

EXAMINING ETHNICITY-RELATED RISK FACTORS FOR EATING DISORDER  
SYMPTOMS IN AFRICAN AMERICAN, ASIAN AMERICAN, LATINA, AND  
CAUCASIAN WOMEN

Stacy L. Lin

A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in  
partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department  
of Psychology and Neuroscience (Clinical Psychology).

Chapel Hill  
2018

Approved by:

Anna Bardone-Cone

Daniel Bauer

Beth Kurtz-Costes

Enrique Neblett

Mitchell Prinstein

© 2018  
Stacy L. Lin  
ALL RIGHTS RESERVED

## ABSTRACT

Stacy L. Lin: Examining Ethnicity-Related Risk Factors for Eating Disorder Symptoms in African American, Asian American, Latina, and Caucasian Women  
(Under the direction of Anna Bardone-Cone)

While ethnicity-related factors salient to racial/ethnic minorities have been found to affect minority mental health, they are little studied in the eating disorders literature. The current study uses a sample of 106 African American, 95 Asian American, 106 Latina, and 192 non-Latina Caucasian young women to examine links between the ethnicity-related factors of acculturation, acculturative stress, discrimination stress, and ethnic identity and eating pathology, in addition to examining how a newer construct of satisfaction with racially salient appearance areas is linked to eating pathology. Interactive models of ethnicity-related factors and broadly applicable risk factors identifying concurrent disordered eating were also examined. Overall, acculturative stress, discrimination stress, and satisfaction with racially salient appearance areas were significantly associated with eating pathology, while acculturation and ethnic identity were not. Surprising positive associations between satisfaction with racially salient appearance areas and disordered eating in Latinas emerged. Ethnicity-related factors did not moderate relations between broadly applicable risk factors and eating pathology, with few exceptions. Associations between ethnicity-related factors and disordered eating highlight the importance of considering these factors in conceptualizations of eating disorder risk in racial/ethnic minorities.

## TABLE OF CONTENTS

LIST OF TABLES.....	vi
LIST OF FIGURES.....	viii
INTRODUCTION.....	1
Ethnicity-Related Risk and Protective Factors Affecting Eating Pathology .....	2
Broadly Applicable Risk Factors for Eating Pathology.....	12
Current Study.....	17
METHOD.....	20
Participants and Procedure.....	20
Measures.....	21
Analytic Plan.....	28
RESULTS.....	33
Descriptive Statistics.....	33
Missing Data.....	38
Outliers.....	40
Hypothesis 1: Associations between Ethnicity-Related Factors and Disordered Eating..	41
Hypothesis 2: Associations between Perfectionism, Impulsivity, Thin Ideal Internalization, and Disordered Eating.....	47
Hypothesis 3: Interactive Models of Ethnicity-Related Factors and Thin Ideal Internalization as Identifiers of Concurrent Disordered Eating.....	50
Hypothesis 4: Interactive Models of Ethnicity-Related Factors and Personality Factors as Identifiers of Concurrent Disordered Eating.....	53

Exploratory Aim: Specific Racially Salient Appearance Areas and Disordered Eating...	57
DISCUSSION.....	62
Aim 1: Associations between Ethnicity-Related Factors and Eating Disorder Symptoms in African American, Asian American, and Latina Women.....	64
Aim 2: Associations between Perfectionism, Impulsivity, and Thin Ideal Internalization and Disordered Eating in Racial/Ethnic Minorities.....	70
Aim 3: Interactive Models Predicting Eating Pathology with Ethnicity-Related Factors, Thin Ideal Internalization, Perfectionism, and Impulsivity.....	73
Exploratory Aim: Specific Racially Salient Appearance Areas and Disordered Eating...	75
Additional Considerations.....	79
Strengths and Limitations.....	83
Clinical Implications.....	85
Future Directions.....	86
Conclusion.....	88
APPENDIX: MEASURE OF SATISFACTION WITH RACIALLY SALIENT APPEARANCE AREAS.....	116
REFERENCES.....	128

## LIST OF TABLES

Table 1 – Means, standard deviations, and mean comparisons of demographic variables.....	90
Table 2 – Immigration generations of self, mother, and father in African American, Asian American, Latina, and Caucasian women.....	91
Table 3 – Means, standard deviations, and mean comparisons of study constructs.....	92
Table 4 – African American women: correlations among study constructs.....	94
Table 5 – Asian American women: correlations among study constructs.....	95
Table 6 – Latina women: correlations among study constructs.....	96
Table 7 – Non-Latina Caucasian women: correlations among study constructs examined in this sample.....	97
Table 8 – Strengths of association between race/ethnicity-related factors and disordered eating with pairwise comparisons amongst African American, Asian American, and Latina women based on Fisher’s r-to-z transformations.....	98
Table 9 – African American women: partial correlations of disordered eating with selected racially salient appearance areas when controlling for overall body dissatisfaction.....	99
Table 10 – Asian American women: partial correlations of disordered eating with selected racially salient appearance areas when controlling for overall body dissatisfaction.....	100
Table 11 – Latina women: partial correlations of disordered eating with selected racially salient appearance areas when controlling for overall body dissatisfaction.....	101
Table 12 – African American women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relation between thin ideal internalization and disordered eating.....	102
Table 13 – Asian American women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relation between thin ideal internalization and disordered eating.....	103
Table 14 – Latina women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relation between thin ideal internalization and disordered eating.....	104

Table 15 – African American women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relation between personality variables and disordered eating.....	105
Table 16 – Asian American women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relation between personality variables and disordered eating.....	106
Table 17 – Latina women: hierarchical multiple regression analyses of ethnicity-related factors as moderators of the relations between personality variables and disordered eating.....	107
Table 18 – Associations between satisfaction with racially salient appearance areas and overall eating pathology in African Americans, Asian Americans, and Latinas.....	108
Table 19 – Associations between satisfaction with racially salient appearance areas and dietary restraint in African Americans, Asian Americans, and Latinas.....	109
Table 20 – Associations between satisfaction with racially salient appearance areas and bulimic symptoms in African Americans, Asian Americans, and Latinas.....	110
Table 21 – Associations between satisfaction with racially salient appearance areas and disordered eating in Caucasian Latinas vs. non-Caucasian Latinas.....	111
Table 22 – Associations between satisfaction with racially salient appearance areas and disordered eating in first generation vs. non-first generation Latinas.....	112

## LIST OF FIGURES

Figure 1 – Stice’s dual-pathway model.....	113
Figure 2 – Simple slope graph of satisfaction with racially salient appearance areas as a moderator of the relation between socially prescribed perfectionism and bulimic symptoms in Latina women.....	114
Figure 3 – Simple slope graph of impulsivity as a moderator of the relation between discrimination stress and bulimic symptoms in Latina women.....	115



## INTRODUCTION

Eating disorders were originally thought to be conditions primarily affecting affluent young Caucasian females (Keel & Klump, 2003). In contrast, racial/ethnic minorities in the United States were considered protected from eating disorders, as their cultural backgrounds were believed to buffer them from the extreme emphasis on being thin that seems intrinsic to dominant U.S. culture (Hall, 1995). Due to these beliefs, research into the etiology and maintenance of eating disorders has long focused on female Caucasian samples. “The myth of the golden girl” (Smolak & Striegel-Moore, 2001) began to crumble, however, when it became clear to researchers and clinicians that racial/ethnic minorities do in fact develop eating disorders. The past three decades have seen a dramatic rise in emphasis on gathering data about the incidence of eating disorders in racial/ethnic minorities, as well as an increasing understanding of the importance of clarifying etiological and maintenance factors for eating pathology in these minorities.

While prevalence estimates for eating disorders in racial/ethnic minority women have varied, there is compelling evidence that minorities develop eating disorders at rates comparable to non-Latino Caucasians in the U.S. (e.g., Alegria et al., 2007; Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000; Franko et al., 2012; Marques et al., 2011). In some cases, specific racial/ethnic minorities have been found to engage in eating disorder behaviors at rates exceeding those found in Caucasians (Striegel-Moore et al., 2011).

Due to the erroneous conceptualization of eating disorders as conditions affecting only Caucasians, research has primarily focused on more broadly applicable psychosocial risk and

protective factors such as body dissatisfaction, thin ideal internalization, and perfectionism that may affect individuals regardless of their racial/ethnic group affiliation (e.g., Stice, 2002). While accounting for such factors is vital to our understanding of eating disorder development and maintenance, racial/ethnic minorities are additionally subject to a set of race- and ethnicity-related psychosocial factors that are less often relevant to the majority Caucasian experience. These factors, such as ethnic identity, discrimination experiences, and acculturation levels, play an important role in both enhancing and negatively affecting minority mental health. In the realm of eating disorders research, it is important to identify and account for ethnicity-related risk and protective factors affecting eating pathology in minorities to enable more nuanced understandings of eating disorder risk profiles in these individuals. Additionally, risk models that include well-established risk factors that affect both majority and minority members as well as ethnicity-related risk factors would likely more accurately predict eating disorder risk in racial/ethnic minorities.

### **Ethnicity-Related Risk and Protective Factors Affecting Eating Pathology**

It is valuable to contextualize ethnicity-related risk and protective factors within the framework of existing eating disorder models. Stice's dual-pathway model (Stice, 1994, 2001) posits that when women internalize the expectations of thinness from dominant culture and their social circles, they experience an increase in body dissatisfaction, which is then associated with increased dietary restriction and negative affect, contributing to binge eating and purging behavior (Figure 1). Similarly, Heatherton and Baumeister's escape theory links negative affect to bulimic symptoms, with binge eating functioning as an escape from the aversive experience of negative affect by narrowing attention to the immediate physical environment and enabling temporary avoidance of higher-level thought (Heatherton & Baumeister, 1991). Generalizing

across these models, ethnicity-related factors that affect any of these elements identified as maintainers of eating pathology (most notably, body dissatisfaction and negative affect) might be hypothesized to affect minority individuals' eating disorder risk.

Although the eating disorder field has not consistently focused on researching ethnicity-related factors, there is some preliminary evidence regarding the following in relation to eating pathology: acculturation, acculturative stress, discrimination, racially-specified features, and ethnic identity. Theoretical and empirical support for these factors in African American, Asian, and Latina samples are discussed below.

### Acculturation

Acculturation is the process through which individuals change their attitudes, values, and behaviors to align with those of a different culture, from those in their culture of origin (e.g., Berry, Trimble, & Olmedo, 1986; Marin, 1992). In the context of research in the U.S., acculturation refers to the process through which racial/ethnic minorities adopt the values and practices of the dominant Caucasian U.S. culture. Acculturation is one of the more commonly studied ethnicity-related risk factors for eating disorder symptoms, and has been conceptualized as a vehicle through which racial/ethnic minority women receive the eating disorders risk contained in U.S. psychosocial pressures.

U.S. culture places emphasis on women having a very thin body shape to be attractive, and this body shape is held to be a primary source from which self-worth and social standing are derived (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This emphasis on the importance of being thin, combined with a standard of thinness that may be unobtainable for many individuals, has been consistently linked to increased risk of body dissatisfaction and disordered eating (Thompson et al., 1999). Researchers theorize that the more acculturated to

U.S. majority culture a racial/ethnic minority individual is, the more likely she is to identify with this thin body ideal, placing her at increased risk of feeling dissatisfied with her current body shape, and of developing eating disorders (Ayala, Mickens, Galindo, & Elder, 2007; Mastria, 2002; Nasser, 1997). Conversely, the less acculturated an individual is, the less emphasis she might place on adhering to the thin ideal.

Research has largely supported this connection, as studies have found significant positive associations between acculturation and disordered eating in a number of diverse samples (Doris et al., 2015). Higher acculturation has been linked to eating disorder symptoms in African Americans (Abrams, Allen, & Gray, 1993; Smolak & Striegel-Moore, 2001; Wildes & Emery, 2001), Latinas (Alegria et al., 2007; Cachelin et al., 2000; Cachelin, Phinney, Schug, & Striegel-Moore, 2006), and Asians (Cachelin et al., 2000; Cachelin, Weiss, & Garbanati, 2003; Davis, Katzman & Katzman, 1999).

Although the majority of studies have found that acculturation is positively associated with eating disorder symptoms, some studies have found no association or negative associations between the two (Doris et al., 2015). In a sample of female high school freshmen, Gowen and colleagues (1999) found that acculturation level was not associated with eating disorder symptoms in Asians. However, in the same sample, more acculturated Latinas were more likely to report eating disorder symptoms than their less acculturated peers. Other studies with Latino samples have found no link between acculturation and eating disorder symptoms (Granillo, Jones-Rodriguez, & Carvajal, 2005; Warren & Rios, 2013), a lack of association that has been supported in several studies with female Asian samples (Akan & Grilo, 1995; Iyer & Haslan, 2003; Nicdao et al., 2007; Yoshimura, 1995). Additionally, some studies have found a negative correlation between acculturation and eating disorder symptoms, such that women reporting

lower levels of acculturation tended to report more problems with body image (Lau, Lum, Chronister, & Forrest, 2006; Nieri, Kulis, Keith, & Hurdle, 2005).

