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COGNITIVE RESPONSES TO IDEALIZED MEDIA IMAGES OF WOMEN: THE RELATIONSHIP OF SOCIAL COMPARISON AND CRITICAL PROCESSING TO BODY IMAGE DISTURBANCE IN COLLEGE WOMEN

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This study explored college women's cognitive processing of print advertisements featuring images of highly attractive female models. The relationship of counterarguing (critical processing) and social comparison in response to these images with a number of body image–related variables was examined. Participants were 202 undergraduate females. Research was conducted in two phases. In one phase, participants wrote their thoughts in response to three advertisements taken from recent women's magazines. In the second phase, women completed a number of self–report measures focusing on body image, along with a number of distracter measures. Results suggest that making negative outcome, upward social comparisons in response to such images is significantly associated with greater internalization of the thin ideal and decreased satisfaction with one's own appearance. Despite predictions that counterarguing might act as a protective factor, the tendency to generate counterarguments in response to these images was not related to appearance–related dissatisfaction, internalization of the media ideal, or importance of appearance.

In 1984, Rodin, Silberstein, and Striegel–Moore coined the term *normative discontent* to refer to troubling findings of widespread body dissatisfaction among girls and women in Western cultures. Irving, DuPen, and Berel (1998) offered similar commentary to Rodin and her colleagues, noting that, in the epidemiological sense, body dissatisfaction among fe-

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male adolescents and women is now normal. Body dissatisfaction among women is a concern because it is associated with eating disorder–related pathology (Polivy & Herman, 2004), generally maladaptive eating and exercise behaviors (Anton, Perri, & Riley, 2000), and lower levels of psychosocial adjustment (Cash, 1990). Furthermore, it can engender an excessive focus on the appearance of one's body. From a feminist perspective, this focus is problematic to the extent that it can steal resources (e.g., time, attention, monetary resources) from other issues and activities that might empower women, rather than making them feel inadequate (Kilbourne, 1994).

While social interactions with parents, peers, and others can certainly play a role in the development of body dissatisfaction (Cash, Theriault, & Annis, 2004), the role of the media in contributing to women's relationships with their bodies cannot be overlooked (Becker & Hamburg, 1996; Dorian & Garfinkel, 2002). A number of authors have provided evidence that the ideal female body, as portrayed by the media, is often dangerously thin (e.g., Owen & Laurel–Seller, 2000; Spitzer, Henderson, & Zivian, 1999). Wiseman, Gray, Mosimann, and Ahrens (1992) suggested that the ideal female body, as represented by media images, is currently between 13 and 19% below expected weight for women.

Not surprisingly, this ubiquitous media image of the ultra–thin, remarkably perfect female model is currently the subject of much concern and debate. The link between exposure to idealized media images of women and body image disturbance has been well–established by correlational studies (e.g., Botta, 1999; Harrison & Cantor, 1997), quasi–experimental studies (e.g., Becker, Burwell, Gilman, Herzog, & Hamburg, 2002; Turner, Hamilton, Jacobs, Angood, & Dwyer,1997), and experimental studies (for a recent meta–analytic review see Groesz, Levine, & Murnen, 2002).

Exposure to these images plays an important role in the well–supported sociocultural model used to understand the prevalence of body image disturbance and eating disordered behavior among women in this culture (Cusumano & Thompson, 1997; Polivy & Herman, 2004; Stice, 1994; Tiggemann & Pickering, 1996). According to this model, ongoing exposure to these images reinforces Western culture's emphasis on the link between a thin physique and physical attractiveness, as well as the myriad social rewards associated with attractiveness (Cash, 1990). Such an emphasis can lead to a personal acceptance or internalization of this ideal (Heinberg, Thompson, & Stormer, 1995). Greater internalization of the media's appearance–based standards has been linked to body image disturbance, disordered eating, and negative affect (Heinberg et al., 1995; Thompson & Stice, 2001). The relationship between internalization and these outcomes appears to be primarily mediated by body dis-

satisfaction. This relationship has been supported both in studies of college women (Stice, Schupak–Neuberg, Shaw, & Stein, 1994) and young girls (aged 9–12; Sands & Wardle, 2003).

SOCIAL COMPARISON AS A MEDIATOR

Festinger's (1954) social comparison theory has been employed by a number of researchers examining the effects of idealized media images (e.g., Botta, 1999; Dittmar & Howard, 2004; Jones, 2001; Richins, 1991; Tiggemann & McGill, 2004). In essence, this theory proposes that when objective means of evaluating oneself are not available, comparison with others is often undertaken in order to fulfill the basic human drive for self–evaluation.

Originally, Festinger (1954) proposed that people viewed as similar to oneself would be the most likely targets for comparison. However, more recent research on social comparison points to several factors that make media images of beautiful women ideal targets for comparison. Kruglanski and Mayseless (1990) proposed that the choice of comparison target is likely to be based on the degree to which that target seems likely to provide valuable information. In other words, if one's goal is to obtain an accurate (even if painful) evaluation of one's own appearance, comparison to a dissimilar other (in this case, the media ideal) is quite rational. Indeed, the motivation to attain this type of information could explain, in part, why women often seek out these images, even when they anticipate that the images will make them feel badly (Milkie, 1999). Martinot and Redersdorff (2002) note that when an outgroup (in this case, the group would consist of models or other media figures representing the ideal) possesses expertise, upward comparisons with this group offer a great deal of information. Such comparisons might not be avoided, even if they are likely to damage one's self–esteem. Thus, for those who have internalized the media ideal, exposure to images featuring this ideal is likely to activate the comparison process. Because few women can meet the beauty standards created by this ideal, dissatisfaction with one's own appearance is a likely outcome of this comparison process.

The relevance of social comparison theory to this topic has been established by a number of researchers providing self–report evidence that women do compare themselves to idealized media images of other women (e.g., Martin & Kennedy, 1993, 1994) and that appearance–related dissatisfaction is often the outcome of such comparisons (Posavac, Posavac, & Weigel, 2001; Shaw & Waller, 1995). It should be noted, however, that appearance–related dissatisfaction may depend to some degree on the motive behind the comparison. A self–evaluative motive is

especially likely to lead to such an outcome, whereas a self–improvement or self–enhancement motive may not (Martin & Gentry, 1997).

