

SOCIAL COMPARISON, ETHNICITY, BODY IMAGE, AND MEDIA EXPOSURE  
TO THIN-IDEAL MODELS: AN EXPERIMENTAL STUDY

A Dissertation

by

CORTNEY SODERLIND WARREN

Submitted to the Office of Graduate Studies of  
Texas A&M University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2006

Major Subject: Psychology

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August 2006

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## ABSTRACT

Social Comparison, Ethnicity, Body Image, and Media Exposure to Thin-Ideal Models:

An Experimental Study. (August 2006)

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Social comparison theory offers a useful conceptual framework to understand how mainstream American sociocultural values of appearance may shape the development of body image disturbance and eating disorders. Some experimental research demonstrates that women report significantly greater increases in negative affect and body image disturbance and decreases in self-esteem after viewing thin models than after viewing inanimate objects, normal-weight models, and overweight women. The main goal of this study was to investigate whether the effects of viewing thin models are influenced by the ethnicity of the observer and/or the ethnic and racial similarity of the model to the observer. In addition, the study tested the extent to which social comparison tendency, trait appearance evaluation, ethnic identity, and racial identity may moderate these effects. In study 1, women rated the race, attractiveness, and thinness of a group of ethnically diverse models. Study 2 assessed affect, self-esteem, and body image in Euro-American ( $n = 105$ ), African-American ( $n = 91$ ), and Latina ( $n = 111$ ) women before and after viewing ethnically self-similar models, self-different models, or control images. Results indicated that ethnic similarity between model and

participants influenced affect such that increased social comparison tendency in Latina participants predicted increased negative affect after viewing Latina models.

Additionally, the type of media images viewed and proposed moderators influenced affect and body image. As predicted, positive appearance evaluation was more strongly associated with positive feelings about one's weight after viewing models and, in African-American and Latina women, increased idealization of Whiteness was associated with decreased positive feelings regarding one's weight after viewing White models. Unexpectedly, increased social comparison tendency was associated with increased positive affect after viewing African-American models whereas increased social comparison tendency was associated with less positive affect after viewing Latina models. Finally, independent of media exposure, African-American women reported higher appearance-based self-esteem and body image than Euro-American and Latina women and increased social comparison tendency, decreased positive appearance evaluation, decreased ethnic identity, and increased racial identity idealizing Whiteness were each associated with undesirable levels of self-esteem and body image. Clinical implications and directions for future research are provided.

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## INTRODUCTION

There is a need to understand eating disorders and body image disturbance from a sociocultural, multi-ethnic perspective. This recognition is, in part, because Western cultural values of appearance are implicated as central etiological factors in eating disorder development (Heinberg, 1996; Striegel-Moore, Silberstein, & Rodin, 1986). It is also, in part, because the field of psychology has shifted from ignoring cultural factors or treating them as nuisance variables to recognizing them as central contextual variables that explain human behavior (American Psychological Association [APA], 2003; Sue, Bingham, Porché-Burke, & Velasquez, 1999)<sup>1</sup>.

One way of exploring the influence of sociocultural factors is by examining eating disorder symptomatology across different ethnic groups. Despite considerable inconsistency and controversy in findings, many researchers have found Euro-American women report more body dissatisfaction, diet more frequently, and have more weight concerns than African-American women (e.g., Abood & Chandler, 1997; Botta, 2000; Henriques & Calhoun, 1999; Rucker & Cash, 1992; White & Grilo, 2005; Wildes, Emery, & Simons, 2001). Eating disorder symptomatology in Latina/Hispanic women is generally reported to be equivalent to Euro-American women and higher than African-American women (e.g., Altabe, 1998; Crago, Shisslak, & Estes, 1996; Fitzgibbon et al., 1998; Miller et al., 2000; Poran, 2002). In a meta-analysis of 35 studies that examined eating disorder symptoms in various ethnic groups, Wildes, et al. found that Euro-American women reported more symptoms of eating pathology than ethnic minority

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<sup>1</sup>This thesis follows the style of *Journal of Abnormal Psychology*.



women (as a group, which was comprised predominantly of African-American women) with regard to dietary restraint (Cohen's  $d = .41$ ), body dissatisfaction ( $d = .41$ ), drive for thinness ( $d = .33$ ), weight and dieting concerns ( $d = .16$ ), and ideal body size ( $d = .63$ ).

To the extent that women from different ethnic groups are differentially exposed to, perceive, and react to mainstream American sociocultural messages regarding appearance standards and values, social comparison theory may offer a useful theoretical framework to explain differences in eating disorder symptomatology. That is, using social comparison theory, we may increase our understanding of how sociocultural values of appearance and physical ideals affect the potential development of body image disturbance and eating disorders in women of different ethnic groups.

#### *Social Comparison and Eating Disorders*

First systematically described by Festinger (1954), the main premise of social comparison theory is that humans are naturally driven to self-evaluate. Self-evaluation is a normative phenomenon yielding information important to survival in and adaptation to one's environment, social interactions and relationships, cognitive self-exploration, and affective self-assessment (Buunk & Mussweiler, 2001; Suls & Wheeler, 2000; Thompson, Heinberg, Altabe, Tantleff-Dunn, 1999). One way humans self-evaluate is through a social comparison process whereby individuals compare themselves on a given dimension (e.g., ability, attitude, physical appearance) to others. This process can be conceptualized as having 3 main, sequential steps: 1) acquisition of social comparison information, 2) thinking about the information in relation to the self; and, 3) reacting to the information (Wood, 1996). When individuals gather information and compare

themselves to another person (labeled a *comparison referent* or *comparison other*) viewed as “better” on the comparison dimension, this process is referred to as *upward comparison*. Conversely, when comparisons are made against individuals thought to be “worse” on the dimension, the process is labeled *downward comparison* (Wills, 1981).

As applied to body image disturbance and eating disorder development, researchers propose that images of models displayed prominently in the media serve as comparison others (Catterin, Thompson, Thomas, & Williams, 2000; Richins, 1991; Shaw & Waller, 1995). Research supports this proposition. In a sample of college females, Richins (1991) found that 71.3% reported that they think about how they look compared to models when viewing clothing advertisements. Given that the goal of many media images is to capture one's attention and, through a process of social comparison, instill a desire to purchase a particular product or attain a given outcome, the fact that humans compare themselves to media images is not surprising (Thompson, Covert, & Stormer, 1999).

When women compare themselves to models in mainstream American media, they are evaluating themselves in comparison to a very specific ideal female physique: She has flawless skin, flowing hair, a thin waist, light-eyes, and long legs (Poran, 2002; Thompson, et. al. 1999b). Examples of such media images are innumerable. In a study examining the size of Playboy and Miss America Pageant contestants from 1977 to 1996, Spitzer, Henderson, and Zivian (1999) found that almost all models were underweight, with 17%-33% meeting weight criteria for anorexia nervosa (according to standards of the World Health Organization; BMI < 17.5). A quick inspection of a

fashion magazine, series of commercials, or billboard advertisement makes obvious the American cultural ideal of appearance for women.

Whereas thin women are idealized, fat women are negatively stigmatized to the degree that obesity stigma has been referred to by some scholars as the last socially acceptable form of discrimination in the United States (Carr & Friedman, 2005; Puhl & Brownell, 2002). Overweight women are more likely than normal-weight women to report being the target of interpersonal and institutional discrimination, including being viewed as less desirable as friends, rejected by peers, and described as lazy, stupid, weak, sloppy, and ugly (Carr & Friedman; Friedman & Brownell, 2002; Puhl & Brownell; Schwartz & Brownell, 2004). The message from the media is clear: a thin woman is attractive and socially valued whereas a fat woman is unattractive and socially rejected.

When women compare themselves to the countless thin-ideal models displayed in the media, they are likely to engage in a process of upward social comparison whereby they think about their physical appearance in comparison to the idealized, ultra-thin models found in magazines, television, the internet, and movies. That is, because few (if any) girls and women realistically evaluate their appearance to be “better than” the air-brushed, make-up laden fashion models, the social comparison process is likely to be upward and thus may often lead to negative self-evaluation. Repeated negative self-evaluation with regard to one’s appearance, in turn, is likely to lead to increased body image disturbance, which is the most empirically supported risk factor for eating disorder development (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Stice,

Mazotti, Krebs, & Martin, 1998; Thompson et al., 1999b). Such negative self-evaluation occurs even though most women view models as portraying an unrealistic appearance standard (Milkie, 1999).

One way to explore the influence of social comparison to fashion models on the development of eating disorder symptoms is to experimentally expose women to fashion models and measure state changes in self-evaluation on variables associated with the development of eating disorders. Generally, experimental studies testing acute exposure to media images indicates that viewing thin models increases body image disturbance (e.g., Heinberg & Thompson, 1995; Myers & Biocca, 1992; Posavac, Posavac, & Posavac, 1998; Richins, 1991) and mood disturbance (Cattarin, et al., 2000; Stice & Shaw, 1994), and decreased self-esteem (Irving, 1990). In a meta-analytic review of data from 25 experimental exposure studies of this kind, Groesz, Levine, and Murnen (2002) found that, across studies, women reported significantly more body image disturbance after viewing thin models than after viewing average size women, overweight women, or control objects (Cohen's  $d = -0.31$ ). When broken down into various aspects of body image disturbance, effect sizes were medium to large, ranging from  $d = -.23$  on body size estimation, to  $d = -.30$  on physical attractiveness,  $d = -.34$  on body satisfaction, to  $d = -.42$  on weight satisfaction (Groesz et al.).

