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ORIGINAL ARTICLE

# Thin-Ideal Media and Women's Body Dissatisfaction: Prevention using Downward Social Comparisons on Non-Appearance Dimensions

**Ann-Marie Lew · Traci Mann · Hector Myers · Shelley Taylor · Julienne Bower**

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**Abstract** Exposure to thin-ideal media has adverse effects on the body satisfaction of women with higher levels of body image disturbance. In a study involving 109 UCLA female undergraduates, we examined the effectiveness of an intervention that was based on downward social comparison theory and the selection of alternative comparison dimensions. All participants had higher levels of body dissatisfaction and viewed pictures of fashion models; the intervention group compared downward with the models on non-appearance dimensions in writing, whereas the control group described the models in writing. We hypothesized that the intervention group would experience more positive shifts in body and weight satisfaction, anxiety about appearance, and desire to lose weight than would the control group. The results supported our hypotheses.

A.-M. Lew · T. Mann · H. Myers · S. Taylor · J. Bower
Department of Psychology, University of California, Los Angeles, CA, USA

T. Mann
e-mail: mann@psych.ucla.edu

H. Myers
e-mail: myers@psych.ucla.edu

S. Taylor
e-mail: tailors@psych.ucla.edu

J. Bower
e-mail: jbower@ucla.edu

*Present address:*
A.-M. Lew (✉)
Counselling Centre, University Health, Wellness and Counselling Centre, National University of Singapore,
Alumni House, 20 Lower Kent Ridge Road,
Singapore 119080, Singapore
e-mail: annmarielew@nus.edu.sg

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## Introduction

The purpose of this study was to examine the effectiveness of an intervention that was aimed at protecting at-risk women from the negative effects of viewing thin-ideal media. Women with higher levels of body dissatisfaction were asked to compare downward with fashion models on non-appearance dimensions in a writing exercise. To assess the effectiveness of our intervention, we compared differences in pre- and post-intervention scores of women in the intervention group with women in a control group on measures assessing body and weight satisfaction, anxiety about appearance, and desire to lose weight. Essays of both groups were reviewed to identify non-appearance and appearance dimensions that women wrote about. Our study took into account directions provided by the literature on thin-ideal media, social comparison, and eating disorder prevention, and was designed to inform future research in the area of body dissatisfaction and eating disorder prevention.

Body dissatisfaction is one of the most important risk factors for eating disorders, which have serious physical and psychological consequences (Stewart 1988; Treasure and Szmukler 1995; Ward et al. 1996; Wiederman and Pryor 1996). Numerous studies have demonstrated that body dissatisfaction is strongly correlated with eating pathology (Mintz and Betz 1988; Stice et al. 1994) and prospectively predicts the development of an eating disorder (Attie and Brooks-Gunn 1989; Leon et al. 1993). Researchers further posit that body dissatisfaction predicts dietary restraint and negative affect, which in turn are associated with an increased likelihood of disordered eating (Thompson and Stice 2001). Given the significant role that

body dissatisfaction plays as a risk factor for the development of eating pathology, it is important to develop prevention programs to reduce body dissatisfaction.

Cultural pressures have been implicated in the high prevalence of women's body dissatisfaction today (Wertheim et al. 1997). In particular, researchers point to the mass media for their unrealistic ideal of thin attractiveness (Irving 1990; Levine and Smolak 1998; Silverstein et al. 1986; Wilcox and Laird 2000). Actresses and fashion models have become progressively thinner over the years (Silverstein et al. 1986), and beauty pageant contestants and *Playboy* centerfolds have become increasingly slender since 1959 (Garner et al. 1980; Wiseman et al. 1992). Media trends like these have coincided with the rising prevalence of women's body dissatisfaction and eating disorders.

The media are thought to affect women's body dissatisfaction via the process of social comparison (Cash et al. 1983; Groesz et al. 2002; Hausenblas et al. 2004; Richins 1991; Thornton and Maurice 1997, 1999; Tiggemann and McGill 2004; Wilcox and Laird 2000). According to Festinger's (1954) theory of social comparison, people have an innate desire to evaluate themselves, and they do so by comparing themselves with others when objective standards are unavailable. These comparisons tend to occur with others who are similar on attributes such as age, race, appearance, and along other dimensions that are self-relevant (Festinger 1954; Salovey and Rodin 1984; Wood 1989). When a dimension is high in self-relevance and an individual is motivated to maintain a positive self-evaluation, comparisons with others who are superior on that dimension (upward social comparisons) typically lead to increases in negative self-evaluation, whereas comparisons with others who are inferior on that dimension (downward social comparisons) typically lead to increases in positive self-evaluation (Tesser 1988; Wills 1981).

Several studies have provided support for this hypothesized relationship between the direction of social comparison and self-evaluation. For example, Salovey and Rodin (1984) indicated that college students felt more jealous and depressed when they engaged in upward social comparisons with more successful individuals on a personally relevant dimension. Wood et al. (1985) further revealed that breast cancer patients spontaneously compared themselves downward with less fortunate persons to enhance their self-esteem. In addition, Brown et al. (1992) found that female college students felt more attractive when they compared themselves with a photo of an unattractive woman than when they compared themselves with a photo of an attractive woman.

As such, researchers believe that when women view idealized media imagery they perceive a discrepancy between the thin-ideal and their current body shapes, engage in upward social comparisons with this superior body shape, and feel more dissatisfied with their bodies (Cattarin et al. 2000; Thornton and Maurice 1997, 1999; Tiggemann and McGill 2004). Moreover, because these images are all-pervasive, upward comparisons tend to recur frequently and to result in chronic body dissatisfaction (Myers and Biocca 1992).