Richins (1991) conducted focus group interviews with college women and found evidence of specific comparisons with models featured in media images, as well as negative self–related feelings resulting from exposure to these images. In a second study using survey methodology to follow-up on the results of the focus group study, more than half of the respondents (all college women) reported frequent comparisons with models seen in advertisements typical of fashion magazines. Approximately one–third of these same respondents indicated that viewing such ads frequently leads them to feel dissatisfied with their own appearance. In a study using semi–structured interviews, Murray, Touyz, and Beumont (1996) found that seventy percent of their female interviewees reported that print media makes them want to look like the models in the images. Similar reactions were reported for television images. Botta (1999) found that the tendency to make social comparisons was a significant predictor of thin–ideal endorsement, body dissatisfaction, and drive for thinness. These results have been supported by a number of other studies reporting similar findings (Botta, 2003; Jones, 2001; Stormer & Thompson, 1996; Taylor et al., 1998).

Dittmar and Howard (2004) provided evidence that at moderate to high levels of internalization, the tendency to engage in social comparisons can increase the effects of exposure to idealized media images. Cattarin, Thompson, Thomas, and Williams (2000) demonstrated that an instructional manipulation designed to increase social comparison led to an increase in appearance–related dissatisfaction when participants viewed commercials featuring women consistent with the media ideal.

MEDIA LITERACY AND CRITICAL PROCESSING OF IDEALIZED MEDIA IMAGES

Because the relationship between exposure to idealized media images and body image disturbance is well–established, researchers have begun exploring techniques to attenuate the effects of these images. As recommended by Shaw and Waller (1995) and Tiggemann and McGill (2004), a number of these efforts have either explicitly or implicitly targeted the social comparison process. Such efforts focus on women's ability to criticize or reject these media images, marking them as inappropriate targets for comparison. This critical processing of these images could interrupt the comparison process and its associated impact on body image. Thus, a number of authors have employed media literacy techniques to encourage the women to identify these images as

unrealistic or unhealthy distortions of the female body, under the supposition that this type of rejection could block comparisons. This type of research acknowledges the paradox that while women can be hurt by these images, they are often quite astute when it comes to critically processing media messages (Becker & Hamburg, 1996; Milkie, 1999; Richins, 1991).

Interventions designed to encourage women to be critical of the media's beauty ideal have varied in terms of effectiveness (see Levine & Harrison, 2004, for a review). Some interventions (e.g., Irving & Berel, 2001; Irving, DuPen, & Berel, 1998) have been successful in encouraging women to be more skeptical of the images, or view them as unrealistic. However, these studies had no impact on participants' desire to look like the media ideal or their body dissatisfaction or weight–related anxiety.

Posavac, Posavac, & Weigel (2001) conducted and evaluated a secondary prevention program targeted at women with elevated levels of body image disturbance. Women in the experimental conditions were educated about the techniques used by the media that create an artificial standard of beauty and/or the fact that the vast majority of women are genetically predisposed to be heavier than female models. Compared to control group participants, those who participated in one of these video–based interventions reported less weight concern after viewing slides of idealized media images and were less likely to make at least one negative self–evaluation or drive for thinness statement after viewing the images.

In a study by Stice, Mazotti, Weibel, and Agras (2000), college women engaged in counter–attitudinal role play and essay–writing, where they were asked to do their best to convince the leader of the intervention not to pursue the thin ideal. Results indicated that compared to women in the control condition, those who participated in this intervention showed immediate reductions in thin–ideal internalization, body dissatisfaction, and dieting. These changes remained at a one–month follow–up.

While the success of some of these interventions seems promising, other researchers have suggested that critical viewing of these idealized images may not have the protective effects for which many have hoped. Botta (1999) found that critical viewing (e.g., asking why the characters in popular television dramas need to have such perfect bodies) was not significantly related to thin–ideal endorsement. In a similar study exploring exposure to magazine rather than television images (Botta, 2003), results indicated that critical body image processing was related to *increases* in eating disordered behaviors and drive for thinness and *decreases* in body satisfaction. Nathanson and Botta (2003) concluded that parental attempts to mediate the beauty–related content of television

programs (for instance by questioning the thinness of characters or the reality of their appearance) can actually increase certain forms of body image processing in their adolescent children. Critical evaluation of these images assigns the images more cognitive resources, and this increased attention may make social comparison more likely instead of less likely. Thus, overall there is mixed evidence as to whether critical processing of these images can help. Both Botta (2003) and Milkie (1999) suggest that those interested in preventing the negative effects of these images examine women's and girls' ability to reject these images on one level, while embracing them on another.

Despite advances in this area of research, a number of important questions remain unanswered. For example, if sociocultural pressures to live up to this ideal are so widespread, how is it that so many women do not develop full–blown eating disorders (Polivy & Herman, 2004)? Polivy and Herman note that a focus on what makes some women less vulnerable to the effects of these images is certainly warranted. Additionally, more work is needed to explore the mechanisms through which exposure to idealized media images translates into body image disturbance (Tiggemann & McGill, 2004). The present study seeks to address both of these issues by exploring two specific types of cognitive responses to these media images, social comparisons and counterarguments indicative of critical processing.

COUNTERARGUMENTS AS INDICATORS OF CRITICAL PROCESSING

In this study, *counterargument* is the term used to refer to thoughts indicative of critical processing of the messages about beauty contained in the media images. While some researchers define a counterargument as any unfavorable response to a persuasive communication, others have interpreted the term in a more complex manner. According to Miller and Baron (1973), counterarguing can be viewed as an unspoken dialogue with the source of a persuasive communication, a dialogue that often allows one to resist the persuasive intent of the communication. Counterarguments can include questioning the validity of a statement, statements opposing the central message of a communication, proposing alternatives to the advocated position, and even derogating the source of a communication. In the case of challenging media images of idealized beauty, the focus in this study is on counterarguments that attack these images as part of the incidental content of a communication. Such counterarguments involve the recognition, whether implicit or explicit, that these images are sending a message to those who see them—even when the message may not be relevant to the central focus

of a communication. For example, consider an advertisement for a clothing line that features an attractive female model. While statements such as, "That brand stinks," or "Those clothes are ugly," are indeed counterarguments, they are not the type of counterarguments on which media literacy advocates generally focus. Instead, counterarguments of interest would include statements such as, "She's way too thin," or "Nobody really looks like that without airbrushing." Thus, these are the types of counterarguments considered in this research to be indicative of critical processing.

THE CURRENT STUDY

The current study was designed to explore whether generating counterarguments and/or social comparisons in response to idealized media images is associated with appearance–related dissatisfaction, internalization of the media ideal, or importance of appearance. It should be noted that due to its design, this study does not address any causal relationships between the variables of interest. Instead, the goal was to determine whether there is an association between the tendency to produce social comparisons or engage in counterarguing in response to idealized images and one's scores on measures related to body image disturbance. While most of the current literature in this area implies or assumes that women who show evidence of critical processing will have "healthier" scores (lower body dissatisfaction and lower internalization of the thin ideal), research has not directly examined this relationship. Thus, it was deemed worthwhile to explore the issue directly. Using a two–phase, non–experimental methodology, this research was designed to minimize the effect of demand characteristics on the phenomena under question. It was hypothesized that a main effect on the above listed variables would emerge for social comparisons, such that the tendency to generate social comparisons would be associated with greater appearance–related dissatisfaction, greater internalization, and a greater emphasis on appearance. Counterarguing was predicted to be associated with less appearance–related dissatisfaction, less internalization, and less emphasis on appearance.