#### *Race, Culture, Ethnicity, and the Social Comparison Process*

Despite experimental evidence supporting the influence of the social comparison process on the negative effects of viewing thin-ideal models, few researchers have examined these differences in participants of different cultural, ethnic, or racial groups.

Before further discussion, it is important to define these constructs as they are used in this study. *Culture* is often conceptualized as the broad, multidimensional social context omnipresent in all human societies that includes shared institutions, norms, beliefs, lifestyles, languages, and values (APA, 2003). Culture is not a distant, concrete context under which behavior occurs but, instead, is a fluid social framework expressed through proximal influences that directly affect human development and behavior (Smolak & Striegel-Moore, 2001). *Ethnicity* is a narrower term that generally refers to recognition of belonging to a sub-cultural group (APA, 2003). Ethnic groups are made of members who share some specific cultural characteristics that differ from those of the dominant culture (Phinney, 1996a). *Race*, although treated historically as a biologically-based trait, is currently conceptualized as the socially constructed characterization of individuals based on visible traits such as skin color, facial features, hair color and texture, and stature (APA, 2003; Phinney; Helms & Talleyrand, 1997). Although ethnicity does not inherently assume race, I use the term *ethnic minority* to refer to racial minorities who belong to non-dominant cultural groups, thereby incorporating culture and ethnicity with race, which is commonly done by researchers (Harris & Kuba, 1997; Phinney).

The thesis of the present study is that race, ethnicity, and culture are important variables in the social comparison process. One factor that influences the comparison process is the perceived similarity of the self to the comparison other (Festinger, 1954; Lockwood & Kunda, 1997; Wood, 1989). The *similarity hypothesis* postulates that comparing to others who are viewed as similar to the self (e.g., on age, race, gender, education, religious affiliation, family background) provides more accurate and

meaningful information for self-evaluation because the likelihood that any dissimilarity is due to confounding factors is lessened (Lockwood & Kunda; Mussweiler & Strack, 1999). For example, it is less likely that a 50-year-old woman would evaluate her body shape, skin tightness, and muscle tone by comparing herself to an 18-year old female model because the resulting self-evaluation would be confounded by the age differential between herself and the young model. Any conclusions the older woman may draw about her current appearance when comparing to the younger woman without considering age would not be as accurate or meaningful. Consequently, it is more likely that the older woman would choose a comparison other that is viewed as more similar to herself (i.e., on age), yielding a more useful conclusion about her physical appearance.

It is important to emphasize that the tendency to compare to similar others is not only because of perceived similarity on the actual comparison attribute (e.g., body shape, weight, size), but also because it implies self-similarity on attributes related to the comparison dimension (Suls & Wheeler, 2000). As applied to the above example, the 50-year-old woman is more likely to compare her appearance to a woman of a similar age not only because a 50-year-old woman is likely more similar with respect to overall appearance, but also because a woman of a similar age is thought to be similar on other attributes related to appearance (e.g., accessibility of beauty related technology and resources, history of birthing children, medical status).

Recent body image research supports the assertion that self-other similarity increases the likelihood of social comparison. In an experimental study of the similarity hypothesis, Heinberg and Thompson (1992) told participants that their weight was

heavier or lighter than either a similar other (i.e., student attending their university) or a more universalistic, global other (i.e., the average person in the United States).

Participants who compared themselves with more similar others reported more body dissatisfaction and appearance-related anxiety than those who compared to more global others. Brown, Novick, Lord, and Richards (1992) exposed men and women to advertisements containing images of attractive males and females. After viewing these images, participants rated of their own attractiveness. Results indicated that participants rated themselves as less attractive only after viewing images of the same gender.

Based on the similarity hypothesis, one could argue that a woman's ethnicity and the perceived race and ethnicity of fashion models may influence the social comparison process. Ethnic minority women may be more likely to compare their physical appearance to ethnically and racially similar models because the images may be seen as more similar to the self on both racially relevant appearance features (e.g., skin color, hair color and texture, etc.) and on perceived cultural similarity (i.e., a factor predictive of appearance values and ideals). This, in turn, could lead to stronger reactions to the comparison information because perceived self-other similarity strengthens the likelihood of comparison and, often, the magnitude of self-evaluation responses (Broemer & Diehl, 2004; Milkie, 1999; van Dijke & Poppe, 2003).

Almost no experimental research has tested the effect of racial and ethnic self-similarity on the social comparison process as it relates to eating disorders and body image. Frisby (2004) exposed 110 African-American female college students to advertisements containing Black or White thin-ideal models. Although exposure to

idealized images of White models was not related to lowered body esteem, women with low body esteem experienced more body dissatisfaction after viewing thin Black models than after viewing White models. David, Morrison, Johnson, and Ross (2002) showed African-American and Euro-American college students advertisements including Black and White models. After exposure, participants estimated the effects of viewing these advertisements on women's ideal weight, self-esteem, and eating disorder symptoms in themselves, Euro-American individuals, and other African-American individuals. Participants believed that the effects of viewing images would be strongest in other individuals when viewing images of a similar race.

#### *Moderating Influences*

The magnitude of the effects of viewing thin models may be moderated by a number of factors. In addition to perceived similarity with the comparison other, a general tendency to use social comparison may influence the effects of viewing thin-ideal images. Experimental and correlational studies indicate that increased social comparison tendency is associated with greater body image disturbance (e.g., Catterin, et al., 2000; Heinberg & Thompson, 1992; Jones, 2001; Stormer & Thompson, 1996; Thompson & Heinberg, 1993). In an experimental study using a sample of 150 adult professional women, Dittmar and Howard (2004) found that a tendency to engage in social comparison moderated the relationship between viewing thin models and body-focused anxiety such that increased social comparison was associated with more body-focused anxiety after viewing media images. Catterin, et al. (2000) exposed participants to commercials containing thin-ideal models or non-appearance related images.



Participants received instructions to compare themselves with the models in the advertisements (social comparison encouraging instructions), to attend to the products in the advertisements (distraction instruction), or were given no specific instructions. Results indicated a three-way interaction such that women who were instructed to compare themselves to media images and viewed thin-ideal models reported more body dissatisfaction than women in the other conditions.

Additionally, trait level of appearance evaluation may influence the effects of viewing thin models. Research suggests that women with high baseline levels of body dissatisfaction and those diagnosed with an eating disorder are more adversely affected by viewing thin models than women without body image problems (e.g., Hamilton & Waller, 1993; Hausenblas, Janelle, Gardner, & Focht, 2004; Heinberg & Thompson, 1995; Irving, 1990; Stice, Spangler, & Agras, 2001). In fact, various studies have only found detrimental effects of viewing thin models in women with pre-existing body image problems. Despite increased exposure to fashion magazines, Stice, Spangler, and Agras (2001) found no effects of long-term exposure to thin images (in the form of a 15-month fashion magazine subscription) on body dissatisfaction, negative affect, thin-ideal internalization, or dieting. However, among women who felt increased initial pressure to be thin and increased body dissatisfaction at baseline, exposure to thin-images had lasting negative effects.

There are also factors associated with ethnicity, race, and culture that may moderate the effects. Values and ideals of physical appearance differ substantially across cultures. In Euro-American culture, for example, a woman's physical appearance is her

most fundamental attribute: Achievement and gender roles focus sharply on women's bodies and physical appearance making attainment of an ideal figure a woman's lifelong project (Brumberg, 1997; Levine, Smolak, & Hayden, 1994; Rodin, Silberstein, & Striegel-Moore, 1984). Conversely, in African-American culture, larger women are typically rated as more attractive than thin women and the ideal appearance is more flexible, based on having good style and the right attitude rather than on solely meeting a physical standard (e.g., Gluck & Geliebter, 2002; Parker et al., 1995; Rubin, Fitts, Becker, 2003; Wade & DiMaria, 2003). Additionally, in traditional Hispanic/Latino culture, close family relationships (*familismo*) and good interpersonal social skills (*personalismo*) are the most fundamental traits of highly esteemed women, and, historically, a larger body shape is viewed as ideal (Santiago-Rivera, Arredondo, Gallardo-Cooper, 2002).

Given ethnic differences in ideals of appearance and the value placed on appearance as a determinant of social value, the degree to which one feels that they belong to an ethnic or racial group could influence the social comparison process. Ethnic identity refers to a subjective sense of belonging to and identifying with an ethnic group (Phinney, 1996b). One could hypothesize that stronger ethnic identity to a culture of origin that places less value on appearance as a determinant of worth and/or has a larger, more realistic physical ideal would be less likely to react to viewing White/Euro-American models and more likely to compare more with ethnically and racially self-similar models. In a study investigating the relation between television viewing and body image among in African-American and Euro-American women, ethnic identity also

predicted healthier body image in Black women (Schooler, Ward, Merriwether, & Caruthers, 2004). This effect likely exists in other ethnic minority groups.