There are several primary reasons why associations between acculturation and disordered eating may be inconsistent. First, the pattern of findings suggests that with regard to eating disorder symptoms, acculturation may not function in the same way across all racial/ethnic minorities (Capodilupo & Forsyth, 2014). Implicit in the theoretical link between acculturation and eating disorder symptoms is the assumption that expectations regarding body size in minority cultures of origin are more lenient than those of the thin ideal dominated U.S. culture. This more flexible body ideal is thought to confer protection against the deleterious effects of restrictive Western appearance expectations. Investigation into this issue has found that African Americans and Latinas may in fact tend to endorse ideal body sizes that are larger and/or more flexible than those endorsed by Caucasians (Gordon, Castro, Sitnikov, & Holm-Denoma, 2010; Lynch, Heil, Wagner, & Havens, 2007; Overstreet, Quinn, & Bede Agocha, 2010; Webb, Warren-Findlow, Chau, & Adams, 2013), lending support to the theory that higher levels of acculturation in these groups may be accompanied by the emphasis on thinness found in dominant Caucasian American culture. In contrast, there is evidence that Asians may endorse smaller ideal body sizes than Caucasians (Guan, Lee, & Cole, 2012), which would suggest a negative relation between acculturation and eating disorder symptoms in this group. In examining the literature, results from studies using Asian samples demonstrate more inconsistency, which may lend support to this theory.

Due to these discrepant findings, research examining acculturation as a risk factor for disordered eating should focus on clarifying the association between acculturation and disordered eating within each specific racial/ethnic group. This approach would help clarify

whether acculturation should be considered a risk factor for disordered eating, or whether, in some cases, it may serve as a protective factor against eating pathology.

### Acculturative Stress

Researchers have identified acculturative stress as a factor potentially explaining inconsistencies in the literature examining the link between acculturation and eating disorders. Acculturative stress is described as the increased stress and decreased health that individuals experience during the process of adapting to a new culture from their culture of origin (Berry, 1970, 1997; Berry, Kim, Minde, & Mok, 1987).

Yoshimura (1995) theorized that discrepancies between individuals' cultures of origin and their new cultures could negatively impact how they think of themselves, spurring the development of eating disorder symptoms. While acculturation refers to the degree to which a new culture has been internalized by an individual, acculturative stress refers solely to the elevated discomfort and decreased well-being occurring during this process of adjustment.

Regarding the theoretical role of acculturative stress in eating disorders, it has been proposed that acculturative stress may affect eating disorders through increasing negative affect, thus linking it to both the escape theory and the dual-pathway model. Acculturative stress has been proposed to lower self-esteem, leading to negative affect and increased binge eating and compensatory behaviors (Claudat, White, & Warren, 2016). Alternatively, acculturative stress may affect the degree to which individuals internalize the Caucasian thin ideal, triggering disturbances in body image and engagement in dietary restriction (Capodilupo & Forsyth, 2014; Warren, Castillo, & Gleaves, 2010). One investigation into the role of acculturative stress found that higher acculturative stress increased the strength of the relation between thin ideal internalization and body dissatisfaction in Latinas, wherein women with high levels of

acculturative stress and high internalization of the thin ideal reported the highest levels of body dissatisfaction (Warren et al., 2010).

A growing body of evidence suggests that acculturative stress is associated with eating pathology (Kroon Van Diest, Tartakovsky, Stanchon, Pettit, & Perez, 2014), and may even be a better predictor of eating disorder risk than acculturation (Claudat et al., 2016). In a sample of undergraduate women, acculturative stress was found to moderate the relation between body dissatisfaction and eating disorder symptoms in African Americans (Kroon Van Diest et al., 2014). Further, acculturative stress predicted bulimic symptoms above and beyond general life stress in African American, Asian, and Latina women (Kroon Van Diest et al., 2014). Other investigations have also linked acculturative stress to higher eating disorder symptomatology (Gordon et al., 2010; Perez, Voelz, Pettit, & Joiner, 2002). In a Latino sample, Warren and Rios (2013) found significant positive associations between acculturative stress and body image problems. Thus, current evidence suggests that higher levels of acculturative stress may be associated with increased eating disorder risk.

### Discrimination

Discrimination has been theorized to increase negative affect, which may then contribute to higher levels of engagement in binge eating and compensatory behaviors as an emotion regulation strategy (Heatherton & Baumeister, 1991; Kempa & Thomas, 2000; Lovejoy, 2001; Root, 1990; Striegel-Moore & Smolak, 2000). Discrimination has also been theorized to contribute to low self-esteem, which may subsequently directly contribute to engagement in disordered eating, or indirectly contribute to disordered eating through other psychosocial risk factors such as increased body dissatisfaction (Kempa & Thomas, 2000;)

Discrimination experiences have been associated with more disordered eating in minority women, across racial/ethnic groups. Studies of African American women have found that more reported experiences of discrimination are associated with increased binge eating symptoms (Harrington, Crowther, Henrickson, & Mickelson, 2006). These findings have also been supported in Latinas (Velez, Campos, & Moradi, 2015) and Asians (Cheng, 2014; Iyer & Haslam, 2003).

### Racially Salient Appearance Areas

A major component of eating disorder risk is body dissatisfaction, which is thought to stem from individuals perceiving that they do not meet the dominant beauty ideal. Body dissatisfaction is generally operationalized by quantifying an individual's concern about her body weight and shape. However, in the case of racial/ethnic minorities, there are other aspects of the body outside of weight and shape where they may deviate from the dominant beauty ideal. The beauty ideal portrayed by U.S. media is not only thin, but also Caucasian, with white skin, smooth hair texture, and European facial features (Hall, 1995; Harrison, 2003). Thus, when racial/ethnic minority women attempt to embody dominant beauty standards, they may actually be striving toward a Caucasian beauty ideal that they are unable to attain due to physical characteristics such as skin tone, hair texture, and the shape of their facial features (Hall, 1995; Mok, 1998). These physical features are sometimes referred to as "racially salient appearance areas" due to their relationship to cultural ideas about physical manifestations of race, and specific features may carry significant meaning to specific racial/ethnic minorities. For example, in African Americans, skin tone and hair texture have historically been closely associated with privilege and oppression (Bond & Cash, 1992), have been linked to discrimination experiences (Uzogara, Lee, Abdou, & Jackson, 2014) and remain significant in sociohistorical terms



(Capodilupo, 2015; Falconer & Neville, 2000; Solomon, 2005). Skin tone dissatisfaction in African Americans has been associated with higher levels of body shame, overall body dissatisfaction, and negative body image, suggesting that it is an important dimension of body image disturbance to assess (Buchanan, Fisher, Tokar, & Yoder, 2008; Bond & Cash, 1992; Falconer & Neville, 2000). In Asians, the epicanthic (“single”) eyelid fold is considered to be a feature that distinguishes Asian appearance from a more European appearance (Hall, 1995; Kawamura & Rice, 2009), and desire for a more European eyelid fold has contributed to a high percentage of Asians who undergo cosmetic surgery requesting eyelid surgery to create a “double” eyelid fold (Tewari, 2009).

Though racially salient appearance areas may be particularly important in affecting racial/ethnic minority women’s body image, measures of body dissatisfaction often fail to include items assessing women’s attitudes toward these physical characteristics (Mintz & Kashubeck, 1999; Warren, 2014). Instead, many measures only consider individuals’ attitudes toward their body weight and shape, making it difficult to assess the degree to which minority women’s body satisfaction may be impacted by how they feel about racially salient body features. Research has identified that certain body features appear to be more salient to specific racial/ethnic groups. In African Americans, skin tone, hair texture, nose size, and lip size have been identified as culturally significant body features (Capodilupo, 2015; Patton, 2006). In Asians, the eyelid fold, nose shape, and skin tone have been identified as culturally significant body features (Hall, 1995; Lee & Thai, 2015; Li, Min, Belk, Kimura, & Bahl, 2008; Mintz & Kashubeck, 1999; Sahay & Piran, 1997). Finally, in Latino cultures, skin tone has been identified as a significant body feature (Gomez, 2000; Hunter, 2002).

As there is evidence that racially salient appearance areas affect racial/ethnic minorities' experiences and body image, measures of body dissatisfaction that include items assessing attitudes toward racially salient appearance areas might explain more variance in disordered eating than measures of body dissatisfaction that only assess attitudes toward weight and shape. Further, as different sets of racially salient appearance areas are emphasized in different cultures, racial/ethnic minority individuals' body image may be more closely related to certain appearance areas than others, depending on which features are most salient to the individual's racial/ethnic group.

Due to the theoretical importance of racially salient appearance areas and the lack of consideration of these areas in the eating disorders literature, more work is needed to explore the relations between body dissatisfaction, racially salient appearance areas, and eating disorder symptoms in racial/ethnic minorities (Mellor et al., 2013).

### Ethnic Identity

Ethnic identity, sometimes referred to as racial identity, is the degree to which an individual has explored the values and cultural practices of her culture of origin, and the extent to which membership in her culture contributes to her sense of self. The construct of ethnic identity has been explored as a protective factor against eating disorder symptoms. While several models for ethnic identity have been described (multidimensional and phase models, e.g., Helms, 1990; Phinney & Ong, 2007; Sellers et al., 1998), the eating disorders literature has not identified any single model as being most closely associated with eating disorder symptomatology.

One mechanism through which ethnic identity might protect racial/ethnic minorities from eating disorder symptoms is described by Striegel-Moore and Smolak (2000), who proposed that higher levels of ethnic identity raise self-esteem by helping individuals identify with the positive

aspects of their group membership such as ethnic achievements and resilience. In this way, ethnic identity might buffer racial/ethnic minorities from negative affect and subsequent disordered eating. Other researchers have proposed that increased identification with one's culture of origin might protect individuals from the mainstream U.S. beauty ideals of thinness. This lower level of Caucasian thin ideal internalization is then associated with lower levels of eating disorder symptoms (Croll, Neumark-Sztainer, Story, & Ireland, 2002; Rogers, Wood, & Petrie, 2010; Root, 1990; Striegel-Moore & Cachelin, 2001). Studies have also investigated other variables that may explain the link between ethnic identity and eating disorder symptoms, with some evidence to support self-esteem, body dissatisfaction, and Caucasian thin ideal internalization as mediators of the relation (Cotter, Kelly, Mitchell, & Mazzeo, 2015; Flowers, Levesque, & Fischer, 2012; Phan & Tylka, 2006; Tsai, Curbow, & Heinberg, 2003).

Most research has supported ethnic identity as a protective factor against eating disorder attitudes and behaviors in racial/ethnic minority women in the U.S.. However, these findings should be interpreted with care, as they may only be applicable to specific racial/ethnic minorities. Studies of African American women have found that higher levels of ethnic identity are associated with less eating pathology (Flowers, Levesque, & Fischer, 2012; Henrickson, Crowther, & Harrington, 2010; Shuttlesworth & Zotter, 2011) and less concern about weight and shape (Cotter et al., 2015). In Latinas, higher levels of ethnic identity have similarly been linked to less disordered eating (Ayala et al., 2007; Stein, Corte, & Ronis, 2010) and body dissatisfaction (Schooler & Daniels, 2013). However, as in the case with acculturation, findings regarding Asians are more inconsistent than those in African Americans and Latinas, with studies identifying high ethnic identity as both protective against and unrelated to eating disorder symptoms (Iyer & Haslam, 2003; Phan & Tylka, 2006; Tsai et al., 2003).

On the whole, more studies on ethnic identity have examined African American and Latina women, and those studies have supported this factor as protective against eating disorder symptoms. As research findings in Asians are inconsistent, findings in African American and Latina samples may not be generalizable to this group.

### **Broadly Applicable Risk Factors for Eating Pathology**

Along with the lack of research on ethnicity-related factors associated with eating disorder symptoms, there is also little research into whether risk factors that are well-established in Caucasian females are associated with eating pathology in racial/ethnic minorities to the same degree. Additionally, ethnicity-related factors have not been widely investigated as potential moderators of the relations between these more broadly applicable risk factors and eating pathology.

#### Thin Ideal Internalization

Thin ideal internalization is a well-established risk factor for eating disorder symptomatology in predominately Caucasian samples (e.g., Stice, 2002; Thompson & Stice, 2001). It represents the degree to which individuals assimilate sociocultural pressures to be attractive through embodying a beauty ideal primarily defined by extreme thinness (Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). Thin ideal internalization is theorized to lead to increased body dissatisfaction, as the beauty ideal it espouses is extremely difficult or impossible to achieve for many women (Brownell, 1991; Stice, 1994; Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). As described in Stice's dual pathway model, body dissatisfaction then results in negative affect and engagement in disordered eating (Stice, 1994).

