

ETHNIC DIFFERENCES IN THE EFFECTS OF MEDIA ON BODY IMAGE: THE
EFFECTS OF PRIMING WITH ETHNICALLY DIFFERENT OR SIMILAR MODELS

By

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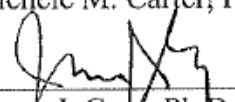
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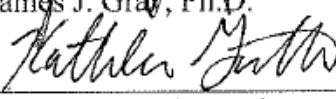
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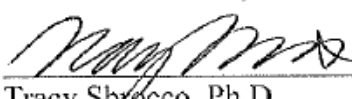
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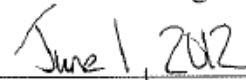

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ABSTRACT

Introduction

Many studies have demonstrated that media exposure is positively correlated with body dissatisfaction and eating disorder symptomatology. When women are exposed to photographs of thin, attractive women, they often experience an immediate decrease in body satisfaction. While body image concerns are common, African American and Caucasian women often differ and being African American has been found to be a protective factor in the development of body dissatisfaction.

Method

The current study seeks to understand how media impacts African American and Caucasian women. Participants were randomly assigned to one of four conditions, viewing ten advertisements showing 1) ethnically-similar thin models; 2) ethnically-different thin models; 3) ethnically-similar plus-sized models; and 4) ethnically-diverse plus-sized models. Following these exposures, body image was measured in each group to determine any differences that exist between groups. In general, this study hypothesized that African American women would have less body dissatisfaction than

Caucasian women and their body image would be less influenced by exposure to media images. For Caucasian women, thin models of either ethnicity would result in high levels of body dissatisfaction, but African American women would only have high body dissatisfaction when exposed to thin, ethnically-similar models.

Results

Analyses controlled for BMI as a potential confound. In this sample, the CDRS measured significant group differences in which African American women had less body dissatisfaction than Caucasian women. Ethnically-similar thin-model conditions did not elicit greater body dissatisfaction scores than ethnically-different thin models or plus-sized models and the ethnicity of the model did not impact the rating of body dissatisfaction for women of either race. There were no statistically significant differences amongst the African American women exposed to plus size versus thin models. However, there were differences in the Caucasian women whereby exposure to plus size models resulted in greater body dissatisfaction than exposure to thin models.

Discussion

The current study supports the existing literature suggesting that African American women experience less body dissatisfaction than Caucasian women even following exposure to an ethnically-similar thin model. Additionally, this study demonstrated that women exposed to plus size model conditions experienced greater body dissatisfaction than those shown thin models.

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INTRODUCTION

The Media's Relationship with Eating Disorders

While many factors have been demonstrated to contribute to the development and maintenance of eating disorders, the influence of mass media has received considerable attention (J. K. Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). In fact, the British Medical Association (2000) has concluded that “the media plays a significant role in the aetiology of eating disorders” that occur in the United Kingdom. Additionally, the American Psychological Association (2007) has made a statement that in the United States, “stressors in the lives of women and girls include... unrealistic media images of girls and women.”

Western culture and American mass media are promoting a “culture of thinness” in which women equate being thin to being successful and happy (Hesse-Biber, Leavy, Quinn, & Zoino, 2006). This “culture of thinness” in the media has resulted in thin models and an attention to dieting and fitness. The media presents an ultra thin body as normal and achievable for women (Warren, Gleaves, Cepeda-Benito, del Carmen Fernandez, & Rodriguez-Ruiz, 2005). In fact, the body is mistakenly seen as malleable which implies that anyone can obtain a thin ideal if the right combination of diet, exercise, and self-control is employed (Walcott, Pratt, & Patel, 2003). However, portrayals of women in mainstream media are thinner than the actual female population (Fouts & Burggraf, 2000) and actually so thin that many of the models would meet the

weight requirement for anorexia (Wiseman, Gray, Moismann, & Ahrens, 1990).

Therefore, it could be argued that the thin ideal presented in the media may not be attainable for the average woman. The increased media attention on thin as an ideal could lead women to desire an ultra thin body type that for most women is exceedingly difficult or impossible to obtain. If women want a body that they cannot achieve, they may experience increased body dissatisfaction and thus lower self-esteem which could result in disordered eating.

Thin Ideal as Presented in Media

While the media is comprised of a variety of outlets, women's beauty magazines are a form of print media that heavily emphasize a thin ideal (Morry & Staska, 2001). Cusumano and Thompson (1997) have demonstrated that mainstream American magazines present visual images that are skewed toward thinness with the average woman pictured in 33 different magazines rated as a 2.87 on the Contour Drawing Rating Scale (CDRS, M. A. Thompson & Gray, 1995). An image rated as a 3 depicts a woman whose ribcage is visible and whose thighs do not touch. In fact, it has been suggested that the models are so thin that it is almost impossible for the vast majority of women to achieve that which is presented as ideal without resorting to extreme measures (J. K. Thompson & Heinberg, 1999).

Immediate Effects of Media Exposure

When women are exposed to photographs of thin, attractive women, they often experience an immediate decrease in body satisfaction (Groesz, Levine, & Murnen, 2002; Grogan, Williams, & Conner, 1996; Halliwell & Dittmar, 2004; Irving, 1990). Irving (1990) randomly assigned 162 college women into four exposure groups: exposure to

thin fashion models, exposure to models of average weight and attractiveness, exposure to oversized fashion models, and a no-exposure control group. Subjects were told that they were participating in a study on successful advertising and were asked to fill out a series of ratings for advertisements to which they were exposed. The subjects were then asked to participate in an additional study where they filled out self- and body-esteem measures. Irving found that following exposure to thin models, subjects exhibited lower levels of self-esteem than subjects exposed to either average or oversized models.

A meta-analysis demonstrated that body dissatisfaction for women is significantly lower after viewing thin media images than after viewing media images of average size models, neutral images without women, or of overweight models (Groesz, et al., 2002). Therefore, it is often speculated that the change in body satisfaction is due to seeing thin women in magazines, not due to simply looking at the magazines or looking at attractive women. An additional meta-analysis used more current research and demonstrated that exposure to the thin ideal body is related to body image concerns for women with a small effect size (Grabe, Ward, & Hyde, 2008). The present study will attempt to replicate these findings within an ethnically diverse sample.

Ethnic Differences in Body Image

Body image is one area where African American and Caucasian women often differ. Being African American has been found to be a protective factor in the development of body dissatisfaction among adolescent females (Paxton, Eisenberg, & Neumark-Stzainer, 2006). Some have hypothesized that this protective factor results from less pressure for thinness being applied in their culture (Gluck & Geliebter, 2002; White, Kohlmaier, Varnado-Sullivan, & Williamson, 2003). In fact, when adolescent

girls were asked to describe the “ideal girl,” Caucasians described a 5’7” girl of 100-110 pounds. Conversely, African Americans deemphasized external physical beauty and highlighted personality and a sense of style (which is modifiable whereas height is not) instead (Parker, et al., 1995). While the protective benefits of being African American on body image is not entirely understood, researchers have found that the larger body size ideal in the African American culture (Freedman, Carter, Sbrocco, & Gray, 2004) is more consistent with women’s natural shape (Paxton, et al., 2006). Therefore, the extent of departure from the body shape ideal is likely to be less, offering protection against increases in body dissatisfaction.

Additionally, it has been said that African American women have a healthier and more favorable body image (Schooler, Ward, Merriwether, & Caruthers, 2004; White, et al., 2003). Several studies have shown that Caucasian women experience greater body dissatisfaction (Altabe, 1998; Barry & Grilo, 2002; Cash, Morrow, Hrabosky, & Perry, 2004; P. C. Evans & McConnell, 2003; Miller, et al., 2000; Millstein, et al., 2008; Nielsen, 2000; Parker, et al., 1995; Wildes, Emery, & Simons, 2001) than African American women. When a middle-aged sample of women is taken, however, the findings on body dissatisfaction are mixed. Some researchers have reported that amongst middle-aged women, Caucasians are more dissatisfied with their body appearance than are African American women (Reboussin, et al., 2000; Wilfley, et al., 1996) while other research (Bagley, Character, & Shelton, 2003; Marcus, Bromberg, Wei, Brown, & Kravitz, 2007) has found that body dissatisfaction was not different between these middle-aged groups. No studies, however, have noted that African American middle-aged women have worse body dissatisfaction than Caucasian women.

It is interesting to note that while research demonstrates that Caucasian women experience greater body dissatisfaction, a meta-analysis by Roberts, Cash, Feingold, and Johnson (2006) suggests that the difference is shrinking. There are two possibilities to explain why ethnicities are converging. Either African American women's body dissatisfaction is becoming higher, or Caucasian women's body image is becoming better. Since 1995, body satisfaction has been improving among both African American and Caucasian women (Cash, et al., 2004). Roberts and colleagues (2006) have then postulated that the smaller differential between the body images of Caucasian and African American women is due to a sharper increase in Caucasian women's body satisfaction. Speculations have been made that this increase in body image over time is due to the fact that there are more overweight women in society (Flegal, Carroll, Ogden, & Johnson, 2002). A heavier society gives women a point of comparison (very different from that in the media) that normalizes heaviness and creates higher body satisfaction in women (Cash, et al., 2004).

African American women also have been shown to have a larger body ideal than Caucasian women (Dounchis, Hayden, & Wilfley, 2001; Gluck & Geliebter, 2002; Wildes, et al., 2001) which may be a protective factor for body image dissatisfaction. This preference for a larger body type among African American women may be a result of the finding that Caucasian adolescent females have higher levels of awareness and internalization of a thin ideal than their African American classmates (L. S. Abrams & Stormer, 2002). A study by Aruguete, Nickleberry, and Yates (2004) showed that Caucasian participants (the majority of whom were women) desired to have a smaller body type than what they considered to be healthy whereas African American

participants (the majority of whom were women) desired a body type that was congruent with what they considered to be healthy. Caucasian women tend to report being overweight in comparison to their ideal body while African American women tended to report being underweight in contrast to the body ideal of their ethnic group (Perez & Joiner, 2003). Further, Caucasian women have been shown to harbor more negative attitudes about being overweight (Wilfley, et al., 1996) and are more likely to miscategorize themselves as being overweight than African American women (Gluck & Geliebter, 2002; Logio, 2003). Along those lines, Caucasian women are more likely to think that they're heavier than their best friend than African American women (Wilfley, et al., 1996). Additionally, studies have demonstrated the African American men prefer larger women than their Caucasian counterparts (Freedman, Carter, Sbrocco, & Gray, 2007; Greenber & LaPorte, 1996; Powell & Kahn, 1995). These findings when taken together are consistent with the idea that women of all ethnicities can experience body dissatisfaction but Caucasian women are more predisposed toward a drive for thinness whereas the heavier ideal in African American culture predisposes African American women for obesity (Lovejoy, 2001).