METHOD

PARTICIPANTS

Participants included 202 college women recruited from a private, Midwestern university's psychology department participant pool. In addition to the convenience associated with recruiting college student

participants, college women are a population of interest in this area of research. Adolescent women in general and college women in particular are at increased risk for eating disorders and sub–clinical eating disordered behaviors compared to the general population (Pyle, Neuman, Halvorson, & Mitchell, 1990). Furthermore, the research reviewed above clearly reveals the high rates of body image disturbance in this population.

These women participated in the study for course credit in an introductory psychology course. The mean age of participants was 18.5, with ages ranging from 17–32. Participants represented a range of races and ethnicities, with 64% identifying themselves as White or Caucasian, 12% as Latina/Hispanic, 7% as East Asian, 6% as African American, 3% as Indian or Pakistani, 3% as native European, 2% as Middle Eastern, and 3% as bi–racial.

This study was approved by a university human participants committee, and all participants were all treated in an ethical manner as specified by APA guidelines. Participants were fully debriefed at the conclusion of the study, and given contact information for the student counseling center should they have concerns about body image or eating–related behaviors.

GENERAL PROCEDURE

Participants were told they were taking part in a two–phase study designed to explore how a variety of personality and lifestyle factors are related to the cognitive processing of advertisements. Data were collected in two sessions (Phase A and Phase B), with the second session occurring within two weeks after the first session. Participants were randomly assigned to complete either Phase A or Phase B first. Ninety–two participants completed Phase A first, 110 completed Phase B first. (This unequal number was due to a clerical error.) All data were collected in a classroom reserved for research purposes, with between 5 and 10 participants per data collection session. No males were present during data collection. Four participants were dropped from the original data set for completing only one phase. At the conclusion of each participant's second phase, participants were asked to share their thoughts on what the study was about to probe for hypothesis guessing.

PHASE A STIMULUS MATERIALS

Twelve sets of three advertisements featured in recent women's magazines were used in this study. Each set featured one of two ads with a close–up of a model's face (makeup ads), one of two ads featuring a body

shot of a model in swimwear, and one of two distracter ads featuring no models (ads for beauty products). The body shots of models in swimwear (referred to for the remainder of this paper as body ads) were the focus of this study. All advertisements were chosen based on pilot testing with 15 female undergraduates who rated the ads in terms of how typical they were of women's magazines and how attractive the featured models were (for ads that featured a model). The ads employed in this study were rated during this pilot testing as highly typical of women's magazines; the models featured in the ads were rated as highly attractive. Two different ads for each ad type (body, face, and distracter) were chosen in order to rule out possible idiosyncratic effects of one advertisement. Participants were randomly assigned to view one of the 12 randomly ordered sets of three ads.

PHASE A PROCEDURE

The Phase A procedure consisted of a relatively standard thought–listing task. Participants were told that the focus of this portion of the study was on how people respond to advertisements typical of women's magazines. They were informed that they would view three advertisements from recent women's magazines that had not been altered in any way. Participants were then given directions for the thought–listing task along with the stimulus materials described above.

Participants were asked to list the first ten thoughts that came to mind in response to each of the three ads they were given, listing each thought in a separate box. Following the open–ended instructions ("Please look at the advertisement and write down the first 10 thoughts you have as a result of looking at that ad. Write each thought in a separate box. Try to write down everything that comes to mind. Please let your thoughts flow naturally, as they normally would."), participants were asked, for each ad, if they had any thoughts about themselves while looking at the ad. Participants indicating that they had thoughts about themselves while looking at an ad were given space to write up to five thoughts in response to this prompt. To clarify, for each ad, they were first asked to list all thoughts, then on the following page were asked to list any specific thoughts they had about themselves (if they had any). Thus, they were likely able to anticipate this "prompted" social comparison question for the second and third ads they saw. In a pilot study of 120 undergraduate women using this same methodology, the order of the ads had no effect on participants' generation of social comparisons ($\chi^2(5) = 4.73$, *ns*). Thus, the prompted "thoughts about self" question did not appear to increase social comparison thoughts in response to other ads viewed

after seeing this prompt. Based on this finding, the same methodology was used in this study.

CODING OF THOUGHT–LISTING DATA

Using coding guidelines developed during the collection and analysis of pilot data, trained research assistants coded each thought listed by participants into one of five categories: counterarguments, negative outcome social comparisons, positive outcome social comparisons, positive assessments of model's appearance, and other thoughts. The research assistants demonstrated adequate inter–rater reliability with a kappa of .88, $p < .0001$. Disagreement between raters was resolved through discussion. Detailed descriptions of these coding categories are located in Appendix A.

PHASE B PROCEDURE

Each participant was randomly assigned to receive one of two different survey packets containing the measures detailed below. Each of the two packets contained all of the measures, but in a different order.

PHASE B MEASURES

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ). The SATAQ (Heinberg, Thompson, & Stormer, 1995) is a measure of the degree of internalization and awareness of the thin ideal typically seen in mainstream media. The scale is composed of 14 items, eight assessing internalization of the ideal and six assessing awareness of the ideal. Heinberg, Thompson and Stormer (1995) reported an internal consistency of .88 for the internalization subscale (the scale of interest for this study). Thompson and Stice (2001) review evidence of this scale's well–established validity. In this study's sample, Cronbach's alpha was .81.

Multidimensional Body–Self Relations Questionnaire—Appearance Scales (MBSRQ–AS). This is a well–validated instrument with five subscales and a total of 34 items (Cash, 2000). The subscales of interest for this study were the Appearance Orientation subscale, which measures the extent of investment in one's appearance, or the importance of one's appearance and the Appearance Evaluation scale, which measures satisfaction with one's general appearance. Cronbach's alpha for both of these scales has been reported as .88 (Cash, 2000). In this study, alphas were .84 and .87, respectively.