Thin ideal internalization is also associated with eating disorder symptoms in racial/ethnic minority women. Higher thin ideal internalization has been linked to higher body

dissatisfaction and more disordered eating in African American women (Capodilupo, 2015; Gilbert, Crump, Madhere, & Schutz, 2009; Mitchell & Mazzeo, 2009; Rakhkovskaya & Warren, 2014; Watson, Ancis, White, & Nazari, 2013), Asian women (Phan & Tylka, 2006; Rakhkovskaya & Warren, 2014), and Latinas (Rakhkovskaya & Warren, 2014).

While the link between thin ideal internalization and eating disorder symptoms is well-documented, researchers have sought to refine our understanding of this link by investigating ethnicity-related moderators of this relationship. Some key factors that may affect the degree to which thin ideal internalization is associated with eating disorder symptoms in racial/ethnic minorities include ethnic identity (Rakhkovskaya & Warren, 2014; Watson et al., 2013) and racially salient appearance areas (Capodilupo, 2015). Ethnic identity has been proposed as a protective factor that helps racial/ethnic minority women reject the thin ideal, thus decreasing eating pathology associated with thin ideal internalization (Rakhkovskaya & Warren, 2014; Watson et al., 2013). In contrast, research in African American women regarding the impact of racially salient appearance areas has found that when media images contributing to thin ideal internalization depict African Americans with lighter skin tone and long, straight hair, these women report lower levels of body esteem and appearance satisfaction (Capodilupo, 2015). More research is required to clarify how the link between thin ideal internalization and eating disorder symptoms may be influenced by ethnicity-related factors within different racial/ethnic minority groups.

### Perfectionism

Perfectionism has been consistently identified as a factor affecting disordered eating risk in predominately Caucasian samples (e.g., Bardone-Cone et al., 2007; Egan, Wade, & Shafran, 2011; Stice, 2002). While older research examined it as a unidimensional construct, more recent

measures have conceptualized perfectionism as multidimensional (e.g., Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Two commonly-examined dimensions of perfectionism are self-oriented perfectionism and socially prescribed perfectionism. Self-oriented perfectionism is conceptualized as high standards imposed by the self, while socially prescribed perfectionism represents perceived high standards imposed by others. These two dimensions of perfectionism have been differentially linked to specific eating disorder symptoms in the literature. Some studies suggest that self-oriented perfectionism may be more robustly related to dietary restraint (e.g., Bardone-Cone, 2007; Chang, Ivezaj, Downey, Kashima, & Morady, 2008), while both self-oriented and socially prescribed perfectionism have been linked to the bulimic symptoms of binge eating and inappropriate compensatory behaviors (Bardone-Cone, 2007; Chang et al., 2008).

While perfectionism has been identified as a risk factor for eating disorder symptoms in predominately Caucasian samples, few studies have investigated the link between perfectionism and disordered eating in racial/ethnic minorities. One study of African American women found that those who reported high levels of socially prescribed perfectionism and perceived themselves to be overweight reported the highest levels of bulimic symptoms (Bardone-Cone, Weishuhn, & Boyd, 2009). However, in a sample of Asian females, dimensional perfectionism did not account for significant variance in drive for thinness (Chang, Yu, & Lin, 2013). To our knowledge, no other studies have specifically assessed the association between dimensional perfectionism and the major racial/ethnic groups in the U.S.

Additionally, ethnicity-related factors, such as racially salient appearance areas, may interact with perfectionism to affect disordered eating. For example, individuals with self-imposed high standards for themselves (high self-oriented perfectionism) may attempt to use

dieting as a way to shape their bodies to fit the thin ideal, but this relation may be influenced by attitudes toward racially salient features. That is, dissatisfaction with racially salient appearance areas might increase an individual's determination to fit the Caucasian thin ideal in the realms of body and shape by dieting, if she perceives she is unable to embody the other aspects of the Caucasian thin ideal due to being a racial/ethnic minority (e.g., "I will never have light skin, but at least I can put a lot of effort into dieting so that I am thin"). In this way, high self-oriented perfectionism and high dissatisfaction with racially salient appearance areas may interact to predict high levels of dietary restraint in racial/ethnic minorities. Socially prescribed perfectionism is considered to increase the likelihood of engaging in bulimic symptoms when an individual's perceived inability to live up to high standards imposed by others triggers negative affect. Dissatisfaction with racially salient appearance areas may further enhance an individual's perception that she is unable to live up to standards imposed by others, as these appearance areas represent physical features that are difficult or impossible for one to change. Combined, high socially prescribed perfectionism and high dissatisfaction with racially salient appearance areas may predict high levels of bulimic symptoms in racial/ethnic minorities.

### Impulsivity

Impulsivity is another personality factor linked to engagement in disordered eating. Impulsivity may be defined as an individual's predisposition toward engaging in quick and unplanned actions in response to internal or external stimuli (e.g., Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). Like perfectionism, impulsivity has come to be conceptualized multidimensionally. In particular, the facet of impulsivity known as "negative urgency," representing an individual's tendency to behave rashly when experiencing distress, is thought to be linked to engagement in maladaptive coping behaviors through negative reinforcement

(Cyders & Smith, 2007). In the context of eating disorder symptoms, individuals high in negative urgency may engage in bulimic behaviors such as binge eating and purging as a way to manage negative affect (Fischer, Peterson, & McCarthy, 2013; Fischer & Smith, 2008). Thus, the negative urgency dimension of impulsivity may motivate disordered eating through escape theory (Heatherton & Baumeister, 1991), with individuals high in negative urgency being more at risk of binge eating as a way to temporarily escape negative affect. Research has supported this theoretical link in predominately Caucasian samples, with negative urgency demonstrating a positive association with bulimic symptoms (Fischer, Peterson, & McCarthy, 2013; Fischer, Smith, & Cyders, 2008; Wenzel, Weinstock, Vander Wal, & Weaver, 2014).

The link between impulsivity and disordered eating has not been extensively studied in racial/ethnic minority samples. Two studies with samples of African American women have supported the positive association between impulsivity and bulimic symptoms (Bodell et al., 2012; Higgins, Lin, Alvarez, & Bardone-Cone, 2015). One study with a clinical sample of adolescent Latinas found a significant positive association between a unidimensional measure of impulsivity and dietary restraint, but found no correlation between impulsivity and binge eating (White & Grilo, 2005). In the same sample, impulsivity was not significantly associated with either dietary restraint or binge eating in African American adolescents (White & Grilo, 2005). To our knowledge, no studies have investigated the relations between impulsivity and disordered eating in Asian American samples.

Due to the role that negative affect is theorized to play in connecting the negative urgency component of impulsivity with disordered eating, impulsivity might moderate the link between ethnicity-related factors and disordered eating. For example, whether stress from



discrimination experiences is associated with binge eating may be moderated by the degree to which an individual is impulsive.

### **Current Study**

While some researchers have begun to investigate psychosocial factors affecting racial/ethnic minority women's eating disorder risk, there are significant limitations in prior research. Given these limitations, the aims and hypotheses of the current study were as follows:

**Aim 1:** Assess the association between ethnicity-related factors and disordered eating (overall eating pathology, dietary restraint, and bulimic symptoms) in African American, Asian American, and Latina women.

**Hypothesis 1.** Ethnicity-related factors will be significantly associated with disordered eating in African Americans, Asian Americans, and Latinas.

**Hypothesis 1A)** Higher acculturation will be associated with higher levels of disordered eating in African Americans and Latinas, and lower levels of disordered eating in Asians.

**Hypothesis 1B)** Higher levels of acculturative stress, higher overall dissatisfaction with racially salient appearance areas, and higher stress ratings for discrimination experiences will each be associated with higher levels of disordered eating in all three racial/ethnic minority groups.

**Hypothesis 1C)** Higher levels of ethnic identity will be associated with lower levels of disordered eating in all three racial/ethnic minority groups.

**Hypothesis 1D)** Satisfaction with specific racially salient appearance areas will be significantly negatively associated with higher levels of disordered eating, after controlling for body dissatisfaction as measured by weight/shape concern, in all three racial/ethnic minority groups.

**Aim 2:** Assess the association between the risk factors of perfectionism, impulsivity, and thin ideal internalization and disordered eating in racial/ethnic minorities.

**Hypothesis 2.** Self-oriented and socially prescribed perfectionism, impulsivity, and thin ideal internalization will be significantly associated with disordered eating in all racial/ethnic groups, such that:

**Hypothesis 2A)** Higher self-oriented perfectionism will be associated with higher levels of dietary restraint.

**Hypothesis 2B)** Higher socially prescribed perfectionism will be associated with higher levels of bulimic symptoms.

**Hypothesis 2C)** Higher levels of impulsivity will be associated with higher levels of bulimic symptoms.

**Hypothesis 2D)** Higher levels of thin ideal internalization will be associated with higher levels of overall eating pathology.

**Aim 3:** Examine interactive models predicting disordered eating with ethnicity-related factors, thin ideal internalization, perfectionism, and impulsivity.

**Hypothesis 3.** Ethnicity-related factors will moderate the relations between thin ideal internalization and disordered eating in African Americans, Asian Americans, and Latinas as follows:

**Hypothesis 3A)** Individuals low in thin ideal internalization and high in ethnic identity will report the lowest levels of disordered eating.

**Hypothesis 3B)** Individuals high in thin ideal internalization and low in overall satisfaction with racially salient appearance areas will report the highest levels of disordered eating.

**Hypothesis 4.** Ethnicity-related factors will interact with personality factors to identify disordered eating in African Americans, Asian Americans, and Latinas as follows:

**Hypothesis 4A)** Self-oriented perfectionism will interact with satisfaction with racially salient appearance areas to identify concurrent levels of dietary restraint, such that individuals high in self-oriented perfectionism and low in satisfaction with racially salient appearance areas will report the highest levels of dietary restraint.

**Hypothesis 4B)** Socially prescribed perfectionism will interact with satisfaction with racially salient appearance areas to identify concurrent levels of bulimic symptoms, such that individuals high in socially prescribed perfectionism and low in satisfaction with racially salient appearance areas will report the highest levels of bulimic symptoms.

**Hypothesis 4C)** Discrimination stress will interact with impulsivity to identify concurrent levels of bulimic symptoms, such that individuals high in impulsivity and high in discrimination stress will report the highest levels of bulimic symptoms.

**Exploratory aim.** We will seek to examine patterns of association between satisfaction with specific racially salient appearance areas and disordered eating, and to identify the racially salient appearance areas that are most closely associated with disordered eating in African Americans, Asian Americans, and Latinas.

## METHOD

### Participants and Procedure

Participants in the study were 499 women between 18 and 25 years old, including: 106 African Americans, 95 Asian Americans, 106 Latinas, and 192 non-Latina Caucasians (note: for the remainder of the manuscript, the term “Caucasian” will refer to non-Latina Caucasians). In order to reach target samples sizes for racial/ethnic minority women, participants were recruited through Amazon Mechanical Turk; the undergraduate psychology research participant pool, Sona; and email listservs of racial/ethnic minority student organizations at colleges/universities across the U.S.

Participants self-identified by electing to complete the study survey through a Mechanical Turk task posting, a posting on the Sona website, or through a link provided in a listserv recruitment email. Recruitment materials specified eligibility criteria for the survey, and only respondents meeting eligibility criteria (as determined by demographic questions at the beginning of the survey) were able to complete the study survey. Participants who completed the survey via Mechanical Turk were compensated \$2.00, those who completed the survey via Sona were assigned one course hour of credit, and those who completed the survey via listserv link were offered the opportunity to enter a drawing for one of four \$50 Amazon gift cards. Following completion of the survey, which took about 40-60 minutes, participants were shown a debriefing statement regarding the survey. Study procedures were approved by UNC’s Institutional Review Board.

## Measures

### Measures of eating disorder symptoms

**Overall eating pathology.** The Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) was used to assess overall levels of eating disorder attitudes and behaviors. The EAT-26 is a standardized measure (26 items, 1 = *never* to 6 = *always*) used to assess eating pathology. To score the measure, item ratings 1-3 are recoded as 0s; 4 as 1; 5 as 2; and 6 as 3, and then the recoded items are summed to generate a total score. Higher scores reflect higher levels of eating pathology, with scores of 20 or higher indicating probable eating disorders (King, 1989, 1991). The EAT-26 has demonstrated good internal consistency with a Cronbach's alpha of .90 (Doninger, Enders, & Burnett, 2005) and test-retest reliability of  $r = .86$  (Mazzeo, 1999) in predominately Caucasian samples. In a sample of African American women, the EAT-26 demonstrated adequate internal consistency with a Cronbach's alpha of .85 (Kelly et al., 2012). In the current sample, Cronbach's alpha was .85 for African American women, .90 for Asian women, .92 for Latina women, and .91 for Caucasian women.

