

## **MIRROR, MIRROR ON THE WALL: PEER COMPETITION, TELEVISION INFLUENCES, AND BODY IMAGE DISSATISFACTION**

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The current paper reports on two studies of body dissatisfaction with Hispanic majority samples. Both studies seek to examine the relative importance of peer and media influences on body dissatisfaction. In the first experimental study, 150 young women were randomized to watch television shows with or without thin-ideal actresses, and to be exposed to peers who either were or were not dressed to advertise sexual competitiveness. Results indicated that body dissatisfaction increased in the presence of competitive females, particularly when a desirable male was present. Television exposure did not influence body dissatisfaction. In an accompanying correlational study of 383 teenage girls, body dissatisfaction was found to relate primarily to Body Mass Index, depression, and anxiety. Television exposure did not predict body dissatisfaction, nor did peer influences. However, both competition with unfriendly girls and television exposure predicted feelings of inferiority response to other girls, although the effects for television were comparatively small.

The issue of body dissatisfaction has been identified by the American Psychological Association (2007) as an important issue facing teen girls and women. Body dissatisfaction refers to a negative self-evaluation of one's own appearance and desire to be more physically attractive (Cash & Pruzinsky, 2002) and is fairly common in women (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Discussions

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of body dissatisfaction, particularly with women from Western cultures, tend to focus on the thin ideal (American Psychiatric Association, 2007) or the preference for low-weight, low Body Mass Index (BMI) figures even when these figures may be smaller than that of the average woman. Body dissatisfaction may be one risk factor for eating disorders (Kluck, 2010; Mora-Giral, Raich-Escursell, Segues, Torras-Claraso, & Huon, 2004; Shaw, Stice, & Springer, 2004) although this relationship may be more complex for anorexia nervosa (AN) than bulimia nervosa (BN; Keel & Klump, 2003).

Given that body dissatisfaction is a potential risk factor for eating disorder diagnoses, as well as an unpleasant psychological condition on its own, and is often associated with mood disorder symptoms (Kim & Kim, 2009; Kostanski & Gullone, 1998), much attention has focused on the root causes of body dissatisfaction. As with most psychological variables, many scholars agree that body dissatisfaction may result from a complex interaction of social and genetic factors (Keel & Klump, 2003; Kluck, 2010; Klump, McGue, & Iacono, 2000). Although certainly not considered the only relevant factors, considerable attention has focused on the potential influences of peers and the media on female body dissatisfaction. This article will consider those two influences in greater detail.

## PEERS, MEDIA, THIN-IDEALS, AND BODY DISSATISFACTION

Approximately one hundred studies of media effects on body image have been conducted with the majority of these showing at least some evidence for effects (Grabe, Ward, & Hyde, 2008). However, overall effects have generally been small, in the range of  $r = .08$  through  $.17$  across several meta-analyses (Grabe et al., 2008; Groesz, Levine, & Murnen, 2002; Holmstrom, 2004; Want, 2009). The analysis finding the smallest results (Holmstrom, 2004) concluded that media effects are trivial, whereas the others concluded effects could be important. Grabe et al. (2008) also found some evidence for publication bias in the literature, with published studies demonstrating considerably higher effects than unpublished studies in their review (the table included, p. 470, appears to suggest otherwise, with unpublished studies reporting higher effects). However in a personal communication with the lead author (April, 2010), this was confirmed as a misprint). Thus, the actual effect size may be smaller than reported in these meta-analyses. Want (2009) also found the

outcomes were highly dependent upon instructions provided to participants by the researchers themselves.

There can be little question that a number of experimental and correlational studies find evidence for at least small negative effects of media exposure to thin ideals on body image (e.g., Birkland, Thompson, & Herbozo, 2005; Bissell & Zhou, 2004; Halliwell & Ditmar, 2004). However, although much fewer in number, some studies have found null effects (Martin & Kennedy, 1993; Thornton & Maurice, 1997) or that exposure to media ideals may actually *decrease* body dissatisfaction (Cusumano & Thompson, 1997). Other research has indicated that only some women are vulnerable to media effects including those with preexisting neuroticism, unrestrained eating, or preexisting body dissatisfaction (Dalley, Buunk, & Umit, 2009; Joshi et al., 2004; Heinberg & Thompson, 1995). Trampe, Stapel and Siero (2007) found that women who were already body-dissatisfied were more influenced not only by media ideals of female beauty, but also by thin vases. Other research has indicated that response to media ideals is variable, with some females decreasing body image satisfaction, but others increasing body image satisfaction (Durkin & Paxton, 2002). Although relatively few in number, existing prospective studies provide, at best, mixed evidence that the media plays a long-term role in negative body image once proper statistical controls are applied (Clark & Tiggemann, 2008; McCabe & Ricciardelli, 2005; Presnell, Bearman, & Stice, 2004; Tiggemann, 2006). Taken together the disparate research evidence in this field suggests something more complex than the traditional media effects model might imply.

Research on peer influences has been relatively sparse, and generally focused on active influences, or females directly influencing the body dissatisfaction of others through taken actions. For instance, in one important study (Clark & Tiggerman, 2008), media exposure to thin models was found to have little direct influence on body image in preadolescent girls (bivariate  $r$  between media exposure and body esteem were only  $-.08$  for magazines and  $-.09$  for television). By comparison, the influence of peers comments on body image was significant (bivariate  $r = -.20$ ). Other studies have similarly found active peer influences to be among the strongest influences on body image in young girls (Dohnt & Tiggemann, 2005; Taylor et al., 1998). Jones, Vigfudottir, & Lee et al. (2004) found that media influences had no direct relationship with body image, and an indirect relationship through internalization of thin ideals was weak ( $\beta$

= .13). By contrast, direct effects of peer criticism ( $\beta = .31$ ) and indirect effects of discussions of attractive body types through internalization of thin ideals were far stronger ( $\beta = .44$ ). Similarly McCabe and Ricciardelli (2005) found that girls' body image was influenced by their mothers and female friends but not by the media.