Numerous studies have been conducted to examine the causal relationship between upward social comparisons with idealized media imagery and increased body dissatisfaction. For example, Cash et al. (1983), Irving (1990), Richins (1991), Stice and Shaw (1994), and Ogden and Mundray (1996) showed female undergraduates pictures of fashion models and then assessed changes in their self-evaluations. Studies have also been conducted using television advertisements as stimuli (Myers and Biocca 1992) and assessing adolescents instead of college students (Champion and Furnham 1999). Overall, these studies suggest that, although women with higher levels of body image disturbance are negatively affected by viewing idealized media imagery, women with lower levels of body image disturbance are less affected by such images (Groesz et al. 2002).

For instance, Hamilton and Waller (1993) found that, although women who suffered from anorexia and bulimia overestimated their body sizes more after viewing idealized media imagery than after viewing neutral media imagery, women without an eating disorder were not affected by the images shown. Heinberg and Thompson (1995) further revealed that women with higher levels of body image disturbance became more dissatisfied, depressed, and angry upon exposure to idealized media imagery, whereas women with lower levels of body image disturbance became less body dissatisfied after viewing these images. In addition, Posavac et al. (1998) found that, although women with higher levels of trait body dissatisfaction became more concerned about their weight after viewing images of thin models, women with lower levels of trait body dissatisfaction were not affected by these images. Pinhas et al. (1999) further revealed that women with higher levels of eating disorder symptoms became more angry and depressed than participants with lower levels of eating disorder symptoms after viewing slides of fashion models, and Hausenblas et al. (2004) demonstrated that women with a higher drive for thinness experienced greater negative affect than women with a lower drive for thinness after viewing slides of fashion models.

Given that fashion models are often featured in the media as thin, shapely, and attractive, how is it that not all women compare themselves with this superior ideal and feel more body dissatisfied? Posavac et al. (1998) had found in their research that trait body dissatisfaction consistently moderated women's vulnerability to the thin-ideal media effect, and posited that some women may be less negatively affected by idealized media imagery if weight and body shape are not important in determining their self-worth. They suggested that women who perceive

weight and body shape as unimportant may not be driven to compare themselves with the models, and may see any differences between the thin-ideal and their current body shapes as minor. On the other hand, some women may experience increased body dissatisfaction after viewing idealized media imagery if weight and body shape are important in determining their self-worth. The researchers believed that women who perceive weight and body shape as important may be driven to compare themselves with the models, and may see differences between the thin-ideal and their current body shapes as major. Such an explanation is consistent with social comparison theory, which posits that comparisons are likely to occur when a performance domain is important to a person's self-definition.

In light of the relationship between upward social comparisons with media imagery and increased body dissatisfaction, and the relationship between increased body dissatisfaction and increased risk of eating pathology, researchers have encouraged women with higher levels of body image disturbance to avoid media that promote the thin ideal (Hamilton and Waller 1993) and have urged the media industry to broaden the beauty ideal to include normal and overweight women (Irving 1990; Pinhas et al. 1999; Thompson and Heinberg 1999). Unfortunately, however, these exhortations may not be effective because idealized media imagery is all-pervasive and because the media industry is more concerned about profit than about women's health and well-being (Shaw and Waller, as cited by Cattarin et al. 2000; Smith et al. 1999). Consequently, researchers now highlight the importance of teaching high-risk women strategies they can use to cope actively with idealized media imagery (Cattarin et al. 2000; Hargreaves and Tiggemann 2002; Levine and Smolak 1998; Posavac et al. 2001).

One way in which high-risk women can cope actively with media imagery is to compare downward with idealized media imagery on dimensions on which they feel superior. This strategy is supported by research on downward social comparisons and their self-enhancing effects (see Wills 1981, for a review). This body of literature has revealed that when a performance domain is high in self-relevance and when self-esteem is being threatened, individuals are motivated to tailor their evaluations of others in order to engage in downward social comparisons and to feel better about themselves (Stapel and Koomen 2000; Taylor and Lobel 1989; Tesser 1988, 2000; Wills 1981). Studies have further demonstrated that individuals can engage in downward social comparisons even when inferior comparison targets are absent through comparisons with others on dimensions on which they feel advantaged (Shrauger and Patterson 1974; Taylor et al. 1983; Tesser and Campbell 1980; Wood 1989, 1999). For example, Taylor et al. (1983) found that many women with breast cancer compared themselves with other women on dimensions on which they appeared superior, so as to enhance their self-esteem. A study by Wood et al. (1999) further revealed that participants who performed poorly on a social accuracy task chose to make comparisons on a co-participant's relative weakness in order to compensate for their own failure. By comparing on dimensions on which they felt superior, participants in the above studies may have minimized their shortcomings on the original comparison dimension and redefined that dimension as less important to their own self image (Simon et al. 1995; Tesser and Campbell 1980; Wood 1989).

Given the above evidence that downward social comparisons on alternative dimensions can help to maintain self-esteem, we conducted a preliminary study that investigated whether women could protect their body image by comparing downward with fashion models on non-appearance dimensions as opposed to comparing upward with models on an appearance dimension (Lew et al. 2001). In that study, we distinguished women with higher levels of trait body dissatisfaction from women with lower levels of trait body dissatisfaction in order to differentiate women who were more susceptible to the negative effects of media exposure from those who were less susceptible (Groesz et al. 2002; Hausenblas et al. 2002; Posavac et al. 1998, 2001). One hundred thirty-five female college students at the University of St. Andrews in Scotland were randomly assigned to rate pictures of fashion models on weight, intelligence, or health. Intelligence and health were chosen as alternative comparison dimensions to weight because models stereotypically perform poorly on them. The results revealed that women with higher levels of trait body dissatisfaction reported a larger ideal body shape and decreased body dissatisfaction after rating fashion models on intelligence dimensions, but reported a smaller ideal body shape and increased body dissatisfaction after rating models on weight dimensions. Women with lower levels of trait body dissatisfaction were unaffected by the type of comparisons. These findings indicated that women with higher levels of trait body dissatisfaction were more susceptible to the manipulation than were women with lower levels of trait body dissatisfaction and that intelligence is a more effective alternative comparison dimension to weight than is health. The health dimension may have been less effective because women with higher levels of trait body dissatisfaction could be weight schematic and associate a wide range of stimuli with weight, including health (Markus et al. 1987). Intelligence, on the other hand, has little to do with either weight or appearance (Heinberg and Thompson 1992) and is a dimension on which models stereotypically perform poorly.

