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## Disordered eating, socio-cultural media influencers, body image, and psychological factors among a racially/ethnically diverse population of college women

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### Abstract

This study examined disordered eating, socio-cultural media influencers, body image, and psychological factors among a large, racially/ethnically diverse sample of college women (n=1445; 58% White, 21% Asian, 11% Hispanic, 11% Black) who completed an online survey. Black women were significantly more satisfied with their weight and shape and had lower eating concerns, disinhibited eating, and emotional eating than all other racial/ethnic groups. Black women tended to have significantly higher levels of self-esteem, were less likely to compare their body to those of people in the media, felt less pressured to attain the physical appearance standard set by the media, and had less awareness of the societal appearance norms set by the media than other racial groups. Findings suggest that Black college women, independent of weight status, may be protected from disordered eating, negative body image, and societal media pressures.

### Keywords

disordered eating; body image; Black; Hispanic; White; Asian; women; college

## 1. INTRODUCTION

In the United States, body dissatisfaction is highly prevalent (Bearman, Presnell, Martinez, & Stice, 2006; Grabe & Hyde, 2006) and is a public health concern given its associations with emotional distress (Johnson & Wardle, 2005), depression (Siegel, 2002; Stice &

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Bearman, 2001), and eating disorders (Keel, Baxter, Heatherton, & Joiner, 2007; Menzel et al., 2010). College-age women may be at particular risk for body dissatisfaction and disordered eating practices due to the unhealthy weight gain that often occurs during this life stage (Hoffman, Policastro, Quick, & Lee, 2006; Mokdad et al., 2001). For instance, many U.S. college women perceive themselves as overweight and diet to lose weight (Wardle, Haase, & Steptoe, 2006). Their desires to “fit-in” with peers and/or achieve the media’s “ideal” body shape likely promotes body dissatisfaction and compels weight loss efforts (Rozin, Bauer, & Catanese, 2003; Stice, 2002). In fact, media use predicts college women’s disordered eating, drive for thinness, and body dissatisfaction (Harrison & Cantor, 1997).

Some racial/ethnic groups may be at greater risk for body dissatisfaction and disordered eating. African American women tend to experience less body dissatisfaction and disordered eating than white women (Grabe & Hyde, 2006; Roberts, Cash, Feingold, & Johnson, 2006; Wildes, Emery, & Simons, 2001). Similarly, European American college women have significantly greater disordered eating attitudes and behaviors than African American peers (Abrams, Allen, & Gray, 1993). Ethnic/racial variations in body dissatisfaction may result from differing cultural and social contexts (Crago & Shisslak, 2003). For example, White adolescents describe beauty ideals in terms of fixed physical attributes (e.g., tall, thin, high cheekbones), whereas Black adolescents tend to describe beauty ideals in terms of personality traits (e.g., style, attitude) (Parker et al., 1995). Additionally, among Black and Hispanic women, large and full-bodies (e.g., curvy, large breasts, round buttocks) are considered healthy and of high status (Gil-Kashiwabara, 2002); therefore, their view of “beautiful” is less narrowly defined than that presented in the U.S. media. Unlike Black and Hispanic women who may not find mainstream media beauty images relevant to themselves, Asian women tend to endorse mainstream beauty standards similarly to White women thereby placing them at risk for negative body image (Evans & McConnell, 2003).

Limited research has broadly examined disordered eating, body image, and psychological factors in a large diverse sample of women. Given the deleterious consequences of negative body image and high prevalence of body dissatisfaction and disordered eating (Hudson, Hiripi, Pope, & Kessler, 2007; Neumark-Sztainer, Wall, Larson, Eisenberg, & Loth, 2011), it is important to investigate whether disordered eating, body image, and psychological factors differ among women of various racial/ethnic groups. Thus, this study comprehensively examined disordered eating, body image, and psychological factors among a large, racially/ethnically diverse sample of college women.