A study of adolescent females found that Caucasians had greater body dissatisfaction than their African American classmates and that their dissatisfaction increased more sharply with increasing BMI (Striegel-Moore, et al., 2000). These findings must be considered in relation to the higher prevalence of obesity in African American populations. The Centers for Disease Control recently reported that 53.4% of African American women in the US are obese whereas only 31.6% of Non-Hispanic Caucasian women are obese (Pleis & Lethbridge-Cejku, 2007). These differences also

exist when examining overweight women where 38.0% of non-Hispanic Black women are overweight and only 26.9% of non-Hispanic White women are overweight. One possible contributing factor to the differential rates of obesity between ethnic groups is that African American women's body satisfaction is less impacted by their BMI and are thus less motivated to diet or engage in weight-loss activities for body image concerns even when it would be healthiest to do so.

African American Women and the Media

African American women appear in only 2-3% of mainstream magazine advertisements (Bowen & Schmid, 1997). A content analysis of popular teen magazines (*Seventeen*, *Sassy*, and *YM*) demonstrated that 65% of the images were of Caucasian women and even Caucasian men were three times more common than non-Caucasian women (E. D. Evans, Rutberg, Sather, & Turner, 1991). While mainstream media has been frequently criticized for the thin women portrayed in the magazines, *Essence*, the fashion magazine targeted to African American women with the highest circulation rate (*Market Share Reporter*, 2009), has received accolades and a media award for its more realistic portrayals of a variety of body shapes in women (Chambers, 1995). In fact, an unpublished study by Siervo-Lubian (2004) demonstrated that cover models of issues of *Cosmopolitan* (a mainstream fashion magazine) from 1970 to 2001 ranged between 2.25 and 3.5 on the CDRS whereas cover models of *Essence* between the same years ranged between 3.0 and 4.75. While the *Essence* models still range within the smaller half of possible scores on the CDRS, the range is wider as well as representing a larger body size. Therefore, African American media consumers have a wider range of acceptable body types being modeled for them than Caucasian women do.

Studies have suggested that African American females are not negatively impacted by mainstream media portrayals because they do not compare themselves to the predominately Caucasian images (Duke, 2000, 2002; Milkie, 1999; Schooler, et al., 2004) and are not as concerned with the “ideal girl” that is portrayed in it as Caucasian girls (Parker, et al., 1995). This speculation coincides with the fact that African American women appearing in the media are not as thin as the Caucasian women appearing in the media. In fact, qualitative studies by Duke (2000, 2002) have reported that the African American subjects reported that they did not find the thin Caucasian models to be attractive. In fact, while Caucasian adolescents reported that the models represented perfection, the African American adolescents said that the models were “sick looking” (Duke, 2000, p. 379). Duke concluded that the African American females had a “more realistic, inclusive view of the female physical norm” (Duke, 2000, p. 385). While Duke believed that the African American subjects had a more realistic view, the results of her study could also be a manifestation of the greater acceptance of obesity within in the African American community (Lovejoy, 2001).

This phenomenon appears to extend beyond adolescence. In a study of college-aged women, Evans and McConnell (2003) found that African American women rated a Caucasian model (blonde, blue-eyed) as above average attractiveness, but found the model significantly less attractive than the Caucasian women sampled did. In fact, in viewing yearbook photographs of racially diverse women of above average attractiveness, African American women only viewed the photographs of African American women as favorable and viewed the photographs of women of other races to be less attractive than Caucasian women did. Caucasian women viewed all photographs of

women of above average attractiveness to be favorable regardless of race. Evans and McConnell thus concluded that while Caucasian females socially compare themselves to all attractive females, African American women only make social comparisons to other African American women.

No study to date has examined African American body esteem following exposure to thin African American models. Since African American women appear to only compare themselves to others of their ethnicity (P. C. Evans & McConnell, 2003), statements about media impact on body esteem cannot be made within this population without having a study which exposes African American women to African American images. The present study will attempt to manipulate the ethnicity of models presented to African American and Caucasian subjects to examine how model ethnicity impacts the subject's body dissatisfaction. While previous research suggests that African American women's body image will not be impacted by exposure to Caucasian models, it is unclear how their body image will react to exposure to African American models. The present study will be the first to examine differences in body image following exposure to African American models.

Confounds

Ethnic Identity

Nielsen (2000) has speculated that the more an African American female identifies with Caucasian culture, the more likely she is to be dissatisfied with her weight or develop an eating disorder. Some studies have reported that women who identify mainly with the dominant culture (Caucasian-oriented culture) report higher body dissatisfaction (K. K. Abrams, Allen, & Gray, 1993). Abrams, Allen, and Gray further

demonstrated that the African American women who rejected their African American identity were more likely to engage in disordered eating behaviors.

Conversely, African American women with a strong ethnic identity have fewer negative thoughts about their bodies (Schooler, et al., 2004). Whereas African American women who have ethnically diverse friends (therefore perhaps a weaker sense of belonging to the African American social group) demonstrate higher levels of awareness of and internalization of the thin ideal (L. S. Abrams & Stormer, 2002). In general, African American individuals have been shown to have stronger ethnic identities than Caucasian individuals (Phinney, 1992). Since one group of interest for this study (African American women) is more likely to be impacted by ethnic identity than the other group (Caucasian women), the present study will measure and control for ethnic identity.

Socioeconomic Status

Socioeconomic status (SES) has been found to be found a more dominant predictor of eating disorders than race (Andersen & Hay, 1985). In a five-year longitudinal study, socioeconomic status inversely predicted body dissatisfaction (Paxton, et al., 2006) in middle adolescent girls. In other words, girls with lower socioeconomic status, experienced an increase in body dissatisfaction expected over adolescence. This body dissatisfaction was not defined, however, as a desire to gain or lose weight. This is important because Abell and Richards (1996) found that the higher a female's SES, the bigger body size she desires. On the other hand, a reverse finding was found in a large-scale (N = 1,126) randomized study which showed that low SES girls aged six to 19 were more likely to report being 'too thin' than middle/high SES girls (O'Dea & Caputi, 2001). Correspondingly, 12% of low SES girls were trying to gain

weight while only 3% of middle/high SES girls endorsed similar behaviors. O'Dea and Caputi also demonstrated that only the middle/high SES girls became more dissatisfied with their appearance in the older age group (ages 12-19) than in the younger group (ages 6-12) whereas low SES girls body image remained stable or got stronger in the older group. In fact in women aged 30 to 64, high socioeconomic status has been shown to be associated with a high frequency of weight reduction attempts (Jalkanen, Tuomikehto, & Tanskanen, 1986). As a result of these findings, the present study will control for socioeconomic status.

Global Self-Esteem

High global self-esteem predicts an increased body satisfaction among adolescent girls (Paxton, et al., 2006). Adversely, Shea and Pritchard (2007) found that among women, self-esteem is the primary predictor of drive for thinness and body dissatisfaction when compared to other constructs thought to be associated with body dissatisfaction such as self-controlling, social support, perfectionism, and stress. In college women, lower global self-esteem is correlated with higher levels of body surveillance, body shame, self-ideal discrepancies, and physical dissatisfaction (Lowery, et al., 2005).

Additionally, global self-esteem has been shown to moderate the effects of social comparison on body esteem (Jones & Buckingham, 2005). Jones and Buckingham exposed subjects to photographs of attractive or unattractive females. They found that women with low self-esteem had higher body esteem after viewing photographs of unattractive women than after being exposed to attractive women. On the other hand, women with high self-esteem showed lower body esteem after exposure to unattractive female photographs than after viewing attractive females.

Caucasian females are more likely to base their self-esteem on body factors than African American females (White, et al., 2003). In fact, fluctuations in body esteem are more closely associated with changes in self-esteem in Caucasian women than in their African-American counterparts. Further, African American females have a higher self-esteem than Caucasian females which may act as a protective factor against body image concerns and eating disorders (K. K. Abrams, et al., 1993; Crago, Shisslak, & Estes, 1996; P. C. Evans & McConnell, 2003; Johnson, et al., 2004; Wilfley, et al., 1996). Since self-esteem is often implicated in the development and maintenance of body image issues, can impact one's reaction to media exposure, and African American women are frequently demonstrated to have higher levels of self-esteem, the present study will measure and control for self-esteem.

Depression

Depression symptoms have consistently been demonstrated to correlate with disturbed eating behaviors and cognitions (e.g., Killen, et al., 1987) as well as decreased body esteem (Fabian & Thompson, 1989). However, when this correlation was examined in a longitudinal study with a four year follow-up of 1,042 high school girls, it was shown that after controlling for initial depressive symptoms, elevated levels of body dissatisfaction, dietary restraint, and bulimic symptoms predicted major depressive disorder (Stice, Hayward, Cameron, Killen, & Taylor, 2000). Despite the fact that body image concerns appear to contribute to depressive symptoms, it has not been ruled out that there is a cyclical pattern. Therefore, depressive symptoms could additionally worsen one's body image. As a result, the present study will measure depressive symptoms.

Body mass

Body mass index (BMI) is the most reliable correlate of body dissatisfaction (Paxton, et al., 2006). It is thought that in our culture where “thin is in,” having a large body size is discrepant with the ideal, therefore those with a high BMI are vulnerable to body dissatisfaction (J. K. Thompson, et al., 1999; Wertheim, Paxton, & Tilgner, 2004). In fact, it appears as though BMI is not only correlated with body dissatisfaction, but may be a precursor to it. Initial BMI has been shown to positively predict an increase in body dissatisfaction over a five-year course of adolescence in girls (Paxton, et al., 2006).

Hypotheses

The current study will present African American and Caucasian women with photographs of ethnically-similar or ethnically-different models of either a thin body type or a plus-sized body type. After exposure to the images, the women will be assessed for their body dissatisfaction. As indicated in Table 1, it is hypothesized that:

- 1) African American women will have less body dissatisfaction across categories than Caucasian women.
- 2) Ethnically-similar thin-model conditions will elicit the greater body dissatisfaction scores from women of both ethnicities than ethnically-different thin models or plus-sized models.
- 3) Caucasian women will have more body dissatisfaction when exposed to thin-models despite ethnicity of the model (in comparison to plus size models), but African American women will not be impacted by ethnically-different thin-models.
- 4) The plus-sized model condition will not adversely impact the body image of the women of either ethnicity as other studies have shown that the plus-size model

condition has no effect (Irving, 1990). This condition is included in the study as a control condition.

Table 1. Hypothesized Changes in Body Image Based on Exposure Condition.

	Thin Caucasian model	Plus-sized Caucasian model	Thin African American Model	Plus-sized African American model
Caucasian participant	Highest body dissatisfaction	Average body dissatisfaction	Higher body dissatisfaction	Average body dissatisfaction
African American participant	Higher body dissatisfaction	Average body dissatisfaction	High body dissatisfaction	Average body dissatisfaction

METHOD

Participants

The participants were 202 women (102 Caucasian, 100 African American) recruited through advertisements in the Washington Post, postings on Craigslist (and other similar websites), advertisements and postings on Facebook, emails, and flyers distributed to supermarkets and community bulletin boards. Inclusion criteria for the study included females between ages of 18 and 45 self-identifying as African American or Caucasian. Completion of at least 10th grade or a GED was required for reading level information as the reading level of the Eating Disorders Inventory is listed as “adolescent to adult”.