The aim of the current study was to expand upon our preliminary findings by designing a prevention program that is based on downward social comparison theory and the selection of alternative comparison dimensions, which

addresses the effects of media exposure on women's body dissatisfaction. In addition, whereas our preliminary study took place entirely in the laboratory in one session and had no long-term follow-ups, our current study took place mostly in participants' homes, has a longitudinal design, and included a 4-week follow-up. Specifically, female college students with higher levels of trait body dissatisfaction were selected and randomly assigned into either an intervention or a control group. Women in the intervention group participated in writing exercises where they engaged in downward social comparisons with fashion models on dimensions on which they felt proficient. In contrast, women in the control group participated in writing exercises where they viewed and described fashion models, and as they were likely to do in everyday life, engaged in upward social comparisons with the models on appearance dimensions. The participants completed the writing exercises once in a laboratory and three times at home over 3 weeks. Outcome measures were administered before and after the laboratory writing session and during a follow-up session that occurred 4 weeks later.

The current study extends the findings from our previous research in several ways. First, we targeted women with higher levels of trait body dissatisfaction, because they are likely to be at risk for eating disorders, more likely to engage in upward social comparisons with idealized media imagery, and more likely to respond to an intervention. Second, women were allowed to choose comparison dimensions on which they felt proficient and on which they wanted to compare downward with the models. In this way, they were not made to feel good about a dimension that was set by the investigator, nor did they feel pressured to engage in negative stereotyping. At the same time, however, women were guided to choose dimensions that are not easily confounded with weight, such as special talents or abilities, rather than popularity, fashion, or health (Heinberg and Thompson 1992). Third, participants' anxiety about appearance and their desire to lose weight were assessed, in addition to the assessments of body and weight satisfaction.

In the present study we also took into account directions provided by research on eating disorder prevention. Interactive techniques such as writing, discussion, and homework were employed because intervention effects have been found to be greater when prevention programs are interactive rather than didactic (Stice and Shaw 2004). Of these interactive techniques, writing featured most prominently in our intervention. Writing tasks have been included in recent eating disorder prevention programs that have successfully targeted body dissatisfaction (Celio et al. 2000; Stice et al. 2003) and have also been used in interventions that target other psychological and physical problems (Cameron and Nicholls 1998; Greenberg and Stone 1992; King 2001; Pennebaker 1997; Smyth 1998). Our writing intervention also extended across multiple sessions because multi-session eating disorder prevention programs have been found to be more effective than single-session programs (Stice and Shaw 2004).

We hypothesized that women in the intervention group would experience more positive shifts in body and weight dissatisfaction, anxiety about appearance, and desire to lose weight than would women in the control group. Our specific hypotheses were as follows: (1) Women in the intervention group would exhibit a more positive change in state body dissatisfaction than would women in the control group (i.e., an increase or smaller decrease in ideal body shape, a decrease or smaller increase in perceived current body shape, and/or a decrease or smaller increase in body dissatisfaction on the figure rating scale), and the difference between groups would be greater at follow-up, (2) women in the intervention group would exhibit a more positive change in weight dissatisfaction than would women in the control group (i.e., increase or smaller decrease in ideal weight, a decrease or smaller increase in self-reported current weight, and/or a decrease or smaller increase in weight dissatisfaction), and the difference between groups would be greater at follow-up, (3) women in the intervention group would exhibit a more positive change in anxiety about appearance than would women in the control group (i.e., decrease or smaller increase in anxiety about appearance), and the difference between groups would be greater at follow-up, and (4) women in the intervention group would exhibit less desire to lose weight than would women in the control group at follow-up.

## Method

### Participants

Participants were 109 female psychology undergraduates, who were selected from the undergraduate Introduction to Psychology course at UCLA. Students were selected if they scored in the top third of the range on the Eating Disorder Inventory-Body Dissatisfaction subscale (cut-off point=27; EDI-Body Dissatisfaction; Garner et al. 1983), which was administered during a mass pre-testing period at the start of two academic quarters in 2004. The EDI-Body Dissatisfaction self-report measure was selected as the initial screening criteria because it is relatively short and has been used by past researchers to assess trait body dissatisfaction. Trait body dissatisfaction has been found to moderate women's vulnerability to the thin-ideal media effect (Lew et al. 2001; Posavac et al. 1998, 2001). Students who met the initial eligibility criteria were contacted by an experimenter, and were scheduled for the laboratory session if they were interested.

Only data from participants who completed the study and who adhered to the instructions were included in the analyses. The final sample of participants included 51 women from the intervention group (85%) and 45 women from the control group (92%), and there was no significant difference between the groups in terms of the rate of exclusion, $F$ (1, 107)=1.19, $p$=n.s. Mean age of participants in our study was 19.09 years (SD=1.45), mean body mass index (BMI) was 23.24 (SD=3.25), and mean EDI-Body Dissatisfaction score was 21.17 (SD=4.00). Thirty-eight percent of the participants in our study were Asian, 31% White, 14% Hispanic, 2.8% Black, and 13.2% from other or mixed ethnic backgrounds. These percentages were consistent with the ethnic breakdown of all students on the UCLA campus.