Research studies on passive peer influences, such as through comparisons of sexual competitiveness have been relatively few in number. It could be argued that the strongest effects for body dissatisfaction may come not through distal influences such as the media, but through more proximal influences such as actual female competitors for desirable mates. Thus comparisons of one's own body with those of close associates may have greater influence on body image.

## A DIATHESIS-STRESS MODEL FOR BODY DISSATISFACTION

In reviewing the literature on peer and media influences on body dissatisfaction, we note that some disagreements continue to exist regarding the influence of media on body dissatisfaction and that, overall, peer influences appear to be stronger than media influences. Although not the focus of the current research, we also note that evidence for genetic influence on body dissatisfaction is strong (Baker, Maes, Lissner, Aggen, Lichtenstein, & Kendler, 2009; Spanos, Burt, & Klump, 2010; Wade, Wilkinson, & Ben-Tovim, 2003). We believe it important that a theoretical model for body dissatisfaction consider all of these relevant influences, which are unlikely to be independent.

Given that there is some evidence from behavioral genetics research that genetic effects on body dissatisfaction are important, and that peer influences appear to be among the strongest social influences, we approach the current research using an evolutionary paradigm for understanding body dissatisfaction. We particularly focus on a recently proposed evolutionary model of body dissatisfaction (Ferguson, Winegard, & Winegard, 2011) that is itself based on the Catalyst Model, an evolutionary model of aggressiveness (Ferguson & Beaver, 2009). The current model, presented in Figure 1, focuses on the degree to which genetic predisposition and competition among female peers interacts to produce body dissatisfaction, particularly under cultural circumstances that shift the sex ratio in favor of males (Geary, 2010). Just as the Catalyst Model

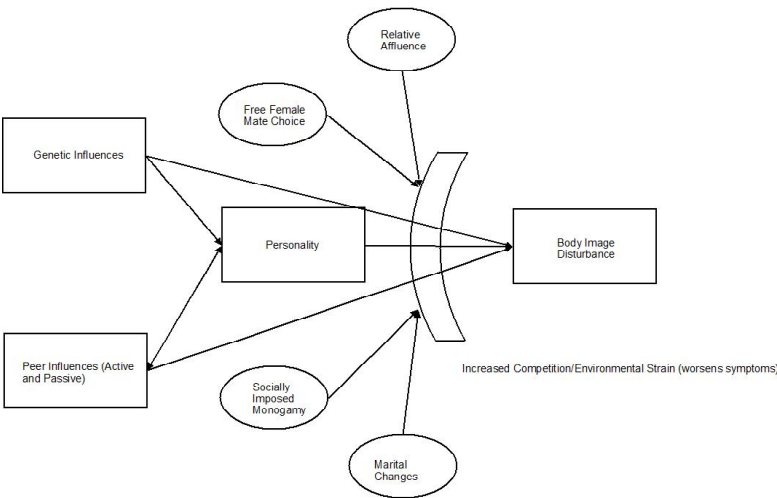


FIGURE 1. An Evolutionary “Catalyst” Model of Body Dissatisfaction.

specifically relegates media violence to noncausal status regarding aggression, the model presented here does not indicate media influences as causal in the production of body dissatisfaction. Although likely to be controversial, this model does present testable hypotheses regarding the influence of peers and media and their relative importance.

In this model, genetic risk and peer influences interact to have both direct effects on body dissatisfaction, as well as indirect effects on body dissatisfaction through the influence of personality variables (such as with Borderline Personality Disorder which is highly comorbid with eating disorders including AN and BN, e.g. Chen, Brown, Harned, & Linehan, 2009; Sansone & Sansone, 2007). Peer influences may be both active (peers talking about preferred body styles, or even bullying others based on appearance) or passive (mere presence competition influences). From an evolutionary perspective, body dissatisfaction is viewed as one ramification of competition for available mates (Wade, 2000). When competition increases, it is expected that body dissatisfaction would also increase due to the strain of that competition. Certain cultural factors which increase sexual competition may increase body dissatisfaction, even if they may otherwise be viewed as positive features of the culture. In the current model these factors include the observation that affluent

societies tend to prefer thinner physiques than do food-scarce societies (Anderson, Crawford, Nadeau, & Lindberg, 1992), the freedom of women to choose sexual partners, which increases sexual competition, conditions of socially imposed monogamy, which tends to shift the sex ratio in favor of males, increasing female competition for highly paternally invested males (Geary, 2010) and increases in the female marital age (and increases in divorce rates) which keep a greater number of females available in the competitive pool.

Although the current studies are not genetically based, several hypotheses are drawn from the theoretical model discussed above. In particular we were interested in examining the influence of peers on body image dissatisfaction, which plays an important role in the evolutionary model noted above. Two overarching hypotheses are considered across the two studies, namely that peer influences will have an impact on body dissatisfaction and that media influences will be negligible once peer influences are controlled for.

## **STUDY 1: EXPERIMENTAL STUDY WITH YOUNG ADULTS**

The first study considers peer and television media influences on body dissatisfaction in a sample of female college students using an experimental design. Specific study hypotheses for the first study include:

- H1: Peer sexual competitiveness will increase body dissatisfaction.
- H2: Peer influences will be most pronounced in the presence of a desirable male.
- H3: Body dissatisfaction will be highest in women with body mass indexes in the overweight and obese ranges.
- H4: Television media influences on body dissatisfaction will be negligible.