Racial identity, a construct related to but distinct from ethnic identity, refers to a sense of collective identity based on the perception that one belongs to a racial group (Helms, 1990). Helms (1990) proposed a theory of racial identity formation in ethnic minorities in which individuals go through four sequential stages or *status*'s: *Contact or Conformity*, characterized by trivialization of race, valuation of Whiteness, and rejection of ones own racial group; *Dissonance*, characterized by confusion about racial issues; *Immersion-Emersion*, characterized by hypersensitivity to racial issues, idealization of ones own race and rejection of Whiteness; and, *Internalization-Integrative Awareness*, characterized by objective intellectualization of racial issues and positive identification with ones racial group. One could conjecture that women who idealize Whiteness would be more negatively affected by viewing White/Euro-American models than by viewing ethnic minority models. After instructing 60 African-American women to rate the attractiveness of African-American models or Euro-American models, Makkar and Strube (1995) found that participants with stronger Black racial identity rated their own attractiveness higher than those with weaker Black racial identity after viewing Euro-American models.

Although racial and ethnic identity can be examined all individuals, these constructs are theorized to be particularly important for ethnic minorities. *Ethnocentric monoculturalism*, defined as a cultural phenomenon in which individual and institutional superiority of one group's values are seen as above others, is present in the United States

such that being White yields unearned privileges and being non-White accrues undeserved disadvantage (Sue et al., 1999). On an individual level, this phenomenon has been argued to make it easier for racial and ethnic minorities to be more aware of their ethnicity and race, whereas Euro-Americans may struggle to view themselves as members of an ethnic or racial group and may make ethnicity and race difficult constructs to grasp (Helms, 1990; Helms, 1995; Sue, et al). Consequently, ethnic and racial identity may be particularly important to consider with respect to the psychological health of ethnic minorities.

#### *Study Objectives*

There is a need to empirically examine the role that thin-ideal media images play in the development of body image disturbance in women of different racial and ethnic groups. Given that all women living in mainstream American culture are exposed to thin-ideal media images with regularity, it is also essential to understand what factors make women more or less vulnerable to negative self-evaluation after viewing models. The overarching goal of this study was to examine the influence of ethnicity on affect, self-esteem, and body image after exposure to thin models.

To accomplish this goal, Euro-American, African-American, and Latina women completed measures of affect, appearance-based self-esteem, and body image before and after viewing ethnically and racially self-similar models, self-different models, or appliances (control images). The primary research question tested whether the effects of viewing thin models are influenced by the ethnicity of the observer and/or the ethnic and racial similarity of the model to the observer. I predicted a main effect for ethnicity such

that, independent of media exposure, African-American women would report more body esteem and less body image disturbance than Latina and Euro-American women.

However, I predicted that this effect would be qualified by an interaction indicating that participants would be more negatively affected (i.e., report less positive affect, more negative affect, less appearance-based self-esteem, and more body image disturbance) after viewing ethnically and racially self-similar models than self-different models. If this interaction was not found, I predicted an interaction indicating that participants would experience more negative effects after viewing thin models than control images.

The second research question investigated the extent to which social comparison tendency, trait appearance evaluation, ethnic identity, and racial identity may moderate the effects of viewing thin models, thereby influencing the degree to which media exposure influences affect, self-esteem, and body image. Given the differential importance and implications of ethnic and racial identity for women of color, these factors were examined in Latina and African-American participants only. I predicted that a stronger tendency to engage in social comparison, more negative trait regard for one's appearance, decreased ethnic identity, and increased racial identity in the conformity stage of development would predict more deleterious effects (i.e., less positive affect, more negative affect, decreased self-esteem, increased body image disturbance) after viewing self-similar models than self-different models. If this effect was not found, I predicted that participants would be more negatively affected by viewing thin models than control images. If no interactions emerged, which suggests that neither the ethnic self-similarity of participants to models nor the type of media images viewed influenced

affect, self-esteem, or body image differentially after media exposure, I predicted a main effect for each variable on self-esteem and body image. Although this would not be evidence for moderation (as it would indicate that findings were independent of media exposure), I predicted that a increased tendency to engage in social comparison, decreased positive appearance evaluation, decreased ethnic identity, and increased idealization of Whiteness would be associated with decreased self-esteem and increased body image disturbance.

## STUDY 1

Prior to exposing women to models, it was essential to select Euro-American, African-American, and Latina thin model images to be used as experimental stimuli. The overarching goal was to select a group of models that were deemed to 1) belong to one racial group and 2) be of comparable thinness and attractiveness.

### *Methods*

#### *Participants*

One hundred and twenty three female undergraduate students participated in a study titled “Rating super-model potential of ethnically diverse women”. Self-identified Latina ( $n = 21$ ), African-American ( $n = 20$ ), and Euro-American ( $n = 82$ ) female students attending a large university in the Southwestern United States were recruited from undergraduate psychology courses and received research credit in exchange for participation.

#### *Materials*

A sample of 240 images believed to represent Euro-American, African-American, and Latina models ( $n = 80$  per group) were selected from popular fashion media (e.g., fashion magazines, internet websites, and clothing advertisements). Images were selected if they 1) did not portray “supermodels” (i.e., well-known icons in the fashion industry), 2) displayed at least  $\frac{3}{4}$  of the model's body, and 3) did not display any legible words (e.g., from advertisements). Five images of plus-sized models (size 14 or greater) gathered from fashion media were also included as a validity manipulation check to ensure participants were engaged in the rating task.

### *Measures*

To assess the race of each model, participants answered the question, “What do you think best describes this woman’s race?” Response options, presented in a multiple-choice format, were: Euro-American/White; Hispanic/Latina; Asian/Pacific Islander; African American/Black; Unsure; and Other. To assess for model thinness, participants indicated each model’s physical size as on a 7-point k-type scale from “extremely thin” to “very overweight”. To assess for model attractiveness, participants rated each model on a 7-point k-type scale from “extremely attractive” to “extremely unattractive”. Participants also completed a demographics questionnaire.

### *Procedure*

Upon arrival participants signed a consent form and completed the demographic questionnaire. Participants were told that they would be viewing women of different ethnic groups aspiring to become super-models and instructed to rate each model on her race, body size, and attractiveness. Participants viewed each image on an overhead projected Powerpoint presentation, one at a time, for about 20 seconds.

### *Results*

The manipulation check indicated that 3 participants (1 Latina and 2 Euro-American women) rated one of the 5 plus-sized models as “very thin”. After removing data from these participants, models were examined for ratings of race. Participants rated the race of 22 models as Euro-American/White and 20 models as African-American/Black with greater than 90% agreement across and within ethnic groups. However, agreement was lower for the identification of Latina models: no models were



identified as Latina/Hispanic with greater than 90% agreement across or within participant ethnic groups. Consequently, the 10 models rated by the highest percentage of participants to be Latina within and across participant ethnic group were selected (see percentages in Table 1).

From this pool of 22 Euro-American/White, 20 African-American/Black, and 10 Latina models, ratings of thinness and attractiveness for each of the 52 models were tabulated by participant ethnicity. ANOVA's testing differences in thinness and attractiveness ratings between participant ethnic groups for each model indicated no statistically significant differences for any of the models ( $\alpha = .05$ ).

From this final pool of 52 models, 8 groups of models were created that included 1 African-American, 1 Euro-American, and 1 Latina model matched on thinness and attractiveness ratings. This final matching procedure was done to ensure that no statistically significant differences existed on thinness and attractiveness ratings when participants viewed models from 1 racial and ethnic group (i.e., Study 2). To verify the effectiveness of the matching procedure, ratings were summed and averaged for each model group by participant ethnicity (see Table 2). As desired, tests of mean differences on thinness indicated no significant main effect for model group,  $F(2, 226) = 1.23, p = .29$ , and no model group by participant ethnicity interaction,  $F(4, 226) = .76, p = .55$ . Similarly for attractiveness ratings, there was no significant main effect for model group,  $F(2, 226) = 2.44, p = .09$ , and no significant model group by participant ethnicity interaction,  $F(4, 226) = 1.88, p = .12$ .

## STUDY 2

After selecting Euro-American, African-American, and Latina models perceived to be of similar attractiveness and thinness across a group of ethnically different women, Study 2 measured affect, appearance-based self-esteem, and body image before and after exposure to model images.

### *Methods*

#### *Participants*

Three-hundred and seven female undergraduate students recruited from undergraduate psychology classes received 3 hours research credit ( $n = 287$ ) or \$15.00 ( $n = 20$ ) in exchange for participation. The decision to offer \$15 for participation was added to increase the overall number of ethnic minority participants as the make-up of the university is predominantly Euro-American/White. Thus, we posted announcements seeking ethnic minority participants for a study titled “Measurement of Mood and Body Image” in exchange for \$15. Students were recruited from three ethnic groups: Latina ( $n = 111$ ), African-American ( $n = 91$ ), and Euro-American ( $n = 105$ ). Participants had an average age of 19.1 ( $SD = 2.1$ ).

#### *Materials*

Four sets of media images were used as experimental stimuli: control images (e.g., vacuum cleaner, computer, printer, etc.) and African-American/Black, Euro-American/White, and Latina/Hispanic thin-ideal models (selected from Study 1). Control images were selected from advertisements in magazines and internet shopping sites.