## Materials

### *Advertisement Folders*

Four identical advertisement folders were prepared for each of the initial and follow-up laboratory sessions. Each folder contained 20 pictures of thin and attractive models, which were selected from magazines such as *Cosmopolitan*, *Vogue*, and *Glamour* that focus on women's fashion and have a largely female readership. The pictures were full page, in color, and consisted of complete figures of White, Hispanic, Asian, and Black models. The pictures selected for the initial laboratory session were different from those selected for the follow-up session, although the criteria for their selection as described above remained the same. Six additional pictures of models that adhered to these criteria were also selected for each of the three home writing tasks.

### *Eating Disorder Inventory*

The Eating Disorder Inventory (EDI) is a self-reported measure of symptoms related to eating disorders (Garner et al. 1983). The EDI contains eight standardized subscales, each independently derived and representing a unique trait. In the present study, the Body Dissatisfaction subscale was used to assess participants' trait or chronic body dissatisfaction. This subscale consists of nine statements that assess dissatisfaction with the size and shape of certain body regions. These statements include "I think that my stomach is too big," "I think that my hips are just the right size," and "I feel satisfied with the shape of my body." Item responses range from 1 "never think a statement is true" to 6 "always think a statement is true." The scores of our participants were not transformed using the procedure recommended by Garner et al. (1983) because transforming scores in this way compromises the validity of the EDI for non-clinical samples (Schoemaker et al. 1994; Van Strien and Ouwens 2003). Although the Body Dissatisfaction subscale has low reliability ($\alpha$=.35), it functions sufficiently as a rough screen, and has been used as such by other researchers to screen for women who are vulnerable to the negative effects of viewing thin-ideal media (Posavac et al. 1998).

### *Figure Rating Scale*

A figure rating scale (Furnham and Alibhai 1983) was used to assess participants' ideal body shape, self-reported current body shape, and state body dissatisfaction. From a set of 12 figures that range from 1 (extremely thin) to 12 (extremely obese), participants were asked to select a figure that best represented their ideal body shape and a figure that represented their current body shape. A state body dissatisfaction score was computed by subtracting the ideal body shape from the current body shape score. This figure rating scale has been used in previous research to assess changes in ideal body shape, self-reported current body shape, and state body dissatisfaction (Ogden and Mundray 1996).

### *Height, Self-reported Current Weight, Ideal Weight*

Participants were asked to report their height, current weight, and ideal weight. Because the height and current weight measures were self-reported, they reflected participants' perceived height and weight, rather than their actual height and weight. Body Mass Index (BMI) was calculated by dividing weight (kg) by height$^2$ (m$^2$). A state weight dissatisfaction score was computed by subtracting ideal weight from self-reported current weight.

### *Physical Appearance State and Trait Anxiety Scale*

The Physical Appearance State and Trait Anxiety Scale (PASTAS) is a self-report assessment device that includes separate versions for state and trait anxiety about appearance (Reed et al. 1991). In the present study, the state version of the PASTAS was used to assess participants' immediate level of anxiety about appearance. This version was developed to record changes in anxiety about appearance. The PASTAS assesses anxiety associated with 16 sites on the body. Eight of the sites are weight relevant (e.g., "my waist") and eight are non-weight relevant (e.g., "my neck"). Item responses range from 0 "not at all" to 4 "exceptionally so." The state version of the PASTAS has good internal consistency ($\alpha$=.82 for overall scale, $\alpha$=.79 for weight relevant subscale, $\alpha$=.76 for non-weight relevant subscale).

### *Desire to Lose Weight*

At the follow-up session, participants were asked to indicate whether they aspired to lose weight after viewing

the pictures of advertisement models. Participants who indicated that they aspired to lose weight were given a score of 1, and participants who did not were given a null score.

*Essay Content*

All the essays of the intervention and control groups were reviewed and coded by the primary investigator for thematic content, and frequently mentioned ideas were grouped into coding categories. An assistant coded a subset of the essays to verify the accuracy of the primary investigator's coding choices. QSR N6 (a computer software program for qualitative data analysis) was used to help manage data during the coding process. The number of essays with matching content was derived for each specific coding category.

Procedure

The EDI-Body Dissatisfaction subscale, baseline measures of the figure rating scale, and self-reported height, weight, and ideal weight were administered to all female Introductory Psychology undergraduates during a mass pre-testing period at the start of each quarter. Students who scored in the top third of the range on the EDI-Body Dissatisfaction subscale (cut-off point=27) were invited via phone or email to participate in the study for credit.

*Initial Laboratory Session*

After the email or phone contact, potential participants came to the laboratory where they were briefed on the study. They were told that the purpose of the study was to examine the strategies used by advertisers to sell fashion products. They were further informed that participation in the study occurred across two laboratory sessions and involved the completion of three writing tasks in between the sessions. After reading and signing the consent form, participants completed baseline measures of the PASTAS, which was administered in this session rather than the pre-testing session because of its length. Thereafter, participants were randomly assigned either to the intervention group or to the control group.

Participants assigned to the intervention group were told that advertisers often used pictures of thin and attractive models to sell their products and that advertisers did this to make participants become more aware of their physical flaws, aspire to look like the models, and buy their products. They were told that the consequence of this advertising strategy was that they could start to feel unhappy with their appearance. Participants were then invited to discuss their experiences of viewing pictures of models and feeling unhappy about their appearance. Thereafter, they were told that they could prevent themselves from feeling unhappy by not focusing on appearance while viewing advertisements. Instead, they were to focus on other aspects that they valued and of which they were proud and to compare with models on these aspects. Examples of non-appearance aspects were provided, such as special talents and important friendships.

After the discussion, participants were asked to look through an advertisement folder with pictures of models and to write about aspects of themselves that they valued and of which they were proud, but that they did not see in the models, such as special talents and important friendships. They were also asked to write about why they might do better at these aspects than the models would do. Participants were encouraged to think about their life experiences in comparison with the models' and were provided three sentence stems to guide them in their writing. These included "Some aspects that I value and am happy with, but do not see in the models are ....." "I think that I might be better than the models at ..... because ....." and "I might also be better than the models at ..... because ....." Participants were instructed to write as continuously as possible for at least 15 min. Writing was done on a computer.