TABLE 1. Descriptive Statistics for Satisfaction with Life, Internalization, Body Dissatisfaction, and Importance of Appearance

Measure	Mean	*SD*
Satisfaction with life (SWLS)[a]	23.24	4.59
Internalization of the thin ideal (SATAQ–I)[b]	25.34	8.02
Body dissatisfaction (EDI–2)[c]	9.03	6.65
Appearance orientation (MBSRQ–AS)[d]	3.40	0.60
Appearance evaluation (MBSRQ–AS)[e]	3.26	0.73

Note. [a]possible scores range from 5 (low satisfaction) to 35 (high satisfaction); [b]possible scores range from 8 (low internalization) to 40 (high internalization); [c]possible scores range from 0 (low levels of dissatisfaction) to 27 (high levels of dissatisfaction); [d]possible scores range from 1 (low importance of appearance) to 5 (high importance of appearance); [e]possible scores range from 1 (low satisfaction with appearance) to 5 (high satisfaction with appearance).

Eating Disorder Inventory—2 (EDI–2). The EDI–2 (Garner, 1991) is widely used as both a clinical and research tool. The only subscale used in this study was the body dissatisfaction subscale, which measures dissatisfaction with the overall shape and size of different regions of the body. For female college students, reported reliability coefficients range from .83 to .93 (Garner, Olmstead, & Polivy, 1983). Cronbach's alpha was .87 in this sample.

Body Mass Index (BMI). Body mass index was calculated based on participants' self–stated height and weight according to the most recent guidelines published by the CDC. Height and weight questions were included among a series of other non–relevant appearance related questions (e.g., hair color, eye color, etc.) in order to avoid sensitizing participants to the focus of the study. A number of studies have identified BMI as an important moderating variable regarding the effects of exposure to idealized media images (e.g., Graff Low et al., 2003; McCabe & Ricciardelli, 2001; Shaw & Waller, 1995).

Satisfaction with Life Scale (SWLS). The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; Pavot & Diener, 1993) is a 5–item assessment tool designed to measure one's global, cognitive judgment of one's life. This scale was included in order to control for the relationship between body satisfaction and overall satisfaction with one's life. Cronbach's alpha was .88 with this study's sample.

Distracter measures related to the cover story. In order to make the cover story for the study more credible, a survey of brand preferences and buying habits was constructed and administered. A general personality–related survey was included as well, in addition to a survey with lifestyle questions (e.g., hobbies, entertainment preferences, etc.)

TABLE 2. Correlation Matrix for Satisfaction with Life, Internalization, Body Dissatisfaction, Importance of Appearance, and BMI

Measure	1	2	3	4	5
1. Internalization of the thin ideal (SATAQ)	—	.56**	.44**	–.36**	–.05
2. Body dissatisfaction (EDI–2)		—	.15*	–.75**	.36**
3. Appearance orientation (MBSRQ–AS)			—	.04	–.07
4. Appearance evaluation (MBSRQ–AS)				—	–.33**
5. Body Mass Index					—

*$p < .05$ (2–tailed).**$p < .01$ (2–tailed).

RESULTS

PHASE B MEASURES

Body image–related measures. Means and standard deviations for the internalization scale of the SATAQ, the appearance orientation subscale of the MBSRQ–AS, the body dissatisfaction subscale of the EDI–2, and body mass index are contained in Table 1. None of the mean scores on these measures differed as a function of whether Phase A or Phase B was completed first ($F(5, 192) = 1.03$, *ns*). The correlation matrix for these variables is provided in Table 2. When correlation coefficients in this table were calculated separately for each of the four largest racial/ethnic groups (Caucasian, African American, Hispanic/Latina, and East Asian), none of the correlation coefficients differed significantly (using Fisher's *r* to *z* transformation; the numbers of participants in the other racial/ethnic categories were too small to justify separate analyses).

BMIs ranged from 17.0 to 49.4, with a mean of 23.2. Five percent of participants fell into the underweight category (BMI of below 18.5), 72% in the normal weight category (18.5–24.9), 16% in the overweight category (25.0–29.9) and 6% in the obese category (30 and above). Looking at the four largest racial categories, BMI was not significantly related to participants' race ($F(3, 183) = 1.51$, *ns*). BMI was also not significantly related to age ($r = .02$, *ns*). Body mass index was significantly associated with body dissatisfaction ($r = .36$, $p < .01$) and overall satisfaction with appearance ($r = -.33$, $p < .01$).

THOUGHT–LISTING RESULTS

As previously noted, all thoughts generated by participants were coded into one of five categories: counterarguments, negative outcome (up-

ward) social comparisons, positive outcome (downward) social comparisons, favorable comments about the models' appearance, and other thoughts. Recall that participants were asked two different thought–listing questions. The first contained basic instructions and a general question, "Please look at the first advertisement and write down the first 10 thoughts you have as a result of looking at that ad. Write each thought in a separate box. Try to write down everything that comes to mind. Please let your thoughts flow naturally, as they normally would." After listing the ten thoughts, participants were given the following question/instructions, "Did this ad make you think about yourself at all? If it did, please write down the first five thoughts you had about yourself as a result of looking at this ad. Write each thought in its own box." In this results section, the first question is referred to as the unprompted question and the second as the prompted question.

Multivariate analyses of variance revealed that the mean number of prompted and unprompted thoughts generated in each of the four coding categories in response to the body ads did not differ as a function of which of the two body ads was viewed ($F(8, 193) = .92$, *ns*) Analyses were also conducted to determine if the number of thoughts generated in these categories varied as a function of whether the participant completed Phase A or Phase B first. Multivariate analysis of variance indicated no such effect ($F(16, 185) = 1.09$, *ns*).

COUNTERARGUMENTS AND SOCIAL COMPARISONS

Out of a total of ten thoughts, the number of counterarguments generated in response to the body ad unprompted thought–listing question ranged from zero to eight, with a mean of 1.41 counterarguments. For the prompted question (thoughts about yourself), the mean number of counterarguments generated was .23. When considering only the unprompted question, 72% of participants generated at least one counterargument. When the unprompted and prompted questions were considered together, a total of 74% of participants generated at least one counterargument in response to the body advertisement.

The number of negative outcome (upward) social comparisons generated in response to the body ads (unprompted question) ranged from zero to five, with a mean of .42. When prompted, the mean number of such comparisons increased to 1.96. (This increase is not surprising, given that this question explicitly asked participants to list any thoughts they had about themselves.) Unprompted, a total of 29% of participants generated negative outcome comparisons in response to the ad featuring a model in swimwear. When prompted, this percentage increased to 78%. Collapsing across the prompted and unprompted questions, a total of 82% of par-

TABLE 3. Sample, Representative Counterarguments and Social Comparisons

Sample counterarguments
Why are all these damn models toothpicks?
The way her hipbone is jutting out bothers me, it looks like she's so thin she's in pain.
Thank God I don't have an eating disorder too.
I think she almost looks like a computer image and not a real person.
Everything seems fake. A fake tan. Fake eyes. Maybe even a fake body with all the airbrushing.
This ad is made to get men off and to make large women feel like crap.
This picture and others like it is why many of my friends starve themselves.
Although hardly anyone looks like this, the ad leads you to believe the opposite.
Sample negative outcome, upward social comparisons
I wish I had a perfect flat stomach like hers.
Why can't I be that thin?
God she's pretty. Why can't I be that pretty?
She's every guy's dream. I wish that were me.
I need to go on a diet . . . lose weight.
Why did I eat so much for lunch?
I feel like a chunky elephant compared to this model.
I hate my hips, my chest is too big, and my stomach isn't flat enough.
I'm not pretty enough.

ticipants generated negative outcome comparisons. In other words, the vast majority of participants listed at least one negative outcome social comparison in response to viewing an ad featuring an attractive model in swimwear. Sample, representative counterarguments and social comparisons are included in Table 3. Table 4 provides frequency distribution data for counterarguments, positive outcome social comparisons, and negative outcome social comparisons. As is evident in this table, positive outcome social comparisons in response to these images were quite rare.