### *Measures*

*Affect.* The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item measure of affect with 2 subscales: a 10-item Positive Affect subscale (PANAS-PA) and a 10-item Negative Affect subscale (PANAS-NA). Participants indicate to what degree they “feel right now, that is, at the present moment” various emotion words on a 5-point k-scale from “very slightly/not at all” to “extremely”. Higher scores indicate more affect. In this measures, positive and negative affect are conceptualized on separate continua as it is theorized that one may be experience a state change in positive affect (e.g., excitement, pride, inspiration) while not experiencing a change in negative affect (e.g., guilt, fear, irritability) and vice versa. Internal consistency (coefficient alpha) in a sample of 660 college students was .89 on the PA scale and .85 on the NA scale (Watson et al.). The correlation between the PA and NA scale was -.15, supporting the discriminant validity of the two subscales (Watson et al.). In the current sample, coefficient alpha’s were .88 for PA (Euro-American = .88, African-American = .86, Latina = .89) and .84 for NA (Euro-American = .83, African-American = .83, Latina = .85). The correlation between PA and NA scales was -.07 (Euro-American = -.14, African-American = -.21, Latina = .09)

*Appearance-based Self-esteem.* The State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991) consists of 20 items designed to measure temporary changes to individual self-esteem. I used the 6-item Appearance subscale (SSES A), which measures appearance-based aspects of self-esteem. Higher scores indicate higher self-esteem. In a sample of 428 undergraduate students, overall internal consistency was .92

of the total 20-item measure (Heatherton & Polivy). In the current sample, coefficient alpha was .85 (Euro-American = .82, African-American = .86, Latina = .84).

*Body Image.* Three different aspects of body image were evaluated: body dissatisfaction, weight concern, and feelings of sexual attractiveness. To examine body dissatisfaction, participants completed the Body Image Assessment (BIA: Williamson, Davis, Bennett, Goreczny, & Gleaves, 1989). Using 9 silhouettes ranging from “very thin” to “very large”, each participant identified the body figure that best approximates 1) her current body size and 2) her ideal body size (BIA IDEAL), with larger scores indicating a larger body size. The discrepancy between her current and ideal size indicates the degree of body dissatisfaction, with larger scores indicating more body dissatisfaction. Test-retest reliability was reported to be .90 for the current body size and .71 for the ideal body size (Williams, Gleaves, Cepeda-Benito, Erath, & Cororve, 2001).

I also used 2 subscales of the Body Esteem Scale (BES; Franzoi & Shields, 1984): Weight Concern (BES-WC) and Sexual Attractiveness (BES-SA) (Thomas & Freeman, 1990). The BES consists of 35-items that measure how women feel about specific body areas (e.g., stomach, thighs, face). Items are scored on a 5-point scale from “strong negative feelings” to “strong positive feelings”, with higher scores indicative of more positive feelings towards ones body (i.e., more positive feelings regarding ones sexual attractiveness and weight). Franzoi and Herzog (1986) found the measure internal consistency to be .82 (BES-WC) and .88 (BES-SA). As was done by Irving (1990), the instructions given to participants were slightly altered to make responses more “state” sensitive: participants indicated how strong their feelings are *right now*. In the current

sample, coefficient alpha's were .83 on BES-WC (Euro-American = .84, African-American = .82, Latina = .81) and .80 on BES-SA (Euro-American = .73, African-American = .78, Latina = .84).

*Social Comparison Tendency.* The Comparison to Models Survey (CMS; Strowman (1996) as cited in Thompson et al., 1999b) is an 8 item measure assessing frequency of comparison to models with regard to 8 attributes (e.g., career success, eating habits, physical appearance) on a 5-point Likert scale from “never” to “always”. Higher scores indicate stronger social comparison tendency. Internal consistency in a sample of 208 female undergraduates was .86 (Thompson et al., 1999b). In the current sample, coefficient alpha was .83 (Euro-American = .84, African-American=.79, Latina=.95).

*Trait Appearance Evaluation.* The Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000) is a 69-item measure that assesses attitudinal body image. Items are rated on a 5-point scale from “definitely disagree” to “definitely agree”. I used the 7-item Appearance Evaluation subscale (MBSRQ-AE), which examines general feelings of physical attractiveness or unattractiveness. Higher scores indicate more positive feelings of physical attractiveness. Cash (2000) found cronbach's alpha was .88 in a sample of over 800 females, with 1 month test-retest reliability of .91. In the current sample, coefficient alpha was .89 (Euro-American = .86, African-American = .91, Latina = .87).

*Ethnic Identity.* The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) is a 23-item measure that assesses various aspects of ethnic identity. The 14-item Ethnic

Identity subscale was used, which evaluates a sense of belonging to an ethnic group, exploration and resolution of identity issues, and behaviors associated with an ethnic group. The MEIM is scored on a 4-point Likert-type scale from “strongly disagree” to “strongly agree”, with higher scores indicative of stronger ethnic identity. Internal consistency across a sample of Latina, Asian-American, Euro-American, and African-American students yielded overall alpha of .90 (Phinney, 1992). In the current sample, coefficient alpha was .87 (African-American = .85, Latina = .89).

*Racial Identity.* The People of Color Racial Identity Attitudes Scale (PRIAS; Helms, 1995) is a 50-item measure that assesses racial identity schemas associated with racial identity formation. I used the 12-item Conformity subscale, which measures the degree to which individuals idealize Whiteness and reject their own racial minority group (Helms, 1995). Items are rated on a 5-point Likert-type scale from “strongly agree” to “strongly disagree”. In the current sample, coefficient alpha was .78 (African-American = .76, Latina = .80).

#### *Procedure and Study Design*

All participants voluntarily signed-up for a study titled, “Measurement of mood and body image”. A cover story was used to disguise the study’s true nature and reduce demand characteristics. Upon arrival to the experiment, participants completed informed consent and were told that they were participating in a study examining the psychometric properties of various questionnaires designed to measure mood and the way people feel about their body. To accomplish this goal, participants would complete questionnaires of mood and body image, wait 40 minutes, and then complete the measures again. For

participation, they earned 2 hours of credit (or \$10 for paid volunteers). Participants were told they could earn 1 more hour of credit (or \$5 extra for paid volunteers) by participating in another study while they waited. Interested participants would complete measures for the body image study (labeled Study 1), participate in the other study (completed in another room, labeled Study 2), and return to Study 1 to take questionnaires for a second time. In actuality, Study 1 gathered pre-exposure and post-exposure data while Study 2 served as the experimental manipulation. Only 1 participant chose not to participate in Study 2. Her data were removed from analyses.

Following these instructions, participants completed pre-exposure measures, which included all measures of mood, self-esteem, and body image (PANAS, BMA, BIA, BES, & SSES). Upon completion, participants proceeded to Study 2, where they were informed that the study was investigating the effect of ethnicity on purchasing desirability. Participants completed a second consent form, a demographic questionnaire, measures of racial and ethnic identity (PRIAS & MEIM), and a questionnaire designed to support the cover story (e.g., How much money do you spend a month on clothes? How important is brand in your purchasing selections?). Participants were told that they would be randomly assigned to rate the purchasing desirability of one of three products: cars, clothes, or appliances. In actuality, participants were randomly assigned to one of the four experimental conditions: they viewed Euro-American, African-American, or Latina models, or appliances (control condition). All participants in the model condition were led to believe they were rating clothes.

Participants sat in front of a computer monitor controlled individually by a personal computer. The instructions and models were presented on a powerpoint slide show, pre-timed to show images in 30 sec intervals. Directions were provided on the first page of the powerpoint slide and remained on the computer monitor until participants indicated they understood and were ready to begin. Participants seeing models received the following instructions: “You have been selected to rate the effectiveness of advertisements for clothes on purchasing desirability. All of the women advertising the clothes are Euro-American/White (*or African-American/Black, or Latina/Hispanic*). You will be shown images of 8-10 clothing outfits. You are to look at each outfit and think about how it would look on you. You will rate the clothing on 4 dimensions: (1) the design of the clothes, (2) how well the outfit fits the model, (3) how much you would like to wear this outfit, (4) whether the outfit would look good on you.”

The ethnicity and race of models were explicitly stated to increase the likelihood that participants viewed models as intended. In addition, given that both race and ethnicity are theorized to influence perceived similarity with a comparison other, it was desirable to attach both a racial and an ethnic label to the models. Participants in the control condition received identical instructions except they rated how each appliance would look in their home.

After viewing and rating all of the images, participants received 1 hour of research credit or \$5 and a bogus debriefing sheet (for Study 2). They returned to Study 1 (post-exposure), where they completed state measures of affect, self-esteem, and body image for a second time (PANAS, BMA, BIA, BES, & SSES) as well as measures of



social comparison tendency and appearance evaluation (CMS & MBSRQ-AE). They also answered the question “What do you think this study is about” to determine whether any participants deduced the true purpose of the study. After completing all measures, participants were debriefed about the true nature of the study.

### *Data Analysis*

Analyses were conducted using Statistical Package for the Social Sciences software (Version 13.0, 2004). To compare groups in this 3 (participant ethnicity) by 4 (experimental condition) factorial research design, I conducted repeated measures analysis of variance (ANOVA). Repeated measures analysis was chosen over other statistical methods (e.g., ANOVA’s of difference scores, ANCOVA using pre-test scores as covariates) for 2 main reasons. First, repeated measures analysis is more powerful than completely randomized designs because variability due to individual differences is completely removed from the error term (Stevens, 2001). Given the increased power, the analysis requires fewer participants to attain statistically significant results. In this study, to find a medium effect at alpha .05 with an average correlation between measures of .50-.80, only 15-34 participants are needed per cell (Stevens). Second, given theorized differences between participant ethnic groups at baseline, it was undesirable to ignore intercept differences (as would be done with difference score analysis) or attempt to equalize pre-exposure means (as would be done with ANCOVA).