We note that a negatively worded hypothesis (i.e., testing the null) is atypical for psychological research and that traditional null hypothesis testing (NHST) is not well suited for determining the truthfulness of null results (Cohen, 1994; Ferguson, 2009; Loftus, 1996). Although the causal media hypothesis will be tested through traditional NHST, if null results are achieved as expected, these will be further tested through equivalency tests (Levine, Weber, Park, & Hullett, 2008). Equivalency tests have been developed as a means of testing whether null results are the likely result of type II error,

or whether null results may be accepted as a true representation of equivalence between groups.

## METHODS

*Participants.* Participants in the current study were 150 young female college students between the ages of 16 and 30 ( $M = 21.23$ ,  $SD = 2.66$ ). Average years of education were equivalent to a college sophomore. Underage participants were required to secure parental permission prior to involvement in the study. The majority of the women were of Hispanic ethnicity (96.7%), although the majority were born in the United States (82%) with the remainder (18%) born in Mexico. This ethnic makeup is equivalent to the city in which the university is located, which is approximately 96% Mexican-American in ethnicity. As such this sample represents a sample of convenience, not specifically a planned analysis of Mexican-American women, although we do note that Hispanic samples tend to be underrepresented in psychological research.

## Materials

*Television Shows.* One concern regarding internal validity of experimental studies of media effects is that media representations are made using stimuli that are as similar as possible aside from on the variable of interest; in this case, presentation of thin-ideal actresses. Television shows that do or do not present thin-ideal actresses may differ in other ways (sexual content, interest level, comedy versus drama, etc.) that could influence outcome variables. In the current experimental study four exemplar shows were selected to represent thin-ideal and nonthin-ideal categories. The two thin-ideal shows selected were *Scrubs* and *The George Lopez Show*. Both of these shows feature actresses who are thin and attractive with lower than average BMIs. The two nonthin-ideal shows selected were *Roseanne* and *Everybody Loves Raymond*, both shows which feature major female characters with average and/or above average BMIs. Specific episodes of each show were selected so that the specific episodes of *Scrubs* and *The George Lopez Show* highlighted thin-ideal female characters, and *Roseanne* and *Everybody Loves Raymond* highlighted female characters who were not thin-ideal. None of the episodes selected involved sexual content, thereby holding that potentially confounding variable constant. All shows were popular 30-minute

comedies. No differences in enjoyment were found among participants in a post-hoc manipulation check. Shows in the thin-ideal and nonthin-ideal categories did not differ from each other in t-test analyses on the outcome variable, suggesting that the exemplars were valid.

*Peers.* Two young, attractive, thin-ideal female research assistants (RAs; the third and fourth author of this study) ran each data collection session. Each session was randomized so that the RAs dressed either to advertise their physical features in a way to highlight their sexual competitiveness (what we called formal attire), or to deemphasize their physical features and sexual competitiveness (frumpy attire). During the formal sessions, the RAs dressed attractively (equivalent to a job interview) with makeup and form-fitting clothing. During the frumpy sessions the RAs dressed in form-neutralizing sweats and wore no makeup. The RAs ran the sessions in full, gave all instructions to the women participants, handed out and collected surveys, thus maintaining consistent direct contact with the study participants. No other individuals were present, except as described below. This manipulation was designed to examine the impact of peer sexual competitiveness as advertised through dress. This variable is subsequently referred to as attire.

*Desirable Male.* To assess whether the presence of a desirable male would influence body image dissatisfaction, in some sessions a young, attractive male with BMI in the ideal range for males was present in the room serving as an assistant to the RAs. When present the male only handled the audiovisual equipment and did not give instructions or otherwise speak to the female participants. Nonetheless he remained present throughout the session. The young male was always dressed formally.

*Body Image Dissatisfaction.* The Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson, Mendelson, & White, 2001) is a 21-item Likert-type scale designed to assess body satisfaction. This scale has been well validated in previous research and is often used in body image research. With the current sample, coefficient alpha was .93

*Body Mass Index.* As part of the demographic information recorded, women were asked to report on their height and weight (eye color and hair color were also asked to make these questions a little less obvious). This was used to calculate body mass index (BMI)

for each woman using the formula (weight in lbs  $\times$  703)/(height in inches<sup>2</sup>). Women were then put into four body mass categories (thin, normal, overweight, obese) based upon the World Health Organization's classification criteria (World Health Organization, 2010). Although BMI is not as precise as other approaches to measuring body fat composition, it presents a useful estimate of women's actual body mass relative to the thin ideal. This measure will be used to examine the degree to which women with varying BMI respond to media and peer stimuli.

### Procedure

Female students were approached in undergraduate course classrooms with the permission of the instructors and offered extra credit for participation in an experimental study. Participants were informed only that they would participate in a study of attitudes toward television shows. Participants signed up for appointment times in a separate laboratory. Participants arrived in groups of five, on average. Each session was randomized to screen one of the four exemplar shows, for RAs to wear either formal or frumpy attire, and for whether or not the desirable male was present. Participants were provided with informed consent forms prior to beginning the session. The television show was shown first, then a survey packet was given to each participant. These packets included several filler surveys (chosen to be relatively typical psychological surveys on issues such as depressed mood or anxiety), a survey regarding attitudes toward the television show (the manipulation check), and the BESAA. This procedure was approved by university IRB and designed to be consistent with APA ethical procedures.

