of this study was to examine the possibility that having a boyfriend (or romantic interest) may serve to mitigate potentially negative reactions to comparisons with a thin peer. Women who already have boyfriends may be less concerned with making positive impressions on unfamiliar men who could be potential dating partners. According to recent work by Leary and his colleagues, the prospect of negative interpersonal evaluations arouses negative affect, because such evaluations signal possible exclusion or deterioration in one's social acceptance (Leary, Haupt, Strausser, & Chokel, 1998; Leary, Springer, Negel, Ansell, & Evans, 1998). Thus those who have already gained "acceptance" in the dating realm, as indicated by having a boyfriend, may experience less anxiety, because they are less concerned about the potentially negative implications of comparisons with a thin peer. Having a boyfriend also may serve more generally to affirm a woman's attractiveness to the opposite sex. If so, we thought it possible that the body satisfaction and confidence of women with boyfriends might be less negatively impacted by comparisons with the thin peer.

METHOD

Participants

A group of 69 ($M = 20$ years old) female undergraduates at the University of California, San Diego, participated in the study to fulfill a lower division psychology course requirement. Two participants were dropped from the study because they were suspicious about the experimental manipulations. The final sample ($N = 67$) was 50.7% Asian, 40.3% White, 4.5% Hispanic, and 4.5% Other. Each participant was randomly assigned to one of two experimental conditions or to the control condition.

Procedure

Participants were run individually. The experimenter explained that the purpose of the experiment was to explore the

characteristics that influence “the decisions that people make regarding dating relationships.” Toward that end, it was explained, each participant would be asked to take part in a mock “dating game” in which she and another female-student participant would get acquainted with a male participant in another room. It was explained that following these conversations, the male participant would choose with which of the two women he would prefer to go on a date, “if this were an actual dating situation.” Each participant was told furthermore that the male participant would receive a photograph of her. Those not in the control condition were told additionally that they would receive a picture of the other female participant. Following these instructions, the participant was asked to sign a consent form before being photographed with a digital camera. Thereafter, the experimenter excused herself, purportedly to download the participant’s picture and to retrieve the picture of the man and (depending on condition) the picture of the other female participant. When the experimenter returned, the participant was presented with the photographs and asked to complete a questionnaire in private that contained the dependent measures (see the following sections). The experimenter then left the room, ostensibly to set up the in-person interview with the male participant. After completing the questionnaires, the participant was told that her condition did not require speaking to the male participant after all. Finally, the participant was probed for suspicion, debriefed, and asked not to discuss the experiment with anyone.

Independent Variables

Social comparison conditions. Participants were assigned randomly to view (a) no photograph of the peer (*control condition*), (b) a photograph of a slender woman (*thin-peer condition*), or (c) a photograph of an overweight woman (*oversize-peer condition*). As with participants, a blank wall served as the background for the peer photos. Peer photos depicted acquaintances of Lilly F. Lin whom we had judged informally to have average facial attractiveness. Computer graphics techniques were used to cut and paste the identical head shot of the comparison person onto either a relatively slim or overweight female body. In this manner, it was possible to hold constant facial appearance while varying the body of the comparison peer.¹

¹Given the ethnic distribution of the sample, two sets of photographs were generated. One set depicted the other female and male participant as White, whereas the other set depicted them as Asian. White participants viewed the former set, non-White participants the latter. Preliminary analyses that included the ethnic background of the participant as a factor indicated a single significant effect: White participants were more attracted to the man than were the non-White participants, $F(1, 61) = 6.50, p < .02, \eta^2 = .10$. Because no other main effects or interactions involving the ethnic background variable were significant, the primary analyses are collapsed across this factor.

Boyfriend conditions. On a background information sheet that was collected after the dependent measures, participants indicated whether they did ($N = 40$) or did not ($N = 27$) currently have a boyfriend. An equal number of those with boyfriends were in each of the three comparison conditions.

Dependent Measures

Anxiety. Participants completed a short (10-item) form of the state version of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970). Such short forms of the STAI have been shown elsewhere to provide valid measures of state anxiety (O’Neil, Spielberger, & Hansen, 1969). Cronbach’s α in this sample was .88.

Body satisfaction. Participants rated themselves on 12 items taken from the Body Parts Satisfaction Scale (Berscheid, Walster, & Bohrnstedt, 1973). Specifically, participants rated on separate scales ranging from 1 (*extremely dissatisfied*) to 4 (*extremely satisfied*) how they felt about their facial attractiveness, shoulders, arms, hands, feet, size of abdomen, buttocks, hips, legs and ankles, height, weight, and general muscle tone or development. Cronbach’s α was .87 in this sample.