## 2. MATERIALS AND METHODS

### 2.1 Sample and Study Design

This cross-sectional survey of female college students, aged 18 to 26 years, was approved by the Institutional Review Board at BLINDED FOR REVIEW. Females were recruited to participate in an online survey about “their eating practices” during 2009–2010 via verbal and electronic announcements at three large U.S. public universities.

### 2.2 Measures

Table 1 provides more complete descriptions of study measures. In brief, disordered eating was assessed with Eating Disorder Examination Questionnaire (EDE-Q), 6<sup>th</sup> edition (Fairburn, Cooper, & O’Connor, 2008) scales (i.e., Restraint, and Eating, Weight, and Shape Concerns) as well as the Emotional Eating and Disinhibited Eating scales from the Three Factor Eating Questionnaire (TFEQ-18) (Karlsson, Persson, Sjostrom, & Sullivan, 2000).

Societal influences on body image were assessed with the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) (Thompson, van den Berg, Roehrig, Guarda, &

Heinberg, 2004) scales: Internalization-General, Pressures-Media, and Information-Media. Body Checking and Body Image Avoidance were assessed with one item from the Body Checking Questionnaire (i.e., “During the past 28 days, how often have you pinched areas of your body to see how much fat there is?”) (Reas, Whisenhunt, Netemeyer, & Williamson, 2002) and one from the Body Image Avoidance Questionnaire (Rosen, Srebnik, Saltzberg, & Wendt., 1991) (i.e., “During the past 28 days, how often have you avoided wearing clothes that make you particularly aware of the shape of your body?”).

Body Image Distortion was assessed by comparing actual BMI category (i.e., underweight [BMI<18.5], normal weight [BMI=18.5–24.9], overweight [BMI>25], scored 1, 2 and 3 respectively) to perceived current body weight (i.e., very thin/thin, average, slightly heavy/overweight, scored 1, 2 and 3 respectively). Scores were derived by subtracting actual BMI category score from perceived current body weight score. Scores closer to zero indicate accurate body image perception. Positive scores indicate individuals perceive they are heavier than they actually are, whereas negative scores indicate that individuals perceive they are thinner than they actually are.

Self-Evaluative Saliency and Motivational Saliency scales from the Appearance Schema Inventory-Revised (ASI-R) (Cash & Labarge, 1996) assessed the extent participants measured their worth physical appearance and invested themselves in their appearance. The Patient Health Questionnaire-8 (PHQ-8) evaluated depression severity (Kroenke, Spitzer, & Williams, 2001). Self-esteem was measured using items from the Rosenberg Self-Esteem (Rosenberg, 1965) scale.

Self-reported height and weight were used to calculate body mass index (BMI). Demographics included ethnicity/race (i.e., White, Asian, Hispanic, Black, Other) and age.

### 2.3 Data Analyses

Internal consistency scores for disordered eating and body image-related scales were calculated. Descriptive statistics were computed for demographic characteristics and survey scales by race/ethnicity. The few participants (n=88) categorized as either “Multi-racial” or “Other” were eliminated from further analyses. Analysis of variance, and when the main effect was significant, post-hoc tests (Bonferroni) were conducted for age and BMI to determine whether significant difference occurred among racial/ethnic groups. Analysis of covariance, controlling for BMI, and when a main effect was significant among racial/ethnic groups post-hoc tests (Bonferroni), were conducted for all survey scales. Statistical significance was set at 5%. All analyses were conducted in PASW Statistics 19 (SPSS, Inc., Chicago, IL).

## 3. RESULTS

Participants (n=1445) were mostly in their early 20’s (mean age 19.6±1.5 SD years) and White (58%) with fewer being Asian (21%), Hispanic (11%), and Black (11%). Most were of normal weight (71%). BMI differed significantly among all racial/ethnic groups (Table 2). Black women had significantly higher BMIs than all other groups. Analysis of covariance, controlling for BMI, revealed significant differences among ethnic/racial groups on all survey measures, except depression. Follow-up tests, correcting for multiple comparisons (Bonferroni), showed that Black women had significantly lower Eating-, Shape-, and Weight Concerns, and lower Emotional Eating and Disinhibited Eating than all other groups.