Collapsing across prompted and unprompted responses, Chi–square analyses revealed no association between the tendency to produce counterarguments and the tendency to produce negative outcome social comparisons in response to these images ($\chi^2(1) = .38$, *ns*). Sixty–one percent of participants generated at least one counterargument and at least one negative outcome social comparison, 13% generated at least one counterargument, but no negative outcome social comparisons, 20% generated at least one negative outcome social comparison but no counterarguments, and 5% generated no negative outcome social comparisons and no counterarguments. Using continuous rather than categorical measures (i.e., total number of thoughts generated in these categories), neither of the two measures of the number of counterarguments

TABLE 4. Percentage of Participants Generating 0, 1, 2, 3, or 4+ Counterarguments, Negative Outcome Social Comparisons, and Positive Outcome Social Comparisons

	0	1	2	3	4+
Unprompted					
Counterarguments	28.2	35.6	16.8	11.4	7.9
Negative Outcome Social Comparisons	71.3	17.3	5.9	2.5	3.0
Positive Outcome Social Comparisons	98.0	2.0	0.0	0.0	0.0
Prompted					
Counterarguments	82.2	13.9	3.0	0.5	0.5
Negative Outcome Social Comparisons	21.8	18.3	21.8	17.3	20.8
Positive Outcome Social Comparisons	72.8	19.3	4.5	1.5	2.0

produced (i.e., prompted or unprompted) was significantly associated with the two measures of the number of negative outcome social comparisons produced (see Table 5). It is interesting to note, however, that while positive outcome social comparisons were quite rare, in response to the "thoughts about self" prompt, the number of negative outcome social comparisons generated was significantly and negatively associated with the number of positive outcome social comparisons generated ($r = -.25$, $p < .01$). The number of counterarguments generated in response to the unprompted question was significantly correlated with the number of positive outcome social comparisons generated in response to the prompted question ($r = .26$, $p < .01$). As is evident in Table 5, the tendency to generate counterarguments in response to the unprompted question was significantly associated with the tendency to generate counterarguments in response to the unprompted question, and this same relationship held for negative outcome social comparisons.

RESULTS FOR PRIMARY RESEARCH QUESTION

To review, the primary research question for this study focused on determining how the tendency to counterargue and/or make social comparisons in response to idealized images of female beauty is related to appearance–related dissatisfaction, internalization of the thin ideal, and importance of appearance. A series of regression analyses were conducted to determine whether social comparisons were associated with higher scores on these and counterarguments with lower scores on these measures. As continuous variables, the total number of counterarguments and social comparisons generated were less than ideal as they

TABLE 5. Correlation Matrix for Number of Counterarguments, Negative Outcome Social Comparisons, and Positive Outcome Social Comparisons Generated

Measure	1	2	3	4	5	6
1. Number of counterarguments, unprompted	—	.12	–.04	–.21**	.09	.26**
2. Number of negative outcome social comparisons, unprompted		—	.03	–.10	.28**	–.13
3. Number of positive outcome social comparisons, unprompted			—	–.06	–.07	.10
4. Number of counterarguments, prompted				—	–.14	.10
5. Number of negative outcome social comparisons, prompted					—	–.25**
6. Number of positive outcome social comparisons, prompted						—

**$p < .01$ (2–tailed).

were highly skewed. Thus, a log transformation of these variables was performed in order to correct for their strong positive skew (Tabachnick & Fidell, 2001). These transformed variables were then centered (Cohen & Cohen, 1975). Body mass index and life satisfaction were entered in the first step of each regression. In the next step, the relevant independent variables (the transformed measure of number of counterarguments, transformed measure of number of comparisons, and their interaction term) were entered. The results of these regressions are reported in Tables 6–9.

The coefficient for social comparison was significant and positive when predicting both internalization scores and body dissatisfaction scores, but was not a significant predictor in the analyses employing the two MBSRQ measures as dependant variables (appearance evaluation and orientation). No counterarguing coefficients were statistically significant, nor were the respective interaction terms[1].

1. When negative outcome social comparison and counterarguing data was dichotomized (i.e., participants were divided into groups based on whether they generated at least one of the types of thoughts or none of these types of thoughts), multivariate analysis of variance results were consistent with these regression analyses. There was a significant association between the combined DVs and the social comparison variable (F (4, 188) = 5.07, $p < .01$; partial $\eta^2 = .10$). The association between the main effect of counterarguing and the combined DVs was not significant (F (4, 188) = 1.92, *ns*). The interaction term was also non–significant (F (4, 188) = 2.33, *ns*). Making social comparisons was significantly associated with higher internalization scores and body dissatisfaction scores.

TABLE 6. Summary of Regression Analysis for Variables Predicting Body Dissatisfaction

Dependant Variable: Body Dissatisfaction			
Variable	***B***	***SE B***	β
Step 1			
Body Mass Index	.51	.09	.35**
Satisfaction with Life	–.33	.07	–.31**
Step 2			
Body Mass Index	.46	.09	.32**
Satisfaction with Life	–.29	.07	–.27**
Log number of counterarguments, centered	–2.00	3.00	–.08
Log number of comparisons, centered	5.27	2.33	.22*
Interaction	2.31	5.45	.06

Note. $N = 197$. $R^2 = .23$ for Step 1, $F(2, 195) = 28.70$, $p < .001$. $\Delta R^2 = .30$ for Step 2 ($p < .01$). **$p < .01$, *$p < .05$.