Confidence. Each participant also was asked to rate, on separate scales ranging from 1 (*not at all confident*) to 10 (*extremely confident*), how confident she was that the male contestant would (a) choose her for a date, (b) find her physically attractive, (c) find her personality attractive, and (d) look forward to talking to her. An overall confidence index was formed for analyses by averaging these items ($\alpha = .92$).

Self-esteem. The Rosenberg (1965) Self-Esteem Scale, a widely used measure of trait self-esteem, was used to measure general self-esteem. Each of 10 items (e.g., “I feel that I’m a person of worth”) was rated on separate 4-point scales (1 = *strongly agree*, 4 = *strongly disagree*) and then averaged to form an overall index ($\alpha = .91$).

Male attractiveness. As secondary dependent measures, participants also rated the extent to which they found the man in the photograph attractive (1 = *extremely unattractive*, 10 = *extremely attractive*), their motivation to be the “winning” contestant (1 = *extremely unmotivated*, 10 = *extremely motivated*), and their interest in accepting a date with the man in the photograph, assuming they were not seeing anyone and based on his physical appearance (1 = *would not at all want to date*, 10 = *would very much want to date*). Although these three items were relatively moderately intercorrelated ($\alpha = .66$), individual-item analyses indicated

the same patterns of condition means for each. Therefore, the items were averaged to form a general index of the perceived attractiveness of the male participant.

Manipulation checks and attractiveness of self.

To check on the effectiveness of the social comparison manipulation, participants who received a picture of the other female contestant were asked to separately rate the attractiveness of the woman’s body and face, respectively, on 10-point scales ranging from 1 (*extremely unattractive*) to 10 (*extremely attractive*). Finally, all participants likewise rated separately the attractiveness of their own bodies and faces on similarly anchored 10-point scales.

RESULTS

Manipulation Checks

To check on the effectiveness of the experimental manipulation, a Comparison Condition × Boyfriend Status (Thin vs. Oversize-Peer × Yes vs. No) analysis of variance (ANOVA) was performed on participants’ ratings of the comparison woman’s body relative to their own (i.e., on ratings of own body and ratings of peer’s body). The results indicated, as intended, that those in the thin-peer condition perceived the body of the other woman as more attractive than their own, whereas those in the oversize-peer condition felt their bodies were more attractive than that of the comparison peer, $M_s = -2.39$ versus 1.04 , $F(1, 40) = 28.64$, $p < .001$, $MSE = 4.36$, $\eta^2 = .42$. (η^2 is an effect size index that is interpreted as the proportion of variance accounted for by a given factor; Rosenthal & Rosnow, 1991.) No effects involving boyfriend status were significant, all $F_s \geq 0.45$, $ps > .05$, $\eta^2 \leq .01$.

Separate analyses of perceptions of the peer and of the self revealed similar patterns. Thus, participants judged the body of the thin peer to be more attractive than that of the oversize peer, $M_s = 7.07$ versus 5.19 , $F(1, 40) = 20.50$, $p < .001$, $MSE = 1.84$, $\eta^2 = .34$. Participants in the thin-peer condition also felt their own bodies were less attractive than did those in the oversize-peer and control conditions, $M_s = 4.68$ versus 6.23 and 5.88 , $F(2, 60) = 4.77$, $p < .02$, $MSE = 2.92$, $\eta^2 = .14$. No other effects were significant, all $F_s \leq 0.41$, $ps > .05$, $\eta^2 \leq .01$.

Parallel analyses that were performed on perceptions of the attractiveness of the peer’s face revealed that participants judged the facial attractiveness of the thin peer as equivalent to that of the oversize peer, $M_s = 5.82$ versus 5.77 , $F = 0.04$, $p > .05$, $\eta^2 = .00$. This, of course, is appropriate given that the woman’s face was identical in the different photos. Thus, the photographs overall were able to manipulate the perceived attractiveness of the peer’s body in the manner intended, without systematically altering the perceived attractiveness of her face. There likewise were no effects on participants’

perceptions of their own facial attractiveness, all $F_s \leq 1.92$, $ps > .05$, $\eta^2 \leq .06$.