Similar trends occurred with socio-cultural media influencers. Specifically, Black women tended to be significantly less likely to frequently compare their bodies to those in the

media, felt less pressured to achieve physical appearance standards set by the media, and had less awareness of the societal appearance norms set by the media than all other racial/ethnic groups.

Differences between racial/ethnic groups on body image factor scales, except the Body Checking and Body Image Avoidance scale, were less clear. Specifically, Black women were significantly less likely to pinch areas of their bodies to discern fatness and avoid clothes that would make them more aware of their bodies than other groups. Asian women were the only group to have positive Body Image Distortion scores indicating they perceived they were heavier than they actually were. There were few significant differences among groups in how they measured self-worth by their physical appearance and overall investment in their appearance. Additionally, Black women had significantly higher levels of self-esteem than other groups, and Asian women had significantly lower levels of self-esteem than other groups.

#### 4. DISCUSSION

Black women were heavier than other racial/ethnic groups yet were significantly more satisfied with their weight and shape, had higher self-esteem, and had lower eating concerns, and disinhibited and emotional eating than other racial/ethnic groups. Additionally, Black women were less likely to compare their body to people in the media, felt less pressured to attain physical appearance standards set by the media, and had less awareness of the societal appearance norms set by the media compared with most other racial groups. These findings suggest Black college women are more comfortable with their bodies being at higher weights and are less likely to adopt the dominant culture messages in the media that equate thinness with beauty than other racial/ethnic groups.

This study's findings are consistent with previous research in that Black women, relative to other racial/ethnic groups, had more body satisfaction, despite often having higher body weights (Flynn & Fitzgibbon, 1998; Roberts, et al., 2006). Also congruent with previous findings, this study found that Black women perceive themselves as smaller than they are (Kronenfeld, Reba-Harrelson, Von Holle, Reyes, & Bulik, 2010). Granberg and colleagues reported that family racial socialization, defined as educating children about various aspects of being Black, reduced negative influences of being overweight among Black girls (Granberg, Simons, & Simons, 2009). Parker and colleagues also found that Black girls report receiving more positive than negative feedback about their looks from friends and family (Parker, et al., 1995). Thus, the social context in which Black girls are raised may equip them with protective skills to resist messages from the dominant culture that equates thinness with positive attributes (e.g., intelligence, success).

Few differences in disordered eating, socio-cultural media influences, body image, and psychological factors were seen among White, Hispanic, and Asian participants. Perhaps this sample of U.S. students were acculturated to the Western lifestyle, and thus, were similar in striving to meet the Western ideal. Indeed, those acculturated to the Western lifestyle are more likely to have disordered eating (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000). Asian American college women have lower self-esteem and report being less satisfied with their eyes and faces than White peers because they cannot attain the Western ideal of beauty due to their characteristic racial features (Mintz & Kashubeck, 1999). Hispanic populations indicate that they receive mixed messages about the relationships among health, weight, appearance, and diet; and those who place a greater emphasis on the mainstream, White, dominant culture have greater body image concerns (Schooler & Lowry, 2010). For instance, greater acculturation to the White, dominant American culture is associated with higher incidence of disordered eating in Mexican

American and Cuban American women (Cachelin, Phinney, Schug, & Striegel-Moore, 2006). Although Hispanics represent many diverse ethnic backgrounds, most studies group them all under one broad category of Hispanics/Latinos and treat them as a homogeneous group. However, body image experiences may differ among this population and by acculturation status, thus acculturation differences would be worth exploring in future research.

This was a convenience sample recruited from three U.S. universities; thus, findings cannot be generalized to all young adult women in the U.S. Nevertheless, a large sample of women identifying themselves as White, Black, Hispanic, or Asian participated, thereby giving power to study findings. A further limitation is the use of self-reported height and weight. However, previous studies have found high correlations between self-reported and measured BMI values in young adults (Strauss, 1999). Although it was beyond the scope of this study to measure acculturation and family/peer influences on body image, these should be investigated in future research.