Results are organized by research question. Analyses were performed separately for each of the 6 dependent variables (i.e., positive affect, negative affect, appearance-based self-esteem, body dissatisfaction, weight concern, and sexual attractiveness). Only

a priori hypotheses were tested, except when a main effect was predicted: Given that a main effect should not be interpreted as such in the presence of an interaction, unpredicted interactions were tested and, when significant, reported and probed using post-hoc tests. Partial  $\eta^2$  ( $\eta_p^2$ ), defined as the proportion of total variability attributable to a factor after removing variability due to other factors, indicated the size of each effect ( $\eta_p^2 = .01 = \text{small}$ ,  $\eta_p^2 < .09 = \text{medium}$ ,  $\eta_p^2 > .25 = \text{large}$ ) (Cohen, 1988).

To test a priori hypotheses for the primary research question, repeated measures ANOVA specified exposure (pre- and post- scores on the dependent variable, labeled *exposure*) as the within-subjects factor and participant ethnicity (Euro-American, African-American, Latina, labeled *ethnicity*) and experimental condition (Euro-American/White, African-American/Black, and Latina/Hispanic models or control images, labeled *condition*) as between-subjects factors. I predicted a main effect for ethnicity on measures of self-esteem and body image, a 2-way exposure\*condition interaction, and a 3-way participant ethnicity\*media exposure\*condition interaction for all outcome measures. Analyses were conducted starting with the most complex model. When the 3-way interaction was statistically significant, results were understood by examining the exposure\*ethnicity interaction by condition. When the 3-way interaction was not statistically significant, the exposure\*condition interaction was examined. If no interactions reached statistical significant, the main effect for ethnicity was examined. All significant ANOVA main effects were understood by comparing group means using Tukey's HSD.

To examine the second research question, social comparison tendency, appearance investment, ethnic identity, and racial identity were added separately to each analysis described above as a continuous predictor. I predicted a main effect for the proposed moderator (on self-esteem and body image only) qualified by a 3-way condition\*proposed moderator\*exposure interaction, and a 4-way proposed moderator\*media exposure\*condition\*ethnicity interaction. Analyses of moderators were tested using the same analytic strategy described above. When a 4-way interaction emerged, the condition\*exposure\*proposed moderator interaction was examined by participant ethnicity. When a statistically significant interaction emerged involving a proposed moderator and the within subjects factor (i.e., exposure), or when a main effect emerged for one of the proposed moderating (continuous) variables, unstandardized and standardized regression coefficients (B and  $\beta$  weights, respectively) predicting pre- and post-media exposure indicated the nature of the relationship. When an unexpected effect emerged involving exposure to media images, pre- and post-exposure scores were examined by separating participants into 2 groups: women who viewed models and women who viewed control images. Post hoc tests examined the effect separately by group to clarify whether, contrary to predictions, viewing appliances influenced scores on outcome measures.

To correct for family-wise error, multiple comparisons were controlled by false discovery rate. This method adjusts the alpha value for each individual test for the number of erroneous rejections of the null hypothesis that could be expected given the total number of tests (Benjamin & Hochberg, 1995). To do this, a *p*-value is obtained for

each analysis in the family of contrasts and all are ordered from smallest to largest. The contrast with the smallest  $p$ -value is evaluated against an alpha of  $.05/k$ , where  $k$  is the total number of contrasts in the family. If this leads to rejection of the corresponding null hypothesis (because the observed  $p$ -value is less than the adjusted alpha), then the next smallest  $p$  value is tested against an alpha value of  $.05/(k-1)$ , where  $k-1$  is the remaining number of contrasts, and so on with each subsequent  $p$  value using  $k$ -the remaining number of contrasts. If any tests lead to a non-statistically significant difference using the adjusted  $p$  value, all remaining contrasts are not statistically significant (Benjamin & Hochberg). In the current data set, there are 5 families of contrasts (i.e., 1 for research question 1 and 1 per moderator), each of which employed 6 tests. The smallest  $p$  value was compared to an alpha of  $.0083$ . The second smallest  $p$ -value against an alpha of  $.0167$ , the third with alpha =  $.0250$ , fourth with alpha =  $.0333$ , fifth with alpha =  $.0417$ , and final with alpha =  $.05$ .

Prior to analysis, data were examined for the accuracy of entry and their appropriateness for statistical evaluation. Assumptions examined included normality, sphericity, and tests for univariate and multivariate outliers. Sphericity, which requires that the variances and covariances be equal across cells, is met by default when there are only 2 levels of the within subjects variable when variances are similar because there is one 1 covariance term (Stevens, 2001; Weinfurt, 2000).

### *Results*

The number of participants randomly assigned to each experimental condition by ethnic group is presented in Table 3. Of the 307 participants, 2 appeared to know the true

nature of the study. The data from these two participants were removed. Examination of descriptive statistics, histograms, and stem and leaf plots indicated that certain variables were not normally distributed in some cells: scores on BES SA (pretest), PANAS NA (pretest and posttest), BIA (pretest), and MIEM were significantly leptokurtic. However, ANOVA is robust to violations of normality, even with unequal  $n$ 's across cells (Stevens, 2001; Tabachnick & Fidell, 2001). Therefore, no transformations of original data were performed.

Three univariate outlier cases were found (indicated by a  $z$  score value greater than the absolute value of 3.29,  $\alpha < .001$ , 2-tailed test). Multivariate outlier cases were identified by calculating a Mahalanobis distance value and comparing it to a critical  $\chi^2$  value (determined by the number of variables in each analysis and a criterion  $\alpha = .001$ ). No statistically significant multivariate outliers emerged. A sensitivity analysis, conducted by calculating effects with and without univariate outliers, indicated no substantive differences in statistical significance. Consequently, outlier cases were retained in all analyses. When data were missing on any given item of an outcome measure, participants were excluded from individual tests as appropriate.

### *Research Question 1*

*Positive and Negative Affect.* After specifying exposure (pre- and post- PANAS-PA and PANAS-NA scores, respectively) as a within-subjects variable, the predicted 3-way and 2-way interactions were not statistically significant. That is, contrary to predictions, neither ethnic confluence between participant and model nor the type of media images viewed differentially influenced positive or negative affect.

*Appearance Based Self-esteem.* After specifying exposure (pre- and post- SSES-A scores) as a within-subjects variable, the 3-way and 2-way interactions were not statistically significant. However, a main effect for ethnicity emerged,  $F(2, 283) = 10.51, p < .01, \eta_p^2 = .07$ . Examination of group means using Tukey's HSD post hoc test indicated that African-American women reported significantly higher appearance-based self-esteem ( $M = 21.72, SD = 5.56$ ) than Euro-American ( $M = 19.06, SD = 4.54$ ) and Latina women ( $M = 18.56, SD = 4.84$ ).

*Body Dissatisfaction.* After specifying exposure (pre and post BIA-D scores) as the within-subject variable, the 3-way and 2-way interactions were not statistically significant. However, a statistically significant main effect for ethnicity emerged,  $F(2, 291) = 5.34, p = .01, \eta_p^2 = .04$ . Tukey's HSD post hoc test indicated that African-American women reported significantly less body dissatisfaction ( $M = .64, SD = 1.54$ ) than Latina women ( $M = 1.35, SD = 1.56$ ). Euro-American women did not differ statistically significantly from either group ( $M = 1.17, SD = 1.57$ ).

*Weight Concern.* After specifying exposure (pre and post BES-WC scores) as the within-subjects variable, the 3-way and 2-way interactions were not statistically significant. However, a statistically significant main effect for ethnicity emerged,  $F(2, 281) = 14.57, p < .01, \eta_p^2 = .09$ . Examination of group means using Tukey's HSD indicated that African-American women reported significantly more positive feelings about their weight ( $M = 33.49, SD = 8.83$ ) than Euro-American ( $M = 27.76, SD = 7.63$ ) and Latina women ( $M = 27.97, SD = 7.58$ ).

*Sexual Attractiveness.* After specifying exposure (pre and post BES-SA scores) as the within-subjects variable, the 3-way and 2-way interactions were not statistically significant. However, the predicted main effect for ethnicity emerged,  $F(2, 275) = 11.39, p < .01, \eta_p^2 = .08$ . Tukey's HSD post hoc test indicated that African-American women reported significantly more positive feelings about their sexual attractiveness ( $M = 45.93, SD = 6.83$ ) than Euro-American ( $M = 41.74, SD = 5.69$ ) and Latina women ( $M = 41.71, SD = 7.73$ ).