Primary Analyses

As can be seen in Table 1, the dependent measures involving self-perceptions (viz., anxiety, body satisfaction, confidence, and self-esteem) all were significantly interrelated. Therefore, an omnibus Comparison Condition × Boyfriend Status (Thin-Peer vs. Oversize-Peer vs. Control × Yes vs. No) ANOVA was first performed on a self-perception composite index. This index was formed by creating z scores separately for each self-perception measure and then using participants’ averaged z scores for analysis, scaled so that higher values indicate more positive self-perceptions (in standard deviation units). The results indicated an overall effect of social comparison condition, $F(2, 61) = 3.07$, $p = .05$, $\eta^2 = .09$, with those in the thin-peer comparison condition expressing more negative self-perceptions overall than those in the control or over-size peer conditions, $M_s = -.29$ versus $.20$ and $.09$, respectively, $MSE = 0.61$. No effects involving boyfriend status were significant, $F_s < 1.60$, $ps > .05$, $\eta^2 \leq .05$.

Given the results of this omnibus self-perception analysis, and because we were interested in how social comparisons affected the specific aspects of self-perception that were measured, we then performed separate 3×2 (Comparison Condition × Boyfriend Status) ANOVAs on the individual measures. With respect to anxiety levels, the results revealed a significant Comparison × Boyfriend effect, $F(2, 61) = 3.27$, $p < .05$, $\eta^2 = .10$. As can be seen in Figure 1, regardless of whether or not they had boyfriends, participants were equally anxious in the control and oversize-peer conditions; however, participants in the thin-peer condition were significantly more anxious if they did not have a boyfriend compared to if they did ($p < .001$, $\eta^2 = .18$). Further analyses indicated that the anxiety levels of those in the thin-peer condition who had boyfriends were actually nonsignificantly lower than their control counterparts, whereas those in the thin-peer condition who did not have boyfriends experienced elevated anxiety relative to controls ($p < .005$, $\eta^2 = .17$).

TABLE 1
Partial Correlations Among the Dependent Measures

Measures	Body		Male	
	Satisfaction	Confidence	Self-Esteem	Attractiveness
Anxiety	-.28*	-.58***	-.59***	-.00
Body satisfaction		.63***	.53***	.19
Confidence			.57***	.35**
Self-esteem				-.13

Note. Analyses control for comparison condition and boyfriend status. $df = 65$.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed tests).

The analysis of participants' satisfaction with their own bodies revealed a significant main effect of comparison condition, $F(2, 61) = 3.30, p < 0.05, \eta^2 = .10$. As can be seen in Table 2, participants who viewed the oversize peer or no photograph were equally satisfied with their own bodies and were more so than those who viewed the thin peer. No other effects were significant, all $F_s \leq 0.83, p_s > .05, \eta^2 \leq .01$.

A similar effect of comparison condition was obtained for participants' confidence ratings, $F(2, 61) = 5.04, p < 0.01, \eta^2 = .14$. Women who viewed the thin peer were less confident in their attractiveness to the man than were controls or those who viewed the oversize peer (see Table 2). Paired comparisons indicated participants in the thin-peer condition were significantly less confident than those in the control ($p < .01, \eta^2 = .13$) and oversize-peer ($p < .03, \eta^2 = .09$) conditions, and that the latter two groups did not differ ($p > .50, \eta^2 = .01$). No effects involving the boyfriend factor were significant (all $F_s \leq 2.00, p_s > .05, \eta^2 \leq .03$). There also were no significant effects on general self-esteem, all $F_s < 0.65, p_s > .05, \eta^2 \leq .02$.

Finally, analyses of the perceived attractiveness of the man revealed that participants in the thin-peer condition rated the man as less attractive than participants in the oversize-peer and control conditions, $F(2, 61) = 3.82, p < .03, \eta^2 = .11$ (see Table 2). Separate from the effect of comparison condition, participants who had boyfriends rated the man more attractive than did those who did not have boyfriends, $M_s = 6.21$ versus $5.27, F(1, 61) = 9.74, p < .004, MSE = 1.45, \eta^2 = .14$. There was no interaction, $F(2, 61) = .03, p > .05, \eta^2 = .00$.

Mediational Analyses

We have seen that participants in the thin-peer condition were less confident of being chosen, and reported less attraction to the man, than were those in the other conditions. This pattern raises the possibility that the thin-peer group became relatively negative toward the man *because* they perceived a

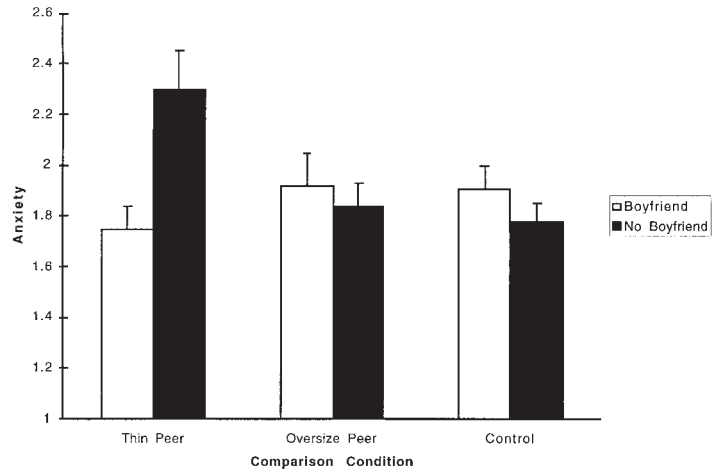


FIGURE 1 Anxiety levels as a function of comparison condition and boyfriend status. (Error bars indicate standard errors.)