Limitations notwithstanding, findings from this study have important implications for future research and development of body image interventions for young women that address racial/ethnic differences. Results indicate the Black women may be protected from negative body image and disordered eating, whereas other racial/ethnic groups seem to be similarly affected perhaps due to differences in acculturation to the Western society. Future research should clarify how Black American women are protected from negative body image and societal media pressures portrayed in the U.S. media and determine how these protective measures could be used to promote positive body image and prevent disordered eating in other racial/ethnic groups.

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### Highlights

- Black women may be protected from negative body image and disordered eating
- Black women are protected from societal media messages portraying the ideal body type
- Future research should examine body image and disordered eating by acculturation



Table 1

Description of Study Measures

Instrument	Construct Assessed	Cronbach's $\alpha$	Number of Items	Answer Responses	Scoring Method
<b>Eating Disorders Examination Questionnaire, 6<sup>th</sup> edition</b>					
Restraint	Attempts to restrict food intake for long periods ( 8 hours) over the past month	0.84	5	7-point scale Number of days categorized as: 0=none, 1=1-5 days	Scale scores are average of item scores.
Eating Concerns	Preoccupation with and feelings towards eating food over the past month	0.79	5	2=6-12 days	Global EDE-Q score is sum of scale scores.
Weight Concerns	Feelings toward one's weight over the past month	0.85	5	3=13-15 days	Higher scale scores indicate greater eating disorder risk.
Shape Concerns	Feelings about one's body shape over the past month	0.90	8	4=16-22 days	
				5=23-27 days	
				6=28 days/or	
				"Not at all" to "A lot"	
Global EDE-Q	Overall eating disorder behaviors and cognitions over the past month	n/a			
<b>Three Factor Eating Questionnaire-18</b>					
Emotional Eating	Influence of emotions on the urge to eat	0.84	3	4-point Likert scale: Definitely false to Definitely true	Scale scores are average of item scores.
Disinhibited Eating	Uncontrolled eating behaviors	0.74	3 <sup>a</sup>		Higher scale scores indicate greater emotional eating or a greater loss of control over eating.
<b>Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ)</b>					
Pressures from Media	Perceived pressure from the media	0.88	4 <sup>b</sup>		Scale scores are average of item scores.
Information from Media	Awareness of societal appearance norms conveyed by the media	0.87	4 <sup>b</sup>		Higher scores indicate greater feelings of pressure to obtain the physical appearance standard set by the media, greater awareness of societal appearance norms set by the media, and/or more frequent comparisons of one's body to people in the media.
Internalization of Media	Influence of generic media (e.g., TV, magazines)	n/a	1 <sup>b</sup>	5-point Likert scale: Strongly disagree to Strongly agree	
<b>Body Checking Questionnaire</b>					
	Frequency of pinching areas of the body to see how much fat there is		1	6-point scale: Never to Always	Scale scores are average of item scores.
<b>Body Image and Avoidance Questionnaire</b>					
	Frequency of avoiding wearing clothes that make one particularly aware of the shape of their body	0.72	1		Higher scores indicate greater body checking and avoidance.
<b>Body Image Distortion</b>					
	Distorted view of body size	n/a	1	Perceived body weight: very thin/thin=1, average=2, slightly heavy/overweight=3.	Perceived body weight score minus actual body weight category. Means closer to 0 indicate body weight is perceived accurately.

Instrument	Construct Assessed	Cronbach's $\alpha$	Number of Items	Answer Responses	Scoring Method
<b>Appearance Schema Inventory-Revised</b>					
Self-Evaluative Saliency	How one defines or measure themselves and their self-worth by their physical appearance	0.84	8 <sup>c</sup>	Actual body weight: underweight [BMI<18.5]=1, normal weight [BMI=18.5-24.9]=2, overweight [BMI>25]=3.	Scale scores are average of item scores. Higher scores indicate greater emphasis placed on measuring self-worth by their physical appearance and/or greater investment in appearance.
Motivational Saliency	How one attends to their appearance and engage in appearance management behaviors	0.71	4 <sup>c</sup>	5-point Likert scale: Strongly disagree to Strongly agree	Higher scores indicate greater self-esteem.
<b>Rosenberg Self-Esteem</b>	Self-esteem or confidence	0.84	4 <sup>d</sup>	5-point Likert scale: Strongly disagree to Strongly agree	Higher scores indicate greater depression severity.
<b>Patient Health Questionnaire-8</b>	Depression severity over the last 2 weeks	0.86	8	4-point scale (Not at all to Nearly every day)	