Participants assigned to the control group were told instead that advertisers used pictures of thin and attractive models to sell their products and that advertisers did this to make participants believe that they would look like the models if they bought the advertised products. Participants were then invited to discuss some of the common features that the models shared.

After the discussion, control participants were asked to look through an advertisement folder with pictures of models, to pick out the five most attractive models, and to describe the models in as much detail as possible. Participants were provided a sentence stem to begin their writing ("The five models who are most attractive are ....."), and were instructed to write as continuously as possible for at least 15 min. Writing was done on a computer.

We asked participants in the control group to engage in a writing task in order to control for the possibility that intervention effects could be caused by the procedure of writing itself. The specific writing task of describing attractive models was chosen because it was relevant to the earlier instruction given to control participants to view the pictures of models.

After the writing exercise for both groups, all participants were asked to complete a questionnaire packet that included the PASTAS, the figure rating scale, and self-reported height, weight and ideal weight.

After they completed the questionnaires, participants were provided instructions about the three home writing

tasks. They were told that they would be emailed pictures of fashion models every Friday evening for 3 weeks. Participants in the intervention group were told that their assignment was to view the pictures and to write about aspects of themselves that they valued and were good at but did not see in the models, as well as about why they might do better at these aspects than the models would do. These participants were also encouraged to write about events in their week that supported their thoughts. Participants in the control group, on the other hand, were told that their assignment was to view the pictures and to describe in as much detail as possible attractive features of the models. All participants were told to send their written assignments via a Word file attachment to the email address of our research project within 5 days of receiving the pictures. Participants were then asked to commit a day and time to do their writing, and were told that the experimenter would contact them the day before to remind them of their task. They were also asked to schedule a separate day and time to return for a follow-up session.

*Follow-Up Session*

Participants were told during the follow-up session that the purpose of the session was to investigate the effects of memory on successful advertising. They were instructed to view pictures of models in a folder for 2 min and to remember the models as best as they could so as to answer questions on a memory quiz to be given at the end of the session. After they had viewed the pictures, participants were asked to complete "lifestyle and personality" questionnaires that included the PASTAS, the figure rating scale, and self-reported height, weight, and ideal weight. Thereafter, they completed a questionnaire that asked them if they had aspired to lose weight after viewing the pictures of the fashion models. Finally, participants were debriefed about the aims of the study and were given the contact number of the primary investigator. Participants in the control group were told about the strategies employed by participants in the intervention group who had compared with models on their strengths. Control participants were also provided a copy of the writing instructions that were administered to participants in the intervention group.

## Results

Preliminary Analyses

Preliminary analyses indicated that there were no significant differences between participants in the two groups on any of the dependent variables at baseline. There was, however, a marginally significant difference between the groups on ideal body shape. Specifically, the intervention group reported a thinner ideal body shape than the control group did, $F(1, 92)=3.87$, $p=.052$. Correlational analyses revealed that ideal body shape was significantly correlated with self-reported current body shape, state body dissatisfaction, ideal weight, self-reported current weight, and weight dissatisfaction. Consequently, ideal body shape was included as a covariate in the analyses of the effects of the intervention on the above variables.

Intervention Effects

Repeated measures ANOVAs were used to examine between group differences in scores over time for the periods from baseline to the end of the initial session and from baseline to the follow-up session. These results are presented in Table 1. Paired samples $t$ tests were used to examine within group differences in scores over time. No ethnic differences were found; small sample sizes involved in these analyses may have precluded the detection of such differences.

*Figure Rating Scale*

We hypothesized that women in the intervention group would exhibit a more positive change in state body dissatisfaction than would women in the control group (i.e., an increase or smaller decrease in ideal body shape, a decrease or smaller increase in perceived current body shape, and/or a decrease or smaller increase in body dissatisfaction on the figure rating scale), and that the difference between groups would be greater at follow-up.

There was no significant 2 (group)×2 (time) interaction on ideal body shape for the period from baseline to the end of the initial session, $F(1, 91)=.34$, $p$=n.s., $\eta^2=.004$. There was, however, a significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F(1, 91)=4.84$, $p<.05$, $\eta^2=.051$. During this period, the mean ideal body shape of the intervention group increased significantly, $t(48)=-4.24$, $p<.001$, whereas the mean ideal body shape of the control group remained at its baseline value, $t(43)=2.49$, $p$=n.s.

There were no significant 2 (group)×2 (time) interactions on current body shape for either the period from baseline to the end of the initial session, $F(1, 90)=1.15$, $p$=n.s., $\eta^2=.013$, or for the period from baseline to follow-up, $F(1, 90)=.11$, $p$=n.s., $\eta^2=.001$.

There was no significant 2 (group)×2 (time) interaction on state body dissatisfaction for the period from baseline to the end of the initial session, $F(1, 90)=1.65$, $p$=n.s., $\eta^2=.018$. Although there was also no significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F(1, 90)=.56$, $p$=n.s., $\eta^2=.006$, within group analyses revealed that the mean state body dissatisfaction

**Table 1** Means (and standard deviations) of outcome measures at baseline, end of initial session, and follow-up by group.