Materials

Images

Advertisements were taken from magazines such as InStyle and Essence and online publications. Some of the images used were not advertisements, so an advertisement was created using the image. Five independent judges rated the attractiveness of the models on a likert-type 10-point scale ranging from not at all attractive to very attractive. We attempted to use only models of equivalent attractiveness to models in other conditions. However, the raters consistently rated the plus-sized models as less attractive than the thin models. We used the plus-sized models

that were deemed to be the most attractive and thin models that were deemed to be the least attractive in order to try to equalize the playing field. The independent judges did not distinguish real advertisements from the advertisements created for this study. The study used ten thin African American models, ten thin Caucasian models, ten plus-sized African American models, and ten plus-sized Caucasian models. Ten advertisements featuring models were used to prime for either a thin-ideal condition or a control condition (plus size) because a meta-analysis of thin media images effect on body satisfaction suggests that expanding the number of media presentations beyond ten may lead to less of an effect on body image (Groesz, et al., 2002).

The independent judges also rated the models used in this study prior to the beginning of the study using the Contour Drawing Rating Scale (CDRS, M. A. Thompson & Gray, 1995). Only models who averaged a rating between 2.0 and 3.1 on the scale were selected for the thin model condition. Only models unanimously rated a 6.5 or higher on the scale were used for the plus-size condition. Appendix A contains information on the rating of all models.

Post-hoc examination of the images revealed that there were differences between groups on facial expressions. Two judges determined that the plus-size models were more likely to be smiling or exhibiting positive emotions than the thin models which were more likely to have “neutral” facial expressions frequently described by the judges as seductive. When given an opportunity to comment on the images, observers noted that the thin models were also more likely to be in “contorted” positions whereas the plus size models were more likely to standing in a position that seemed more natural. It was speculated that the plus size models seemed more congruent with observers impressions

of the “girl next door” whereas the thin models did not come across as appealing due to their facial expressions and contorted body positions. Unfortunately, by attempting to use images actually provided in the media, it appears as though there may be several potential differences between the groups aside from simply body size.

Scale

The first nine participants completed the study in person, so their height and weight were obtained using a standardized, calibrated scale as well as a on-wall measuring devise. And the BMI calculations were based on these measurements. The remaining 193 participants self-reported their height and weight and their BMI was calculated based on this self-report. Previous researchers have demonstrated that self-reported height and weight tend not to vary too far from the actual height and weight (Bowman & DeLucia, 1992) though there is large individual variability in reporting (Gorber, Tremblay, Moher, & Gorber, 2007).

Measures

Body Satisfaction

The Contour Drawing Rating Scale was used to assess body dissatisfaction. CDRS contains nine silhouettes of body shapes progressing in size with 1 being the thinnest and 9 being the heaviest. Subjects are asked to select their ideal body size as well as rating their currently body on the scale. The discrepancy between the two ratings is a measure of body dissatisfaction. The CDRS has an acceptable test-retest reliability from one to 14 weeks (M. A. Thompson & Gray, 1995; Wertheim, et al., 2004) in young adolescent to young adult women. Previous research has used the CDRS on racially diverse groups by obscuring the face and hair as they are particularly Caucasian

(Frederick, Forbes, & Berezovskaya, 2008). This study did the same by putting opaque boxes over the heads of the figures. Previous research has shown that within an African American population in the US, the ideal body size rating is 4.38 (Patel & Gray, 2001). This is larger than in a US sample without any ethnic information given where the ideal was rated as a 3.4 (Frederick, et al., 2008). Additionally, the CDRS has been demonstrated to be strongly related to the Drive for Thinness subscale on the Eating Disorders Inventory (Wertheim, et al., 2004) as well as the Disordered Eating Questionnaire (Lombardo, Russo, Lucidi, Iani, & Violani, 2004).

Ethnic Identity

The 14-item Ethnic Identity scale from the Multigroup Ethnic Identity Measure (MEIM, Phinney, 1992) was used in the present research in order to control for the potential confound of ethnic identity as it may impact African American women differently than it impacts Caucasian women. The items are rated on a four-point scale ranging from “strongly disagree” to “strongly agree.” On this scale, high scores indicate a strong ethnic identity or a strong identification with one’s ethnic group. This measure has a reported internal consistency reliability of 0.90 in college students (Phinney, 1992), and 0.91 in a community sample (Beadnell, et al., 2003). Internal consistency has been demonstrated to be similar in White (0.87) and African American (0.86) study participants (Avery, Tonidandel, Thomas, Johnson, & Mack, 2007). Within this sample, internal consistency scores were similar with an overall internal consistency of 0.89. African American participants demonstrated an internal consistency of 0.86 while Caucasian participants had an internal consistency of 0.80. MEIM allows subjects to self-identify the ethnic label that they use for themselves with an open-ended question.

The Ethnic Identity measure of the MEIM was designed to measure three components of ethnic identity: positive ethnic attitudes and sense of belonging, ethnic identity achievement, and ethnic behaviors/practices. On average, Black college students have a significantly higher ethnic identity scores ($M = 3.46$) than White students ($M = 3.07$, $p < 0.001$) in Phinney's original sample (Phinney, 1992).

Socioeconomic Status

Two questions were included in the demographics questionnaire to assess yearly household income and annual personal income which were used as a proxy of socioeconomic status (SES).

Self Esteem

The Rosenberg Self-Esteem Scale (RSE, Rosenberg, 1965) is a widely-used global measure of one's perception of self-worth and self-acceptance (Demo, 1985). It does not contain any items related to body-esteem, so allows for a more appropriate control measure since it measures a construct separate from body image issues (Abell & Richards, 1996). The items are rated on a four-point Likert-type scale ranging from "strongly agree" to "strongly disagree." On the RSE, higher scores represent lower self-esteem. The RSE has been shown to be highly correlated with other self-report measures of self-esteem (Demo, 1985). The RSE's validity as a measure of experienced self-esteem was substantiated by confirmatory factor analysis by Demo. Previous studies have demonstrated good to excellent internal consistency across different cultures on this scale (Tissot & Crowther, 2008). While no psychometric studies have been published on the RSE with primarily African American samples, studies with African American subjects have reported internal consistency levels from 0.74 to 0.87 (Hatcher, 2007). The

present study showed strong internal consistency for the overall sample (0.90), the African American participants (0.90), and the Caucasian participants (0.89). Test-retest reliability has been shown to be acceptable for up to 10 weeks (Chabrol, Rousseau, & Callahan, 2006). The RSE was used to control for differences in self-esteem that may occur between ethnic groups when comparing their body dissatisfactions.

Eating Disorder Symptomatology

The Eating Disorders Inventory Third Edition Referral Form (EDI-3, Garner, 2004) was couched in the present research as a personality measure. The EDI-3 is a 25 item measure that uses a six-point Likert-type scale. The measure breaks down into 3 scales: Drive for Thinness, Bulimia, and Body Dissatisfaction. Two of these subscales (Drive for Thinness and Body Dissatisfaction) were used to control for initial differences in between groups. Internal consistency scores are 0.85 and 0.91 for Drive for Thinness and Body Dissatisfaction, respectively in the original sample (Garner, Olmstead, & Polivy, 1983). In the current study, internal consistency scores are 0.88 and 0.89, respectively. Additionally, test-retest reliabilities have been demonstrated to be 0.92 and 0.97 for each of these subscales, respectively (Wear & Pratz, 1987).

Depression

The Centers for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1977) was used to measure depression levels in this study. It is a 20 item measure which asks participants to rate the severity of a variety of symptoms associated with depression. This scale has been widely validated and has shown that the factor structures are consistent across ethnic groups (R. E. Roberts, 1980; Shafer, 2005) and has demonstrated to have equal predictive validity for a Major Depressive Disorder diagnosis across ethnic

groups (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). Internal consistencies in the present study were high for the overall sample (0.90), African American participants (0.92), and Caucasian participants (0.88).

Manipulation check

A 10-item manipulation check was designed for this study. Participants were instructed to look at a list of possible factors that were important to the purpose of the study. They were asked to indicate how important they believed each of the factors was to the study on a scale from 1-10 where 1 indicated “not at all important” and 10 indicated “extremely important.” In indicating the importance of items to the purpose of the study, we were able to determine whether or not they believed that body image was an important aspect of the current study. The possible factors included were: personality, item being advertised, consumer preferences, attractiveness of the advertisement, attractiveness of the model, body size, mood, body image, facial expression of the model, and ethnicity.

Procedure

The current study modified the methodology used by Mills, Polivy, Herman, and Tiggeman (2002). The experiment was advertised as a market research study. Participants were either seated at a large table with space for several documents in a research laboratory or completed the study online. Participants read and signed an informed consent prior to the start of the study. The participants received all of the measures with the exception of the CDRS at the beginning of the study in a previously determined randomized order.

Each participant then received ten laminated full-page color advertisements or ten online images which were designed to be large enough to fill the screen featuring one woman or were shown the same images on their computer screens. Participants could only view one image at a time which were presented in a randomized order. Blocking by participant race, participants were randomly assigned to one of four conditions, viewing 1) ten advertisements showing ethnically-similar thin models; 2) ten advertisements showing ethnically-different thin models; 3) ten advertisements showing ethnically-similar plus-sized models; or 4) ten advertisements featuring ethnically-different plus-sized models. Previous research has successfully primed subjects by exposure to thin images (e.g., Birkeland, et al., 2005). The plus-size condition was used as the control condition because previous research has shown that exposure to plus-sized models does not differentially impact body image similar to neutral images such as landscapes (Grogan, et al., 1996; Irving, 1990).

While the participants examined the advertisements, they were presented with a bogus Consumer Response Questionnaire (CRQ) previously used in a study by Mills, Polivy, Herman, and Tiggemann (2002). The CRQ was used for each advertisement so that the participants examined and rated each image they were presented with. The CRQ asked the participants to rate the overall attractiveness of the advertisement and the model (if applicable), the extent to which they are similar to the model in the advertisement, the effectiveness of the advertisement in making them want to purchase the product, the age group to which the advertisement would appeal, and how good the advertisement made them feel. The CRQ was used to enhance the credibility of the cover story that this is a market research study but did not produce data to be analyzed.

Once the advertisements had all been rated, the participants were given an opportunity to “complete a few brief questionnaires for another researcher”. Only the 202 participants who agreed to continue in this “second study” were included in the final analyses. They were presented with the CDRS and asked to rate their current body, their ideal body, and their perception of the average American woman’s body. Perception of the average American woman’s body was included for exploratory analyses as no studies to date exist examining this variable. Next, weight and height were collected.

A manipulation check was then performed in which all of the participants were asked to select from a forced choice questionnaire about the purposes of the study. The participants were then debriefed and compensated for their time and effort (either by lottery or by \$7 in the form of an e-gift card).

The proposed experiment followed a block design where participants were stratified by their ethnicity (Caucasian or African American). Each block then underwent randomization to each comparison group (Caucasian thin models, Caucasian plus-size models, African American thin models, and African American plus-size models).

RESULTS

Participants

Recruitment

Two-hundred and forty-one women contacted the researcher regarding the study during active recruitment expressing interest in participating in the study of which 232 qualified for the study and were assigned participant numbers. Six of those who were initially disqualified were deemed not eligible for the study due to their age (e.g., over 45 years old), two were disqualified because they did not identify as African American or Caucasian (they both identified as biracial), and one was disqualified due to education level (i.e., less than a 10th grade level).