<sup>a</sup>The original Disinhibited Eating scale was reduced to minimize participant burden by selecting items with the strongest factor loadings (Karlsson, et al., 2000).

<sup>b</sup>SATAQ scales were condensed to focus on the currently used media forms and by using items with highest factor loadings (Thompson, et al., 2004).

<sup>c</sup>Appearance Schema Inventory-Revised scales were shortened to reduce repetition and participant burden.

<sup>d</sup>Scale was reduced to include items with highest factor loadings (Martin-Albo, Nunez, Navarro, & Grijalvo, 2007).

**Table 2**  
Weight Status, Age, Disordered Eating, Sociocultural Influencers of Media, Body Image, and Psychological Factors of Female College Students by Race/Ethnicity

Characteristic (possible score range)	Cronbach's $\alpha$	White (n=839) Mean $\pm$ SD*	Asian (n=299) Mean $\pm$ SD	Hispanic (n=153) Mean $\pm$ SD	Black (n=154) Mean $\pm$ SD	Main Effects# F	p-value
<b>Weight Status &amp; Age</b>							
Body Mass Index	n/a	22.62 $\pm$ 3.75 <sup>7a</sup>	21.58 $\pm$ 3.43 <sup>b</sup>	23.61 $\pm$ 4.24 <sup>c</sup>	25.01 $\pm$ 5.04 <sup>d</sup>	29.07	<0.001
Age (years)	n/a	19.64 $\pm$ 1.40	19.54 $\pm$ 1.57	19.80 $\pm$ 1.46	19.66 $\pm$ 1.24	1.17	0.320
<b>Eating Disorders Examination Questionnaire</b>							
Restraint (0 to 6)	0.84	1.54 $\pm$ 1.49 <sup>nd</sup>	1.07 $\pm$ 1.27 <sup>ac</sup>	1.50 $\pm$ 1.44 <sup>acd</sup>	0.82 $\pm$ 1.23 <sup>b</sup>	19.16	<0.001
Eating Concerns (0 to 6)	0.79	0.95 $\pm$ 1.13 <sup>a</sup>	0.84 $\pm$ 1.04 <sup>a</sup>	0.87 $\pm$ 1.05 <sup>a</sup>	0.63 $\pm$ 0.96 <sup>b</sup>	9.10	<0.001
Weight Concerns (0 to 6)	0.85	2.07 $\pm$ 1.63 <sup>a</sup>	1.86 $\pm$ 1.51 <sup>a</sup>	2.14 $\pm$ 1.65 <sup>a</sup>	1.54 $\pm$ 1.49 <sup>b</sup>	18.16	<0.001
Shape Concerns (0 to 6)	0.90	2.49 $\pm$ 1.64 <sup>a</sup>	2.18 $\pm$ 1.56 <sup>a</sup>	2.63 $\pm$ 1.65 <sup>a</sup>	1.88 $\pm$ 1.52 <sup>b</sup>	18.04	<0.001
Global EDE-Q (0 to 6)	n/a	1.76 $\pm$ 1.33 <sup>a</sup>	1.49 $\pm$ 1.21 <sup>a</sup>	1.78 $\pm$ 1.30 <sup>a</sup>	1.22 $\pm$ 1.15 <sup>b</sup>	19.15	<0.001
<b>Three Factor Eating Questionnaire</b>							
Emotional Eating (1 to 4)	0.84	2.24 $\pm$ 0.76 <sup>a</sup>	2.11 $\pm$ 0.73 <sup>a</sup>	2.23 $\pm$ 0.81 <sup>a</sup>	1.95 $\pm$ 0.73 <sup>b</sup>	10.82	<0.001
Disinhibited Eating (1 to 4)	0.74	2.23 $\pm$ 0.67 <sup>a</sup>	2.19 $\pm$ 0.69 <sup>a</sup>	2.18 $\pm$ 0.70 <sup>a</sup>	1.94 $\pm$ 0.63 <sup>b</sup>	10.53	<0.001