**Dietary restraint.** The Cognitive Restraint subscale (20 items, true-false and 1 = *unlikely* to 4 = *very likely*) of the Three Factor Eating Questionnaire (TFEQ-R; Stunkard & Messick, 1985) was used to measure dietary restraint. To score the measure, true/false items rated as "true" are assigned a rating of 1, and items rated "false" are assigned a rating of 0. Items rated on a 1 to 4 scale are recoded, with 1 and 2 recoded as 0, and 3 and 4 recoded as 1. Item ratings are then summed to generate a total subscale score. The items in this subscale assess conscious control of eating behavior, with higher scores reflecting higher levels of dietary restraint. The TFEQ-R subscale has demonstrated good reliability, with Cronbach's alpha of .93 in a sample of individuals reporting varying levels of restrained eating behaviors (Stunkard & Messick, 1985).

In a sample of African American women and Caucasian women, internal consistency was good, with Cronbach's alphas of .90 and .92, respectively (Bardone-Cone & Boyd, 2007). The TFEQ-R has demonstrated construct validity, as restraint scores were significantly negatively correlated with daily caloric intake, and positively correlated with more lifetime episodes of dieting (Laessle, Tuschl, Kotthaus, & Pirke, 1989). In the current sample, Cronbach's alpha was .88 for African American women, .86 for Asian women, .86 for Latina women, and .86 for Caucasian women.

***Bulimic symptoms.*** The Bulimia subscale of the Eating Disorder Inventory (EDI-Bulimia; Garner, Olmsted, & Polivy, 1983) was used to assess bulimic symptoms. This subscale contains seven items (1 = *never* to 6 = *always*) assessing bulimic symptoms, with an emphasis on binge eating. To score the measure, item ratings 1-3 are recoded as 0s; 4 as 1; 5 as 2; and 6 as 3, and then the recoded items are summed to generate a total score. The EDI-Bulimia has demonstrated adequate internal consistency in a sample of African American and Caucasian undergraduates, with Cronbach's alphas of .85 and .86 for these groups, respectively (Bardone-Cone & Boyd, 2007). In the current sample, Cronbach's alpha was .84 for African American women, .87 for Asian women, .91 for Latina women, and .83 for Caucasian women.

#### Ethnicity-related factors

***Acculturation.*** The dominant society immersion subscale of the Stephenson Multigroup Acculturation Scale (SMAS; Stephenson, 2000) was used to assess acculturation. This subscale consists of 15 items (1 = *false* to 4 = *true*) assessing degree of dominant society immersion. Items in the subscale are summed to generate a total immersion score, with higher scores reflecting higher immersion in the dominant society. This measure has demonstrated acceptable internal consistency in a diverse sample of African Americans, Asians, Latinas, and Caucasians,

with a Cronbach's alpha of .75 for the dominant society immersion subscale (Stephenson, 2000). The convergent validity of the SMAS is supported as the dominant society immersion subscale was found to positively correlate with two measures of Anglo orientation and negatively correlate with two measures of ethnic orientation (Stephenson, 2000). In the current sample, Cronbach's alpha for the dominant society immersion subscale was .71 for African American women, .79 for Asian women, .78 for Latina women, and .81 for Caucasian women.

***Acculturative stress.*** A short version of the Social, Attitudinal, Familial, Environmental Acculturative Stress Scale (SAFE; Mena, Padilla, & Maldonado, 1987; Padilla, Wagatsuma, & Lindholm, 1985) was used to assess acculturative stress. This measure contains 24 items assessing stress from different acculturative domains (1 = *not stressful* to 5 = *extremely stressful*), and was adapted from the original 60-item SAFE by Mena and colleagues (1987). Participants may also indicate when items do not apply to them, resulting in a "0" score for those items. Items are summed to generate a total acculturative stress score, with higher scores reflecting higher amounts of acculturative stress. The SAFE has demonstrated adequate internal consistency in a diverse sample of undergraduate women, with a Cronbach's alpha of .87 for African Americans, .91 for Asians, and .91 for Latinas (Kroon Van Diest, Tartakovsky, Stachon, Pettit, & Perez, 2014). The SAFE has demonstrated discriminant validity distinguishing the effect of acculturative stress from that of general life stress in samples of African Americans and Latinas (Joiner & Walker, 2002; Kiang et al., 2010). In the current sample, Cronbach's alpha was .90 for African American women, .91 for Asian women, .93 for Latina women, and .93 for Caucasian women.

***Discrimination stress.*** The appraised racist events subtotal of the Schedule of Racist Events (SRE; Landrine & Klonoff, 1996) was used to assess discrimination stress. This measure

consists of 17 items that assess lifetime experiences of racist discrimination (1 = *never* to 6 = *almost all of the time/more than 70% of the time*) and stress appraisal of racist discrimination experiences (1 = *not at all stressful* to 6 = *extremely stressful*). The 17 items assessing appraised racist events are summed to generate a total appraised stress from racist events score. Higher scores reflect higher levels of experienced stress resulting from discrimination experiences. The SRE was developed for use with African Americans, thus, item wording in the original measure is targeted toward these individuals (e.g., “How many times have you been treated unfairly...because you are Black?”). To address study participants’ differing racial/ethnic affiliations, measure items were reworded to be inclusive of other racial/ethnic identifications (e.g., “How many times have you been treated unfairly...because of your race/ethnicity?”). The SRE has demonstrated good internal consistency in a sample of African Americans, with Cronbach’s alphas of .95 for lifetime racist events, and .94 for appraised stress from racist events (Landrine & Klonoff, 1996). This measure has also demonstrated adequate internal consistency in a diverse sample of African American, Asian, Latina, and Caucasian women, with an overall Cronbach’s alpha of .90 and individual racial group alphas ranging from .87 to .91 (Ro & Choi, 2009). The SRE has also demonstrated construct validity in samples of African Americans, Asians, and Latinas, in which it has been found to correlate significantly with measures of stress and distress in these groups (Huynh, Devos, & Dunbar, 2012; Landrine & Klonoff, 1996; Liang, Li, & Kim, 2004). In the current sample, Cronbach’s alpha was .92 for African American women, .93 for Asian women, .95 for Latina women, and .95 for Caucasian women.

***Satisfaction with racially salient appearance areas.*** As there is no comprehensive measure designed to capture satisfaction with racially salient appearance areas, a 48-item questionnaire based on the Skin Color Questionnaire (Bond & Cash, 1992) was developed to



assess participants' satisfaction with 24 physical feature characteristics (Appendix). A pool of physical features was selected based on a focus group discussion with undergraduate women and research identifying racially salient features. This pool was further refined after feedback from undergraduate women who responded to the initial form of the measure. For each feature, two questions were asked: 1) "How satisfied are you with [feature]?" and 2) "If you could change your [feature], would you make it..." The items regarding satisfaction were rated on a scale from 1 = *extremely dissatisfied* to 7 = *extremely satisfied*. The items regarding changing features were rated on a 1 to 7 scale tailored to characteristics of the specific features, e.g., for skin tone, 1 = *much lighter* to 7 = *much darker*, with 4 representing a neutral point of "*I would not change my [feature]*." For the purpose of this study, we focused on satisfaction with features, with items summed and divided by the number of items to generate a mean overall racially salient appearance area satisfaction score where higher scores reflect higher satisfaction with racially salient appearance areas. In the current sample, Cronbach's alpha was .94 for African American women, .95 for Asian women, .94 for Latina women, and .93 for Caucasian women.

***Ethnic identity.*** The Multi-Group Ethnic Identity Measure-Revised (MEIM-R; Phinney & Ong, 2007) was used to assess ethnic identity. This measure contains six items (1 = *strongly disagree* to 5 = *strongly agree*) that assess ethnic identity on two dimensions: Exploration (3 items) and Commitment (3 items). A total MEIM-R score is generated by summing item scores and dividing by the total number of items to obtain a mean score. Higher scores reflect higher levels of ethnic identity. Confirmatory factor analyses have found good model fit for the two-factor model (Phinney & Ong, 2007). The MEIM-R has demonstrated adequate internal consistency in an ethnically-diverse sample of undergraduate and graduate students (including non-Latino Caucasians, Latinos, Asians, African Americans, and Native Americans), with

Cronbach's alpha of .88 for the total scale in racial/ethnic minorities (Yoon, 2011). For non-Latino Caucasians in the same sample, Cronbach's alpha was .89 for the total scale (Yoon, 2011). In the current sample, Cronbach's alpha for the total scale was .89 for African American women, .92 for Asian women, .90 for Latina women, and .83 for Caucasian women.

#### Broadly applicable eating disorder risk factors

**Body dissatisfaction.** Weight Concern and Shape Concern subscales of the Eating Disorders Examination—Questionnaire (EDE-Q; Fairburn & Beglin, 1994) were used to assess body dissatisfaction. These subscales were combined to form a measure of general body dissatisfaction, as past work suggests that these subscales load onto a single underlying factor (Peterson et al., 2007). The combined measure contains 12 items rated from 0 = *not at all* to 6 = *markedly*. Item ratings are summed, then divided by the total number of items to generate a mean score. The Weight Concern and Shape Concern subscales of the EDE-Q demonstrate adequate internal consistency with Cronbach's alphas of .89 and .93, respectively, in a female undergraduate sample (Luce & Crowther, 1999). Reliability for these subscales has also been demonstrated in samples of African American and Latina women (Bardone-Cone & Boyd, 2007; Franko et al., 2012). The EDE-Q demonstrates good convergent validity with the Eating Disorders Examination interview from which it was adapted, with moderate to high correlations between subscales from the two measures (Fairburn & Beglin, 1994). In the current sample, Cronbach's alpha for the combined subscales was .96 for African American women, .94 for Asian women, .96 for Latina women, and .96 for Caucasian women.

**Thin ideal internalization.** The Internalization-Thin/Low Body Fat scale of the SATAQ-4 (SATAQ-4-Thin; Schaefer et al., 2015) was used to assess thin ideal internalization. This subscale contains five items (1 = *definitely disagree* to 5 = *definitely agree*). Item ratings are

summed, then divided by the total number of items to generate a mean score. The SATAQ-4-Thin has demonstrated adequate internal consistency in a sample of female undergraduates, with a Cronbach's alpha of .86 for both Caucasians and racial/ethnic minority women (Schaefer et al., 2015). The Internalization-Thin/Low Body Fat scale has demonstrated convergent validity, with medium-to-large associations with a measure of eating disorder symptomatology and a measure of body dissatisfaction (Schaefer et al., 2015). In the current sample, Cronbach's alpha was .88 for African American women, .81 for Asian women, .79 for Latina women, and .87 for Caucasian women.

**Perfectionism.** The Self-Oriented Perfectionism and Socially Prescribed Perfectionism subscales of the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991) were used to measure dimensional perfectionism. Each of the subscales contains 15 items (1 = *strongly disagree* to 7 = *strongly agree*) that are summed to generate total subscale scores. The Self-Oriented Perfectionism subscale assesses self-imposed high standards, while the Socially Prescribed Perfectionism subscale assesses perceived high standards imposed by others. Higher scores reflect higher levels of dimensional perfectionism. The MPS subscales have demonstrated adequate internal consistency, with Cronbach's alphas of .86 for Self-Oriented Perfectionism and .87 for Socially Prescribed Perfectionism in an undergraduate sample (Hewitt & Flett, 1991). These subscales have also demonstrated adequate construct validity, with Self-Oriented Perfectionism significantly correlating with high standards and self-criticism, and Socially Prescribed Perfectionism significantly correlating with need for approval and fear of negative social evaluation (Hewitt & Flett, 1991). In the current sample, Cronbach's alpha for Self-Oriented Perfectionism was .90 for African American women, .91 for Asian women, .87 for Latina women, and .90 for Caucasian women. Cronbach's alpha for Socially Prescribed

Perfectionism was .81 for African American women, .80 for Asian women, .75 for Latina women, and .83 for Caucasian women.

***Impulsivity.*** The Urgency subscale of the Urgency, Premeditation (lack of), Perseverance (lack of), and Sensation Seeking Impulsive Behavior Scale (UPPS; Whiteside & Lynam, 2001) was used to measure the negative urgency dimension of impulsivity. This subscale contains 12 items (0 = *not at all* to 4 = *very much*) that are summed to generate a total Urgency score, with higher scores reflecting higher tendencies toward engaging in impulsive behaviors when experiencing negative affect. The Urgency subscale of the UPPS has demonstrated adequate internal consistency with a Cronbach's alpha of .86 in a predominately female undergraduate sample (Whiteside & Lynam, 2001). Good test-retest reliability of the Urgency subscale of the UPPS has been demonstrated with  $r = .86$  in an adult sample over a period of around 9 days (Weafer, Baggott, & de Wit, 2013). The Urgency subscale of the UPPS has demonstrated convergent validity, as it is associated with the impulsiveness facet of the Revised Neo Personality Inventory (Whiteside & Lynam, 2001). In the current sample, Cronbach's alpha was .93 for African American women, .93 for Asian women, .89 for Latina women, and .92 for Caucasian women.