greater likelihood of being rejected by him. To examine whether there was any evidence for this “defensive-reaction” hypothesis, we next determined the degree to which confidence ratings may have mediated the effect of comparison condition on male attractiveness ratings. Following the prescriptions of Baron and Kenny (1986), this involved a set of three regression analyses. In these analyses, the control and oversize-peer groups were combined, dummy coded (0), and contrasted with the thin-peer group (1). In the first analysis, male attractiveness ratings then were regressed on comparison condition. Consistent with the ANOVA results already reported, the results indicated that those in the thin-peer condition found the man less attractive than did the other participants, $t(65) = -2.70, p < .009, \eta^2 = .10$. The second analysis, which involved regressing confidence ratings on comparison condition, likewise paralleled the ANOVA results by showing that those in the thin-peer condition had significantly lower confidence that they would be chosen compared to participants in the other conditions, $t(65) = -2.90, p < .006, \eta^2 = .11$. The key, third analysis then involved regressing male attractiveness ratings simultaneously on comparison condition and confidence ratings. The goal of this analysis was to determine whether confidence ratings significantly predicted male attractiveness ratings, and, at the same time, substantially reduced the aforementioned significant effect of comparison condition on male attractiveness ratings.

The results indicated that confidence ratings were indeed related positively to attractiveness ratings, when controlling for comparison condition, $t(64) = 2.58, p < .02, \eta^2 = .09$. In addition, when controlling for confidence ratings, the effect of comparison condition on attractiveness ratings was reduced to nonsignificance, $t(64) = -1.78, p > .08, \eta^2 = .05$. Such a pattern is consistent with the notion that participant confidence in being chosen, or lack thereof, may have medi-

²Given that self-esteem scores were not affected, and that the Rosenberg (1965) Self-Esteem Scale is thought to provide a relatively general trait measure of self-regard, it also is possible to examine whether general self-esteem might operate as a moderator of the foregoing social comparison effects. Perhaps, for example, women with high general self-esteem are relatively protected from the negative impact of comparisons with the thin peer. ANOVAs that included self-esteem as a blocking variable with social comparison conditions provided little support for this possibility, however, in that none of the Self-Esteem \times Social Comparison effects reached significance for anxiety, body satisfaction, or confidence ratings—the “closest” being for confidence, $F(2, 61) = 2.48, p = .092, \eta^2 = .07$. As one might expect given the relations in Table 1, additional Social Comparison \times Boyfriend analyses of covariance that used self-esteem as a covariate did indicate strong relations of self-esteem with anxiety, body satisfaction, and confidence (all $F_s \geq 22.77, p_s < .001, \eta^2 \leq .27$). Controlling for these relations with self-esteem, all previously reported effects involving social comparison and boyfriend status remained virtually identical.

TABLE 2
Effects of Comparison Condition

Dependent Measure	Thin Peer	Oversize Peer	Control
Body Satisfaction			
<i>M</i>	2.55 ^a	2.81 ^b	2.81 ^b
<i>SD</i>	0.45	0.33	0.39
Confidence			
<i>M</i>	4.74 ^a	5.76 ^b	6.05 ^b
<i>SD</i>	1.95	1.31	1.36
Self-Esteem			
<i>M</i>	3.16 ^a	3.22 ^a	3.32 ^a
<i>SD</i>	0.63	0.49	0.51
Male Attractiveness			
<i>M</i>	5.24 ^a	6.03 ^b	6.22 ^b
<i>SD</i>	1.35	1.32	1.11

Note. Means without common superscripts within a row differ at .05 level or better (two-tailed); $N = 22$ for thin peer and oversize peer; $N = 23$ for control.

ated perceptions of the man's attractiveness (cf. Baron & Kenny, 1986). That is, participants in the thin-peer group may have viewed the attractiveness of the man as lower, at least in part, because they thought it relatively less likely that the man would choose them.³

DISCUSSION

Whether from mundane television commercials, or from more provocative ads for Victoria Secret, American women have ample opportunity to compare their appearances to exceptionally attractive media figures (i.e., to make upward comparisons). Downward comparisons with media figures are probably less frequently available, at least within the realm of advertising. There is experimental evidence that upward comparisons with such media figures may have dele-

rious effects, such as lowered levels of body satisfaction (e.g., Heinberg & Thompson, 1995; Irving, 1990; Richins, 1991; Stice & Shaw, 1994). This study sought to determine principally whether similar effects are produced by comparisons with peers. Unlike the work with media figures, and through computer manipulation, we were able to make thin and oversize photographs, while holding constant the facial attractiveness of the comparison person. We found both "good" and "bad" news.