### *Research Question 2*

*Social Comparison Tendency.* Examination of positive affect indicated that although 4-way social comparison tendency\*ethnicity\*exposure\*condition interaction was not statistically significant, the 3-way condition\*exposure\*social comparison tendency interaction was statistically significant,  $F(3, 245) = 3.02, p = .03, \eta_p^2 = .03$ . Examination of results by condition indicated no statistically significant interaction for participants who viewed Euro-American models or control images, but a significant exposure\*social comparison tendency interaction for women who viewed African-American and Latina models,  $F(1, 70) = 4.06, p = .05, \eta_p^2 = .06$  and  $F(1, 68) = 4.13, p = .05, \eta_p^2 = .06$ , respectively. Examination of regression coefficients before and after media exposure indicated that, for women who viewed African-American models, the interaction was due to a stronger positive association between social comparison tendency and positive affect after viewing models ( $B = .21; \beta = .17$ ) than before ( $B = .05; \beta = .14$ ). Conversely, for women who viewed Latina models, a greater association existed before viewing models ( $B = .23; \beta = .16$ ) than after ( $B = -.01; \beta < .01$ ). That is,

increased social comparison tendency predicted increased positive affect after viewing African-American models whereas increased social comparison tendency predicted decreased positive affect after viewing Latina models.

For negative affect, the 4-way interaction was statistically significant,  $F(6, 244) = 2.15, p = .05, \eta_p^2 = .05$ . Examination of results by ethnicity indicated a 3-way exposure\*condition\*social comparison tendency interaction for Latina women,  $F(1, 96) = 3.17, p = .03, \eta_p^2 = .09$ . Examination of effects in Latina women by condition indicated that after viewing Latina models, statistically significant effects emerged for exposure,  $F(1, 24) = 4.98, p = .04, \eta_p^2 = .17$ , social comparison tendency,  $F(1, 24) = 12.94, p < .01, \eta_p^2 = .35$ , and a trend towards a significant exposure\*social comparison tendency interaction,  $F(1, 24) = 3.12, p = .09, \eta_p^2 = .12$ . Examination of regression coefficients indicated that, for Latina women who viewed Latina models, the association between social comparison tendency and negative affect, although not statistically significantly different, was stronger after viewing models ( $B = .81; \beta = .67$ ) than before ( $B = .56; \beta = .45$ ). That is, increased social comparison tendency predicted more negative affect in Latina women after viewing Latina models.

With regard to appearance-based self-esteem, the predicted 4-way and 3-way interactions were not statistically significant. However, the predicted main effect for social comparison tendency emerged,  $F(1, 260) = 19.87, p < .01, \eta_p^2 = .07$ . Regression coefficients indicated a negative association between appearance-based self-esteem and social comparison tendency both before ( $B = -.19, \beta = -.25$ ) and after media exposure ( $B$



= -.20,  $\beta = -.26$ ). That is, increased social comparison tendency was associated with less appearance-based self-esteem independent of media exposure.

With regard to body dissatisfaction, the predicted 4-way and 3-way interactions were not statistically significant. However, across conditions, a main effect for social comparison tendency emerged,  $F(1, 265) = 4.54, p = .03, \eta_p^2 = .02$ . Regression coefficients indicated a statistically significant positive association between social comparison tendency and body dissatisfaction both before ( $B = .02; \beta = .10$ ) and after media exposure ( $B = .04; \beta = .15$ ). In sum, increased social comparison tendency was associated with increased body dissatisfaction, independent of media exposure.

For weight concern, the predicted 4-way and 3-way interactions were not statistically significant. However, across conditions, a main effect for social comparison tendency emerged,  $F(1, 258) = 18.19, p < .01, \eta_p^2 = .07$ . Regression coefficients indicated a statistically significant negative association between social comparison tendency and weight concern both before ( $B = -.30; \beta = -.26$ ) and after ( $B = -.30; \beta = -.24$ ) media exposure. That is, increased social comparison tendency was associated with less positive feelings about one's weight independent of media exposure.

Finally, with regard to sexual attractiveness, the 4-way and 3-way interactions were not statistically significant. However, across conditions, a main effect for social comparison tendency emerged,  $F(1, 254) = 8.58, p < .01, \eta_p^2 = .03$ . Regression coefficients indicated a statistically significant negative association between social comparison tendency and sexual attractiveness both before ( $B = -.18; \beta = -.18$ ) and after media exposure ( $B = -.19; \beta = -.18$ ). That is, increased social comparison tendency was

associated with decreased feelings of sexual attractiveness independent of media exposure.

*Trait Appearance Evaluation.* After adding trait appearance evaluation as a continuous predictor, examination of positive and negative affect indicated that the predicted 4-way and 3-way interactions were not statistically significant. This suggests that, contrary to predictions, trait body image did not differentially influence effects after media exposure based on the ethnic confluence between participant and model nor media images viewed.

With respect to appearance-based self-esteem, the predicted 4-way and 3-way interactions were not statistically significant. However, the main effect for appearance evaluation emerged,  $F(1, 276) = 457.06, p < .01, \eta_p^2 = .62$ . Regression coefficients indicated a statistically significant positive association between appearance evaluation and self-esteem both before ( $B = 4.42; \beta = .75$ ) and after media exposure ( $B = 4.61; \beta = .78$ ). That is, independent of media exposure, increased positive appearance evaluation was associated with increased appearance-based self-esteem.

With regard to body dissatisfaction, although the predicted 4-way and 3-way interactions were not statistically significant, a main effect for appearance evaluation emerged,  $F(1, 281) = 67.86, p < .01, \eta_p^2 = .20$ . Examination of regression coefficients indicated a statistically significant negative association between appearance evaluation and body dissatisfaction both before ( $B = -.82, \beta = -.45$ ) and after media exposure ( $B = -.77; \beta = -.41$ ). That is, increased positive appearance evaluation was associated with decreased body dissatisfaction independent of media exposure.

For weight concern, although the predicted 4-way and 3-way interactions were not statistically significant, but the main effect for appearance evaluation was statistically significant,  $F(1, 274) = 346.60, p < .01, \eta_p^2 = .56$ , qualified by an unpredicted statistically significant exposure\*appearance evaluation interaction emerged,  $F(1, 201) = 7.15, p = .01, \eta_p^2 = .03$ . Examination of regression coefficients indicated that the association between appearance evaluation and weight concern was slightly stronger after media exposure ( $B = 7.27, \beta = .74$ ) than before ( $B = 6.60, \beta = .71$ ).

Post hoc analyses examined the interaction separately for participants who viewed models from those who viewed control images. For participants who viewed model images, the interaction was statistically significant,  $F(1, 205) = 6.82, p = .01, \eta_p^2 = .03$ , and regression coefficients followed the pattern described above: the association between appearance evaluation and weight concern was slightly stronger after viewing models ( $B = 7.26, \beta = .74$ ) than before ( $B = 6.50, \beta = .70$ ). However, for women who viewed control images, the interaction was not statistically significant. That is, increased positive appearance evaluation was more strongly associated with positive feelings regarding one's weight after viewing models.

Finally, with regard to sexual attractiveness, the predicted 4-way and 3-way interactions were not statistically significant. However, across conditions, a main effect for appearance evaluation emerged,  $F(1, 268) = 107.60, p < .01, \eta_p^2 = .30$ . Regression coefficients indicated a statistically significant positive association between positive trait feelings regarding one's appearance and positive feelings regarding one's sexual attractiveness both before ( $B = 4.07; \beta = .52$ ) and after media exposure ( $B = 4.34; \beta =$

.52). This suggests that increased trait-based positive evaluation of one's appearance was associated with increased positive feelings about one's sexual attractiveness, independent of media exposure.

*Ethnic Identity.* After adding ethnic identity as a continuous predictor, analyses of appearance-based self-esteem indicated that the predicted 4-way and 3-way interactions were not statistically significant. However, a significant main effect for ethnic identity emerged,  $F(1, 169) = 15.29, p < .01, \eta_p^2 = .08$ , qualified by an unpredicted ethnic identity\*ethnicity interaction,  $F(1, 169) = 4.27, p = .04, \eta_p^2 = .03$ . Examination of the main effect for ethnic identity by participant ethnicity indicated a statistically significant effect for African-American women,  $F(1, 77) = 12.98, p < .01, \eta_p^2 = .14$ . Regression coefficients indicated that a positive association between ethnic identity and self-esteem emerged both before ( $B = .30; \beta = .37$ ) and after ( $B = .30; \beta = .38$ ) media exposure. However, the effect was not statistically significant in Latina women. That is, increased ethnic identity was associated with increased appearance-based self-esteem in African-American women but not Latina women, independent of media exposure.

With regard to sexual attractiveness, the predicted 4-way and 3-way interactions were not statistically significant. However, a significant main effect for ethnic identity emerged,  $F(1, 175) = 20.65, p < .01, \eta_p^2 = .11$ , qualified by an unpredicted ethnic identity\*ethnicity interaction,  $F(1, 175) = 8.29, p < .01, \eta_p^2 = .05$ . Examination of regression coefficients by ethnic group indicated that, in African-American participants, a statistically significant main effect for ethnic identity emerged,  $F(1, 76) = 19.83, p <$

.01,  $\eta_p^2 = .28$ . Regression coefficients indicated a positive association between ethnic identity and positive feelings about one's sexual attractiveness emerged both before ( $B = .48$ ;  $\beta = .50$ ) and after media exposure ( $B = .55$ ;  $\beta = .53$ ). In Latina participants, the effect for ethnic identity predicting sexual attractiveness was not statistically significant. This suggests that increased ethnic identity was associated with increased positive feelings of sexual attractiveness in African-American women but not in Latina women.

Analyses of affect, body dissatisfaction, and weight concern in Latina and African-American women indicated no statistically significant 4-way or 3-way interactions and no main effects (for body dissatisfaction or weight concern). This suggests that, contrary to predictions, ethnic identity did not differentially influence affect, self-esteem, body dissatisfaction, or weight concern after media exposure based on the ethnic confluence between participant and model nor media images viewed influenced.