### **Analytic Plan**

Descriptive statistics were computed for study variables prior to conducting analyses to test hypotheses. Racial/ethnic groups were compared on their reported levels of study constructs using ANOVAs. If overall group differences were found, Tukey's HSD post hoc test was performed to identify which group means differed significantly. To assess associations between eating disorder risk factors and disordered eating, we examined bivariate Pearson correlations. Strengths of association were compared between racial/ethnic groups using Fisher's  $r$ -to- $z$

transformations. The Benjamini-Hochberg procedure was used to control for the false discovery rate in these pairwise Fisher's r-to-z comparisons, with a false discovery rate set at .05 (Benjamini & Hochberg, 1995). Partial correlations were examined to assess associations between satisfaction with specific appearance areas and disordered eating, while controlling for the effect of body dissatisfaction. Interactive models were tested with hierarchical multiple regression analyses. Continuous independent variables entered into interactions were centered per the recommendation of Frazier, Tix, and Barron (2004). Significant interactions were probed through simple slope graphs and simple slope analyses. If interactions were not significant, main effects were examined. Two sets of regressions were run, one including the set of covariates of age, BMI, and parental education, and one without these covariates. As the findings from these sets of regressions did not differ in terms of their significance, the set of regressions without covariates was retained for parsimony. In order to address the increased risk of Type I error with multiple comparisons, the Holm-Bonferroni approach (Holm, 1979) was used to control familywise error rate in the multiple regression models.

**Analysis for Hypothesis 1.** *Ethnicity-related factors will be significantly associated with disordered eating in African Americans, Asians, and Latinas.* Pearson correlations were calculated to investigate associations between the ethnicity-related factors of interest (acculturation, acculturative stress, discrimination stress, overall satisfaction with racially salient appearance areas, and ethnic identity) and eating disorder symptoms (overall eating pathology, dietary restriction, and bulimic symptoms) in each racial/ethnic minority group. Strengths of associations between ethnicity-related factors and eating disorder symptoms were compared using Fisher's r-to-z transformations.

Partial correlations were used to assess whether satisfaction with specific racially salient appearance areas was significantly associated with eating pathology in racial/ethnic minorities after controlling for body dissatisfaction. For each racial/ethnic group, a subset of specific racially salient appearance areas was selected through examination of theory, prior research, and data from the current study. These appearance areas were included in the analysis if prior theory and research supported a link between them and racial/ethnic minority women's body image, or if satisfaction with the area was significantly correlated with disordered eating in the current study. Thus, depending on the appearance area being examined, the area might be supported as salient to minority women's body image in the literature but not current study data, or vice versa. Partial correlations were calculated to determine the associations between satisfaction with these specific appearance areas and measures of disordered eating, after controlling for the effect of body dissatisfaction as measured by weight/shape concern.

**Analysis for Hypothesis 2.** *Higher levels of self-oriented and socially prescribed perfectionism, impulsivity, and thin ideal internalization will be significantly associated with disordered eating in all racial/ethnic groups.* Pearson correlations were calculated to investigate associations between self-oriented perfectionism and dietary restriction, socially prescribed perfectionism and bulimic symptoms, impulsivity and bulimic symptoms, and thin ideal internalization and overall disordered eating.

**Analysis for Hypothesis 3.** *Ethnicity-related factors will moderate the relations between thin ideal internalization and disordered eating.* Multiple regressions were used to investigate whether the ethnicity-related factors of ethnic identity and overall satisfaction with racially salient appearance areas interact with thin ideal internalization to identify concurrent levels of disordered eating in each racial/ethnic minority group. Step 1 was the simultaneous entry of an

ethnicity-related factor (ethnic identity or overall satisfaction with racially salient appearance areas) and thin ideal internalization. Step 2 was the two-way interaction of thin ideal internalization and the ethnicity-related factor entered in Step 1. Dependent variables in these regressions were measures of disordered eating (overall eating pathology, dietary restriction, and bulimic symptoms).

**Analysis for Hypothesis 4.** *Ethnicity-related factors will interact with personality factors to identify disordered eating.* Multiple regressions were used to investigate whether the ethnicity-related factors of overall satisfaction with racially salient appearance areas and stress ratings for discrimination experiences interact with personality factors to identify concurrent levels of disordered eating in each racial/ethnic minority group. Step 1 was the simultaneous entry of an ethnicity-related factor (satisfaction with racially salient appearance areas or discrimination stress) and a personality factor (self-oriented perfectionism, socially prescribed perfectionism, or impulsivity). Step 2 was the two-way interaction of the ethnicity-related factor and personality factor entered in Step 1. Dependent variables in these regressions were measures of disordered eating (overall eating pathology, dietary restriction, and bulimic symptoms).

**Analysis for Exploratory aim.** *Satisfaction with specific racially salient appearance areas.* Pearson correlations were calculated to investigate associations between satisfaction with specific racially salient appearance areas (e.g., skin tone and hair texture) and disordered eating (overall eating pathology, dietary restriction, and bulimic attitudes and behaviors) in African Americans, Asian Americans, and Latinas. Strengths of associations between satisfaction with specific racially salient appearance areas and eating disorder symptoms were compared using Fisher's *r*-to-*z* transformations.

**Power analyses.** Power analyses for multiple regression with two predictors were conducted with G\*Power 3.1 to determine the sample size needed to detect a medium effect size of  $f^2 = .15$  with an alpha of .05 and power of .80. Based on these specifications, a sample size of 55 is required. Additional power is required to detect the hypothesized 2-way interaction effects. According to Cohen and colleagues (Cohen, Cohen, West, & Aiken, 2003), assuming a reliability of .88 for each predictor in the interaction, a sample size of around 100-150 would be sufficient to achieve a power of .80 to detect a medium effect size. Based on these parameters, the study sample sizes of 106 (African Americans), 95 (Asians), and 106 (Latinas) are around the low end of the target sample sizes recommended by this power analysis. However, due to missing data, sample sizes entered into the study models ranged from 74 to 90. Thus, regressions investigating interactive effects may be underpowered.



## RESULTS

### Descriptive Statistics

#### Demographics

Demographic information on age, BMI, and parental educational attainment was compared between groups, and results are reported in Table 1. Racial/ethnic groups differed significantly by BMI ( $F(3, 484) = 8.15, p < .001$ ). Post hoc tests indicated that African Americans reported higher BMI than Asian Americans and Caucasians, and Latinas reported higher BMI than Asian Americans. An overall significant mean difference in age was found ( $F(3, 495) = 3.11, p = .026$ ), with Latinas reporting higher average age than Asian Americans. The percentage of participants whose parents had completed at least a 4-year college degree differed by race ( $\chi^2(3, N = 499) = 12.31, p = .006$ ), with Asian Americans and Caucasians reporting significantly higher proportions of parents who had completed at least a 4-year college degree than Latinas, and Asian Americans reporting significantly higher proportions of parental 4-year college degrees than African Americans.

*Latina racial identification.* Latinas reported their racial identification as follows: 39.6% Caucasian/White, 33.0% multiracial, 12.3% African American/Black, 8.5% American Indian/Alaska Native, and 6.6% Asian.

*Immigration generation.* Immigration generation for participants and their parents are reported in Table 2. Most African American/Black and Caucasian women identified as at least fourth generation, while at least half of Asian American and Latinas identified as second generation.

*Participant country of origin.* The majority of African American women identified the U.S. as their country of origin. Others identified primarily countries in Africa or the Caribbean: 3.8% Nigeria 1.9% Ghana, .9% each of Albania, Cameroon, Canada, Haiti, Somalia, and Trinidad and Tobago; 4.7% unsure, country not listed, or missing.

Most Asian Americans identified the U.S. as their country of origin, with the other countries identified representing territories in South Asia, Southeast Asia, and East Asia. For Asian Americans: 69.5% United States; 12.6% India; 5.3% South Korea; 2.1% China; 2.1% Vietnam; 1.1% each Bangladesh, Indonesia, Pakistan, Philippines, and Singapore; 3.2% unknown, country not listed, or missing.

Most Latinas identified the U.S. as their country of origin, with the others tending to identify Mexico or countries in Central and South America. For Latinas: 73.6% United States; 4.7% Peru; 3.8% Brazil; 3.8% Mexico; 2.8% Venezuela; 1.9% Colombia; 1.9% Dominican Republic; .9% each Argentina, Belize, Cuba, El Salvador, Nicaragua, and Yemen; 1.8% unknown, country not listed, or missing.

The vast majority of Caucasians identified the U.S. as their country of origin. For Caucasians: 95.8% United States; .5% each Afghanistan, Albania, Belgium, Canada, Lebanon, and Poland; 1.0% unknown or country not listed.

*Participant maternal country of origin.* For African Americans, 70.8% reported their mother's country of origin as the United States; 6.6% Nigeria; 2.8% Ghana; 2.8% Jamaica; 1.9% Haiti; .9% each Afghanistan, Antigua and Barbuda, Bahamas, Cameroon, Eritrea, Ethiopia, Germany, Somalia, South Africa, Trinidad and Tobago, and Zimbabwe; 4.5% unknown, country not listed, or missing.

For Asian Americans: 24.3% China; 23.2% India; 10.5% United States; 8.5% South Korea; 7.4% Vietnam; 6.3% Philippines; 3.2% Pakistan; 3.2% Thailand; 3.2% Taiwan; 2.1% Bangladesh; 2.1% Laos; 1.1% Indonesia; 1.1% Singapore; 1.1% missing.

For Latinas: 23.6% Mexico; 22.6% United States; 6.6% Peru; 5.7% Venezuela; 4.7% Colombia; 3.8% Dominican Republic; 3.8% India; 2.8% Brazil; 2.8% Ecuador; 2.8% Nicaragua; 1.9% Bolivia; 1.9% Cuba; 1.9% Panama; .9% each Argentina, Barbados, Belize, Canada, Costa Rica, France, Ghana, Honduras, Paraguay, Russia, and Vietnam; .9% unknown or country not listed.

For Caucasians: 84.9% United States; 2.6% Germany; 1.6% Ireland; 1.0% Belgium; 1.0% Portugal; 1.0% Ukraine; .5% each Albania, Argentina, Bulgaria, Denmark, El Salvador, Italy, Lebanon, Malaysia, Mexico, Norway, Poland, Russia, Sweden, and Taiwan; .5% unknown or country not listed.

*Participant paternal country of origin.* For African Americans, 70.8% reported their father's country of origin as the United States; 7.5% Nigeria; 2.8% Ghana; 1.9% Haiti; .9% each Afghanistan, Antigua and Barbuda, Cameroon, Eritrea, Ethiopia, Germany, Jamaica, South Africa, Trinidad and Tobago, United Kingdom, Vietnam, and Zimbabwe; 5.7% unknown, unlisted country, or missing.

For Asian Americans: 25.3% China; 21.1% India; 14.7% United States; 9.9% Vietnam; 8.4% South Korea; 5.3% Philippines; 3.2% Pakistan; 2.1% Bangladesh; 2.1% Nepal; 2.1% Thailand; 1.1% each Czech Republic, Guyana, Iceland, Indonesia, and Laos; 1.1% missing.

For Latinas: 25.5% United States; 17.9% Mexico; 6.6% Colombia; 5.7% Peru; 4.7% India; 3.8% Dominican Republic; 3.8% El Salvador; 3.8% Panama; 3.8% Venezuela; 2.8% Bolivia; 2.8% Brazil; 1.9% Cuba; 1.9% Ecuador; 1.9% Ghana; .9% each Argentina, Barbados,

Belize, Cyprus, France, Gambia, Guatemala, Ireland, Nicaragua, Philippines, Russia, and Vietnam; 1.9% unknown or unlisted country.

For Caucasians: 81.3% United States; 2.1% Germany; 1.6% Ireland; 1.6% United Kingdom; 1.0% Albania; 1.0% Canada; 1.0% France; 1.0% Greece; 1.0% Russia; .5% each Australia, Belgium, Cote d'Ivoire, El Salvador, Guatemala, Italy, Lebanon, Mexico, Paraguay, Poland, Portugal, Slovakia, Sweden, Switzerland, Macedonia, and Ukraine.

*Language.* For African Americans, 90.6% identified English as their first language, as did 67.4% of Asians, 67.0% of Latinas, and 96.3% of Caucasians.

For African Americans, 88.7% reported speaking English with their family of origin, 10.3% both English and the family's non-English native language, and .9% neither English nor the family's native language.