The good news is that we found no evidence, at least in our sample of college-age women, that general self-esteem is significantly influenced by comparisons of physical appearance with peers. It is possible, of course, that a less trait-oriented measure of self-esteem than we used would have been impacted. However, we were interested specifically in whether the effects of comparisons involving physical appearance would extend to general self-esteem, which presumably is determined by a variety of factors (e.g., academic or career success, physical abilities, personality). As such, we would hope that social comparisons with a peer along any single dimension, especially one so literally superficial as body shape, would not be sufficient to alter a woman's general feelings of self-regard. It is therefore somewhat reassuring that general self-esteem was not influenced, even for the moment, by these comparisons with peers.

The bad news, however, is that a woman's satisfaction with her body apparently can be undermined significantly not just by upward comparisons with multiple, ultra-thin fashion models. We found that social comparisons with a single, thin peer were sufficient to reduce significantly a participant's satisfaction with her body and her confidence that she was attractive to a man who she anticipated meeting. In that comparison opportunities with peers are likely to be quite frequent, perhaps more so than with media figures (cf. Wheeler & Miyake, 1992), such upward comparisons may constitute an important source of dissatisfaction with the self. Particularly insidious, our results suggest further that there may be an asymmetry in the effects of social comparisons involving body image; we found upward comparisons lowered body satisfaction, but no evidence that downward comparisons had a compensatory, elevating effect on body satisfaction. For the rare woman whose physique is such that upward comparisons with peers are infrequent, such an asymmetry may matter little. But for the more average-looking woman, the tendency for downward comparisons not to offset the negative impact of being confronted with upward comparisons may lead to a negative spiral with respect to body esteem.

We believe it would be useful for future research to explore the generality of this asymmetric effect of social comparison on body esteem. Social comparison research conducted in other domains suggests that the effects of upward and downward comparisons on self-evaluations and feelings are not absolute but instead may depend on a number of factors (e.g., Buunk, Collins, Taylor, VanYperen, & Dakof, 1990). Research on task performance by Testa and

³As one reviewer noted, the fact that confidence and male attractiveness ratings were collected simultaneously precludes a strong inference of causal priority for confidence over perceptions of attractiveness. Thus one could argue that perceptions of male attractiveness may have mediated the effects of comparison condition on participant confidence. In that we had already determined in separate regressions (see earlier) that social comparison condition significantly predicted confidence, $t(65) = -2.90, p < .006, \eta^2 = .11$, and perceptions of male attractiveness, $t(65) = -2.70, p < .009, \eta^2 = .10$, the key analysis needed to test this alternative mediation model involved regressing confidence ratings simultaneously on social comparison condition and male attractiveness ratings. The results indicated that whereas perceptions of the man's attractiveness did predict confidence ratings, $t(64) = 2.58, p < .02, \eta^2 = .09$, controlling for this relation did not reduce the effect of social comparison condition on confidence to nonsignificance, $t(64) = -2.05, p < .05, \eta^2 = .06$. Thus on balance, the mediational analyses provide marginally more support for the hypothesis that those in the thin-peer condition may have lowered their perceptions of the man's attractiveness, because they thought it less likely he was going to choose them ("reject him before he rejects me"), than for the hypothesis that they lowered their confidence because they found the man relatively unattractive ("this geek better not pick me"). Ultimately, however, a design in which confidence and attractiveness are manipulated will be needed to determine causal priority more definitively.

Major (1990), for example, suggested that the perceived controllability of the attribute under evaluation may moderate reactions to upward comparisons, with less negative reactions among those who believe that in the future they can attain the same, higher level of performance as a comparison other. Perhaps the perceived controllability of one's weight would likewise moderate reactions to upward comparisons.