*Racial Identity.* After adding racial identity as a continuous predictor, analyses of weight concern indicated that, although the 4-way interaction was not statistically significant, the predicted 3-way interaction was statistically significant,  $F(3, 178) = 5.34, p < .01, \eta_p^2 = .08$ . Examination of the racial identity\*exposure interaction by condition indicated statistically significant interactions for women who viewed Euro-American models,  $F(1, 38) = 5.82, p = .02, \eta_p^2 = .13$ , and Latina models,  $F(1, 43) = 8.00, p = .01, \eta_p^2 = .16$ . Regression coefficients indicated that for African-American and Latina participants who viewed Euro-American models, the negative association between racial identity and weight concern significantly stronger after media exposure

( $B = -.24$ ;  $\beta = -.23$ ) than before ( $B = -.08$ ;  $\beta = -.08$ ). In participants who viewed Latina models, the negative association between racial identity and weight concern that existed before media exposure ( $B = -.36$ ;  $\beta = -.22$ ) diminished after viewing models ( $B = -.04$ ;  $\beta = -.03$ ). That is, in African-American and Latina participants, increased racial identity predicted decreased positive feelings regarding one's weight after viewing Euro-American models. Conversely, after viewing Latina models, increased racial identity idealizing Whiteness predicted increased positive feelings regarding one's weight after media exposure.

With regard to sexual attractiveness, the predicted 4-way and 3-way interactions were not statistically significant. However, a main effect for racial identity emerged,  $F(1, 179) = 12.66$ ,  $p < .01$ ,  $\eta_p^2 = .07$ . Regression coefficients indicated that the association between racial identity and sexual attractiveness was negative both before ( $B = -.31$ ;  $\beta = -.27$ ) and after media exposure ( $B = -.28$ ;  $\beta = -.23$ ). This suggests that increased racial identity characterized by idealization of Whiteness in Latina and African-American women was associated with decreased positive feelings about one's sexual attractiveness.

In analyses of positive affect, negative affect, appearance-based self-esteem, and body dissatisfaction in Latina and African-American women, the predicted 4-way interaction, 3-way interaction, and main effect for racial identity (on self-esteem and body dissatisfaction) were not statistically significant.

## SUMMARY AND CONCLUSIONS

A number of studies have reported that viewing images of thin models has a negative impact on women's affect, self-esteem, and body image (Groesz, et. al., 2002; Hargreaves & Tiggemann, 2002; Posavac, et. al., 1998; Seddon & Berry, 1996).

However, only a handful of studies have examined the possible influence of ethnicity and race on these effects (e.g., Frisby, 2004; David, et al., 2002). Drawing from social comparison theory and the similarity hypothesis, I predicted that participants would experience deleterious effects on affect, self-esteem, and body image after viewing thin models than after viewing control images and that exposure to ethnically self-similar models would have more detrimental effects. I also predicted that a stronger tendency to engage in social comparison with models and more negative trait appearance evaluation would predict more detrimental effects. In ethnic minority participants, I predicted that decreased ethnic identity and increased idealization of Whiteness as a characteristic of racial identity development would predict more detrimental effects.

Without considering the proposed moderators of social comparison tendency, trait appearance evaluation, ethnic identity, and racial identity, the confluence between participant and model ethnicity did not significantly influence affect, self-esteem, or body image. However, after considering social comparison tendency, some evidence for the importance of ethnic similarity emerged: Increased social comparison tendency in Latina participants predicted increased negative affect after viewing Latina models but not after viewing ethnically self-different models or control images. This finding suggest

that, as predicted, perceived Latina women with a stronger tendency to use social comparison to models reported more negative affect after viewing models.

Despite the importance of this finding, it was the only results that supported the prediction that ethnic similarity between model and participant would differentially influence the effects of viewing thin models. One supposition for the lack of findings is that the ethnicity of fashion models is simply a secondary characteristic of what defines them. For example, ethnic minority individuals, which comprised 2/3 of the current study sample, may inherently view thin fashion models as belonging to and representative of Euro-American appearance ideals and values. Moreover, ethnic minorities are enormously under-represented in American media, generally, and in fashion media in particular (Botta, 2000; Perkins, 1996). When ethnic minority women are displayed in mainstream media, they are generally presented according to Euro-American appearance ideals—thin figure, straight hair, Euro-American facial features, light skin (Perkins, 1996)—as was done in the current study to mirror real-world model exposure. If thin ethnic minority models are not viewed as representing a self-similar cultural ideal or, more strongly, are thought to represent an ideal in direct opposition to the value system and appearance ideals of one's culture, racial and ethnically self-similar models may not be viewed as, in fact, similar. In other words, all thin-ideal models may be viewed as self-different because they represent Euro-American values and ideals of appearance, regardless of model race or ethnicity. Theoretically, if models of any race or ethnicity in the mainstream American media are inherent viewed as dissimilar to the self, the social comparison process would be influenced such that ethnic minority women



would be less likely to compare themselves to thin models or would be less likely to use the comparison information for self-evaluation. This hypothesis warrants further empirical exploration.

With regard to the prediction that exposure to ethnically different thin models would lead to detrimental effects while control images would have no effect, without including moderators no predicted effects emerged. After adding moderators, however, various effects for emerged. As predicted, trait appearance evaluation acted as a moderator of weight concern such that increased positive appearance evaluation predicted more positive feelings regarding one's weight after viewing models than before. This is in line with past research indicating that women with pre-existing body image problems are more adversely affected by viewing thin models (e.g., Hamilton & Waller, 1993; Hausenblas Janelle, Gardner, & Focht, 2004; Stice, et. al., 2001). Racial identity moderated the relationship between media exposure and weight concern such that, as predicted, increased idealization of Whiteness at the expense of one's own racial group predicted decreased positive feelings regarding one's weight after viewing Euro-American models in African-American and Latina participants.

Additionally, effects in unexpected directions emerged. Increased racial identity characterized by an idealization of Whiteness predicted more positive feelings about one's weight after viewing Latina models. One explanation for the increase in positive feelings about one's weight in African-American and Latina women after viewing Latina models is that there was an inspiration effect whereby increased social comparison tendency leads to downward social comparison. Despite prior research suggesting

detrimental effects on self-esteem and body image after acute exposure thin models (see Groesz et al., 2002 for a review), various studies have not found these damaging effects (e.g., Champion & Furnham, 1999; Cusumano & Thompson, 1997; Martin & Kennedy, 1993). Furthermore, under certain conditions, viewing thin models has predicted increased self-esteem and body confidence (Durkin & Paxton, 2002; Henderson-King, Henderson-King, & Hoffman, 2001; Mills, Polivy, Herman, & Tiggemann, 2002). Mills et al. (2002) explained this phenomenon by highlighting two separate social comparison processes: a negative contrast comparison and a positive inspiration effect in which participants identify with and deem themselves as meeting the ideal, and experience self-enhancement. Despite the fact that all models presented as stimuli were fashion models, deemed to be “beautiful” by society, participants may have experienced an increase in positive emotion after viewing African-American models due to a social de-valuation of Blackness. Future research could further investigate this hypothesis.

These findings also highlight the importance of considering moderators when examining the effects of viewing thin models. Without considering social comparison tendency, appearance evaluation, ethnic identity, and racial identity, few statistically significant results emerged implicating the importance of ethnic similarity between model and participant or the type of media images viewed (i.e., thin models of varied ethnic groups or control images). However, after considering these factors, effects for ethnic confluence between model and participant as well as for the differential effect of viewing models than viewing control images emerged. Given that all women living in mainstream American culture live in an environment riddled by thin models and that not

all women experience low self-esteem or body image, examination of factors that influence the effects of exposure to model images may be more meaningful than universal findings.

In addition to the findings discussed above predicting differential scores on affect, self-esteem, and body image after media exposure, predicted main effects emerged for ethnicity, social comparison tendency, and trait appearance evaluation. Participant ethnicity had a direct influence on self-esteem and body image, independent of media exposure such that African-American women reported significantly higher appearance-based self-esteem and more positive feelings about their weight and sexual attractiveness than Euro-American and Latina women. African-American women also reported significantly less body dissatisfaction than Latina women. Additionally, increased social comparison tendency was associated with decreased self-esteem and increased body image disturbance whereas increased positive trait appearance evaluation was significantly associated with increased appearance-based self-esteem, decreased body dissatisfaction, and increased feelings of sexual attractiveness. These findings are in line with past research indicating that African-American women report more self-esteem and less body image disturbance than Euro-American and Latina women (e.g., Abood & Chandler, 1997; Botta, 2000; Poran, 2002; White & Grilo, 2005) and that decreased self-esteem and body image disturbance are positively associated with increased social comparison tendency and negative appearance evaluation (e.g., Catterin, et. al., 2000; Heinberg & Thompson, 1992; Jones, 2001; Stormer & Thompson, 1996; Thompson & Heinberg, 1993).