| Measure | Experimental group ($N$=50) | | | Control group ($N$=45) | | |
|---|---|---|---|---|---|---|
| | Baseline | Initial | F/U | Baseline | Initial | F/U |
| Figure rating scale | | | | | | |
| Ideal body shape | 4.73 | 5.10 | 5.16** | 5.09 | 5.36 | 5.09** |
| | (.81) | (.94) | (.77) | (.94) | (.75) | (.96) |
| Current body shape | 6.55 | 6.67 | 6.59 | 6.95 | 6.89 | 6.91 |
| | (1.00) | (.85) | (.93) | (1.26) | (1.32) | (1.20) |
| State body dissatisfaction | 1.82 | 1.57 | 1.43 | 1.89 | 1.52 | 1.82 |
| | (.86) | (.87) | (.82) | (1.08) | (1.25) | (1.26) |
| Ideal weight, self-reported current weight, weight dissatisfaction | | | | | | |
| Ideal Wt | 117.26 | 117.41 | 119.17 | 122.34 | 122.81 | 123.82 |
| | (15.09) | (15.15) | (15.96) | (14.38) | (14.99) | (15.51) |
| Current Wt | 133.33 | 132.54 | 132.77** | 140.00 | 140.42 | 141.40** |
| | (23.53) | (22.67) | (21.89) | (23.27) | (23.43) | (22.96) |
| Wt dissatisfaction | 16.24 | 15.33 | 13.81** | 17.66 | 17.61 | 17.58** |
| | (12.22) | (10.50) | (10.09) | (13.99) | (14.14) | (13.66) |
| PASTAS | | | | | | |
| Non-weight relevant | 2.80 | 2.92** | 2.34** | 2.69 | 3.40** | 3.53** |
| | (3.07) | (3.20) | (2.88) | (3.57) | (3.86) | (4.47) |
| Weight relevant | 17.98 | 18.04 | 16.06* | 17.45 | 18.14 | 16.84* |
| | (6.61) | (7.53) | (7.22) | (6.52) | (7.71) | (7.53) |

*Denotes marginally significant group differences in change scores from baseline ($p$<.1)
**Denotes significant group differences in change scores from baseline ($p$<.05)

score of the intervention group decreased significantly during this period, $t$ (48)=−2.62, $p$<.05, whereas the mean state body dissatisfaction score of the control group did not change significantly, $t$ (43)=−.26, $p$=n.s.

### *Ideal Weight, Self-reported Current Weight, Weight Dissatisfaction*

We hypothesized that women in the intervention group would exhibit a more positive change in weight dissatisfaction than would women in the control group (i.e., increase or smaller decrease in ideal weight, a decrease or smaller increase in self-reported current weight, and/or a decrease or smaller increase in weight dissatisfaction), and that the difference between groups would be greater at follow-up.

There were no significant 2 (group)×2 (time) interactions on ideal weight for either the period from baseline to the end of the initial session, $F$(1, 89)=.37, $p$=n.s., $\eta^2$=.004, or for the period from baseline to follow-up, $F$(1, 89)=.19, $p$=n.s., $\eta^2$=.002.

There was no significant 2 (group)×2 (time) interaction on self-reported current weight for the period from baseline to the end of the initial session, $F$(1, 90)=2.36, $p$=n.s., $\eta^2$=.026. There was, however, a significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F$(1, 90)=4.36, $p$<.05, $\eta^2$=.046. During that time, the mean self-reported current weight of the intervention group did not change significantly, $t$ (50)=.73, $p$=n.s., whereas the mean self-reported current weight of the control group increased significantly, $t$ (44)=2.947, $p$<.01. Although significant, the increase in the mean self-reported current weight of the control group was only 1.40 lb.

There was no significant 2 (group)×2 (time) interaction on weight dissatisfaction for the period from baseline to the end of the initial session, $F$(1, 90)=2.36, $p$=n.s., $\eta^2$=.026. There was, however, a significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F$(1, 89)=4.11, $p$<.05, $\eta^2$=.044, during which the mean weight dissatisfaction score of the intervention group decreased significantly, $t$ (49)=2.53, $p$<.05, whereas the mean weight dissatisfaction score of the control group did not change significantly, $t$ (44)=.11, $p$=n.s.

### *Physical Appearance State and Trait Anxiety Scale (PASTAS)*

We hypothesized that women in the intervention group would exhibit a more positive change in anxiety about appearance than would women in the control group (i.e., decrease or smaller increase in anxiety about appearance), and that the difference between groups would be greater at follow-up.

There was a significant 2 (group)×2 (time) interaction on the PASTAS non-weight relevant score for the period from

baseline to the end of the initial session, $F(1, 92)=3.83$, $p=.05$, $\eta^2=.072$, during which the mean PASTAS non-weight relevant score of the intervention group did not change significantly, $t$ (50)=.59, $p$=n.s., whereas there was a marginally significant increase in the mean PASTAS non-weight relevant score of the control group, $t$ (44)=−1.95, $p=.058$. There was also a significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F(1, 92)=7.16$, $p<.01$, $\eta^2=.072$. During that time, the mean PASTAS non-weight relevant score of the intervention group decreased significantly, $t$ (50)=2.24, $p<0.05$, whereas there was a marginally significant increase in the mean PASTAS non-weight relevant score of the control group, $t$ (44)=−1.72, $p=.091$.

There was no significant 2 (group)×2 (time) interaction on the PASTAS weight relevant score for the period from baseline to the end of the initial session, $F(1, 91)=.52$, $p$=n.s., $\eta^2=.006$. There was, however, a marginally significant 2 (group)×2 (time) interaction for the period from baseline to follow-up, $F(1, 90)=3.10$, $p=.083$, $\eta^2=.033$. During that time, the mean PASTAS weight relevant score of the intervention group decreased significantly, $t$ (49)= 3.40, $p<.005$, whereas the mean PASTAS weight relevant score of the control group did not change significantly, $t$ (43)=.75, $p$=n.s.

### *Desire to Lose Weight*

We hypothesized that women in the intervention group would exhibit less desire to lose weight than would women in the control group at follow-up. Participants in the control group indicated a greater desire to lose weight ($M=.57$, SD=.49) than did participants in the intervention group at follow-up ($M=.32$, SD=.49), $F(1, 94)=6.12$, $p<.05$, $d=-.49$.