Of the 232 women assigned a participant number, 18 women never began the study and were deemed uninterested after three reminder emails or calls were placed to them without receiving a response. Screening information included age, race, and highest level of education. When the 18 women who did not begin the study after they were assigned a participant number were compared to the women who began the study, there were no significant differences in age or level of education. However, an independent t-test demonstrated that there was a significantly larger percentage of African American women who did not begin the study ($t(230) = -2.281, p = 0.023$) with only four Caucasian women not completing the study while 14 African American women did not complete. It is unclear how or if this contributed to the findings of the current

study, but the difficulties faced in recruiting African American participants is in line with numerous researchers who have cited similar struggles (Huang & Coker, 2010). While the present study attempted to recruit and provide informed consent in a sensitive manner, it is possible that there was a higher level of cultural distress about research in our African American sample than our Caucasian one.

Incomplete participation

An additional 12 women opted out of the “second study” which measured their post-exposure body dissatisfaction, so their data was not used. Independent samples t-tests were run to test for differences between the groups. T-tests were used despite the size differences between the two samples because it is a robust test which can be used without assuming equal variances between the two samples. All reported statistics do not assume equal variance. Significant differences were not found on any of the demographic variables with the exception of education level with the women excluded from the study reporting a lower level of education than the completers ($t(12.999) = -2.416, p = 0.031$). Additionally they did not significantly differ on the composite scores of any of the scales used to measure confounding variables (i.e., CES-D ($t(9.667) = 0.359, p = 0.728$), RSE ($t(7.809) = 0.822, p = 0.435$), MEIM ($t(7.572) = 0.469, p = 0.652$), EDI-DT ($t(9.006) = -0.322, p = 0.755$), EDI-B ($t(8.160) = 0.555, p = 0.594$, or EDI-BD ($t(7.589) = -0.094, p = 0.928$)).

Demographics

There were 202 final participants. One-hundred of the participants self-identified as African American while the remaining 102 self-identified as Caucasian. The majority (55.9%) of the participants reported that they were single, and 21.3% reported that they

were married. The mean age of the participants was 30 years old (31 for African American participants and 29 for Caucasian women). The participants reported a wide range of personal incomes and household income. The majority (75.2%) of the sample had at least a Bachelor's Degree. See Table 2 for more demographics.

Table 2. Demographics.

	<u>African American</u>	<u>Caucasian</u>
	<u>N (%)</u>	<u>N (%)</u>
<u>Marital Status</u>		
<i>Cohabiting</i>	9 (9.0%)	20 (19.6%)
<i>Divorced</i>	6 (6.0%)	6 (5.9%)
<i>Married</i>	11 (11.0%)	32 (31.4%)
<i>Separated</i>	3 (3.0%)	1 (1.0%)
<i>Single, never married</i>	71 (71.0%)	42 (41.2%)
<i>Widowed</i>	0 (0.0%)	1 (1.0%)
<u>Age</u>		
<i>18-25</i>	25 (25%)	34 (33.3%)
<i>26-30</i>	19 (19%)	38 (37.3%)
<i>31-35</i>	32 (32%)	14 (13.7%)
<i>36-40</i>	13 (13%)	9 (8.8%)
<i>41-45</i>	11 (11%)	7 (6.9%)
<u>Personal Annual Income</u>		
<i>>\$10,000</i>	8 (8.0%)	25 (24.5%)
<i>\$10,000-19,999</i>	10 (10.0%)	12 (11.8%)
<i>\$20,000-29,999</i>	11 (11.0%)	13 (12.7%)
<i>\$30,000-\$39,999</i>	14 (14.0%)	13 (12.7%)
<i>\$40,000-49,999</i>	13 (13.0%)	12 (11.8%)
<i>\$50,000-59,999</i>	9 (9.0%)	12 (11.8%)
<i>\$60,000-69,999</i>	8 (8.0%)	4 (3.9%)
<i>\$70,000-79,999</i>	12 (12.0%)	4 (3.9%)
<i>\$80,000-89,999</i>	6 (6.0%)	2 (2.0%)
<i>\$90,000-99,999</i>	2 (2.0%)	2 (2.0%)
<i>\$100,000-149,999</i>	7 (7.0%)	2 (2.0%)
<i>\$150,000-249,999</i>	0 (0.0%)	1 (1.0%)
<u>Household Annual Income</u>		
<i>>\$10,000</i>	2 (2.0%)	5 (5.0%)
<i>\$10,000-19,999</i>	3 (3.0%)	8 (8.0%)
<i>\$20,000-29,999</i>	7 (7.1%)	9 (9.0%)
<i>\$30,000-\$39,999</i>	9 (9.1%)	8 (8.0%)
<i>\$40,000-49,999</i>	11 (11.1%)	4 (4.0%)
<i>\$50,000-59,999</i>	9 (9.1%)	16 (16.0%)

\$60,000-69,999	7 (7.1%)	10 (10.0%)
\$70,000-79,999	13 (13.1%)	6 (6.0%)
\$80,000-89,999	10 (10.1%)	7 (7.0%)
\$90,000-99,999	7 (7.1%)	6 (6.0%)
\$100,000-149,999	15 (15.2%)	13 (13.0%)
\$150,000-249,999	4 (4.0%)	5 (5.0%)
≤\$250,000	2 (2.0%)	3 (3.0%)
Missing	1	2
Highest Level of Education		
<i>Less than High School</i>	1 (1.0%)	1 (1.0%)
<i>High School or Equivalent</i>	2 (2.0%)	5 (4.9%)
<i>Some College</i>	14 (14.0%)	16 (15.7%)
<i>2-year Degree</i>	6 (6.0%)	4 (4.9%)
<i>4-year Degree</i>	39 (39.0%)	38 (37.3%)
<i>Master's</i>	30 (30.0%)	25 (24.5%)
<i>Doctoral</i>	0 (0.0%)	8 (7.8%)
<i>Professional Degree (e.g., MD, JD)</i>	8 (8.0%)	4 (3.9%)

Statistical analyses were run to determine if the Caucasian participants varied on demographic variables from the African American women. An independent samples t-test was conducted to determine that the African American women were older (mean 31 years of age) than the Caucasian women (mean 29 years of age; $t(200) = 2.41$, $p = 0.017$). All other demographics were examined using chi-square analyses. The two groups of women were significantly different on marital status ($\chi^2(5, N = 202) = 23.85$, $p < 0.01$). A chi-square analysis demonstrated that the two groups of women did not significantly differ by education level ($\chi^2(7, N = 202) = 11.29$, $p = 0.126$) or household annual income ($\chi^2(12, N = 199) = 13.26$, $p = 0.351$). However, the African American women had a higher personal annual income level (mean range \$40,000-49,999) than the Caucasian women (mean range \$30,000-\$39,999; $\chi^2(11, N = 202) = 2.71$, $p = 0.037$). This difference in personal income varies from what is found in the national census data where in 2008 the median income of white females was \$20,950 and the median income of black females was \$20,197. However, as the mean age increases from 18 to 45 (the age of our

sample), annual income also increases in the census data (U.S. Census Bureau, 2011). Further, in this sample, age and personal income are significantly correlated ($r = 0.51$, $p < 0.001$). Therefore, it is possible that the income differences are simply resulting from the age difference in the current sample.

Since two methods of reimbursement were utilized in the current study, the groups were compared to determine if type of reimbursement impacted our sample in terms of demographics. There were no significant differences in age using an independent samples t-test ($t(200) = -1.61$, $p = 0.104$). All other demographics were tested using chi-square analyses. The participants reimbursed via lottery entry did not differ statistically from those reimbursed with a gift card on level of education ($\chi^2(7, N = 202) = 6.94$, $p = 0.436$), marital status ($\chi^2(5, N = 202) = 8.89$, $p = 0.114$), personal annual income ($\chi^2(11, N = 202) = 17.03$, $p = 0.107$), or yearly household income ($\chi^2(12, N = 199) = 15.46$, $p = 0.217$). However, the groups did vary by race ($\chi^2(1, N = 202) = 51.74$, $p < 0.001$) with African American participants being more likely to have been compensated by gift cards than the Caucasian participants.

The data was further analyzed by the eight groups of focus for this study: African American women exposed to racially similar, plus-sized models ($N = 26$); African American women exposed to racially similar, thin models ($N = 23$); African American women exposed to racially different, plus-sized models ($N = 24$); African American women exposed to racially different, thin models ($N = 26$); Caucasian exposed to racially similar, plus-sized models ($N = 24$); Caucasian women exposed to racially similar, thin models ($N = 26$); Caucasian women exposed to racially different, plus-sized models ($N = 26$); and Caucasian women exposed to racially different, thin models ($N = 26$). This

analysis was done in order to determine whether or not the groups of interest were similar on potentially confounding variables. Using chi-square analysis, there were no statistically significant differences in marital status ($\chi^2(35, N = 201) = 47.445, p = 0.078$), level of education ($\chi^2(49, N = 201) = 54.677, p = 0.268$), or personal annual income ($\chi^2(77, N = 201) = 85.958, p = 0.227$) at the subgroup level.

Examining the Potential for Confounding Variables. To identify potential confounds, Spearman's rho correlations were used to examine if the outcome variable (body dissatisfaction as measured by CDRS) was significantly correlated with demographic variables (age, education, race, personal income, and household income). Spearman's rho correlations were determined because they are appropriate for continuous and ordinal variables. There were no significant correlations between any of the demographic variables with body dissatisfaction; thus the demographic variables were not indicated to be confounds. Refer to Table 3 for correlational statistics.

Body mass index (BMI), calculated from self-reported height and weight, was examined in the sample. The overall sample fell in the category of "overweight" with a mean BMI of 26.13 kg/m² but ranged from underweight (15.76 kg/m²) to obese (52.90 kg/m²). The average BMI of women in this study is similar to the BMI of American women in general (Flegal, Carroll, Ogden, & Curtin, 2010; Friedman, 2003). African American women reported higher BMIs (mean 27.94 kg/m²) than the Caucasian women (mean 24.38 kg/m²; $t(199) = 4.411, p < 0.001$). These findings are also similar to national data by race (Wang & Beydoun, 2007). See Table 4 for a breakdown of BMI by exposure group. African American women exposed to African American plus size models had a significantly higher BMI than Caucasian women exposed to African

Table 3. Correlations.

Variables	2	3	4	5	6	7	8	9	10	11	12
1. Body dissatisfaction (CDRS)	0.14	0.04	0.06	0.07	-0.03	0.09	-0.18*	-0.05	0.65**	0.40**	0.58**
2. Age	—	-0.18*	0.20**	0.51**	0.30**	-0.11	0.10	0.03	0.05	-0.05	0.26**
3. Race		—	-0.03	-0.26**	-0.08	-0.09	-0.17*	-0.59**	0.02	0.10	-0.34**
4. Level of education			—	0.39**	0.26**	-0.14*	0.17*	-0.01	-0.08	-0.06	-0.11
5. Personal annual income				—	0.41**	-0.10	0.21**	0.09	-0.02	-0.07	0.15*
6. Household annual income					—	-0.11	0.15*	-0.04	-0.09	-0.06	-0.09
7. Depression						—	-0.59**	-0.00	0.23**	0.31**	0.03
8. Self-esteem							—	0.06	-0.22**	-0.12	0.18**
9. Ethnic Identity								—	-0.09	-0.10	-0.12
10. Body dissatisfaction (EDI-BD)									—	0.58**	0.48**
11. Drive for Thinness (EDI-DT)										—	0.22**
12. BMI											—

*denotes significance $p < 0.05$, **denotes significance $p < 0.01$

American plus size models, Caucasian plus size models, and Caucasian thin models.