DISCUSSION

THE POWER OF SOCIAL COMPARISON

Because research has demonstrated that social comparison processes play an important mediating role in the relationship between exposure to idealized media images of women and body image disturbance, it was hypothesized that generating negative outcome social comparisons in response to such images would be predictive of higher scores on measures of body image disturbance. Generating social comparisons in response to these images was associated with higher levels of body dissatisfaction and internalization. It should be noted that the number of social comparisons generated was not significantly associated with a more general measure of appearance–related satisfaction (a measure not focused solely on the body) or a measure of the extent of investment in one's appearance. The finding that the tendency to generate negative outcome social comparisons in response to these images was associated with body dissatisfaction and internalization is consistent with the results of studies by a number of authors using different methodologies. For example, correlational research by Botta (1999, 2003) found that participants' self–reported tendency to compare their bodies to the bodies they see on television, in music videos, or in magazine ads was associated with body dissatisfaction, thin–ideal endorsement, and drive for thinness. Survey research by Stormer and Thompson (1996) and Taylor et al. (1998) lead to similar conclusions.

Comparing oneself to the media ideal does not necessarily have to re-

TABLE 7. Summary of Regression Analysis for Variables Predicting Satisfaction with Appearance

Dependant Variable: Satisfaction with Appearance			
Variable	***B***	***SE B***	β
Step 1			
Body Mass Index	–.05	.01	–.32**
Satisfaction with Life	.04	.01	.35**
Step 2			
Body Mass Index	–.05	.01	–.29**
Satisfaction with Life	.04	.01	.32**
Log number of counterarguments, centered	.47	.33	.16
Log number of comparisons, centered	–.15	.26	–.06
Interaction	–1.03	.61	–.24

Note. $N = 197$. $R^2 = .23$ for Step 1, $F(2, 194) = 29.14$, $p < .001$; $R^2 = .28$ for Step 2, $F(5, 191) = 14.62$, $p < .001$; $^{**}p < .01$.

sult in a contrast effect. Some women may find themselves inspired by such comparisons, or even evaluate themselves more favorably than the model as a result of social comparison. This is the first study to offer data on the relative frequency of positive and negative outcome comparisons in response to these images. Negative outcome social comparisons were much more frequent than positive outcome comparisons. This finding is not surprising given that the media–promoted beauty ideal is so unattainable for the vast majority of women. There was also some evidence that these positive outcome comparisons were negatively associated with negative outcome comparisons, and positively associated with counterarguing. Thus, there is a growing body of evidence to suggest that comparisons with these types of images are not uncommon and are often harmful. These data cannot prove that comparing oneself to the women featured in these images causes participants to have higher levels of body dissatisfaction and internalization. However, simply knowing that these variables are associated is an important step in understanding this phenomenon.

Because comparisons with the media ideal seem to occur so naturally for many women, perhaps future prevention efforts could focus on reshaping the content of these comparisons. In other words, if it is impossible to avoid comparing oneself to these images, learning to focus on the attributes one has that are superior to the models' might be helpful. For example, in this study, one participant wrote about how she preferred her own belly button to the model's; another preferred her own elbows.

TABLE 8. Summary of Regression Analysis for Variables Predicting Internalization

Dependant Variable: Internalization			
Variable	***B***	***SE B***	β
Step 1			
Body Mass Index	–.12	.12	–.07
Satisfaction with Life	–.39	.09	–.31**
Step 2			
Body Mass Index	–.20	.12	–.11
Satisfaction with Life	–.29	.08	–.23**
Log number of counterarguments, centered	–5.01	3.57	–.16
Log number of comparisons, centered	12.20	2.78	.43**
Interaction	1.52	6.50	.03

Note. $N = 198$. $R^2 = .10$ for Step 1, $F(2, 195) = 10.39$, $p < .001$. $R^2 = .30$ for Step 2 ($p < .001$). **$p < .01$.

While this might seem like an unusual way to challenge these images, it is certainly worthy of further exploration.

THE FAILURE OF COUNTERARGUING?

The extent to which women in this study challenged the media ideal was not associated with any of the body image–related variables. There was also no evidence of a significant interaction between counterarguing and social comparison. The finding that counterarguing was generally not associated with these variables is difficult to interpret in the context of the currently available literature. For example, some recent research (Botta, 1999, 2003; Nathanson & Botta, 2003) has found evidence that critically viewing idealized media images may increase the extent to which they are processed, thereby increasing body dissatisfaction. Milkie (1999) also found counterarguing to be an ineffective strategy for blocking the negative effects of these images. These studies are the most similar to the current study in the sense that they did not manipulate counterarguing or attempt to teach women how to counterargue, but simply assessed the relationship between critical processing and body image disturbance.

Studies that have directly encouraged women to challenge these images have found somewhat different results. For example, Irving, DuPen, and Berel (1998) found that a media literacy–based intervention did decrease internalization of the thin ideal and the perceived realism of the images, but that it had no impact on body dissatisfaction or the desire to look like the models in the images (see also Irving & Berel, 2001).

TABLE 9. Summary of Regression Analysis for Variables Predicting Importance of Appearance

Dependant Variable: Importance of Appearance			
Variable	***B***	***SE B***	β
Step 1			
Body Mass Index	0.00	.01	–.08
Satisfaction with Life	–0.01	.01	–.08
Step 2			
Body Mass Index	–0.01	.01	–.10
Satisfaction with Life	0.00	.01	–.04
Log number of counterarguments, centered	–.45	.31	–.19
Log number of comparisons, centered	.36	.24	.17
Interaction	.43	.56	.12

Note. $N = 196$. $R^2 = .01$ for Step 1, $F(2, 194) = 1.27$, n.s. $R^2 = .08$ for Step 2 ($p < .01$).

Thompson and Stice (2001), in a series of prospective research studies, found that increasing women's critical viewing skills could decrease internalization, thereby reducing body image disturbance. Posavac, Posavac, and Weigel (2001) reported the results of several media literacy interventions that appeared to reduce participants' tendencies to make negative self–statements or drive for thinness statements in response to idealized images. Given that the results of this study indicate that most women do, in fact, already know how to challenge the beauty–related content of these images, it is difficult to surmise why studies that directly attempt to manipulate counterarguing seem to show greater promise in terms of the potential protective effects of media literacy. It is possible that these interventions simply teach more powerful or persuasive counterarguments. This possibility could be examined in future research.

This study's findings are far from the final word on the role of counterarguing in response to these images. While media literacy efforts that teach women to be critical of these images are clearly valuable from an educational perspective, it may be time to be more critical about the likely success of these initiatives in protecting women from the effects of exposure to these images. It is clear from this study and from previous research (e.g., Milkie, 1999) that women are quite adept at critiquing the beauty standard created by these images, while simultaneously feeling bound by this standard and motivated to abide by it. Future research should focus on alternative methods of blocking these comparisons, and alternative conceptualizations of protective factors. For example, researchers might explore the rewards women associate with this ideal as

a means to understanding this cognitive conflict. Perhaps the women who are less vulnerable to the effects of these images don't perceive the ideal to be associated with powerful social rewards in the manner that those women more affected by these images do.