*Data Analysis.* Data were analyzed using SPSS software. The present design consisted of a 2 (thin-ideal vs. nonthin-ideal television show)  $\times$  2 (formal versus frumpy attire)  $\times$  2 (male or no male present)  $\times$  4 (thin, normal, overweight, obese BMI) factorial design. BMI was included as an independent variable rather than as a covariate in order to test for interaction effects between BMI and the other independent variables.

Given our hypothesis that exposure to thin-ideal media would not increase body dissatisfaction, our data analysis plan also included equivalency tests in the event the media manipulation would prove nonsignificant in traditional NHST. We follow the plan for equiva-

lence testing laid out by Levine et al. (2008). Briefly this involved using *t*-test analysis (thin-ideal versus nonthin-ideal media) to obtain an empirical *t* (*t*-emp). This *t*-emp is then compared against a critical value (*t*-crit). If the *t*-emp is significantly different (i.e., lower) from *t*-crit within a 95% level of probability, evidence is achieved for substantiating the null result as true and meaningful. In effect, this equivalence test reverses traditional NHST. Specific procedures are described in Levine et al. (2008).

## RESULTS

All results include effect sizes in terms of Pearson *r* with 95% confidence intervals. Results from the factorial ANOVA demonstrated a main effect for BMI,  $F(3, 122) = 13.29, p = .001, r = .33, .18 < r < .47$ , with greater BMI associated with greater body dissatisfaction ( $r = .42$ , using the continuous BMI variable in a bivariate correlation). Body dissatisfaction scores were lowest for those in the normal range ( $M = 51.57, SD = 13.25$ ), with LSD post-hoc analysis confirming significant differences ( $ps < .05$ ) with the thin group ( $M = 65.00, SD = 20.80$ ), overweight ( $M = 69.21, SD = 14.77$ ) and obese groups ( $M = 68.83, SD = 15.77$ ). LSD post-hoc analyses did not find differences in body dissatisfaction between the thin, overweight, and obese groups.

A main effect also was found for formal/frumpy attire,  $F(1, 122) = 4.00, p = .05, r = .18, .02 < r < .33$ . Women exposed to the presence of formally-attired RAs were slightly more dissatisfied with their bodies ( $M = 61.34, SD = 15.41$ ) than were women exposed to frumpily, attired RAs ( $M = 60.36, SD = 18.30$ ).

A significant interaction was found between BMI and RA attire,  $F(3, 122) = 3.80, p = .01, r = .18, .02 < r < .33$ . As seen in Figure 2, the influence of RA attire was dramatically more pronounced among women with thin BMI than for other women. We note that very few women were in this low BMI category, however ( $n = 6$ ), and caution against overinterpretation of this result based on such a small group.

A significant interaction also was found between attire and type of television show (thin-ideal versus nonthin-ideal)  $F(1, 122) = 3.99, p = .05, r = .18, .02 < r < .33$ . Participants were not responsive to RA attire when watching a thin-ideal show ( $M = 61.14, SD = 16.40$  for formal attire,  $M = 61.73, SD = 20.20$  for frumpy attire). By con-

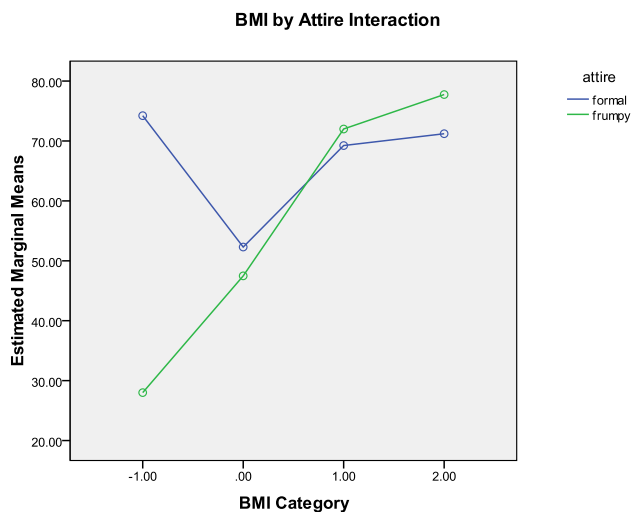


FIGURE 2. BMI by RA Attire Interaction.

trast while watching a nonthin-ideal show, participants showed less body dissatisfaction when RA attire was frumpy ( $M = 59.60$ ,  $SD = 17.34$ ) as opposed to formal ( $M = 61.48$ ,  $SD = 14.92$ ).

A final interaction also was found between attire and presence of a desirable male [ $F(1, 122) = 3.80$ ,  $p = .05$ ,  $r = .17$ ,  $.01 < r < .32$ ]. As shown in Figure 3, women participants were more influenced by the RAs' attire in the presence of a desirable male.

The type of show (thin-ideal versus nonthin-ideal) did not have a main effect on body dissatisfaction,  $F(1, 122) = 0.01$ ,  $p = .91$ ,  $r = .00$ ,  $-.18 < r < .18$ . Given that the calculated effect size is near zero, the likelihood of type II error as an explanation for this null finding is essentially illogical. Nonetheless we implemented the equivalence test as described above. First, we ran a t-test for group means on the two show types to get t-emp. Results of this more powerful t-test confirmed no group differences existed by show type on body dissatisfaction,  $t(148) = 0.26$ ,  $p = .81$ ,  $r = .02$ ,  $-.13 < r < .19$ . Participants who watched thin-ideal shows demonstrated nearly equal body dissatisfaction ( $M = 61.25$ ,  $SD = 17.97$ ) as those watching nonthin-ideal shows ( $M = 60.55$ ,  $SD = 16.03$ ). This value of  $t = .026$  becomes our t-emp. A minimum effect size of  $d = .41$  (Ferguson, 2009) was used