Another potential moderator, suggested by Tesser (1986), involves the competitiveness of the situation. Tesser suggested that circumstances that involve competition with the comparison other are likely to produce negative reactions to upward comparisons and positive reactions to downward comparisons, whereas noncompetitive situations (or situations in which the evaluation is not self-relevant) can produce the opposite pattern. If so, body comparisons that are made with fewer competitive cues than were present in this study (viz., a dating game with one participant being "chosen"), or by a subset of individuals for whom body image is unimportant, conceivably could produce a different pattern of responses (cf. Heinberg & Thompson, 1995). Relevant to the latter, we note that our participants were all college-age women, so it is unknown whether younger or older women would react similarly. There is reason to believe that pressures toward thinness may be especially potent, and eating disorders particularly prevalent, during adolescence and young adulthood (e.g., Beumont & Touyz, 1985; Johnson & Schlundt, 1985; Pyle, Halvorson, Neuman, & Mitchell, 1986). Therefore, it is possible that the body esteem of older women would be less vulnerable to upward comparisons with peers.

With respect to the observed asymmetric social comparison effect, we are reasonably confident that the failure of the oversize peer to provide a boost to body esteem is not attributable to her being "too" similar to participants. In fact, the data we have, although based on self-report and therefore admittedly approximate, suggest that participants' body shapes were, if anything, more similar to that of the impactful thin peer than the oversize peer.⁴ Somewhat counter-intuitively, one could suggest then that comparison with a *less* oversize peer might actually have had a greater positive effect, in that work in other domains has suggested that comparisons with similar others may have more impact on affect and self-es-

teem than comparisons with dissimilar others (see Tesser, 1986; Wood, 1989, for relevant reviews). Perhaps our participants viewed the oversize peer as too divergent from themselves and essentially dismissed her as irrelevant or uninformative for self-evaluation (cf. Festinger, 1954). We doubt this, but it is an intriguing possibility that warrants future consideration.

An alternative, essentially opposite possibility is that a boost to body satisfaction would occur if comparisons were made to an even more extremely oversized peer. Ultimately, these fundamentally parametric issues can be addressed directly only by trying more (and less) extreme manipulations. It is worth noting, however, to the extent that comparison peers must be grossly oversized before there is evidence of increased body satisfaction, the frequency with which peer comparisons can augment body satisfaction in everyday life will likely be quite small. The upshot then, within the parameters of the comparison peers who are most often encountered, still may be an asymmetric effect, such that comparisons with thin peers more readily diminish body satisfaction than comparisons with oversize peers enhance it. If so, the negative, asymmetrical comparison effect we found may help to explain the finding that most women now report being at least moderately dissatisfied with some aspect of their bodies (Rodin, Silberstein, & Striegel-Moore, 1985). Such an asymmetric effect of social comparisons also may have implications for behavior and physical health, inasmuch as body dissatisfaction has been implicated as an etiologic factor in the development of various eating disorders, such as bulimia and anorexia (Leon et al., 1993; Stice et al., 1994; Stice & Shaw, 1994).

Additional results indicated that boyfriend status moderated participants' affective reactions. Specifically, participants in the thin-peer condition were significantly less anxious if they had a boyfriend at the time than if they did not, whereas boyfriend status did not influence anxiety levels in the control or oversize-peer conditions. Thus, if the comparison condition posed no potential threat (control or oversize-peer conditions), having a boyfriend did not matter. But if faced with the potential threat and embarrassment of being judged less "acceptable" by a man for a date than a thin peer (cf. Leary et al., 1998), those with a boyfriend avoided the increase in anxiety evidenced by their no-boyfriend counterparts. At the same time, however, the results provided no evidence that having a boyfriend moderated the negative effects on body satisfaction and confidence caused by comparisons with the thin peer. Thus, although knowledge that one already had a boyfriend may have mitigated concern about being viewed in relatively unfavorable terms by a male stranger, comparisons with a thin peer nevertheless undermined participants' self-evaluations of body attractiveness.

Finally, our results also suggest that comparisons with a peer can alter not only self-perceived attractiveness, but also

⁴The woman whose body was depicted in the oversize-peer photograph reported weighing 180 pounds, the thin-peer 103 pounds, and the total sample (on average) weighed 123 pounds ($SD = 15.52$). Expressed in terms of body mass index (weight kg/height[m]²), the value for the woman depicted in the oversize-peer photograph was 30.02, for the thin peer 18.28, and for the total sample was 20.93 ($SD = 1.91$). More formally, a 2×2 (Social Comparison \times Boyfriend) ANOVA that was performed on the absolute value of the difference between each participant's body mass index and that of the peer she viewed (controls viewed no photographs) indicates that participants were actually more similar to the thin than oversize peer, $M_s = 3.66$ versus 9.54, $F(1, 40) = 107.82$, $p < .001$, $MSE = 3.42$, $\eta^2 = .73$. Because we did not ask participants, however, we cannot conclude with certainty that the thin peer was perceived as the more similar.

perceptions of the attractiveness of third parties (i.e., of individuals who are not a part of the comparison per se). This was evident in the effects of comparison condition on participants' perceptions of the desirability of the man as a dating partner. We found participants in the thin-peer condition judged the man a less desirable dating partner than did those in the other comparison conditions. Tests of mediation provided tentative support for the idea that the relatively unfavorable perceptions of the man may have been a type of defensive reaction; anticipating a greater likelihood of rejection by the man, participants in the thin-peer condition may have become more motivated to disparage or reject the man. No one likes rejection, but it hurts less, presumably, if the rejecter is valued less highly.