For Asian Americans, 57.9% reported speaking both English and the family's native language with their family of origin, 25.3% English, 15.8% the family's native language, and 1.1% did not report language spoken with their family of origin.

For Latinas, 49.1% reported speaking both English and the family's native language with their family of origin, 28.3% English, 21.7% the family's native language, and .9% neither English nor family's native language.

For Caucasians: 94.3% reported speaking English with their family of origin, 3.7% both English and the family's native language, 1.0% the family's native language, and 1.0% neither English nor the family's native language.

### Eating disorder symptoms

Table 3 includes the group means of eating disorder symptom measures. There was one group difference in overall eating pathology ( $F(3, 492) = 3.84, p = .010$ ), such that African

American women reported significantly lower levels of overall eating pathology than Caucasian women, with Latinas and Asian Americans reporting means in between these two groups. Additionally, there were group differences in dietary restraint ( $F(3, 481) = 5.26, p = .001$ ), with Caucasian women reporting significantly higher levels of dietary restraint than African American and Latina women, but not Asian American women. Racial/ethnic groups did not differ significantly in reported levels of bulimic symptoms ( $F(3, 478) = .80, p = .497$ ).

Percentages of each racial/ethnic group meeting criteria for probable eating disorder, based on a score of 20 or more on the EAT-26, were calculated and compared. For African Americans, 12.3% reported a probable eating disorder; 16.0% of Asian Americans; 22.1% of Latinas; and 25.5% of Caucasians. Racial/ethnic groups differed significantly in the proportion of individuals meeting criteria for probable eating disorder ( $\chi^2(3, N = 496) = 8.81, p = .032$ ), with a significantly higher percentage of Caucasians reporting probable eating disorder than African Americans.

Percentages of each racial/ethnic group reporting current eating disorder diagnoses from a healthcare professional were also calculated and compared. For African Americans, 0.0% reported a current eating disorder diagnosis; 1.1% of Asians, 6.0% of Latinas, and 2.6% of Caucasians. Racial/ethnic groups differed significantly in the proportion of individuals reporting that they are currently diagnosed with an eating disorder by a healthcare professional ( $\chi^2(3, N = 480) = 8.28, p = .041$ ), with significantly more Latinas reporting a current eating disorder diagnosis than African Americans.

#### Ethnicity-related factors

Table 3 includes the group means of ethnicity-related factors. There was a group difference in overall satisfaction with racially salient appearance areas ( $F(2, 260) = 3.07, p =$

.048), with African American women reporting significantly higher levels of overall satisfaction with racially salient appearance areas than Asian American women. African Americans, Asian Americans, and Latinas did not differ significantly in reported levels of acculturation ( $F(2, 220) = .97, p = .381$ ), acculturative stress ( $F(2, 282) = 2, p = .066$ ), discrimination stress ( $F(2, 265) = 1.30, p = .275$ ), or ethnic identity ( $F(2, 269) = .35, p = .707$ ).

### Broadly applicable factors

Table 3 includes the group means of broadly applicable factors. Racial/ethnic groups did not differ significantly in reported levels of body dissatisfaction ( $F(3, 475) = 1.84, p = .138$ ). However, they did differ in thin ideal internalization ( $F(3, 453) = 10.63, p < .001$ ), as Caucasian women reported significantly higher levels of thin ideal internalization than African American and Latina women, but not Asian American women.

African Americans, Asian Americans, Latinas, and Caucasians reported similar levels of personality traits. Racial/ethnic groups did not differ significantly in reported levels of self-oriented perfectionism ( $F(3, 417) = .28, p = .837$ ), socially prescribed perfectionism ( $F(3, 421) = 1.65, p = .178$ ), or impulsivity ( $F(3, 418) = 1.34, p = .261$ ).

### **Missing Data**

541 participants meeting the eligibility criteria began the survey. The decision was made to drop participants from analyses if they did not respond to demographic questions, measures of eating pathology, and one racial/ethnic factor measure (SAFE; Mena, Padilla, & Maldonado, 1987; Padilla, Wagatsuma, & Lindholm, 1985), all of which were in approximately the first half of the survey. Due to this, 28 participants were excluded from analyses. An additional 14 cases were excluded due to failing embedded validity checks or raising other validity concerns (e.g., when participants entered highly improbable answers such as a height of 12 inches). These

exclusions resulted in the final study sample of 499 individuals. Out of those 499 cases, 56 were partially completed (but had completed more than 50% of the survey; 11.2% of the total sample).

Participants who completed the survey and partial completers were compared on the ethnicity-related risk factors of acculturation, acculturative stress, discrimination stress, overall satisfaction with racially salient appearance areas, and ethnic identity; the broadly applicable risk factors of thin ideal internalization, body dissatisfaction, self-oriented perfectionism, socially prescribed perfectionism, and impulsivity; and the outcome measures of overall eating pathology, dietary restraint, and bulimic symptoms. Completers differed from partial completers in terms of proportions of each racial/ethnic group who finished the survey ( $\chi^2(3, N = 499) = 20.82, p < .001$ ), with Caucasians reporting a significantly higher rate of completion than African Americans, Asian Americans, and Latinas.

Regarding ethnicity-related risk factors, racial/ethnic minority completers and partial completers did not differ significantly in acculturation ( $t(221) = .46, p = .647$ ), acculturative stress ( $t(283) = -.56, p = .580$ ), discrimination stress ( $t(266) = 1.55, p = .137$ ), overall satisfaction with racially salient appearance areas ( $t(261) = .56, p = .575$ ), or ethnic identity ( $t(270) = 1.51, p = .133$ )

Regarding broadly applicable risk factors, completers and partial completers did not differ significantly in body dissatisfaction ( $t(477) = -.91, p = .362$ ), self-oriented perfectionism ( $t(419) = .70, p = .486$ ), socially prescribed perfectionism ( $t(423) = 1.94, p = .053$ ), or negative urgency ( $t(420) = .33, p = .740$ ). However, completers and partial completers differed significantly in thin ideal internalization, with completers reporting a significantly higher level of thin ideal internalization (SATAQ = 3.40 and 2.76, respectively;  $t(455) = -2.40, p = .017$ )

Regarding measures of disordered eating, completers and partial completers did not differ significantly in overall eating pathology ( $t(496) = -1.21, p = .228$ ). Completers and partial completers differed in dietary restraint, with completers reporting a significantly higher level of dietary restraint (TFEQ=9.26) than partial completers (TFEQ=7.43;  $t(485) = -2.21, p = .028$ ). These groups did not differ in bulimic symptoms ( $t(482) = -.66, p = .522$ ).

To further understand the nature of the missing data, the number of individuals with missing data on each study construct was assessed within the full sample of 499 participants. Regarding predictors in the study, for acculturative stress, 24 individuals were missing data; for discrimination stress, 46; for total satisfaction with racially salient appearance areas, 49; for ethnic identity, 40; for body dissatisfaction, 20; for thin ideal internalization, 42; for self-oriented perfectionism, 78; for socially prescribed perfectionism, 74; and for negative urgency, 77. For the outcome measure of overall eating pathology, 3 individuals were missing data; for dietary restraint, 14; and for bulimic symptoms, 17. Thus, for most of the constructs (all of the dependent variables and all of the ethnicity-related variables), missing data was less than 10%. Potential implications of analyses with missing data are described in the Discussion section.

### **Outliers**

To assess the influence of outliers on parameter estimates in regressions investigating interactions,  $dfbetas$  were calculated. For regressions with significant interactions,  $dfbetas$  for the interaction term were examined. For regressions without significant interactions,  $dfbetas$  for the main effects were examined. Outliers in each regression were identified using a cutoff value equal to  $2/(\sqrt{n})$ , as recommended by Belsley, Kuh, and Welsh (1980) such that cases with  $dfbetas$  whose absolute value exceeded the cutoff were considered to be outliers. Regressions were run both including and excluding the identified outliers, and the findings compared between



these sets of analyses. For regressions with no significant interactions, findings regarding main effects did not substantively change with the removal of the outliers, thus, the decision was made to retain all cases. For regressions with significant interactions, one interaction became non-significant once outliers were removed. For this analysis, the regression excluding the outliers was retained.

### **Hypothesis 1: Associations between Ethnicity-Related Factors and Disordered Eating**

In general, acculturative stress and discrimination stress were positively correlated with disordered eating, with satisfaction with racially salient appearance areas demonstrating inconsistent associations with disordered eating. Acculturation and ethnic identity were not associated with disordered eating, with one exception. Correlations between ethnicity-related factors and disordered eating are reported in Tables 4-6.

**Acculturation.** Acculturation was not associated with disordered eating in any of the racial/ethnic groups, regardless of symptom measure ( $ps \geq .320$ ).

**Acculturative stress.** Acculturative stress was significantly positively associated with overall eating pathology and bulimic symptoms in all of the racial/ethnic minority groups ( $ps \leq .001$ ), such that higher levels of acculturative stress were associated with more eating pathology and bulimic symptoms. This construct was significantly positively associated with dietary restraint in African American women and Latina women ( $ps \leq .004$ ), but not in Asian American women ( $p = .237$ ).

**Discrimination stress.** Discrimination stress was significantly positively associated with overall eating pathology and bulimic symptoms in all of the racial/ethnic groups ( $ps \leq .002$ ), such that higher levels of discrimination stress were associated with more eating pathology and

bulimic symptoms. This construct was significantly positively associated in dietary restraint in African American women ( $p < .001$ ), but not in Asian Americans or Latinas ( $ps \geq .234$ ).

**Satisfaction with racially salient appearance areas.** Correlations of overall satisfaction with racially salient appearance areas with disordered eating were inconsistent between racial/ethnic groups (Table 4-6). In African Americans, satisfaction with racially salient appearance areas was significantly negatively associated with overall eating pathology and bulimic symptoms ( $ps = .001$ ), such that lower levels of satisfaction with racially salient appearance areas were associated with more overall eating pathology and bulimic symptoms. Satisfaction with racially salient appearance areas was not significantly associated with dietary restraint in the African American sample ( $p = .185$ ). In Asian Americans this construct was not associated with disordered eating, regardless of symptom measure ( $ps \geq .249$ ). In Latinas, satisfaction with racially salient appearance areas was significantly positively associated with overall eating pathology, such that higher levels of satisfaction with racially salient appearance areas was associated with more overall eating pathology ( $ps = .037$ ). Satisfaction with racially salient appearance areas was not significantly associated with dietary restraint or bulimic symptoms in the Latina sample ( $ps \geq .096$ ).

**Ethnic identity.** Ethnic identity was not associated with overall eating pathology or dietary restraint in any of the racial/ethnic groups ( $ps \geq .158$ ). This construct was significantly negatively associated with bulimic symptoms in African Americans ( $p = .026$ ), such that lower levels of ethnic identity were associated with more bulimic symptoms. Ethnic identity was not associated with bulimic symptoms in Asian Americans or Latinas ( $ps \geq .285$ ).

**Comparisons of strengths of associations.** Some differences in reported strengths of association between ethnicity-related factors and disordered eating emerged between the

racial/ethnic groups. The results of pairwise comparisons between racial/ethnic groups are reported in Table 8. After applying the Benjamini-Hochberg procedure, the only significant group difference between correlations of overall eating pathology and race/ethnicity-related factors was between African Americans and Latinas, who differed in the association between satisfaction with racially salient appearance areas and overall eating pathology ( $p = .0001$ ). There were no significant group differences in strengths of association between dietary restraint and race/ethnicity-related factors in the different racial/ethnic groups. For bulimic symptoms, one significant group difference between African Americans and Latinas emerged, where they differed in strength of association between satisfaction with racially salient appearance areas and bulimic symptoms ( $p = .0004$ ).

Correlations between specific racially salient appearance areas and disordered eating, controlling for overall body dissatisfaction

Satisfaction with some, but not all, specific racially salient appearance areas were significantly associated with disordered eating after the effect of body dissatisfaction had been partialled out (Tables 9-11). As per the data analytic plan, we examined specific racially salient appearance areas if they were supported in theory or qualitative research for a given racial/ethnic group or if they were significantly correlated with the relevant disordered eating measure in the current dataset. Partial correlation findings are reported by racial/ethnic group below.

***African American women.*** The appearance areas of skin tone and hair texture were found to be associated with African American women's body image in prior theory and qualitative research (Awad et al., 2015; Falconer & Neville, 2000; Hall, 1995). Combining this with the specific appearance areas that were significantly correlated with overall eating pathology in the current dataset, the following were examined individually for their relationships

with overall eating pathology after controlling for the effect of body dissatisfaction: skin tone, hair texture, hair color, shape of buttocks, size of thighs, size of hips, size of waist, shape of lips, size of lips, size of nose, color of eyes, face shape, height of cheekbones, prominence of cheekbones, and height (Table 9). In general, satisfaction with these appearance areas was not significantly associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \geq .184$ ). Satisfaction with size of lips and height remained significantly negatively associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \leq .026$ ).