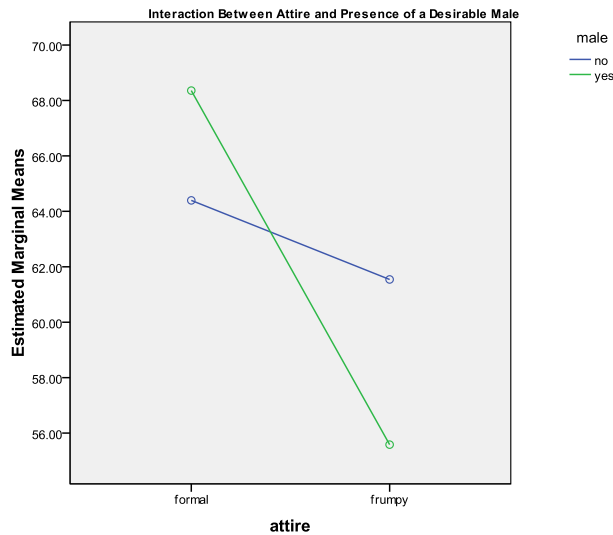


FIGURE 3. Interaction Between Attire and Presence of a Desirable Male

to calculate  $t_{crit}$ .<sup>1</sup> The results from the equivalence test ( $\lambda = 2.44, p = .01$ ) indicate that results from the present study are unlikely due to chance or type II error, giving further credence to the null hypothesis.

DISCUSSION

Several important results from this experimental study are worth highlighting. First, as expected, BMI plays an important role in body dissatisfaction. Interestingly, women within the normal BMI range, as suggested by the World Health Organization were most satisfied with their bodies. Very thin women were nearly as dissatisfied about their bodies as were women in the overweight and obese categories. At least for the current Hispanic majority sample, women

1. We consulted with the lead author of this procedure (Levine), who concurred with the use of a practical effect cut-off of this size.

appeared cognizant of a relatively healthy ideal weight, rather than focused on a thin ideal.

Participants also were attuned to signals of sexual competitiveness as presented by the RAs' dress style. Using the same RAs in both the formal and frumpy conditions allowed us to test for signals of sexual competitiveness (i.e., provocative dress) while holding other variables (personality, verbal skills, general physical features) constant. We suspect multiple features play a role in signaling competitiveness between women, although it would have been difficult to examine multiple features (such as by using different RAs in each group) while maintaining the internal validity of the manipulation. As expected, peer influences were particularly pronounced when a young, desirable male was present. These outcomes generally support the hypotheses put forward by our evolutionary model.

Lastly, thin-ideal or nonthin-ideal media had no impact on body dissatisfaction with our sample. Although this differs from the conclusions of the APA Task Force on the Sexualization of Girls (2007) we do note that effect sizes in this field have generally been small, and debate continues over their meaningfulness (Grabe et al., 2008; Holmstrom, 2004). The only exception in our current study, is that women who watched a nonthin-ideal show attended to the attire of the female RAs to a greater extent than did women watching a thin-ideal television show. This curious finding is not clearly explained by either a traditional media effects approach or evolutionary approach. It may be that the thin-ideal show distracted women from the RAs' appearance, although this remains speculative. Aside from this interaction effect, television shows exerted no influence on body dissatisfaction. One possibility for our null effects is that we took particular care to match our television shows on most variables other than the simple presence or absence of thin-ideal actresses. As we note, it is possible that past manipulations may often have varied on other variables (particularly the level of sexual content) aside from the mere presence of thin-ideal models or actresses. However, given the results of the equivalency test and the near-zero effect size we are confident in accepting the null for this experimental manipulation.

Overall, results from the first study were supportive of the Catalyst Model of body dissatisfaction.

## STUDY 2: CORRELATIONAL STUDY WITH TEEN GIRLS

In the second study we examine predictors of body dissatisfaction in a sample of teenage girls in a small Hispanic majority city in the South. We use a multivariate format to examine which risk factors for body dissatisfaction are most critical, and which may be less influential once others are controlled. Our experimental study suggested that peer influences are of greater impact than are television influences. However it is also possible that results in the laboratory may differ from those in the real world. This second study gives us a chance to examine real world relationships.

### METHODS

#### Participants

Participants in the current study included 383 teenage girls between the ages of 12 and 18 ( $M = 15.74$ ,  $SD = 1.87$ ). As with the experimental sample, the majority of girls were Mexican American (95.6%) and the majority were born in the United States (91.6%) with the remainder born in Mexico.

#### Predictor Materials

*Body Mass Index.* BMI was calculated from reported height and weight as discussed in Study 1.

*Depression.* Depression in the current sample was measured using the Zung depression inventory, a 20-item Likert-type scale which assesses depressive symptoms (Zung, 1965). The Zung is commonly used and well validated. Coefficient alpha with the current sample was .75. Given that mood symptoms correlate with body dissatisfaction, depression, and anxiety were included as control variables to control for their influence on body dissatisfaction.

#### Anxiety

Anxiety was measured using the Beck Anxiety inventory (BAI; Beck, 1990), a 21-item Likert-type scale assessing anxious symptoms. The

BAI is commonly used clinically to test for anxiety disorder symptoms. Coefficient alpha with the current sample was .89.

### **Verbal Abuse**

The degree to which individuals were exposed to verbal abuse at the hands of their parents was assessed using the verbal abuse subscale of the Family Conflict Scale (FCS; Ferguson et al., 2008). This scale consists of 9 true-false items measuring exposure to harsh or insulting verbal statements by parents. Examples include "One or both of my parents often told me that they hated me" and "One or both of my parents often told me that I was ugly." Past research has found this to be a valid measure of verbal abuse exposure (Ferguson et al., 2008). Coefficient alpha with the current sample was .79. It is included here to examine family influences on body dissatisfaction.