African American women shown thin African American models had a significantly higher BMI than Caucasian women exposed to African American plus size models, Caucasian plus size models, and Caucasian thin models. Finally, African American women shown photographs of plus size Caucasian models had a significantly higher BMI than the Caucasian women exposed to the same three categories of models. It is important to note that all of these group differences are between groups of different races.

Spearman's rho correlations for body dissatisfaction and BMI ($r = 0.58, p < 0.001$) demonstrate that BMI is a likely confound (see Table 3).

Table 4. BMI by Exposure Group.

Exposure to:	African American Participants		Caucasian Participants	
	Mean	Standard Deviation	Mean	Standard Deviation
African American plus size models	28.42*	1.17	24.40*	1.17
African American thin models	28.62*	1.25	25.74	1.17
Caucasian plus size models	28.31*	1.25	23.78*	1.22
Caucasian thin models	25.75	1.17	23.55*	1.17

Please note: African American participants with a * differ from all three groups of Caucasian participants at a $p < 0.05$ level.

Scores on the CES-D ($t(200) = 1.77, p = 0.078$), RSE ($t(200) = 1.97, p = 0.052$), or any of the EDI subscales did not significantly differ by race. The measure of ethnic identity demonstrated that African American women had higher levels of ethnic identity than the Caucasian women ($t(200) = 10.20, p < 0.001$) and there were no differences between individual exposure groups when comparing within each race. Means of the MEIM are similar to those that have been found in previous research with African American and Caucasian women (Phinney, 1992). See Table 5.

Table 5. Potentially Confounding Variables by Race.

	African Americans Mean (SD)	Caucasians Mean (SD)
BMI*	27.94 (6.69)	24.38 (5.55)
CES-D	11.42 (9.70)	9.30 (7.10)
MEIM*	3.28 (0.44)	2.65 (0.44)
RSE	24.19 (5.43)	22.77 (4.77)
EDI-BD	13.59 (9.03)	14.02 (9.51)
EDI-DT	6.60 (6.05)	8.01 (7.48)
EDI-B	3.37 (4.50)	3.37 (4.91)

* Scores differ between races at a $p < 0.05$ level.

BMI = Body Mass Index; CES-D = Centers for Epidemiological Studies Depression Scale; MEIM = Multiethnic Identity Measure; RSE = Rosenberg Self Esteem Scale; EDI-BD = Eating Disorders Inventory Body Dissatisfaction Subscale; EDI-DT = Eating Disorders Inventory Drive for Thinness Subscale; EDI-B = Eating Disorders Inventory Bulimia Subscale

When examining the data at the group level, the African American women who were shown thin Caucasian models had low drive for thinness scores prior to the exposures (mean = 3.34, SD = 1.36) and significantly differed from four of the other seven groups. Three of the groups that these women differed from were exposed to plus size models: African Americans exposed to plus size Caucasian models (mean = 8.04, SD = 1.39; mean difference = -4.20, $p = 0.032$), Caucasian women shown plus size African American models (mean = 8.69, SD = 1.34; mean difference = -4.85, $p = 0.012$), and Caucasian women shown plus size Caucasian models (mean = 8.04, SD = 1.39; mean difference = -4.20, $p = 0.032$). Additionally, the African American participants exposed to thin Caucasian models significantly differed from the Caucasian woman shown thin African American models (mean = 8.39, SD = 1.34) on the drive for thinness scale (mean difference = -4.56, $p = 0.013$). It is important to note that the African American women in this sample appear to have higher drive for thinness scores than other research in African American women where drive for thinness ranges between 1.75 and 5.17 (Johnson, et al., 2004; Sbrocco, et al., 2005). See Table 6 for a breakdown of drive for thinness scores by exposure group.

Table 6. Drive for Thinness by Exposure Group.

Exposure to:	African American Participants	Caucasian Participants
	Mean (SD)	Mean (SD)
African American plus size models	7.35 (1.33)	8.69 (1.34)*
African American thin models	7.30 (1.42)	8.39 (1.34)*
Caucasian plus size models	8.04 (1.39)*	8.04 (1.39)*
Caucasian thin models	3.84 (1.36)†	6.92 (1.34)

Note: each of the items with a * differ from the † at the $p < 0.05$ level

To determine whether or not variables which have been demonstrated in previous literature to be confounding of body dissatisfaction (depression, self-esteem, baseline

body image, BMI, and ethnic identity) were, in fact, confounds with body dissatisfaction (as measured CDRS, the outcome variable) in this study, Spearman's rho correlations were used. Body dissatisfaction as measured by the EDI-BD ($r = 0.65$, $p < 0.01$), BMI ($r=0.58$, $p < 0.01$), drive for thinness ($r = 0.22$, $p < 0.01$), and self esteem ($r = 0.18$, $p < 0.05$) were significantly correlated with the end result body dissatisfaction (as measured by the CDRS). These correlations can be seen in Table 3. Depression and ethnic identity do not appear to be confounds of body dissatisfaction (as measured by the CDRS) and therefore will not be used as controls in future analyses. Since BMI is the only variable which differs by ethnicity and is correlated with our outcome variable (CDRS body dissatisfaction), it will be the only statistical control employed in future analyses.

Body dissatisfaction (CDRS)

Body dissatisfaction scores were similar for women of both races. Despite the similarity between body dissatisfaction scores, African American women rated their current body size as significantly larger than Caucasian women ($t(200) = 2.10$, $p = 0.037$). Additionally, African American women rated having a significantly larger body ideal than Caucasian women ($t(200) = 3.73$, $p < 0.001$). Table 7 shows scores for current, ideal, and discrepancy scores on the CDRS by race.

Table 7. CDRS Scores by Race.

	Current Body Rating Mean (SD)	Ideal Body Rating Mean (SD)	Discrepancy/Body Dissatisfaction Mean (SD)
African American Women	6.25 (1.88)*	4.82 (1.29)**	1.43 (1.56)
Caucasian Women	5.71 (1.81)*	4.14 (1.31)**	1.57 (1.29)

* $p < 0.05$, ** $p < 0.001$

Body dissatisfaction scores were similar between all exposure groups. When using Bonferroni's method to account for multiple comparisons, there are no statistically

significant pair-wise correlations when controlling for BMI. Refer to Table 8 for numeric values.

Table 8. Body Dissatisfaction Following Exposure as Measured by the CDRS by Exposure Group.

Exposure to:	African American Participants		Caucasian Participants	
	Mean	Standard Deviation	Mean	Standard Deviation
African American plus size models	1.73	1.54	1.92	1.09
African American thin models	1.17	1.23	1.46	1.07
Caucasian plus size models	1.75	1.70	1.63	1.56
Caucasian thin models	1.04	1.27	1.27	1.40

Manipulation Check

Since this study used deception and tried to couch the study as a “personality and consumer preferences study,” a deception check was included to try to determine if participants were aware of the true purpose of the study. The deception check asked participants to “rate the importance of ten factors to the study on a scale from one to ten where ten indicates that the variable was ‘extremely important’”. One of the factors was body image (the true intention of the study) and another was ethnicity (a major part of the study). Additional items can be found in Table 9. The deception was ineffective for body image as the mean rating of importance for body image was the highest rating. However, the mean rating for the importance of ethnicity was the lowest rating. Further, there is not much variation between the scores. Please note that there were group differences in which African American women attributed more importance to the item advertised ($t(200) = 4.78, p < 0.001$), their consumer preferences ($t(199) = 4.95, p < 0.001$), and the attractiveness of the advertisement ($t(198) = 4.28, p < 0.001$) than Caucasian women.

Table 9. Deception Check Values

	African American Mean (SD)	Caucasian Mean (SD)
Personality	7.21 (2.84)	6.44 (3.12)
Item Advertised*	6.92 (3.13)	4.86 (2.99)
Consumer Preferences*	8.43 (2.05)	6.61 (3.05)
Attractiveness of the Ad*	8.26 (1.82)	6.92 (2.55)
Attractiveness of the Model	7.37 (2.35)	7.40 (2.33)
Body Size	7.20 (2.63)	7.29 (2.60)
Mood	6.84 (2.48)	7.22 (2.36)
Body Image	8.27 (2.05)	8.28 (2.03)
Facial Expression of the Model	5.78 (3.12)	5.92 (3.10)
Ethnicity	5.77 (3.44)	5.63 (3.34)

*A difference exists between the races at a $p < 0.05$ level.

Hypothesis 1: African American Women Will Have Less Body Dissatisfaction than Caucasian Women

Independent samples t-tests were run to compare body dissatisfaction levels in African American and Caucasian women. African American women reported a mean score of 1.43 for the difference between perceived and ideal body types on the CDRS while Caucasian women had a mean difference of 1.57, however these were not statistically different ($t(200) = -0.69$, $p = 0.49$). These body dissatisfaction scores on the CDRS are higher than another recent study using this measure (Baugh, Mullis, Mullis, Hicks, & Peterson, 2010). This similarity between racial groups on body dissatisfaction differs from recent research demonstrating that body dissatisfaction differs between Caucasian and African American women (Baugh, et al., 2010; Gordon, Castro, & Sitnikov, 2010). However, since meta-analytic results have suggested that the interracial difference is shrinking (A. Roberts, et al., 2006), perhaps the current study represents a new trend of body image disturbances being more equivalent across racial groups.

When controlling for BMI, CDRS differences are significant between groups ($F(1, 198) = 10.73$, $p = 0.001$). Therefore when controlling for the potential confound of

BMI, hypothesis 1 is supported. In this sample, the CDRS measured significant group differences in which African American women had less body dissatisfaction than Caucasian women.

Hypothesis 2: Ethnically-Similar Thin-Model Conditions Will Elicit the Greater Body Dissatisfaction Scores from Women of Both Ethnicities than Ethnically-Different Thin Models or Plus-Sized Models.

This hypothesis could not be confirmed for women of either race when controlling for BMI (African American: $F(1, 95) = 1.23$, $p = 0.270$; Caucasian: $F(1, 100) = 0.35$, $p = 0.554$). Further, when examining the group as a whole, and controlling for the potentially confounding variable of BMI, there were no significant differences between the body image of the women exposed to ethnically similar thin models than all other exposure groups ($F(1, 198) = 1.47$, $p = 0.226$). Therefore, we cannot support hypothesis 2 and are unable to demonstrate that ethnically-similar thin-model conditions elicit greater body dissatisfaction scores. Table 10 presents the scores for ethnically similar exposure against all other exposure groups.

Table 10. Impact of Ethnically Similar Thin Model Exposure on Body Dissatisfaction as Measured by the CDRS.