An interesting, related possibility that we did not examine in this study is that individuals also will alter their perceptions of the comparison peer in a defensive manner. It may be, for example, that in an effort to cope with the threat posed by upward comparisons with a thin peer, a woman also will become more motivated to view herself as relatively better off in other respects. Wood (1989) suggested that an unfavorable comparison may prompt people to restore lost self-esteem through selective "postcomparison comparisons;" that is, through comparisons on dimensions that cast the other person in a less favorable light (cf. Salovey & Rodin, 1984; Tesser, 1988). Thus, the woman who compares herself to a thin peer may experience a loss of body esteem and confidence in her attractiveness but, as a result, also may become more likely to see herself as better off than the comparison peer on other dimensions (e.g., more successful, intelligent, funny, etc.). Such a process, if it were to occur, would presumably serve to maintain general self-esteem by stimulating downward comparisons, even as more specific body esteem is diminished by an upward comparison. Whether these speculations have any merit remains to be determined in future work.

For the present, it seems clear that comparisons with a thin peer can cause decreased body satisfaction in college-age women, even as general self-esteem remains largely unaffected. Comparisons with oversize peers, however, do not necessarily produce a compensatory boost in body satisfaction. This asymmetrical effect of social comparison, if general, may contribute directly to the high prevalence of body dissatisfaction reported among women (Rodin et al., 1985).

ACKNOWLEDGMENT

We thank Brian Truong and Kaivon Arfaa for their technical support of this project.

REFERENCES

- Anderson, A. E., & DiDomenico, L. (1992). Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? *International Journal of Eating Disorders, 11*, 283-287.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.
- Bersheid, E., Walster, E., & Bohrnstedt, G. (1973). The happy American body: A survey report. *Psychology Today, 7*, 119-131.
- Beumont, P. J. V., & Touyz, S. W. (1985). The syndrome of anorexia nervosa. In S. W. Touyz & P. J. V. Beumont (Eds.), *Eating disorders: Prevalence and treatment* (pp. 1-10). Sydney, Australia: Williams and Wilkins.
- Buunk, B. P., Collins, R., Taylor, S. E., VanYperen, N. W., & Dakof, G. A. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology, 59*, 1238-1249.
- Davis, J., & Oswalt, R. (1992). Societal influences on a thinner body size in children. *Perceptual and Motor Skills, 74*, 697-698.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.
- Garner, D. M., Garfinkel, P. E., Schwartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. *Psychological Reports, 47*, 483-491.
- Gibbons, F. X. (1986). Social comparison and depression: Company's effect on misery. *Journal of Personality and Social Psychology, 51*, 140-148.
- Hakmiller, K. L. (1966). Threats as a determinant of downward comparison. *Journal of Experimental Social Psychology, 1*(Suppl.), 32-39.
- Halmi, K. A., Falk, J. R., & Schwartz, E. (1981). Binge-eating and vomiting: A survey of a college population. *Psychological Medicine, 11*, 697-706.
- Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology, 14*, 325-338.
- Hesse-Biber, S., & Marino, M. (1991). From high school to college: Changes in women's self concept and its relationship to eating problems. *Journal of Psychology, 125*, 199-216.
- Irving, L. M. (1990). Mirror images: Effects of the standard of beauty on the self- and body-esteem of women exhibiting varying levels of bulimic symptoms. *Journal of Social and Clinical Psychology, 9*, 230-242.
- Johnson, W. G., & Schlundt, D. G. (1985). Eating disorders: Assessment and treatment. *Clinical Obstetrics and Gynecology, 28*, 598-613.
- Leary, M. R., Haupt, A. L., Strausser, K. S., & Chokel, J. T. (1998). Calibrating the sociometer: The relationship between interpersonal appraisals and state self-esteem. *Journal of Personality and Social Psychology, 74*, 1290-1299.
- Leary, M. R., Springer, C., Negel, L., Ansell, E., & Evans, K. (1998). The causes, phenomenology, and consequences of hurt feelings. *Journal of Personality and Social Psychology, 74*, 1225-1237.
- Leon, G. R., Fulkerson, J. A., Perry, C. L., & Cudeck, R. (1993). Personality and behavioral vulnerabilities associated with risk status for eating disorders in adolescent girls. *Journal of Abnormal Psychology, 102*, 438-444.
- Marsh, H. W., & Parker, J. W. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well? *Journal of Personality and Social Psychology, 47*, 213-231.
- Mazur, A. (1986). U.S. trends in feminine beauty and overadaptation. *Journal of Sex Research, 22*, 281-303.
- Morris, A., Cooper, T., & Cooper, P. J. (1988). The changing shape of female fashion models. *International Journal of Eating Disorders, 8*, 593-596.