### **Perceptions of Parental Affection**

To examine the degree to which a girl's perception of their parents' love and affection for their influenced body dissatisfaction the parental affection subscale of the FCS was also included. Items on this 5-item true-false scale include "My parents or caregivers were comfortable in expressing their love for me" and "My parents or caregivers acted kindly toward me." Coefficient alpha with the current sample was .77.

### **Media Exposure**

A measure of media exposure commonly used in media violence literature (Anderson & Dill, 2000; Ferguson et al., 2008) was adapted for the current study. Participants were asked to name their three favorite television shows and to rate the attractiveness of the female actresses in those shows. This approach allows for sampling of a wider variety of shows, particularly given the explosion of shows on cable and satellite television, and also provides a phenomenological approach. Media exposure was calculated by multiplying time watched by ratings of actresses and summing across the three shows. Coefficient alpha for this measure in the current study was .74.

### Peer Influences

The influence of having attractive and high status peers was measured using an instrument similar to that for media exposure. Participants were asked to list their best three female friends, rate how physically attractive they were, and how popular they were. The popularity and attractiveness ratings were multiplied and summed across the three friends. This measure allows for examination of the degree to which peers with high attractiveness and status would influence body dissatisfaction, potentially as a facet of peer competition. Coefficient alpha for the current sample was .73.

### Enemy Influences

We also were curious as to how competition with disliked females may have influenced body dissatisfaction. As such, participants were asked to nominate three girls who they did not like, and rate them on attractiveness and popularity. Participants were instructed to be as honest as possible, noting that most people tend to rate disliked individuals artificially low (although some emotional bias is, of course, expected). As with peer influences, popularity and attractiveness were multiplied and summed across the three enemies. Coefficient alpha for this measure was .75.

### Outcome Materials

*Body Image Dissatisfaction.* Body image dissatisfaction was measured using the BESAA described above in Study 1. Coefficient alpha for the teen sample was .88.

*Female Competition.* Feelings of inferiority in response to other girls was measured using the Female Competition Stress Test (FCST; Salmon, 2008). This twenty-six-item Likert-type scale measures feelings of low status or dominance in relation to other females. Item examples include "I am anxious about my appearance as compared to other girls" and "I feel weak or timid in relation to the other girls." This measure was included to assess general feelings of inferiority and how these contrast with body image dissatisfaction. Higher scores reflect feelings of inferiority compared to other girls. Coefficient alpha for the present sample was .91.

## Data Analysis

Main data-analytic strategies detailed the use of hierarchical multiple regression equations informed by the evolutionary catalyst model of body image. With that in mind, the order of data points reflects a proximal (internal) to distal (external) arrangement. Age and BMI were entered on the first step of the regression equations. Depression and anxiety were entered on the second step, verbal abuse and parental affection on the third step, friend and enemy influences on the fourth step, and television influence on the fifth. Out of concern that television influences may be artificially lowered by placement on the furthest step, the regression will then be reversed with television influences on the first step, to examine whether ordering effects are important.

## RESULTS

Bivariate correlations between predictor and outcome variables are presented in Table 1. A Šidák correction (Abdi, 2007) to control for Type I error due to multiple comparisons was employed with a value of adjust alpha = .0009. Collinearity diagnostics indicated absence of multicollinearity with the lowest tolerance at .70 and highest VIF at 1.43.

As with the experimental group, the impact of BMI on body dissatisfaction was examined by dividing girls into BMI classifications based on the World Health Organization system. Results indicated a significant impact of BMI on body dissatisfaction,  $F(3, 379) = 15.65$ ,  $p < .001$ ,  $r = .20$ .  $.10 < r > .29$ . The least-dissatisfied group were those in the normal category, with other groups showing higher levels of dissatisfaction. LSD post-hoc analysis revealed that the normal and below-normal groups differed significantly from the overweight or obese groups, but no other differences were noted. These results are presented in Figure 4.

The hierarchical multiple regression for body dissatisfaction using the data-analytic strategy presented above is presented in Table 2. Significant predictors of body dissatisfaction included BMI ( $\beta = .28$ ), depression ( $\beta = .33$ ) and anxiety ( $\beta = .18$ ). Enemy status also was inversely predictive of body dissatisfaction ( $\beta = -.09$ ) although very weak in size, at Cohen's (1992) recommendations for trivial effects. Effects in this range tend to be highly unstable (Ferguson,

TABLE 1: Correlations Between Predictor and Outcome Variables

|            | Age  | BMI  | Depression | Anxiety | Verbal | Love  | Friends | Enemy | TV   | BD   | Comp |
|------------|------|------|------------|---------|--------|-------|---------|-------|------|------|------|
| Age        | 1.00 | .14  | -.04       | .02     | .03    | -.06  | .05     | -.05  | .08  | -.02 | -.11 |
| BMI        |      | 1.00 | .14        | .10     | .23*   | .02   | -.11    | -.04  | -.10 | .36* | .15  |
| Depression |      |      | 1.00       | .49*    | .27*   | -.22* | -.13    | .11   | .05  | .48* | .45* |
| Anxiety    |      |      |            | 1.00    | .34*   | -.26* | -.01    | .09   | .09  | .37* | .36* |
| Verbal     |      |      |            |         | 1.00   | -.35* | -.11    | .00   | .04  | .26* | .22* |
| Love       |      |      |            |         |        | 1.00  | .11     | -.07  | -.03 | -.08 | -.11 |
| Friends    |      |      |            |         |        |       | 1.00    | .08   | .23* | -.14 | -.06 |
| Enemy      |      |      |            |         |        |       |         | 1.00  | .18* | .05  | .27* |
| TV         |      |      |            |         |        |       |         |       | 1.00 | .02  | .16  |
| BD         |      |      |            |         |        |       |         |       |      | 1.00 | .56* |
| Comp       |      |      |            |         |        |       |         |       |      |      | 1.00 |