Satisfaction with the appearance areas of skin tone, hair texture, and color of eyes was examined for its association with dietary restraint after controlling for the effect of body dissatisfaction. Satisfaction with these appearance areas was not significantly associated with dietary restraint after controlling for the effect of body dissatisfaction ( $ps \geq .613$ ).

Satisfaction with the appearance areas of skin tone, hair texture, hair color, shape of buttocks, size of thighs, size of hips, size of breasts, shape of lips, size of nose, width of nose, height of nose bridge, shape of eyes, eye slant angle, color of eyes, height of cheekbones, prominence of cheekbones, and height was examined for its association with bulimic symptoms after controlling for the effect of body dissatisfaction. In general, satisfaction with these appearance areas was not significantly associated with bulimic symptoms after controlling for the effect of body dissatisfaction ( $ps \geq .060$ ). Satisfaction with size of lips, height of cheekbones, and height remained significantly negatively associated with bulimic symptoms after controlling for the effect of body dissatisfaction ( $ps \leq .047$ ).

***Asian American women.*** The appearance areas of skin tone, size of breasts, shape of eyes, and eyelid fold were found to be associated with Asian American women's body image in

prior theory and research (Brady, Kaya, Iwamoto, Park, Fox, & Moorhead, 2017; Forbes & Frederick, 2008; Frederick, Kelly, Latner, Sandhu, & Tsong, 2016; Hall, 1995; Pham, 2014). Satisfaction with these appearance areas was examined for its association with overall eating pathology after controlling for the effect of body dissatisfaction (Table 10). In general, satisfaction with these appearance areas was not significantly associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \geq .079$ ). Satisfaction with size of breasts remained significantly negatively associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $p = .047$ ).

Satisfaction with the appearance areas of skin tone, size of breasts, shape of eyes, and eyelid fold was examined for its association with dietary restraint after controlling for the effect of body dissatisfaction. Satisfaction with these appearance areas was not significantly associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \geq .085$ ).

Satisfaction with the appearance areas of skin tone, size of breasts, shape of eyes, and eyelid fold was examined for its association with bulimic symptoms after controlling for the effect of body dissatisfaction. Satisfaction with these appearance areas was not significantly associated with bulimic symptoms after controlling for the effect of body dissatisfaction ( $ps \geq .312$ ).

***Latina women.*** The appearance areas of shape of buttocks, size of waist, and size of breasts, as well as general dissatisfaction with lips, eyes, and nose were found to be associated with Latina women's body image in prior theory and early research (Schooler & Daniels, 2014; Warren, 2014).

Satisfaction with the appearance areas of shape of buttocks, size of waist, size of breasts, shape of lips, size of lips, size of nose, width of nose, height of nose bridge, size of eyes, shape

of eyes, eye slant angle, color of eyes, eyelid fold, prominence of cheekbones, and height was examined for its association with overall eating pathology after controlling for the effect of body dissatisfaction. In general, satisfaction with these areas was significantly positively associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \leq .019$ ). Satisfaction with shape of buttocks, size of breasts, size of lips, and size of eyes was not significantly associated with overall eating pathology after controlling for the effect of body dissatisfaction ( $ps \geq .095$ ).

Satisfaction with the appearance areas of shape of buttocks, size of waist, size of breasts, shape of lips, size of lips, size of nose, width of nose, height of nose bridge, size of eyes, eye slant angle, color of eyes, face shape, and height was examined for its association with dietary restraint after controlling for the effect of body dissatisfaction. Satisfaction with shape of buttocks, size of waist, size of breasts, size of nose, width of nose, and height of nose bridge was not significantly associated with dietary restraint after controlling for the effect of body dissatisfaction ( $ps \geq .156$ ). Satisfaction with shape of lips, size of lips, size of eyes, shape of eyes, eye slant angle, color of eyes, face shape, and height was significantly positively associated with dietary restraint after controlling for the effect of body dissatisfaction ( $ps \leq .042$ ).

Satisfaction with the appearance areas of size of buttocks, shape of buttocks, size of thighs, size of hips, size of waist, size of breasts, shape of lips, size of lips, size of nose, width of nose, height of nose bridge, size of eyes, eye slant angle, and prominence of cheekbones was examined for its association with bulimic symptoms after controlling for the effect of body dissatisfaction. Satisfaction with size of waist, size of breasts, shape of lips, size of lips, height of nose bridge, size of eyes, and eye slant angle was not significantly associated with bulimic symptoms after controlling for the effect of body dissatisfaction ( $ps \geq .106$ ). Satisfaction with

size of buttocks, shape of buttocks, size of thighs, size of hips, size of nose, width of nose, and prominence of cheekbones was significantly positively associated with bulimic symptoms after controlling for the effect of body dissatisfaction ( $ps \leq .007$ ).

## **Hypothesis 2: Associations between Perfectionism, Impulsivity, Thin Ideal Internalization and Disordered Eating**

### Associations between perfectionism and disordered eating

Self-oriented perfectionism was inconsistently correlated with eating disorder symptoms across disordered eating measures and racial/ethnic groups. In general, socially prescribed perfectionism was more consistently positively correlated with eating disorder symptoms, specifically, overall eating pathology and bulimic symptoms, such that higher levels of socially prescribed perfectionism tended to be associated with higher levels of these two disordered eating constructs. Correlations are reported by racial/ethnic group below (Tables 4-7). Of note, since these correlations do not include ethnicity-related factors, we include the Caucasian group in these analyses as a comparison.

***African American women.*** Self-oriented perfectionism was significantly positively associated with overall eating pathology (EAT-26:  $r = .36, p = .001$ ) and dietary restraint (TFEQ-R:  $r = .33, p = .002$ ), but not with bulimic symptoms (EDI-Bulimia:  $r = .15, p = .191$ ). Socially prescribed perfectionism was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .43, p < .001$ ; TFEQ-R:  $r = .29, p = .008$ ; EDI-Bulimia:  $r = .28, p = .011$ ).

***Asian American women.*** Self-oriented perfectionism was not significantly associated with eating disorder symptoms, regardless of symptom measure (EAT-26:  $r = .17, p = .146$ ; TFEQ-R:  $r = .03, p = .779$ ; EDI-Bulimia:  $r = .02, p = .880$ ). Socially prescribed perfectionism

was significantly positively associated with overall eating pathology (EAT-26:  $r = .33, p = .003$ ) and bulimic symptoms (EDI-Bulimia:  $r = .23, p = .043$ ) but not significantly associated with dietary restraint (TFEQ-R:  $r = .20, p = .083$ ).

**Latina women.** Self-oriented perfectionism was not significantly associated with eating disorder symptoms, regardless of symptom measure (EAT-26:  $r = .10, p = .374$ ; TFEQ-R:  $r = -.06, p = .610$ ; EDI-Bulimia:  $r = .02, p = .846$ ). Socially prescribed perfectionism was significantly positively associated with overall eating pathology (EAT-26:  $r = .37, p = .001$ ) and bulimic symptoms (EDI-Bulimia:  $r = .28, p = .009$ ) but not significantly associated with dietary restraint (TFEQ-R:  $r = .11, p = .317$ ).

**Caucasian women.** Self-oriented perfectionism was significantly positively associated with overall eating pathology (EAT-26:  $r = .23, p = .002$ ) and dietary restraint (TFEQ-R:  $r = .23, p = .002$ ), but not with bulimic symptoms (EDI-Bulimia:  $r = .003, p = .967$ ). Socially prescribed perfectionism was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .33, p < .001$ ; TFEQ-R:  $r = .17, p = .025$ ; EDI-Bulimia:  $r = .30, p < .001$ ).

#### Associations between impulsivity and disordered eating

Impulsivity was inconsistently correlated with eating disorder symptoms across disordered eating measures and racial/ethnic groups, but all significant correlations were in the positive direction so that higher levels of impulsivity were associated with greater disordered eating. Correlations are reported by racial/ethnic group below (Tables 4-7).

**African American women.** Impulsivity was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .30, p = .007$ ; TFEQ-R:  $r = .22, p = .050$ ; EDI-Bulimia:  $r = .32, p = .004$ ).



**Asian American women.** Impulsivity was significantly positively associated with bulimic symptoms (EDI-Bulimia:  $r = .34, p = .002$ ), but not with overall eating pathology (EAT-26:  $r = .06, p = .603$ ) or dietary restraint (TFEQ-R:  $r = -.16, p = .159$ ).

**Latina women.** Impulsivity was significantly positively associated with overall eating pathology (EAT-26:  $r = .31, p = .004$ ) and bulimic symptoms (EDI-Bulimia:  $r = .30, p = .006$ ), but not with dietary restraint (TFEQ-R:  $r = .09, p = .414$ ).

**Caucasian women.** Impulsivity was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .28, p < .001$ ; TFEQ-R:  $r = .21, p = .006$ ; EDI-Bulimia:  $r = .36, p < .001$ ).

#### Associations between thin ideal internalization and disordered eating

Thin ideal internalization was positively correlated with eating disorder symptoms across all disordered eating measures and all racial/ethnic groups, such that higher levels of thin ideal internalization were associated with higher levels of disordered eating. Correlations are reported by racial/ethnic groups below (Tables 4-7).

**African American women.** Thin ideal internalization was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .51, p < .001$ ; TFEQ-R:  $r = .69, p < .001$ ; EDI-Bulimia:  $r = .40, p < .001$ ).

**Asian American women.** Thin ideal internalization was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .46, p < .001$ ; TFEQ-R:  $r = .34, p = .001$ ; EDI-Bulimia:  $r = .28, p = .010$ ).

**Latina women.** Thin ideal internalization was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .53, p < .001$ ; TFEQ-R:  $r = .48, p < .001$ ; EDI-Bulimia:  $r = .34, p = .001$ ).

**Caucasian women.** Thin ideal internalization was significantly positively associated with all three measures of eating disorder symptoms (EAT-26:  $r = .46, p < .001$ ; TFEQ-R:  $r = .52, p < .001$ ; EDI-Bulimia:  $r = .25, p < .001$ ).

### **Hypothesis 3: Interactive Models of Ethnicity-Related Factors and Thin Ideal**

#### **Internalization as Identifiers of Concurrent Disordered Eating**

##### Ethnic identity as a moderator of relations between thin ideal internalization and disordered eating

Ethnic identity did not interact with thin ideal internalization to identify concurrent levels of disordered eating in any of the racial/ethnic groups. Regression findings are reported by racial/ethnic group below (Tables 12-14).

**African American women.** In analyses including the full sample, ethnic identity interacted with thin ideal internalization to identify concurrent levels of overall eating pathology (EAT-26:  $t(88) = -2.57, \beta = -.24, p = .012, \Delta R^2 = .05$ ). However, once outliers were removed from this analysis, this interaction was no longer significant (EAT-26:  $t(85) = -1.03, \beta = -.10, p = .308, \Delta R^2 = .01$ ); the data representing this analysis, listed as the first regression on Table 12, excludes the outliers. There was a main effect of thin ideal internalization ( $p < .001$ ), such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of overall eating pathology. There was no main effect of ethnic identity for identification of concurrent overall eating pathology ( $p = .961$ ).

The interaction between ethnic identity and thin ideal internalization did not identify concurrent levels of dietary restraint (TFEQ-R:  $t(88) = -1.72, \beta = -.13, p = .089, \Delta R^2 = .02$ ) or bulimic symptoms (EDI-Bulimia:  $t(88) = -1.05, \beta = -.10, p = .296, \Delta R^2 = .01$ ). There was a main effect of thin ideal internalization ( $p < .001$ ), such that individuals who reported higher levels of

thin ideal internalization tended to report higher levels of dietary restraint and bulimic symptoms. There was no main effect of ethnic identity for identification of concurrent dietary restraint or bulimic symptoms ( $ps \geq .087$ ).

**Asian American women.** Ethnic identity did not interact with thin ideal internalization to identify concurrent eating disorder symptoms, regardless of disordered eating measure (EAT-26:  $t(82) = -.72$ ,  $\beta = -.07$ ,  $p = .473$ ,  $\Delta R^2 = .01$ ; TFEQ-R:  $t(82) = .80$ ,  $\beta = .09$ ,  $p = .432$ ,  $\Delta R^2 = .01$ ; EDI-Bulimia:  $t(82) = .57$ ,  $\beta = .06$ ,  $p = .531$ ,  $\Delta R^2 = .003$ ). There was a main effect of thin ideal internalization, such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of eating disorder symptoms ( $ps \leq .008$ ). There was no main effect of ethnic identity for identification of concurrent eating disorder symptoms, regardless of disordered eating measure ( $ps \geq .132$ ).