## Essay Content

The essays of the intervention group were reviewed and coded. Six main coding categories emerged from the data, with the most frequently cited category presented first: (1) relationships with friends, family, partners, (2) intellectual and academic abilities, (3) personality traits, (4) extracurricular activities such as sports, community service, and music, (5) mental and physical health, and (6) moral and religious values. These categories represent the most common aspects that participants valued and on which they felt superior to the models.

About 66.7% of the essays contained content about relationships. Participants wrote about the importance of friends, family, and partners in their lives, and about how their relationships with their loved ones were superior to the relationships of models. Many participants believed that their relationships were superior because fashion models had hectic work and traveling schedules, and were less able to spend time with loved ones. Other participants felt that their relationships with friends and partners were superior to models' relationships because their friends and partners were attracted to their personality and not to their fame or appearance.

About 64.2% of the essays contained content about intellectual and academic abilities. Participants rated their intellectual and academic abilities as higher than the intellectual and academic abilities of the models. Some participants also reflected on the value of being in college and of having the opportunity to interact with peers and professors of diverse interests and backgrounds. Other participants discussed how a college education prepared them for careers that were more meaningful and more permanent than a modeling career.

About 58.3% of the essays contained content comparing participants' and models' personalities. Participants wrote about positive aspects of their personality and character that they appreciated and felt the models did not possess. These included being humble, friendly, caring, and possessing a sense of humor. Some participants discussed the superior importance of their inner beauty over the models' outer beauty.

About 57.8% of the essays contained content about participants' involvement in extracurricular activities. Many participants felt that they were better than the models at sports such as swimming, basketball, and soccer, and in performing volunteer services. Other participants discussed their special talents in music, poetry, horseback riding, dancing, and cooking.

About 56.9% of the essays contained content about health. Participants believed that they were both mentally and physically healthier than the models. With respect to mental health, many participants wrote that they had a life with less stress and more freedom than the life of models. Other participants also wrote that models suffered from unwanted attention from the press and the public. With respect to physical health, some participants felt that the models were too thin and were unhealthy. Other participants also wrote that models compromised their physical health by spending many hours under the sun and going for cosmetic surgery.

About 20.6% of the essays contained content about moral and religious values. Participants described themselves as more religious than models, and as having more self-respect and higher moral standards.

The essays of the control group were also reviewed to ensure that participants followed the writing instructions and described attractive features of the models. The category that emerged was physical appearance. Participants described the models as being very thin, very pretty,

**Table 2** Coding categories reflected in the essays of the intervention and control groups.

| Group | Coding categories | Number of essays | Percentage of essays (%) |
|---|---|---|---|
| Intervention | Relationships with friends, family, partners | 136 | 66.7 |
| | Intellectual and academic abilities | 131 | 64.2 |
| | Personality traits | 119 | 58.3 |
| | Extracurricular activities | 118 | 57.8 |
| | Mental and physical health | 116 | 56.9 |
| | Moral and religious values | 42 | 20.6 |
| | Total | 204 | 100.0 |
| Control | Physical appearance | 196 | 100.0 |
| | Total | 196 | 100.0 |

and as possessing attractive features such as a flat stomach, big breasts, beautiful eyes, flawless skin, and slender legs and arms.

The coding categories of both essays of the intervention and control groups are presented in Table 2.

## Discussion

The results of this study indicate that women with higher levels of trait body dissatisfaction can protect themselves from the negative effects of media exposure by comparing themselves in writing with media images of fashion models on non-appearance dimensions. These results build on our previous finding that women with higher levels of trait body dissatisfaction can protect their body satisfaction by rating fashion models on intelligence rather than on weight dimensions (Lew et al. 2001). The present findings are also consistent with research on the effects of idealized media imagery on women's body satisfaction, which have demonstrated that women with higher levels of body dissatisfaction, who view idealized media imagery without intervention, are prone to feeling more negatively about themselves (Groesz et al. 2002).

The effects of our intervention occurred mainly at the follow-up session, not at the end of the initial session. It is likely that the home writing exercises after the initial session reinforced the strategy of comparing downward with models on non-appearance dimensions for women in the intervention group. This explanation is congruent with the observations of previous researchers (Stice and Shaw 2004), who posited that multi-session eating disorder prevention programs produce greater intervention effects than single-session programs because they allow participants to reflect on program material and to internalize program concepts.

It is interesting that there were significant intervention effects for ideal body shape, but not for ideal weight. The ideal weight measure may have failed to exhibit intervention effects because each woman's ideal weight could be represented in her mind as a special number (e.g., 120 lb) that is less susceptible to change. On the other hand, there were significant effects for self-reported current weight, but not for self-reported current body shape. The figure rating scale could have been less sensitive to detecting changes in current body size evaluations because women are less likely to detect and/or endorse changes in actual body shape. Gains or losses in pounds, in contrast, occur more frequently and are more easily detected and reported. Consistent with the above phenomena, research on the test-retest reliability of figure rating scales indicate that self-reported current body shape is more stable across time than is ideal body shape (Thompson 1995).

Our study also revealed significant intervention effects for anxiety about physical appearance. This result underscores the importance of administering body image measures that assess affective disturbance related to body image. Previous researchers have given more attention to changes in perceptual and cognitive disturbances related to body image and to changes on global measures of mood (Cattarin et al. 2000; Hargreaves and Tiggemann 2002; Hausenblas et al. 2002, 2004; Lavine et al. 1999; Posavac et al. 1998, 2001). Our study further demonstrated significant intervention effects for anxiety about non-weight relevant physical appearance. This finding indicates that exposure to idealized media imagery not only impacts women's weight satisfaction, but also their feelings about diverse body parts such as the ears, lips, hands, and chin. Future researchers would therefore benefit from assessing changes in feelings about non-weight related body parts, in addition to feelings about weight-related body satisfaction that are more frequently assessed.