<b>Sociocultural Influencers of Media</b>							
Pressures from Media (1 to 5)	0.88	3.55 $\pm$ 0.95 <sup>nd</sup>	3.19 $\pm$ 1.05 <sup>ac</sup>	3.44 $\pm$ 0.96 <sup>acd</sup>	2.93 $\pm$ 1.08 <sup>b</sup>	29.48	<0.001
Information from Media (1 to 5)	0.87	3.15 $\pm$ 0.89 <sup>a</sup>	3.06 $\pm$ 0.96 <sup>a</sup>	3.01 $\pm$ 0.87 <sup>ab</sup>	2.77 $\pm$ 0.98 <sup>b</sup>	7.71	<0.001
Internalization of Media Messages (1 to 5)	n/a	3.40 $\pm$ 1.12 <sup>ac</sup>	2.96 $\pm$ 1.22 <sup>abd</sup>	3.20 $\pm$ 1.20 <sup>a</sup>	2.81 $\pm$ 1.26 <sup>b</sup>	18.71	<0.001
<b>Body Image Factors</b>							
Body Checking & Avoidance (1 to 6)	0.72	3.19 $\pm$ 1.38 <sup>a</sup>	3.01 $\pm$ 1.32 <sup>a</sup>	3.14 $\pm$ 1.35 <sup>a</sup>	2.62 $\pm$ 1.36 <sup>b</sup>	18.07	<0.001
Body Image Distortion (-2 to 2) <sup>§</sup>	n/a	-0.13 $\pm$ 0.53 <sup>a</sup>	0.05 $\pm$ 0.55 <sup>b</sup>	-0.04 $\pm$ 0.52 <sup>ab</sup>	-0.14 $\pm$ 0.55 <sup>a</sup>	12.01	<0.001
Self-Evaluative Saliency (1 to 5)	0.84	3.40 $\pm$ 0.70 <sup>a</sup>	3.33 $\pm$ 0.74 <sup>a</sup>	3.25 $\pm$ 0.73 <sup>ac</sup>	3.17 $\pm$ 0.78 <sup>bc</sup>	9.63	<0.001
Motivational Saliency (1 to 5)	0.71	3.75 $\pm$ 0.64 <sup>a</sup>	3.58 $\pm$ 0.73 <sup>b</sup>	3.68 $\pm$ 0.55 <sup>ab</sup>	3.70 $\pm$ 0.73 <sup>ab</sup>	5.36	0.001
<b>Psychological Factors</b>							
Self-Esteem (1 to 5)	0.84	3.64 $\pm$ 0.85 <sup>a</sup>	3.44 $\pm$ 0.89 <sup>b</sup>	3.77 $\pm$ 0.93 <sup>a</sup>	4.00 $\pm$ 0.83 <sup>c</sup>	21.62	<0.001
Depression (0 to 24)	0.86	5.82 $\pm$ 4.60	6.34 $\pm$ 4.80	6.47 $\pm$ 5.59	5.60 $\pm$ 5.14	2.48	0.060

\* SD=Standard Deviation

# Analysis of covariance by race with body mass index as the covariate.

<sup>†</sup> Superscript lowercase letters followed by differing lowercase superscript letters in a row indicated significant differences between racial/ethnic groups using post-hoc tests (Bonferroni procedures).

<sup>§</sup> Defined as perceived body weight score minus actual body weight category (i.e., underweight, normal weight, overweight, obese). Means closer to zero indicate body weight is perceived accurately. Positive values indicate that individuals perceived they were heavier than they actually were whereas negative values indicate that individuals perceived they weighed less than they actually did.