	African American Mean (SD)	Caucasian Mean (SD)
Ethnically similar thin model exposure	1.17 (1.23)	1.27 (1.40)
All other exposure groups	1.51 (1.64)	1.67 (1.25)

Hypothesis 3: Caucasian Women Will Have More Body Dissatisfaction When Exposed to Thin-Models Despite Ethnicity of the Model (in Comparison to Plus Size Models), but African American Women Will Not Be Impacted by Ethnically-Different Thin-Models

When BMI is used as a covariate due to its status as a potential confound, there were no differences in body dissatisfaction between African American women who were

exposed to thin models or plus size models ($F(1, 95) = 2.65, p = 0.107$). See Table 11 for the means and standard deviations of African American women's body dissatisfaction by exposure group.

Table 11. Body Dissatisfaction as Measured by the CDRS in African American Women by Exposure Group.

Exposure to:		Mean	Standard Deviation	Mean	Standard Deviation
Plus size Models	African American	1.73	1.54	1.74	1.60
	Caucasian	1.75	1.70		
Thin Models	African American	1.17	1.23	1.10	1.48
	Caucasian	1.04	1.68		
African American Models	Plus Size	1.73	1.54	1.47	1.42
	Thin	1.17	1.23		
Caucasian Models	Plus Size	1.75	1.70	1.33	1.69
	Thin	1.04	1.68		

The ethnicity of the model did not impact the rating of body dissatisfaction of Caucasian women when controlling for BMI and looking at the entire sample ($F(1, 93) = 1.40, p = 0.214$) or at only thin models ($F(1, 46) = 0.37, p = 0.546$). See Table 12 for detailed means and standard deviations of Caucasian women's body dissatisfaction by exposure group.

Table 12. Body Dissatisfaction as Measured by the CDRS in Caucasian Women by Exposure Group.

Exposure to:		Mean	Standard Deviation	Mean	Standard Deviation
Plus size Models	African American	1.92	1.09	1.78	1.33
	Caucasian	1.63	1.56		
Thin Models	African American	1.46	1.07	1.37	1.24
	Caucasian	1.27	1.40		
African American Models	Plus Size	1.92	1.09	1.69	1.09
	Thin	1.46	1.07		
Caucasian Models	Plus Size	1.63	1.56	1.44	1.47
	Thin	1.27	1.40		

Hypothesis 4: The Plus-Sized Model Condition Will Not Adversely Impact the Body Image of the Women of Either Ethnicity

When statistically controlling for BMI, there are no statistically significant differences amongst the African American women exposed to plus size versus thin models ($F(1, 95) = 2.65, p = 0.107$). When examining Caucasian participants, there were significant differences in body dissatisfaction scores between women who were exposed to plus size models and those who were shown thin models when controlling for BMI ($F(1, 99) = 4.23, p = 0.042$). In this significant difference, the women exposed to plus size models reported greater levels of body dissatisfaction (mean = 1.78, SD = 1.33) than those exposed to thin models (mean = 1.37, SD = 1.24). Thus the hypothesis cannot be confirmed. In fact, the opposite is confirmed for the Caucasian woman in the sample. The same findings hold true when the sample is examined in its entirety (ignoring race) whereby exposure to plus size models is related to a greater body dissatisfaction (mean = 1.76, SD = 1.46) than exposure to thin models (mean = 1.24, SD = 1.36; $F(1,197) = 6.90, p = 0.009$).

Post-Hoc Analyses

Additionally, a 2x2x2 ANOVA was conducted to examine the potential interaction effects in an additional manner. The patterns of results that emerged looked similar to the above findings for all hypotheses.

Interaction Effect

Due to the counter-intuitive finding in Hypothesis 4, post-hoc analyses were run to test for an interaction between exposure group (to plus-size vs. thin models) and BMI. BMI was split at the median in order to run this comparison (26.1 kg/m²). In fact, when

running a regression, the interaction was significant ($t = -2.61, p = 0.010$). Figure 1 contains a visual representation of this interaction. Of note, the women with BMIs in the lower half of the range seem to have stronger effects by exposure group than the heavier women in the study.

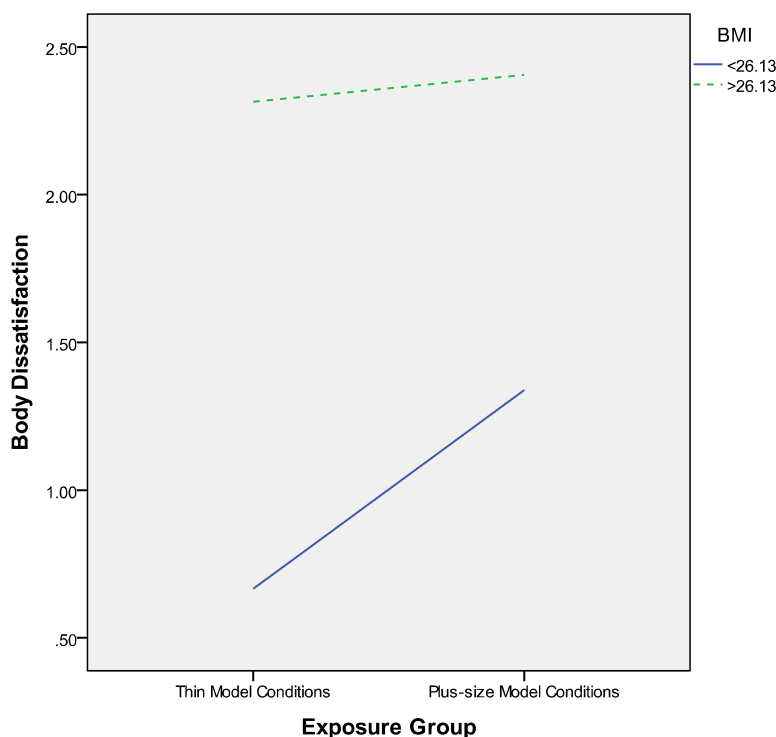


Figure 1. Interaction Effect for Exposure Group by BMI Split on Body Dissatisfaction.

Attractiveness of the Models

In trying to better understand the findings, consideration was given to how attractive the participants believed the models to be. When examining their ratings of model attractiveness at the group level, we found that there were significant between group differences ($F(1, 178) = 4.35, p < 0.001$). In examining the differences at the micro level, we find that African American participants consistently rated the African American models (both thin and plus size) as more attractive than the African American participants rated the Caucasian models (of both body sizes) or the Caucasian participants

rated African American plus size models and Caucasian models (of both body sizes). In fact, there are between group differences in which African American women tended to rate the models as more attractive than the Caucasian women did ($t(185) = 2.96, p = 0.003$). Bearing this in mind, a Spearman's Rho correlation was run with ratings of attractiveness of models and the outcome variable of interest (CDRS body dissatisfaction) in order to better determine a potential confound. However, the correlation was insignificant ($r = -0.019, p = 0.799$) leading the researchers to believe that the attractiveness of the models did not influence our body dissatisfaction findings.

Average American Woman

An additional question was asked to determine how women think of the “average American woman” in terms of body size. Overall, the participants of this study believed that the “average American woman” was overweight (rating her as a mean = 6.62 on the CDRS; SD = 1.27). Social comparison theory made us hypothesize that the women exposed to thin models would believe that the “average American woman” was thinner than those exposed to plus size models. An ANOVA confirmed this hypothesis in that women exposed to plus size models believed that the “average American woman” was larger (mean = 6.81, SD = 1.04) than those who viewed thin models (mean = 6.46, SD = 1.43; $t(199) = 2.01, p = 0.046$).

There were no significant differences in the belief of the “average American woman's” body size by race ($t(200) = 0.68, p = 0.500$) with African American (mean = 6.68, SD = 1.30) and Caucasian (mean = 6.56, SD = 1.25) women selecting similar body sizes to represent the average. These differences remained insignificant when controlling for BMI of the participant ($F(1, 198) = 1.12, p = 0.292$).

Spearman's rho correlations were examined for the body size of the "average American woman", the demographic variables, the exposure variables (i.e., ethnicity of model and plus size vs. thin), and the potentially confounding variables for the study (i.e., body dissatisfaction at baseline, BMI, depression, self esteem, and ethnic identity). Two correlations came up as statistically significant. First, the rating of the body size for the "average American woman" was negatively correlated with depression scores ($r = -0.15$, $p = 0.036$) where those who rated higher on the depression scale believed that the average American woman was thinner. Second, the rating of the body size for the "average American woman" was negatively correlated with the ethnicity of the model from the exposure groups ($r = -0.15$, $p = 0.034$) in which women who were exposed to Caucasian models were more likely to suggest that the "average American woman" was thinner regardless of their own ethnicity. These two variables could be confounds for any potential differences between races (especially since race of participant and depression were also correlated), so an ANOVA was used to test between group differences controlling for depression and ethnicity of the model. However, there were still no significant differences in the belief of the "average American woman's" body size by race ($F(1, 197) = 1.65$, $p = 0.200$). Therefore, with this sample, race does not seem to influence one's conception of what the body of the "average American woman" looks like.

DISCUSSION

The purpose of this study was to better understand media exposure on body dissatisfaction in African American women in comparison to Caucasian women. This was done by exposing women to media images and examining their body dissatisfaction following the exposure. Further purposes of the current study were to reexamine body image differences between African American and Caucasian women. In better understanding how the media impacts women of different ethnicities, it was hoped that we could gain a clearer picture of what impacts the “protective factor” (Gluck & Geliebter, 2002; White, et al., 2003) of being African American on women’s body images.

Body Image Discrepancies Between Races

As anticipated, this study reconfirmed the literature (Altabe, 1998; Barry & Grilo, 2002; Cash, et al., 2004; P. C. Evans & McConnell, 2003; Miller, et al., 2000; Nielsen, 2000; Parker, et al., 1995; Wildes, et al., 2001) which demonstrates that African American women experience lower levels of body dissatisfaction than Caucasian women. While the existing literature has demonstrated that the differences between the ethnicities have been dissipating (A. Roberts, et al., 2006), it appears as though the difference still exists, at least in this sample when controlling for BMI. While the difference is small in this study, it is still statistically significant and thereby suggests that the body dissatisfaction concerns in both ethnicities have not become equivalent.

High SES Population of Study

The participants of the current study had a predominately higher SES than most research and the American population of women at large. This high SES level is true in both ethnicities of the present research. In having a unique SES sample, the study contributes to the existing body of literature in a new and exciting way. Eating disorders and body image dissatisfaction have historically been considered to be associated with a high socio-economic status. However, the majority of the research conducted on African American women has drawn from a lower economic bracket. Therefore, this study demonstrates that even when socio-economic status is higher amongst the African American sample than the Caucasian sample, the African American women still have less body dissatisfaction. Another study conducted with middle to high SES (\$50,000-\$59,000 household income which was the same as the median for both ethnicities in this study) demonstrated that there were no significant body dissatisfaction differences between races (Caldwell, Brownell, & Wilfley, 1997). Their study, however, targeted self-reported female dieters while the present study did not recruit based on attention to dieting. Therefore, the current study provides new information about high SES women and their body dissatisfaction.

Potential Confounds

This study tried to take into account any potentially confounding variables. In doing so, depression, self-esteem, baseline body image, drive for thinness, ethnic identity, BMI, and demographics were measured. Using correlations, it was determined that BMI was the only potentially confounding variable for the final body dissatisfaction score as measured by the CDRS. As such, analyses controlled for BMI.