Our study revealed significant intervention effects on women's desire to lose weight, which is often associated with eating pathology (American Psychiatric Association 2000). It is interesting that, although women in the control group indicated a greater desire to lose weight than women in the intervention group at follow-up, they reported an increase in their current weight at follow-up, whereas women in the intervention group did not report an increase

in their current weight. One explanation is that women in the control group were more prone to perceive increases in current weight when they became more concerned about losing weight. Another possibility is that in becoming more preoccupied with losing weight, women in the control group were susceptible to compensatory behaviors such as overeating that led to an increase in weight. On the other hand, women in the intervention group may have continued to exercise and to eat moderately in order to be healthy, and maintained their body weight. Indeed, content analyses of the essays of women in the intervention group revealed that many of these women continued to participate in sports and other forms of exercise throughout the study, and to endorse the importance of leading a healthy life. Future researchers would benefit from assessing participants' actual weight rather than self-reported current weight, their levels of exercise and dietary restriction, and their underlying motivations for these behaviors.

The findings of our study have implications for the social comparison and self-esteem regulation literatures. Our research demonstrates that the strategy of selecting alternative comparison dimensions is well suited to regulating women's body and weight satisfaction, anxiety about appearance, and desire to lose weight in the face of media threat. This finding is consistent with the observations of other researchers, who noted that, when a threat to self-esteem comes from a comparison with another person, "sometimes nothing counters that threat like another comparison with that very person on a dimension on which one is superior; choosing a different target, however downward, may not suffice" (Wood et al. 1999, p. 1384). One reason why the strategy of comparisons on alternative dimensions can be so effective in regulating self-esteem is that it counterbalances a self-image threat by generating a positive experience of self. This strategy provides individuals the opportunity to focus on valued aspects of themselves, and it is believed to be more effective than strategies that distort reality, such as discrediting negative feedback or attributing the unfavorable outcome to external factors (Tesser 2000; Wood et al. 1999).

The findings of our study also have implications for eating disorder prevention research. Although our intervention alone is unlikely to be enough to prevent the development of an eating disorder, larger-scale eating disorder prevention programs can benefit from incorporating our intervention, which has demonstrated salutary effects on women's body and weight satisfaction, anxiety about appearance, and desire to lose weight. Many eating disorder prevention programs teach women to evaluate media messages critically (Franko 1998; Neumark-Sztainer et al. 2000; Smolak et al. 1998a, b). These programs can be enhanced by also teaching women to focus on non-appearance dimensions that they value and in which they feel more proficient than models. This strength-based approach is consistent with that adopted by a previous eating disorder program, which taught students to identify their unique features and to evaluate themselves positively, and was found to be effective at reducing body dissatisfaction, thin-ideal internalization, and unhealthy weight loss (O'Dea and Abraham 2000).

A related insight provided by our study is that there is value in first testing the effects of interventions before including them as components in eating disorder prevention work. Many previous large-scale eating disorder prevention programs consisted of multiple components that were not empirically validated as effective in either reducing risk factors, or in increasing protective factors, for disordered eating (Stice and Shaw 2004). The effectiveness of an eating disorder prevention program may be enhanced if researchers were to examine the effects of individual components of the proposed program, and modify the program to include effective components and exclude ineffective ones.

There are several aspects of our research that should be considered in evaluations of the above findings. First, there was no control group in our study in which media images were presented without a discussion and writing task. To enhance the generality of our findings, future researchers should include such a group as well as a non-model exposure group if sample size permits. A related concern is the possibility that the effects of the intervention were partly due to demand characteristics, since women in the intervention group were given information about the effects of advertising on their appearance satisfaction, and a preventive strategy. Given that many previous eating disorder prevention programs have been ineffective or have required the use of elaborate interventions based on media awareness to lead to any changes at all (Stice and Shaw 2004), we believe that it is unlikely that the one-time background information that we provided in a few sentences could explain our results. Furthermore, our intervention is meant to be used in the real world, and thus would necessarily include a description of the problem and an introduction of the prevention strategy. Nevertheless, future researchers should consider including a minimal-intervention control group to rule out expectancy effects (Stice and Shaw 2004) and select minimal-intervention control groups that do not contain factors that might theoretically result in an effective intervention (Stice and Shaw 2004).

A second limitation is that the sample of female college students may not be representative of the general female population. The college students in our study were more educated than most American women and had a relatively lower mean body mass index. Although the use of this sample is appropriate given the high levels of eating pathology in college women (Stice and Shaw 2004), future

research should extend to populations that are studied less frequently, such as older women with a higher body mass index and who have higher levels of body dissatisfaction. It is important to examine whether those women are influenced by idealized media imagery in the same way that college women are influenced and whether they would respond to the intervention in the same way that college women respond. It is also critical to identify non-appearance dimensions that are appropriate for women of different ages and backgrounds and that can help them to compare downward with models and feel better about themselves.

A third limitation of our study involves the short follow-up period. A longer follow-up period would have provided the opportunity to assess whether the intervention group continued to maintain their gains after the completion of the study. Future researchers would therefore benefit from including additional follow-up data collection points.

A fourth limitation relates to a possible concern about the external validity of the writing intervention, that is, whether women would incorporate such writing exercises into their daily lives to combat the negative effects of media imagery. We believe that such exercises can be conducted on a regular basis and in a less structured fashion such as when women journal. We also believe that although writing is an effective way of learning new skills, it need not be conducted so frequently once the strategy of downward comparison has been internalized.

To conclude, the results of our study suggest that downward social comparisons on non-appearance dimensions can help to defend the body satisfaction of high-risk women from the negative effects of idealized media imagery. Specifically, our research demonstrated that downward social comparisons on non-appearance dimensions had a protective effect on women's body and weight satisfaction, their anxiety about their appearance, and their desire to lose weight. Moreover, our results revealed that high-risk women can and will perceive models as inferior in order to feel better about themselves. These findings have implications for both the social comparison and the eating disorder prevention literatures.

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