Additionally, a focus on women who do not process the content of these images in terms of appearance–related implications is warranted. While only a small portion of participants in this study generated neither counterarguments nor social comparisons in response to these images, this population is certainly one worth examining. Perhaps some women are able to consider these images without resorting to appearance–related processing, even when the images clearly contain appearance–related content and persuasive intent.

This study was not without its limitations. Specifically, like much psychological research, it relied on introductory psychology students as participants. While college women are a relevant population to study with regard to eating disorders and body image disturbance, this area of study would certainly benefit studying women beyond college age (e.g., Dittmar & Howard, 2004). This study, by nature of its design, also cannot support causal conclusions about the relationships of the variables of interest. However, by avoiding rather obvious manipulations or pre– and post–measures that give away a study's intent, it is hoped that this design may have limited the demand characteristics that are a threat to much of the research conducted on this topic. There is much work left to be done in terms of exploring questions that the sociocultural model of body image disturbance leaves unanswered. However, it is hoped that this study can shed some light on how women's typical ways of responding to idealized media images relate to the body image disturbance that so concerns both researchers and practitioners.

APPENDIX: DESCRIPTIONS OF CODING CATEGORIES

COUNTERARGUMENTS:

1. Criticism of the model for being too thin, unhealthy, or eating disordered, too perfect, unrealistic, fake, airbrushed or otherwise graphically manipulated, or not representative of the general population of women.
2. Criticism of the advertising industry/media for using these types of models, specific accusations of making women feel badly about themselves or setting unrealistic standards for women, comments about the unattainability of the look portrayed.

3. Any indication of not wanting to look like the model due to any of the above reasons, or rejecting the need to look like the model, or questioning why people feel the need to look like the model in the ad, or models in general.

INDIRECT AND DIRECT INDICATORS OF NEGATIVE OUTCOME SOCIAL COMPARISONS:

1. Any direct indication of a desire to look like the model.
2. Any comment about one's own inability to look like the model that is not consistent with counterarguing.
3. Any specific comparison to the model's overall appearance or a specific appearance–related feature of the model that is suggestive of upward comparison (i.e., an unfavorable outcome comparison for the participant).
4. Expression of dissatisfaction with any element of one's own appearance.
5. Expression of the need, motivation, or desire to take action to improve one's appearance.
6. Any negative appearance related feeling or expression.

POSITIVE ASSESSMENT OF MODEL'S APPEARANCE:

Comments clearly positive in nature and clearly related to physical appearance of the model.

INDICATORS OF POSITIVE OUTCOME SOCIAL COMPARISONS:

Both positive evaluations of participants' own appearance and thoughts indicating that the participant believed herself to look better than or similar to the model.

OTHER THOUGHTS:

Any thoughts that did not fit into one of the four categories listed above. Comments about the non–model related appearance of the ad, the brand, the product, or explicit claims made in the ad, wandering and unrelated thoughts, evaluations of the advertisement, ambiguous (uninterpretable) comments about the model's appearance, comparison of the model to a celebrity or someone other than the participant, and comments about the study itself.

REFERENCES

Anton, S.D., Perri, M.G., & Riley, J.R. (2000). Discrepancy between actual and ideal body image: Impact on eating and exercise behaviors. *Eating Behaviors, 1*(2), 153–160.

Becker, A.E., Burwell, R.A., Gilman, S.E., Herzog, D.B., & Hamburg, P. (2002). Eating behaviors and attitudes following prolonged exposure to television among ethnic Fijian adolescent girls. *British Journal of Psychiatry 180*(6), 509–514.

Becker, A.E., & Hamburg, P. (1996). Culture, the media, and eating disorders. *Harvard Review of Psychiatry, 4*, 163–167.

Botta, R. (1999). Television images and adolescent girls' body image disturbance. *Journal of Communication, 49*(2), 22–41.

Botta, R. (2003). For your health? The relationship between magazine reading and adolescents' body image and eating disturbances. *Sex Roles, 48,* 389–399.

Cash, T. F. (1990). The psychology of physical appearance: Aesthetics, attributes, and images. In T. F. Cash & T. Pruzinsky (Eds.), *Body images: Development, deviance, and change* (pp. 51–79). New York: Guilford.

Cash, T. (2000). *Multidimensional Body–Self Relations Questionnaire: MBSRQ user's manual.* Norfolk, VA: Old Dominion University.

Cash, T.F., Theriault, J., & Annis, N. M. (2004). Body image in an interpersonal context: Adult attachment, fear of intimacy, and social anxiety. *Journal of Social and Clinical Psychology, 23*(1), 89–103.

Cattarin, J.A., Thompson, J.K., Thomas, C., & Williams, R. (2000). Body image, mood, and televised images of attractiveness: The role of social comparison. *Journal of Social and Clinical Psychology, 19*(2), 220–239.

Cohen, J., & Cohen, P. (1975). *Applied multiple regression/correlation analysis for the behavioral sciences.* Hillsdale, NJ: Lawrence Erlbaum, Associates.

Cusumano, D.L., & Thompson, J.K. (1997). Body image and body shape ideals in magazines: Exposure, awareness, and internalization. *Sex Roles, 37*(9/10), 701–721.

Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The Satisfaction With Life Scale (SWLS). *Journal of Personality Assessment, 49,* 71–75.

Dittmar, H., & Howard, S. (2004). Ideal–body internalization and social comparison tendency as moderators of thin media models' impact on women's body–focused anxiety. *Journal of Social and Clinical Psychology, 23,* 768–791.

Dorian, L., & Garfinkel, P.E. (2002). Culture and body image in Western society. *Eating and Weight Disorders, 7*(1), 1–19.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117–140.

Garner, D.M. (1991). *Eating Disorder Inventory-2 (EDI-2): Professional manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Garner, D.M., Olmstead, M.P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*(2), 15–34.

Graff Low, K., Charanasomboon, S., Brown, C., Hiltunen, G., Long, K., & Reinhalter, K. (2003). Internalization of the thin ideal, weight and body image concerns. *Social Behavior and Personality, 31*(1), 81–90.

Groesz, L.M., Levine, M.P., & Murnen, S.K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta–analytic review. *International Journal of Eating Disorders, 31*, 1–16.

Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*(1), 40–67.

Heinberg, L.J., Thompson, J.K., & Stormer, S. (1995). Development and validation of the

Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ). *International Journal of Eating Disorders, 17*(1), 81–89.

Irving, L.M., & Berel, S.R. (2001). Comparison of media–literacy programs to strengthen college women's resistance to media images. *Psychology of Women Quarterly, 25*(3), 103–111.