While BMI was controlled for, it warrants special attention. What we find is that African American women have a higher self-reported BMI than the Caucasian women. In the research literature, there is currently some debate about self-reported BMI amongst women and whether or not racial differences exist. Overall, research has found that women tend to under-report their weight and over-report their height which causes them to under-report their BMI (Huber, 2007; Merrill, Richardson, J. S.; Stommel & Schoenborn, 2009; Villanueva, 2001). The findings on potential differences between races based on this under-reporting, however is mixed. Some studies using large data samples (e.g., more than 8,000 women) have found that there are no discrepancies in reporting based on race (Merrill, Richardson, J. S.; Villanueva, 2001). On the other hand, some researchers have determined that non-Hispanic Black women are more likely to over-estimate their height (which would cause a lower BMI report) than non-Hispanic White women (Stommel & Schoenborn, 2009) or that non-Hispanic Black women under-report their BMI to a greater degree than other racial groups (Huber, 2007). Because the current study controls for self-reported BMI, we could be controlling for a variable that is being reported differently by the women in both groups. However, due to the debate in the literature, it is unclear as to whether or not this is the case. Since the BMI for women of both races is similar to population averages, it is unlikely that a reporting difference would be substantial enough to influence the findings.

The mean BMI of the current sample is in line with national data for women and race. However, when BMI is broken down into categories of under 25 kg/m², overweight (25.0-29.9 kg/m²), and obese (>30.0 kg/m²), the participants in the current study appear differently than national data. While the mean is the same, fewer of our participants (of

both races) classify as overweight and obese. For African American women, we anticipate 38.0% to be overweight and 53.4% to be obese (Pleis & Lethbridge-Cejku, 2007), but the current study has only 23.0% and 31.0% respectively. For Caucasian women, national data predicts that 26.9% will be overweight and 31.6% will be obese (Pleis & Lethbridge-Cejku, 2007), whereas the current sample represents only 19.6% and 10.8% respectively. Considering that our sample has a similar mean to the national data, but considerably fewer women in our sample classify as overweight or obese, the data should be viewed as a special case for both races. Further, since disparities exist for both races, it is unlikely that the lower percentages of overweight and obese women in the current sample will impact the findings differentially by race.

Impact of Ethnicity of the Model on Body Dissatisfaction

We were unable to support Hypothesis 2. Therefore, we could not demonstrate that ethnically-similar thin-model conditions elicit greater body dissatisfaction scores than ethnically-different thin models or plus-sized models. As far as Hypothesis 3 is concerned, when controlling for BMI, the ethnicity of the model did not impact the rating of body dissatisfaction in Caucasian women as expected. However, African American women also did not demonstrate any differences in body dissatisfaction between exposure to African American thin models and Caucasian thin models BMI was used as covariates. Therefore, there were no significant findings associated with this hypothesis.

When the null results of Hypothesis 2 and 3 are examined simultaneously, it appears as though the ethnicity of the model does not impact body image ratings in women of either ethnicity. This suggests that any social comparison that may occur for

women exposed to the thin ideal is not ethnic-specific. Thus, if women engage in social comparison when looking at media images, it appears as though Caucasian and African American women do not use different means of comparison when the frame of reference shifts by ethnicity.

For Caucasian women, this follows the literature that Caucasian women engage in social comparison when exposed to images of women of various races (P. C. Evans & McConnell, 2003). For African American women, however, the present study demonstrated that the ethnicity of the model does not have a differential impact on body dissatisfaction. Considering the body of research suggesting that African American women do not compare themselves to the thin Caucasian images in the mainstream media (Duke, 2000, 2002; Milkie, 1999; Schooler, et al., 2004), one could speculate that it is not the race of the model that poses social comparison difficulties for African American women, but the size of the model instead. This would imply that the thin ideal presented in mainstream media is too extreme when compared to the body ideal of African American women which is considerably larger than that which is presented in the media (Dounchis, et al., 2001; Gluck & Geliebter, 2002; Wildes, et al., 2001). Therefore, it is possible that the “protective effect” of being African American on body dissatisfaction has more to do with cultural preferences than the lack of thin ideal points of comparison in the media.

Effects of Model Size on Body Dissatisfaction

Hypothesis 4 is where the most perplexing results can be found. Existent literature suggests that exposure to thin models will be followed by a decreased body dissatisfaction whereas exposure to plus size models will not (Groesz, et al., 2002;

Grogan, et al., 1996; Halliwell & Dittmar, 2004; Irving, 1990). In our sample, when using statistical controls for BMI, there are no statistically significant differences amongst the African American women exposed to plus size versus thin models. However, the Caucasian population in the study does demonstrate a statistically significant finding in which Caucasian women exposed to plus size models had higher levels of body dissatisfaction than those who were shown the thin models. Additionally, when the entire sample (both African American and Caucasian women) is examined, we find a significant difference between the means of the participants exposed to plus-sized models and those exposed to thin models when controlling for BMI. The significant difference is also in the opposite direction of what we anticipated (and what the literature has demonstrated previously) whereby the women exposed to plus size models reported greater levels of body dissatisfaction (mean = 1.76, SD = 1.46) than those exposed to thin models (mean = 1.24, SD = 1.36).

Changes in the Media Images Over Time

One potential reason for this unexpected finding is that many of the previous studies of body image following exposure are dated (by at least eight years). It is important to understand that this thin ideal has been evolving over time and an emphasis on it in the media was not always the case. A series of studies have demonstrated a decrease over the past fifty years in the average size of *Playboy* centerfolds and Miss America Pageant contestants which are thought to represent the male ideal of feminine beauty (Garner, et al., 1983; Sypeck, et al., 2006; Wiseman, Gray, Moismann, & Ahrens, 1992). Sypeck, Gray, and Ahrens (2004) determined that between 1980 and 1999 there was a decrease in the overall body size of cover models of *Vogue*, *Cosmopolitan*, and

Mademoiselle, all of which are thought to represent the female ideal. Accordingly, previous studies have shown that the media representing both male and female ideals for feminine beauty have progressively gotten thinner. It is possible that the thin ideal presented in media images is now too extremely thin to elicit body dissatisfaction upon exposure. In fact, the images used in the thin model conditions of the present study were rated between a 2.0 and 3.1 on the CDRS which implies visible ribcage structures. Perhaps the models of comparison were too thin to have women engage in social comparison with them.

Similar Research Findings

Additionally, some research has shown that women who are exposed to plus-size images have greater body dissatisfaction than women who are exposed to the thin ideal. A study conducted by Harrison and Cantor (1997) on the relationship between media exposure and body dissatisfaction in college students asked participants about their media consumption, disordered eating symptoms, and correlates of eating disorders. It showed that women who reported viewing television shows with heavy main characters experienced greater levels of body dissatisfaction than women who viewed shows with thin or average main characters. The authors, however, did not speculate as to the reason behind this finding. This correlational study has similar findings to the current study in that exposure to plus size figures is associated with greater body dissatisfaction than exposure to the thin ideal.

Potential Mediators/Moderators

In other studies with similar findings, researchers have demonstrated that various mediators and/or moderators may be responsible for some women having greater body

dissatisfaction when exposed to plus size models as opposed to thin models. For example, women who are high self-monitors (e.g., those with greater concern for self-presentation) have been shown have more positive feelings about their physical condition after exposure to thin ideal images than women who are low self-monitors (Henderson-King & Henderson-King, 1997). The present study did not measure self-monitoring, so it is unclear as to how this sample would respond, however it is possible that the current sample engages in high levels of self-monitoring which would mean that exposure to the thin ideal would create an increase in esteem.

Other studies have pointed to different mechanisms. For example, Dalley, Buunk, and Umit (2009) completed a study in the Netherlands in which they found that there was an interaction between BMI and neuroticism in women so that women with high BMI and high neuroticism experienced greater body dissatisfaction following exposure to overweight images than those women with low levels of neuroticism. It is important to note that in Dalley, Buunk, and Umit's study, exposure to thin media images, regardless of BMI and neuroticism, was associated with greater body image dissatisfaction. However, the study out of the Netherlands had a lower BMI group than the current study. Dalley, Buunk, and Umit had subjects whose BMI ranged from 18.03 kg/m² to 31.30 kg/m² with a mean BMI of 23.0 kg/m² (where the current study's mean BMI was 26.13 kg/m²). Due to the interactive effect of neuroticism and BMI on body dissatisfaction when following exposure to a plus size model, it is possible that as BMI increases, body dissatisfaction increases when exposed to a plus size image in women that are highly neurotic.

Social Comparison's Similarity Hypothesis

The most prominent thinking in explaining why women with a higher BMI (like those in the current study) would experience body image dissatisfaction after viewing plus size models relates back to Festinger's social comparison theory (Festinger, 1954) which was the basis for this study's original hypotheses. One of the most salient parts of this theory is the similarity hypothesis. This hypothesis states that people will compare themselves with people whom they consider themselves to be similar to. That is, the self has to be seen as being similar in some way to the item of comparison. Using this logic, women with higher BMIs may actually perceive greater similarity between themselves and a plus-size model (thus having higher BMI as well) and therefore be more affected by this type of comparison (Dalley, et al., 2009). Alternately, the extreme nature of the thin ideal could prove to be irrelevant as a point of comparison for women with a higher BMI.

Studies that have examined media exposure by BMI groups have found that women in different levels of BMI have various body dissatisfaction reactions to media images. In an unpublished study, researchers found that for women with either low or high BMI, there were no significant effects following exposure to images of cars, ultra-thin women, or thin women (Cooper, 2011). Thus women with a high BMI did not experience any body image dissatisfaction when exposed to the thin ideal. On the other hand, women with a moderate BMI (18.5-25 kg/m²) had lower body image after exposure to thin images than cars which represents the finding most prevalent in the literature.

Similarly, Smeesters, Mussweiler, and Mandel (2010) measured appearance-related self esteem in college women following exposure to extremely thin, moderately thin, moderately heavy, and extremely heavy models. Smeesters and colleagues recruited women of low ($<18.5 \text{ kg/m}^2$), normal ($18.5\text{-}25 \text{ kg/m}^2$), and high ($>25 \text{ kg/m}^2$) BMI. They demonstrated that in women with a normal BMI, those exposed to moderately thin models had higher self-esteem than the women exposed to moderately heavy models. In other words, exposure to the moderately heavy models was associated with feeling worse about oneself. Additionally, they found that feelings of similarity towards heavy models leads to negative shifts in appearance-related self-esteem. Smeesters and colleagues concluded from their findings that individuals with different BMI levels utilize different comparison processes when encountering media images.

In light of this body of research which demonstrates that women with higher BMIs may experience greater body dissatisfaction following exposure to plus size models (rather than thin ones), post-hoc analyses were conducted to determine whether there was an interactive effect between BMI and exposure group on body dissatisfaction. A post-hoc hypothesis was made that women with higher BMIs would engage in social comparison with similar others (e.g., plus-sized models) thus reducing their body satisfaction more than they would the irrelevant thin models due to Festinger's social comparison theory (Festinger, 1954). An interaction was demonstrated, but it went counter to our expectations. In our sample, women in the lower half of BMIs (ranging from 15.76 to 26.13 kg/m^2) experienced a greater decrease in body dissatisfaction scores after exposure to plus-size models than those exposed to thin models. Therefore, while existing research has demonstrated that women with a higher BMI may experience a

greater decrease in body satisfaction following exposure to plus-size models as opposed to thin models, this is not true of the current sample.