Note. Verbal = verbal abuse; Love = Parental affection, Friends = Peer influences; Enemy = Enemy influences; BD = body dissatisfaction; Comp = female competition (inferiority to other women). \*  $p < .0009$

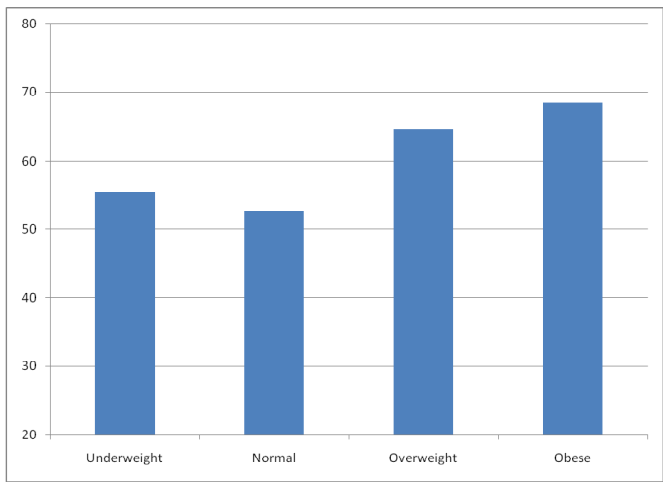


FIGURE 4. Body Dissatisfaction Among Weight Categories of Teen Girls

2009) and thus will not be discussed further. Television exposure was not predictive of body dissatisfaction, nor were family factors. Reversing the order of variables did not render television exposure significant.

The hierarchical multiple regression for female competition/inferiority using the data-analytic strategy presented above is presented in Table 3. Significant predictors of competition/inferiority included age ( $\beta = -.13$ ) and BMI ( $\beta = .11$ ), although both were very small in size. Depression ( $\beta = .31$ ) and anxiety ( $\beta = .18$ ) were stronger predictors of competition as was enemy status ( $\beta = .20$ ). Television exposure was also weakly predictive of competition/inferiority ( $\beta = .11$ ), but family factors were not significant. Reversing the order of entered variables did not greatly change these outcomes.

DISCUSSION

Results from the correlational analysis of teenage girls showed that the best predictors of body dissatisfaction were mood symptoms such as depression and anxiety as well as BMI. For feelings of inferiority related to competition with other girls, depression and anxiety were once again the best predictors. Having high status disliked enemy girls also predicted feelings of inferiority. Younger age, BMI

TABLE 2. Multiple Regression Results for Body Image Dissatisfaction Outcome

| Predictor Variable  | $\beta$                                 | t-test             | Significance                          |
|---------------------|---|--------------------|---------------------------------------|
| Age                 | -.03                                    | 0.79               | .43                                   |
| BMI                 | .28 (.19, .38)                          | 6.26               | .001*                                 |
| $R^2 = .13$         | $F(2, 364) = 28.64^*$<br>( $p = .001$ ) |                    |                                       |
| Depression          | .33 (.24, .42)                          | 6.69               | .001*                                 |
| Anxiety             | .18 (.08, .28)                          | 3.50               | .001*                                 |
| $R^2 = .34$         | $F(4, 362) = 48.23^*$<br>( $p = .001$ ) | $\Delta R^2 = .21$ | $F(2, 362) = 58.73$<br>( $p = .001$ ) |
| Verbal Abuse        | .07                                     | 1.43               | .15                                   |
| Parental Affection  | .08                                     | 1.58               | .12                                   |
| $R^2 = .34$         | $F(6, 360) = 32.84^*$<br>( $p = .001$ ) | $\Delta R^2 = .01$ | $F(2, 360) = 1.70$<br>( $p = .18$ )   |
| Friend Status       | .02                                     | 0.45               | .65                                   |
| Enemy Status        | -.09 (-.10, .01)                        | -1.98              | .05*                                  |
| $R^2 = .35$         | $F(8, 358) = 25.20^*$<br>( $p = .001$ ) | $\Delta R^2 = .01$ | $F(2, 358) = 1.83$<br>( $p = .16$ )   |
| Television Exposure | .03                                     | 0.69               | .49                                   |
| $R^2 = .35$         | $F(9, 357) = 22.42^*$<br>( $p = .001$ ) | $\Delta R^2 = .00$ | $F(1, 357) = 0.48$<br>( $p = .49$ )   |

Note. Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Rules on the table represent steps in the regression model. Adjusted  $R^2$  is reported for each step in the hierarchical models. \*denotes statistical significance

and television exposure to attractive actresses also predicted inferiority, although these results were weaker.

The current research supports other research indicating important overlaps between mood disorders and body dissatisfaction (Dunkley, Masheb, & Grilo, 2010; Ganem, de Heer, & Morera, 2009). However the correlational nature of the current research does not allow for an assertion of a temporal order. It is not clear whether body dissatisfaction leads to depression and anxiety, or the inverse, or whether both sets of symptoms are a mutual extension of higher BMI or other factors.