Main effects for ethnic identity and racial identity also emerged for ethnic minority women. As predicted, increased ethnic identity was associated with increased appearance-based self-esteem and feelings of sexual attractiveness in African-American women. Additionally, racial identity characterized by idealization of Whiteness was associated with decreased positive feelings about one's sexual attractiveness in Latina and African-American women. These findings are congruent with past research indicating that, independent of media exposure, stronger ethnic identity predicts healthier body image (Schooler, et al., 2004) and increased racial identity predicts increased feelings of attractiveness (Makkar & Strube, 1995) in African-American women. This highlights the possible protective effect of ethnic identity in African-American women.

There are various limitations of this study that should be considered when interpreting these findings. Although eating disorder symptomatology and body image concerns in college-aged women are epidemic, all participants were undergraduates, which limits the generalizability of these findings to other ages and to clinical samples. Additionally, there were 2 methods of reimbursement for study participation: some participants were paid whereas others were given course credit. Although protocol was designed to have reimbursement be comparable (\$15 compensation or 3 hours course credit), differences in compensation for study participation could have influenced results. Third, although participants were randomly assigned to condition, they were obviously not assigned to ethnic group. This limits the ability to infer causality as participants were not completely randomly assigned. Finally, the number of analyses

conducted in the current data lead to inflation of family-wise error rate. Although significance of tests was adjusted for family wise error rates and effect sizes are reported throughout the manuscript, which gives an indication of both the statistical significance as well as the practical significance of findings, a total of 30 analyses were conducted which could have increased Type I error.

Despite these limitations, this study advances the field in various ways. To my knowledge, no study to date has examined the effects of viewing racially and ethnically different thin-ideal models on African-American, Latina, and Euro-American women. Given the diversity in the ethnic and racial make-up of individuals living in the United States and the world, it is critical not only to examine how Euro-American women respond to thin (presumably Euro-American/White) models, as has been investigated, but also to examine how ethnic minority women are or are not affected by viewing thin Euro-American models. Furthermore, despite the importance of increasing the representation of racial and ethnic minorities in mainstream fashion media, ethnic minority models are generally depicted according to Euro-American appearance ideals (Botta, 2000). As this occurs, it is also critical to understand whether ethnic minority women are differently affected by viewing perceived ethnically and racially self-similar models presented according to Euro-American appearance standards. Furthermore, this study examined how acceptance of and belonging to a racial and ethnic group can influence factors associated with eating disorder development, which has rarely been investigated in the field.

The results have various implications for clinical work. With regard to ethnicity, Latina women reported levels of self-esteem and body image comparable to those of Euro-American women. As data mounts suggesting that Latina women report similar rates of body image disturbance to Euro-American women as demonstrated in previous research and in the current study (e.g., Crago et al., 1996; Fitzgibbon et al., 1998; Miller et al., 2000; Poran, 2002), attention must be paid to proper evaluation and treatment of body image problems in Latina women. Additionally, all moderators tested had influential effects on self-esteem and body image, regardless of media exposure. Establishing a healthy, positive trait body image and discouraging women from comparing themselves to models portrayed in the media is important to preventing decreased levels of appearance-based self-esteem and body image disturbance in Euro-American, African-American, and Latina women. Various eating disorder prevention programs include psychoeducation about the media, or *media literacy* (e.g. Irving & Berel, 2001; Posavac, Posavac, & Weigel, 2001; Varnardo-Sullivan & Zucker, 2004), with results showing reduction the comparison tendency and reduced negative effects of viewing thin models. Furthermore, in African-American, a strong sense of ethnic identity was associated with more positive body image and, in African-American and Latina women, racial identity idealizing Whiteness was associated with decreased self-esteem and body image. Encouraging a strong sense of ethnic identity and racial identity in ethnic minority women may serve a protective function against general decreases in self-esteem and body image.

Results of the current study also offer various directions for future research. Although there were specific reasons for specifying both the race and ethnicity of models that participants viewed, future research may investigate whether there are differences in how race and ethnicity influence the social comparison process. Anecdotally, it became clear as I tried to tease apart race from ethnicity that the terms Latina and Hispanic are used interchangeably to describe race and ethnicity, whereas the terms White and Black clearly refer to race while Euro-American and African-American refer to ethnicity. Given the considerable general confusion regarding the terms race and ethnicity, the lack of adequate terminology to describe race and ethnicity in the Latina/Hispanic population adds to the confusion.

Furthermore, researchers have proposed that within ethnic and racial minority groups, skin color, hair texture, facial features and other racially-relevant appearance traits may influence the degree to which Euro-American beauty ideals influence women (Perkins, 1996). Researchers document that ethnic minority women, particularly African-American women, have been greatly influenced by Euro-American ideals and politics around race and physical attractiveness (Perkins, 1996). For example, Bond and Cash (1992) found that in a sample of African-American college females 53% would change their skin color if possible and the large majority identified that they would like to be lighter. Additionally, over 67% of women deemed to be of light to medium skin tone idealized lighter skin whereas less than 25% of women deemed to have dark skin idealized lighter skin. These racially-relevant features (e.g., skin tone, hair texture, facial

structure, appearance features) would be important to examine as moderators of exposure to thin models in ethnic minority women.

Examination of actual behavior when faced with model images, particularly with regard to eating behavior, may be important. Paradoxically, despite the rigidly thin mainstream American female ideal and skyrocketing diet industry, obesity rates are alarmingly high and continue to rise (Brownell & Horgen, 2003; Mokdad, et al., 2000). At present, obesity is estimated to cause 300,000 deaths a year in the United States (Must, et al., 1999) and more than 50% of all Americans are classified as overweight or obese (Flegal, Carroll, Ogden, & Johnson, 2002). Furthermore, as of 1998, prevalence rates of obesity in African-American and Latina individuals were 27.3% and 21.5%, respectively, which were higher than rates in Euro-Americans, estimated to be 17.7% (Mokdad, et al.). Examination of how viewing thin models and media images that focus on attaining the ideal appearance influence (e.g., weight loss advertisements, beauty products, plastic surgery) influence actual food consumption and weight gain will be important for future research (Strauss, Doyle, & Kreipe, 1994; Warren, Strauss, Taska, & Sullivan, 2005).

In conclusion, historically, eating disorders have been conceptualized as culture-bound syndromes, affecting only young, middle- to upper-class, Euro-American girls and women. However, there is increasing evidence that is not the case. In addition to a large body of literature finding differences in racial, ethnic, and cultural groups on eating disorder prevalence and symptomatology, some recent research also suggests that eating disorder symptoms do not differ as substantially as previously believed between ethnic



and racial group (Hebl, King, & Lin, 2004; Shaw, Ramirez, Trost, Randall, & Stice, 2004). Understanding the mechanisms by which race, culture, and ethnicity influence the social comparison process, mental health, and body image will be critical in preventing escalation of eating disorders in individuals of different racial and ethnic groups.

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## APPENDIX

Table 1

*Models Rated as “Latina” by Participant Ethnicity*

| Model ID | <u>Participant Ethnicity</u> |        |            |
|----------|------------------------------|--------|------------|
|          | Euro-Am                      | Latina | African-Am |
| 5        | 86%                          | 94%    | 85%        |
| 22       | 85%                          | 79%    | 80%        |
| 53       | 63%                          | 90%    | 50%        |
| 125      | 65%                          | 79%    | 35%        |
| 142      | 65%                          | 100%   | 60%        |
| 181      | 86%                          | 90%    | 70%        |
| 202      | 72%                          | 95%    | 60%        |
| 213      | 63%                          | 79%    | 55%        |
| 219      | 70%                          | 95%    | 45%        |
| 234      | 63%                          | 84%    | 60%        |

Note: The models listed on this table were rated as Latina with the highest percentage of agreement across participants. Model ID = model identification number, one of which was assigned to each model.



Table 2

*Mean Thinness and Attractiveness Ratings by Model Race and Participant Ethnicity*

| Variable              | Participant Ethnicity |            |                  |            |
|-----------------------|-----------------------|------------|------------------|------------|
|                       | Euro-American         | Latina     | African-American | <i>GM</i>  |
| <b>Thinness</b>       |                       |            |                  |            |
| Latina Models         | 2.59 (.43)            | 2.62 (.38) | 2.77 (.45)       | 2.62 (.43) |
| Black Models          | 2.64 (.36)            | 2.67 (.45) | 2.74 (.42)       | 2.66 (.39) |
| White Models          | 2.52 (.45)            | 2.63 (.44) | 2.74 (.58)       | 2.57 (.47) |
| <b>Attractiveness</b> |                       |            |                  |            |
| Latina Models         | 2.83 (.58)            | 2.75 (.57) | 2.60 (.47)       | 2.77 (.57) |
| Black Models          | 2.70 (.63)            | 2.89 (.52) | 2.68 (.78)       | 2.73 (.64) |
| White Models          | 2.81 (.61)            | 2.88 (.51) | 2.91 (.50)       | 2.84 (.58) |

*Note:* This table represents the combined thinness and attractiveness ratings of models by group. No significant overall differences existed on ratings of model thinness and attractiveness by participant ethnicity. *GM* = Grand mean.

Table 3

*Number of Participants Randomly Assigned to Condition by Ethnicity*

| Condition      | Participant Ethnicity |        |                  |
|----------------|-----------------------|--------|------------------|
|                | Euro-American         | Latina | African-American |
| White Models   | 23                    | 24     | 24               |
| Black Models   | 30                    | 28     | 28               |
| Latina Models  | 31                    | 24     | 27               |
| Control Images | 21                    | 32     | 32               |

*Note:* Condition = experimental condition

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