Irving, L.M., DuPen, J., & Berel, S. (1998). A media literacy program for high school females. *Eating Disorders: The Journal of Treatment and Prevention, 6*(2), 119–131.

Jones, D.C. (2001). Social comparison and body image: Attractiveness comparisons to models and peers among adolescent girls and boys. *Sex Roles, 45*(9/10), 645–664.

Kilbourne, J. (1994). Still killing us softly: Advertising and the obsession with thinness. In P. Fallon, M.A. Katzman et al. (Eds.), *Feminist perspectives on eating disorders,* (pp. 395–418). New York: Guilford Press.

Kruglanski, A.W., & Mayseless, O. (1990). Classic and current social comparison research: Expanding the perspective. *Psychological Bulletin, 108*(2), 195–208.

Levine, M. P., & Harrison, K. (2004). The role of mass media in the perpetuation and prevention of negative body image and disordered eating. In J. K. Thompson (Ed.), *Handbook of eating disorders and obesity* (pp. 695–717). New York: Wiley.

Martin, M. C., & Gentry, J. W. (1997). Stuck in the model trap: The effects of beautiful models in ads on female pre–adolescents and adolescents. *The Journal of Advertising, 26*, 19–33.

Martin, M. C., & Kennedy, P. F. (1993). Advertising and social comparison: Consequences for female preadolescents and adolescents. *Psychology and Marketing, 10*, 513–530.

Martin, M. C., & Kennedy, P. F. (1994). The measurement of social comparison to advertising models: A gender gap revealed. In J. A. Costa (Ed.), *Gender issues in consumer behavior* (pp. 104–124). Thousand Oaks, CA: Sage.

Martinot, D., & Redersdorff, S. (2002). Impact of upward comparisons with outgroup members on self–esteem in an asymmetrical intergroup comparison context. *Psychologica Belgica, 42*(1/2), 131–149.

McCabe, M.P., & Ricciardelli, L.A. (2001). Parent, peer, and media influences on body image and strategies to both increase and decrease body size among adolescent boys and girls. *Adolescence, 36*(142), 225–240.

Milkie, M. (1999). Social comparisons, reflected appraisals, and mass media: The impact of pervasive beauty images on black and white girls' self concepts. *Social Psychology Quarterly, 62*(2), 190–210.

Miller, N., & Baron, R.S. (1973). On measuring counterarguing. *Journal for the Theory of Social Behavior, 3*(1), 101–118.

Murray, S.H., Touyz, S.W., & Beumont, P.J.V. (1996). Awareness and perceived influence of body ideals in the media: A comparison of eating disorder patients and the general community. *Eating Disorders: The Journal of Treatment and Prevention, 4*(1), 33–46.

Nathanson, A.I., & Botta, R.A. (2003). Shaping the effects of television on adolescents' body image disturbance. *Communication Research, 30*(3), 304–331.

Owen, P.R., & Laurel–Seller, E. (2000). Weight and shape ideals: Thin is dangerously in. *Journal of Applied Social Psychology, 30*(5), 979–990.

Pavot, W., & Diener, E. (1993). The affective and cognitive context of self–reported measures of subjective well–being. *Social Indicators Research, 28*(1), 1–20.

Polivy, J., & Herman, C.P. (2004). Sociocultural idealization of thin female body shapes: An introduction to the special issue on body image and eating disorders. *Journal of Social and Clinical Psychology, 23*(1), 1–6.

Posavac, S., & Posavac, H. (2002). Predictors of women's concern with body weight: The roles of perceived self–media ideal discrepancies and self–esteem. *Eating Disorders: The Journal of Treatment and Prevention, 10*(2), 153–160.

Posavac, H.D., Posavac, S.S., & Weigel, R.G. (2001). Reducing the impact of media images on women at risk for body image disturbance: Three targeted interventions. *Journal of Social and Clinical Psychology, 20*(3), 324–340.

Pyle, R.L., Neuman, P.A., Halvorson, P.A., & Mitchell, J.E. (1990). An ongoing cross–sectional study of the prevalence of eating disorders in freshman college students. *International Journal of Eating Disorders, 10*(6), 667–677.

Richins, M.L. (1991). Social comparison and the idealized images of advertising. *Journal of Consumer Research, 18*, 71–83.

Rodin, J., Silberstein, L., & Striegel–Moore, R. (1984). Women and weight: A normative discontent. *Nebraska Symposium on Motivation* (32), 267–307.

Sands, E.R., & Wardle, J. (2003). Internalization of ideal body shapes in 9–12–year–old girls. *International Journal of Eating Disorders, 33,* 193–204.

Shaw, J., & Waller, G. (1995). The media's impact on body image: Implications for prevention and treatment. *Eating Disorders: The Journal of Treatment and Prevention, 3*(2), 115–123.

Spitzer, B.L., Henderson, K.A., & Zivian, M.T. (1999). Gender differences in population versus media body sizes: A comparison over four decades. *Sex Roles, 40*(7/8), 545–565.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review, 14*(7), 633–661.

Stice, E., Mazotti, L., Weibel, D., & Agras, W.S. (2000). Dissonance prevention program decreases thin–ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders, 27*, 206–217.

Stice, E., Schupak–Neuberg, E., Shaw, H.E., & Stein, R.I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. *Journal of Abnormal Psychology, 103* (4), 836–840.

Stormer, S.M., & Thompson, J.K. (1996). Explanations of body image disturbance: A test of maturational status, negative verbal commentary, social comparison, and sociocultural hypotheses. *International Journal of Eating Disorders, 19*(2), 193–202.

Tabachnick, B.G., & Fidell, L.S. (2001). *Using multivariate statistics, 4th ed.* Boston: Allyn & Bacon.

Taylor et al. (1998). Factors associated with weight concerns in adolescent girls. *International Journal of Eating Disorders, 24*(1), 31–42.

Thompson, J.K., & Stice, E. (2001). Thin–ideal internalization: Mounting evidence for a new risk factor for body–image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181–183.

Tiggemann, M., & McGill, B. (2004). The role of social comparison in the effect of magazine advertisements on women's mood and body dissatisfaction. *Journal of Social and Clinical Psychology, 23*(1), 23–44.

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*(2), 199–203.

Turner, S.L., Hamilton, H., Jacobs, M., Angood, L.M., & Dwyer, D.H. (1997). The influence of fashion magazines on the body image satisfaction of college women: An exploratory analysis. *Adolesence, 32*(127), 603–614.

Wiseman, C.V., Gray, J.J., Mosimann, J.E., & Ahrens, A.H. (1992). Cultural expectations of thinness in women: An update. *International Journal of Eating Disorders, 11*(1), 85–89.