- Morse, S., & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of self. *Journal of Personality and Social Psychology*, *16*, 148–156.
- Nemeroff, C. J., Stein, R. I., Diehl, N. S., & Smilack, K. M. (1994). From the Cleavers to the Clintons: Role choices and body orientation as reflected in magazine article content. *International Journal of Eating Disorders*, *16*, 167–176.
- O'Neil, H. F., Spielberger, C. D., & Hansen, D. N. (1969). The effects of state-anxiety and task difficulty on computer-assisted learning. *Journal of Educational Psychology*, *60*, 343–350.
- Pike, K. M., & Rodin, J. (1991). Mothers, daughters, and disordered eating. *Journal of Abnormal Psychology*, *100*, 198–204.
- Pyle, R. L., Halvorson, P. A., Neuman, P. A., & Mitchell, J. E. (1986). The increasing prevalence of bulimia in freshman college students. *International Journal of Eating Disorders*, *5*, 631–647.
- Richins, M. L. (1991). Social comparison and the idealized images of advertising. *Journal of Consumer Research*, *18*, 71–83.
- Rodin, J., Silberstein, L. R., & Striegel-Moore, R. H. (1985). Women and weight: A normative discontent. In T. B. Sonderegger (Ed.), *Nebraska symposium on motivation: Vol. 32. Psychology and gender* (pp. 267–307). Lincoln: University of Nebraska Press.
- Rosenberg, M. (1965). *Self-esteem scale*. Princeton, NJ: Princeton University Press.
- Rosenthal, R., & Rosnow, R. L. (1991). *Essentials of behavioral research: Methods and data analysis* (2nd ed.). New York: McGraw-Hill.
- Salovey, P., & Rodin, J. (1984). Some antecedents and consequences of social-comparison jealousy. *Journal of Personality and Social Psychology*, *47*, 780–792.
- Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986). The role of the mass media in promoting a thin standard of bodily attractiveness for women. *Sex Roles*, *14*, 519–532.
- Silverstein, B., Peterson, B., & Perdue, L. (1986). Some correlates of the thin standard of bodily attractiveness for women. *International Journal of Eating Disorders*, *5*, 895–905.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomology: An examination of mediating mechanisms. *Journal of Abnormal Psychology*, *4*, 836–840.
- Stice, E., & Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomology. *Journal of Social and Clinical Psychology*, *13*, 288–308.
- Striegel-Moore, R., Silberstein, L., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, *41*, 246–263.
- Tesser, A. (1986). Some effects of self-evaluation maintenance on cognition and action. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 435–464). New York: Guilford.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 181–227). New York: Academic.
- Tesser, A., Millar, M., & Moore, J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Personality and Social Psychology*, *54*, 49–61.
- Testa, M., & Major, B. (1990). The impact of social comparisons after failure: The moderating effects of perceived control. *Basic and Applied Social Psychology*, *11*, 205–218.
- Thompson, J. K., & Heinberg, L. J. (1993). Preliminary test of two hypotheses of body image disturbance. *International Journal of Eating Disorders*, *14*, 59–63.
- Tiggemann, M., & Pickering, A. S. (1996). Role of television in adolescent women's body dissatisfaction and drive for thinness. *International Journal of Eating Disorders*, *20*, 199–203.
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, *62*, 760–774.
- Wilson, G. T., & Eldredge, K. L. (1992). Pathology and development of eating disorders: Implications for athletes. In K. D. Brownell, J. Rodin, & J. H. Wilmore (Eds.), *Eating, body weight, and performance in athletes: Disorders of modern society* (pp. 115–127). Philadelphia: Lea & Febiger.
- Wiseman, M. A., Gray, J. J., Mosimann, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: An update. *International Journal of Eating Disorders*, *11*, 85–89.
- Wood, J. V. (1989). Theory and research concerning social comparisons of personal attributes. *Psychological Bulletin*, *106*, 231–248.