Results indicated that peer influences had a negative predictive role on feelings of inferiority in response to other girls, but did not appear to have an influence on body dissatisfaction per se. Similarly television exposure to attractive models did not predict body dissatisfaction, but did weakly predict feelings of inferiority in response to other girls. Although these two outcomes correlated highly with

TABLE 3. Multiple Regression Results for Female Competition/Inferiority

| Predictor Variable  | $\beta$                                 | t-test             | Significance                          |
|---------------------|---|--------------------|---------------------------------------|
| Age                 | -.13(-.23, -.03)                        | -2.97              | .003*                                 |
| BMI                 | .11 (.21, .01)                          | 2.46               | .01*                                  |
| $R^2 = .04$         | $F(2, 364) = 8.85^*$<br>( $p = .001$ )  |                    |                                       |
| Depression          | .31 (.22, .40)                          | 5.98               | .001*                                 |
| Anxiety             | .18 (.08, .28)                          | 3.38               | .001*                                 |
| $R^2 = .26$         | $F(4, 362) = 32.38^*$<br>( $p = .001$ ) | $\Delta R^2 = .22$ | $F(2, 362) = 53.37$<br>( $p = .001$ ) |
| Verbal Abuse        | .06                                     | 1.27               | .20                                   |
| Parental Affection  | .03                                     | 0.70               | .48                                   |
| $R^2 = .26$         | $F(6, 360) = 21.78^*$<br>( $p = .001$ ) | $\Delta R^2 = .00$ | $F(2, 360) = 0.69$<br>( $p = .51$ )   |
| Friend Status       | -.04                                    | -0.93              | .35                                   |
| Enemy Status        | .20 (.29, .10)                          | 4.36               | .001*                                 |
| $R^2 = .29$         | $F(8, 358) = 20.02^*$<br>( $p = .001$ ) | $\Delta R^2 = .04$ | $F(2, 358) = 11.09$<br>( $p = .001$ ) |
| Television Exposure | .11 (.21, .01)                          | 2.37               | .02*                                  |
| $R^2 = .30$         | $F(9, 357) = 18.65^*$<br>( $p = .001$ ) | $\Delta R^2 = .01$ | $F(1, 357) = 5.63$<br>( $p = .02$ )   |

Note. Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Rules on the table represent steps in the regression model. Adjusted  $R^2$  is reported for each step in the hierarchical models. \*denotes statistical significance

each other ( $r = .56$ ) it appears that some distinction remains between them.

CONCLUSIONS

In the current paper we set out to examine the role of television media and peer influences on body dissatisfaction in both experimental and correlational research. We hypothesized a greater role for peer influences than for television influences. By and large our research supported these conclusions. In the experimental setting, peer style of dress, and thus sexual advertisement, predicted respondent body dissatisfaction, particularly in the presence of an attractive male. Exposure to thin-ideal models in a television show did not influence body dissatisfaction. Interestingly in correlational research with young girls neither peers nor television predicted body dissatisfaction, although both predicted feelings of inferiority response to

other girls (stronger peer influences than television influences). It is important to note that our research only considered television influences. It is possible that other media may have influences on body dissatisfaction even if this is not true for television.

We find the results partially supportive of the Catalyst model we present as a potential model for body dissatisfaction, although we suspect the mechanisms of body dissatisfaction remain more complex than explained in any simple model. In both the experimental and correlational results, BMI was one of the strongest predictors of body dissatisfaction. Interestingly girls and women whose BMI was within the normal range were the least dissatisfied with their bodies. Girls and women in the underweight category were actually slightly less satisfied with their bodies. In some respects this argues against the thin ideal, that postulates an abnormally thin figure as the most desirable, at least among a Hispanic majority sample. The happiest women were those whose body styles are within the WHO's classification of most desirable for health. Thus fears of a thin ideal among Hispanic women, at least, do not appear to be well-grounded. With that in mind it is perhaps not surprising to find that television influences upon body dissatisfaction were minimal with this population.

We note that discussions of body dissatisfaction in psychology (e.g., American Psychological Association, Task Force on the Sexualization of Girls, 2007) appear to take the perspective that body dissatisfaction is something that is created in girls by an external source. For instance, girls may be informed by the media to be dissatisfied with their bodies if they do not conform to the thin ideal. Overall we found little clear evidence for this assumption. By and large, body dissatisfaction may reflect a relatively accurate assessment of BMI vis-à-vis a normal, healthy figure. We note that messages from the scientific community may be rather confusing . . . on one hand, railing against body dissatisfaction with the implication that body dissatisfaction is an irrational state brought on by the media, family or peers, and on the other, cautioning people of both genders against overeating, remaining overweight, etc. Indeed, the scientific community spends a fair amount of time raising awareness of obesity as a health issue. Body dissatisfaction, then, may be as much a function of awareness of these very real health concerns as concerns over sexual opportunity loss due to a less-than-ideal figure.

Women and girls do appear to attend to competition issues when evaluating their own body image, however. Our experimental results suggest that body dissatisfaction increases in the presence of competitive females and in the presence of a desirable male. Our correlational results were less clear, suggesting a substantial competition effect on feelings of inferiority, but little direct effect on body dissatisfaction. It may be that peer influences are situation specific, only being primed in the presence of desirable males (as in the experiment), and reduced when such males are not present (as in the correlational survey).

As with all studies, ours are not without limitations. In focusing on a Hispanic majority sample, caution must be undertaken when generalizing to other groups. Use of a correlational design does not allow for assessing the temporal order of variables in our research. This weakness can be overcome through the use of longitudinal designs in the future.

We hope that our results will help elucidate some of the mechanisms leading to body dissatisfaction in women and girls. Future research would be well-informed by considering greater use of multivariate designs and better controls for media effects. Future experiments may also consider using designs in which body dissatisfaction is assessed both before and after exposure to differently-attired peers.

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