Two recent studies have shown a new trend in which women experience higher levels of appearance related self esteem (Smeesters, et al., 2010) or positive self-evaluations (Papies & Nicolaije, In press) when exposed to thin models as opposed to plus size models. Both of these studies also found that when women view themselves as similar (or are primed to find similarities) to the plus-size model they are particularly negatively impacted. The current study did not examine women's beliefs about how similar or dissimilar they were to the models in the images they were exposed to, it is unclear how this altered our findings. However, considering that our "normal" weight women (e.g., BMI 18.5-25 kg/m² – in this study specifically women with a BMI <26.13 kg/m²) had higher body dissatisfaction after exposure to plus size models, similar to other research findings (Papies & Nicolaije, In press; Smeesters, et al., 2010), it is likely that our participants viewed themselves as similar to the plus-size models. Therefore, future studies should examine how similar participants believe that they are to the models that they are exposed to in order to determine whether the perceived similarities to a model has an impact on body dissatisfaction.

The Perception of the "Average American Woman"

Post-hoc analyses examined the ways in which exposure to models can alter a woman's perception of what is normal or average. While researchers have suggested that exposure to the thin ideal could cause women to overestimate the commonality of slenderness (Levine & Smolak, 1996), we are unaware of any other study to date that has examined this important question. In the present study, women who were exposed to

plus-sized models guessed that the “average American woman” had a significantly larger body size than the women who were exposed to thin models. This supports the belief that exposure can impact one’s beliefs in the commonality of that which you are being exposed to. So either exposure to a thin ideal leads American women to judge that other American women are thinner than they would normally think or exposure to a plus-size model leads women to assume that other American women are heavier than they would typically assume. It is not clear as to the directionality of the impact of the exposure, and it is important to consider that perhaps the finding is bidirectional. Thus, women exposed to a thin ideal believe the average American woman is thinner and women exposed to a plus-size model feel as if the average American woman is heavier.

This finding was not impacted by the race of the respondent. It is important to note that regardless of the exposure group, women in the current sample stated that they believed the “average American woman” was overweight. However, those exposed to plus-size models believed that the “average American woman” was more overweight than those exposed to the thin models. This has implications for the social comparison theory in that one’s point of reference for what is “average” may shift based on what one is being exposed to currently. Therefore, the comparisons that one makes may become more important as one begins to believe that they are not only comparing themselves to this singular image, but to an average (e.g., lots of images). Thus, social comparison may occur at a larger or deeper level than previously understood.

Implications

The present study has several important research, clinical, and societal implications. First, the current study supports the previous research findings that suggest

that African American women experience less body dissatisfaction than Caucasian women. Importantly, this study is the first to demonstrate that this finding holds true even when African American women are exposed to women of the same race as themselves who represent the thin ideal. While some researchers have posited that African American's body image is protected because there are not as many media images of thin African American women and they do not readily compare themselves to Caucasian women (Duke, 2000, 2002; Milkie, 1999; Schooler, et al., 2004), the present study suggests that there may be deeper causes for this "protective factor" of being African American. The present study does not elucidate how African American women may be protected with their body image where Caucasian women are not, but it does suggest that this is the case and exposure to the thin ideal in an African American body does not alter these findings.

Another unique aspect of the current study is that it surveyed women with a higher SES than past research. In the current study, African American and Caucasian women came from mid- to high SES and the African American women in the present study had higher annual incomes than the Caucasian women. In this study, body dissatisfaction was higher in Caucasian women and they had a lower SES than the African American women. The unique sample of this study provides early evidence that the SES differences typically seen between the two races surveyed here is not necessarily a component of the "protective factor" that African American women have against body dissatisfaction.

Another important finding demonstrated that for women of both races, the race of the models that they are exposed to did not alter the findings. This suggests that race may

not be an important factor in one's social comparison processes regardless of the ethnicity of the woman being exposed to images. While Evans and McConnell (2003) found that Caucasian women rate women of all races to be highly attractive whereas African American women only rate African American women to be highly attractive, this may not influence the social comparison that occurs when viewing models. It is important to note that Evans and McConnell (2003) used photographs of women's faces only, so it is possible that the female form is more powerful than race whereas an attractive face is not. That is to say that it appears as though African American women engage in social comparison with Caucasian models when exposed to the full body at the same level as they do African American models.

This study adds to a growing body of research indicating that exposure to plus size models is associated with greater body dissatisfaction in women than exposure to thin models. This suggests that when women view attractive models who are plus size they engage in a social comparison in which they feel poorly about themselves as a result. The thin ideal in the media is unattainable for most women (J. K. Thompson & Heinberg, 1999) and while some researchers have reported that this thin ideal is presented as normal and achievable (Warren, et al., 2005), it is possible that as American women's body sizes are getting larger they are no longer viewing the thin ideal presented in the media as a realistic standard of comparison for themselves. As such, it would suggest that they would no longer use the thin ideal as a point of comparison for themselves and would thus be uninfluenced by exposure to the images.

Limitations

One of the limitations of this study was the use of online recruitment, sampling, and administration of the survey data. The majority of the participants in the present study contacted the primary investigator after seeing an advertisement in the local, free newspaper. All participants who contacted the researcher by phone were given an opportunity to participate online or come into the laboratory and complete the study in person. By providing this option, we attempted to limit any discrepancies that may exist between individuals who have access to the internet and those who do not. These differences that we attempted to avoid, however, have been shrinking and have been projected to disappear entirely (Fricker & Schonlau, 2002). In fact, a recent study demonstrated that online sampling is a viable method for sampling in young African American adults (Scott-Johnson, Gross, & Browne, 2010). Therefore, while efforts were taken to reduce the potential bias of online sampling by allowing participants to complete the study in person and the bias itself has been shrinking, this still remains a potential bias of the study.

Related to the online methods, participants were asked to self-report their height and weight. A meta-analysis has demonstrated that BMI tends to be under-reported by female participants and identifies that there is large individual variability in this reporting (Gorber, et al., 2007). BMI was used as a statistical control in all analyses in the present study, so it is important to note that this may not accurately reflect our participant's BMIs. Further, there is some evidence that demographic characteristics can influence the degree of reporting error (Gorber, et al., 2007) and that it is possible that African

American women under-report their BMI to a greater degree than do Caucasian women (Huber, 2007; Stommel & Schoenborn, 2009).

A further limitation of the current study is that we cannot fully understand the potential mediators or moderators that created the unexpected findings in the present study because not all potential moderators and mediators were measured. Some studies have demonstrated that self-monitoring, neuroticism, or perceived similarities to models may influence the way in which women's body dissatisfaction is impacted by exposure. However, none of these potential influences were measured in the current study. In fact, based on the BMI of the current samples in comparison to previous research findings, it is likely that perceived levels of similarity to the models impacted our findings. Without having measured perceived levels of similarity our participants had to the models used in our advertising, however, it is unclear whether or not this influenced that women with the lower half of BMIs when examining the plus-size models as speculated in the discussion section.

APPENDIX A

Thin African American Models selected - Ratings

	Body Size						Attractiveness					
	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average
1	3	2.5	2	2.5	3	2.6	5	9	6	8	6	6.8
2	4	2	2	2.5	5	3.1	7	9	6	9	7	7.6
3	3	3	2	3	3	2.8	5	8	9	9	6	7.4
4	3.5	4	1	3	4	3.1	3	7	5	7	2	4.8
5	3	2	1	3	4	2.6	8	9	8	9	4	7.6
6	2.5	2	*	2	2	2.1	8	9	*	9	3	7.3
7	3	2	1	2.5	2	2.1	5	8	8	8	5	6.8
8	3	3	2	3	3	2.8	2	7	8	8	6	6.2
9	3	2	1.5	3	3	2.5	7	9.5	9	9	8	8.5
10	2.5	2	1	2.5	*	2	7	8	7	8.5	*	7.6
Average						2.6						7.1

Thin Caucasian Models selected - Ratings

	Body Size						Attractiveness					
	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average
1	4	2	3	2.5	4	3.1	7	8	7	8	5	7
2	4	2	2	3	4	3	5	7	8	7	7	6.8
3	3	2	2	2	3	2.4	6	8	5	8.5	5	6.5
4	2	2	2	2.5	2	2.1	9	8	6	9	7	7.8
5	3	3	2	3	3	2.8	8	9	5	8	6	7.2
6	3	3	1.5	2.5	3	2.6	8	7	4	7	6	6.4
7	2.5	3	1	3	3	2.5	9	10	6	8.5	4	7.5
8	2	2	1	2	2	1.8	7	7	4	8.5	2	5.7
9	3	2	2	3	*	2.5	9	9.5	8	8	*	8.6
10	3	3	2	3	*	2.8	9	7.5	6	9	*	7.9
Average						2.6						7.1

Plus-Sized African American Models selected - Ratings

	Body Size						Attractiveness					
	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average
1	8	8.5	9	7	8	8.1	3	7	8	8	7	6.6
2	7	6	8	7	5	6.6	2	7	5	8.5	6	5.7
3	9	7	9	8	7	8	2	7	4	7	2	4.4
4	7	8	9	7	6	7.4	5	8	5	8	3	5.8
5	8	8	8	8	7	7.8	2	7	6	6	4	5
6	8	7	9	8	7	7.8	4	6	5	8	6	5.8
7	8	8	8	7	6	7.4	3	6	7	7	5	5.6
8	8	6	8	5.5	5	6.5	4	7	6	8	6	6.2
9	8.5	8	8	7.5	*	8	3	7	5	8	*	5.8
10	9	7	9	8	*	8.3	5	7.5	7	8	*	6.9
Average						7.6						5.8

Plus-Sized Caucasian Models selected - Ratings

	Body Size						Attractiveness					
	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average	Rater 1	Rater 2	Rater 3	Rater 4	Rater 5	Average
1	7	8	8	7	6	7.2	4	7	5	8	4.5	5.7
2	8	6	8	7	6	7	3	7	4	8	7	5.8
3	8	8	8	7	7	7.6	6	6.5	8	9	7	7.3
4	8.5	8	8	7.5	7	7.8	6	8	7	9	5	7
5	7.5	6.5	8	7	6	7	6	8.5	5	8.5	3	6.2
6	8.5	7.5	9	7.5	6	7.7	3	7	6	7.5	6	5.9
7	8	6.5	7.5	7	6	7	6	8	7	9	5	7
8	9	7	9	7	7	7.8	4	8	7	8	1	5.6
9	9	8	8	7	6	7.6	5	7.5	8	9	3	6.5
10	8.5	8	9	7.5	6	7.8	4	6	8	9	5	6.4
Average						7.5						6.3

*In Appendix A, indicates that a rater did not provide data for this model. Therefore, averages were based on the four raters who provided a rating.

Please note: Body size ratings were completed using the CDRS, a scale that ranges from 1-9 (with one representing the smallest body size and nine representing the largest. Attractiveness ratings were given on a 1-10 likert-type scale with 1 representing “not at all attractive” to 10 meaning “extremely attractive.”

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