**Latina women.** Ethnic identity did not interact with thin ideal internalization to identify concurrent eating disorder symptoms, regardless of disordered eating measure, once alpha was adjusted for multiple comparisons using the Holm-Bonferroni method (EAT-26:  $t(86) = 1.70$ ,  $\beta = .16$ ,  $p = .092$ ,  $\Delta R^2 = .02$ ; TFEQ-R:  $t(87) = 1.99$ ,  $\beta = .19$ ,  $p = .049$ ,  $\Delta R^2 = .03$ ; EDI-Bulimia:  $t(87) = 1.58$ ,  $\beta = .16$ ,  $p = .117$ ,  $\Delta R^2 = .03$ ). There was a main effect of thin ideal internalization, such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of eating disorder symptoms ( $ps \leq .001$ ). There was no main effect of ethnic identity for identification of concurrent eating disorder symptoms, regardless of disordered eating measure ( $ps \geq .161$ ).

Satisfaction with racially salient appearance areas as a moderator of relations between thin ideal internalization and disordered eating

Satisfaction with racially salient appearance areas did not interact with thin ideal internalization to identify concurrent levels of disordered eating. Regression findings are reported by racial/ethnic group below (Tables 12-14).

***African American women.*** Satisfaction with racially salient appearance areas did not interact with thin ideal internalization to identify concurrent eating disorder symptoms, regardless of disordered eating measure (EAT-26:  $t(86) = -1.72$ ,  $\beta = -.16$ ,  $p = .089$ ,  $\Delta R^2 = .02$ ; TFEQ-R:  $t(86) = -1.27$ ,  $\beta = -.10$ ,  $p = .207$ ,  $\Delta R^2 = .01$ ; EDI-Bulimia:  $t(86) = -1.31$ ,  $\beta = -.13$ ,  $p = .195$ ,  $\Delta R^2 = .02$ ). There was a main effect of thin ideal internalization, such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of eating disorder symptoms ( $ps \leq .003$ ). Additionally, there was a main effect of satisfaction with racially salient appearance areas for identification of concurrent overall eating pathology ( $p = .044$ ) and bulimic symptoms ( $p = .034$ ), such that individuals who reported higher levels of satisfaction with racially salient appearance areas tended to report lower levels of overall eating pathology and bulimic symptoms. There was no main effect of satisfaction with racially salient appearance areas for identification of concurrent dietary restraint ( $p = .114$ ).

***Asian American women.*** Satisfaction with racially salient appearance areas did not interact with thin ideal internalization to identify concurrent eating disorder symptoms, regardless of disordered eating measure (EAT-26:  $t(80) = .77$ ,  $\beta = .08$ ,  $p = .447$ ,  $\Delta R^2 = .01$ ; TFEQ-R:  $t(80) = 1.51$ ,  $\beta = .17$ ,  $p = .136$ ,  $\Delta R^2 = .02$ ; EDI-Bulimia:  $t(80) = .83$ ,  $\beta = .09$ ,  $p = .409$ ,  $\Delta R^2 = .01$ ). There was a main effect of thin ideal internalization, such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of eating

disorder symptoms ( $ps \leq .015$ ). There was no main effect of satisfaction with racially salient appearance areas for identification of concurrent eating disorder symptoms ( $ps \geq .390$ ).

***Latina women.*** Satisfaction with racially salient appearance areas did not interact with thin ideal internalization to identify concurrent eating disorder symptoms, regardless of disordered eating measure (EAT-26:  $t(84) = .51$ ,  $\beta = .05$ ,  $p = .609$ ,  $\Delta R^2 = .05$ ; TFEQ-R:  $t(84) = -1.03$ ,  $\beta = -.10$ ,  $p = .304$ ,  $\Delta R^2 = .01$ ; EDI-Bulimia:  $t(84) = .84$ ,  $\beta = .09$ ,  $p = .403$ ,  $\Delta R^2 = .01$ ). There was a main effect of thin ideal internalization, such that individuals who reported higher levels of thin ideal internalization tended to report higher levels of eating disorder symptoms ( $p \leq .002$ ). Additionally, there was a main effect of satisfaction with racially salient appearance areas for identification of concurrent overall eating pathology, such that individuals who reported higher levels of satisfaction with racially salient appearance areas tended to report higher levels of overall eating pathology ( $p = .049$ ). There was no main effect of satisfaction with racially salient appearance areas for identification of concurrent dietary restraint or bulimic symptoms ( $ps \geq .140$ ).

#### **Hypothesis 4: Interactive Models of Ethnicity-Related Factors and Personality Factors as Identifiers of Concurrent Disordered Eating**

##### Satisfaction with racially salient appearance areas as a moderator of relations between dimensional perfectionism and disordered eating

Racially salient appearance areas did not interact with self-oriented perfectionism to identify concurrent levels of dietary restraint in African Americans, Asian Americans, or Latinas. Racially salient appearance areas did not interact with socially prescribed perfectionism to identify concurrent levels of bulimic symptoms in African Americans, Asian Americans, or Latinas. Regression findings are reported by racial/ethnic group below (Tables 15-17).

***African American women.*** Satisfaction with racially salient appearance areas did not interact with self-oriented perfectionism to identify concurrent dietary restraint (TFEQ-R:  $t(77) = .08$ ,  $\beta = .01$ ,  $p = .940$ ,  $\Delta R^2 < .001$ ). There was a main effect of self-oriented perfectionism for identification of concurrent dietary restraint, such that individuals who reported higher levels of self-oriented perfectionism tended to report higher levels of dietary restraint ( $p = .004$ ). There was no main effect of satisfaction of racially salient appearance areas for identification of concurrent dietary restraint ( $p = .352$ ).

Satisfaction with racially salient appearance areas did not interact with socially prescribed perfectionism to identify concurrent levels of bulimic symptoms (EDI-Bulimia:  $t(78) = -1.04$ ,  $\beta = -.11$ ,  $p = .302$ ,  $\Delta R^2 = .012$ ). There was a main effect of satisfaction with racially salient appearance areas for identification of concurrent bulimic symptoms, such that individuals who reported lower levels of satisfaction with racially specified appearance areas tended to report higher levels of bulimic symptoms ( $p = .019$ ). There was no main effect of socially prescribed perfectionism for identification of concurrent bulimic symptoms ( $p = .125$ ).

***Asian American women.*** Satisfaction with racially salient appearance areas did not interact with self-oriented perfectionism to identify concurrent dietary restraint (TFEQ-R:  $t(73) = 1.55$ ,  $\beta = .18$ ,  $p = .126$ ,  $\Delta R^2 = .032$ ). There were no main effects of self-oriented perfectionism or satisfaction with racially salient appearance areas for identification of concurrent dietary restraint ( $ps \geq .737$ ).

Satisfaction with racially salient appearance areas did not interact with socially prescribed perfectionism to identify concurrent levels of bulimic symptoms (EDI-Bulimia:  $t(74) = 1.40$ ,  $\beta = .16$ ,  $p = .167$ ,  $\Delta R^2 = .024$ ). There were no main effects of socially prescribed

perfectionism or satisfaction with racially salient appearance areas for identification of bulimic symptoms ( $ps \geq .077$ ).

**Latina women.** Satisfaction with racially salient appearance areas did not interact with self-oriented perfectionism to identify concurrent dietary restraint (TFEQ-R:  $t(79) = .38$ ,  $\beta = .04$ ,  $p = .705$ ,  $\Delta R^2 = .002$ ). There were no main effects of self-oriented perfectionism or satisfaction with racially salient appearance areas for identification of concurrent dietary restraint ( $ps \geq .080$ ).

Satisfaction with racially salient appearance areas did interact with socially prescribed perfectionism to identify concurrent levels of bulimic symptoms (EDI-Bulimia:  $t(79) = 2.27$ ,  $\beta = .24$ ,  $p = .026$ ,  $\Delta R^2 = .055$ ) (see Figure 3). At low levels of satisfaction with racially salient appearance areas, individual reported similarly low levels of bulimic symptoms at both low and high levels of socially prescribed perfectionism. Surprisingly, at high levels of satisfaction with racially salient appearance areas, individuals reporting high socially prescribed perfectionism also reported the highest levels of bulimic symptoms. Simple slope analyses indicated that socially prescribed perfectionism was significantly associated with bulimic symptoms at high levels of satisfaction with racially salient appearance areas ( $\beta = .45$ ,  $t(79) = 3.61$ ,  $p = .001$ ), but not at low levels of satisfaction with racially salient appearance areas ( $\beta = .02$ ,  $t(79) = .11$ ,  $p = .913$ ). Findings from the simple slope graph and analyses suggest that Latinas who report higher levels of satisfaction with racially salient appearance areas may be more susceptible to engaging in bulimic behaviors if they are also high in socially prescribed perfectionism. In contrast, when Latinas report lower levels of satisfaction with racially salient appearance areas, they are less likely to engage in bulimic behaviors, regardless of their socially prescribed perfectionism.

Impulsivity as a moderator of the relation between discrimination stress and bulimic symptoms

Impulsivity moderated the relation between discrimination stress and bulimic symptoms only in the Latina sample. Regression findings are reported by racial/ethnic group below (Tables 15-17).

***African American women.*** Discrimination stress did not interact with impulsivity to identify concurrent bulimic symptoms (EDI-Bulimia:  $t(76) = -.57$ ,  $\beta = -.06$ ,  $p = .574$ ,  $\Delta R^2 = .003$ ). There was a main effect of discrimination stress, such that individuals who reported higher levels of discrimination stress tended to report higher levels of bulimic symptoms ( $p < .001$ ). There was no main effect of impulsivity for identification of concurrent bulimic symptoms ( $p = .152$ ).

***Asian American women.*** Discrimination stress did not interact with impulsivity to identify concurrent bulimic symptoms (EDI-Bulimia:  $t(73) = .82$ ,  $\beta = .08$ ,  $p = .416$ ,  $\Delta R^2 = .007$ ). There was a main effect of discrimination stress, such that individuals who reported higher levels of discrimination stress tended to report higher levels of bulimic symptoms ( $p < .001$ ). There was also a main effect of impulsivity, such that individuals who reported higher levels of impulsivity tended to report higher levels of bulimic symptoms ( $p = .015$ ).

***Latina women.*** Discrimination stress interacted with impulsivity to identify concurrent bulimic symptoms (EDI-Bulimia:  $t(78) = 2.99$ ,  $\beta = .30$ ,  $p = .004$ ,  $\Delta R^2 = .08$ ) (see Figure 4). At low levels of impulsivity, individuals reported similarly low levels of bulimic symptoms at both low and high levels of discrimination stress. However, at high levels of impulsivity, individuals reporting discrimination stress also reported the highest level of bulimic symptoms. Simple slope analyses indicated that discrimination stress was significantly associated with bulimic symptoms at high levels of impulsivity ( $\beta = .64$ ,  $t(78) = 4.87$ ,  $p < .001$ ), but not at low levels of impulsivity ( $\beta = -.01$ ,  $t(78) = -.04$ ,  $p = .971$ ). Findings from the simple slope graph and analyses suggest that



Latinas who are high in impulsivity may be more susceptible to engaging in bulimic behaviors when they perceive higher levels of discrimination stress. In contrast, when Latinas who are low in impulsivity are less likely to engage in bulimic behaviors, regardless of their level of perceived discrimination stress.

### **Exploratory Aim: Specific Racially Salient Appearance Areas and Disordered Eating**

Satisfaction with specific racially salient appearance areas was inconsistently associated with disordered eating symptom measures across racial/ethnic groups (Tables 18-20).

*African American women.* Satisfaction with 16 of the 24 assessed racially salient appearance areas was inversely related to overall eating pathology. Similarly, satisfaction with 16 of the 24 assessed racially salient appearance areas was inversely related to bulimic symptoms. Only satisfaction with eye color was associated with dietary restraint, such that more satisfaction with eye color was associated with less dietary restraint ( $p = .022$ ).

*Asian American women.* Satisfaction with specific racially salient appearance areas was not associated with overall eating pathology or dietary restraint for any of the 24 assessed appearance areas ( $ps \geq .154$ ). Satisfaction with shape of eyes and eyelid fold were associated with bulimic symptoms, such that more satisfaction with these features was associated with lower levels of bulimic symptoms ( $ps \leq .041$ ).

*Latina women.* Satisfaction with five of the 24 appearance areas assessed (shape of eyes, color of eyes, eyelid fold, prominence of cheekbones, and height) was significantly positively associated with overall eating pathology. Satisfaction with seven of the 24 appearance areas assessed (shape of lips, size of lips, shape of eyes, eye slant angle, color of eyes, face shape, and height) was significantly positively associated with dietary restraint. Satisfaction with six of the 24 appearance areas assessed (size of buttocks, shape of buttocks, size of thighs, size of hips, size

of nose, and prominence of cheekbones) was significantly positively associated with bulimic symptoms. Unexpectedly, the nature of the relations reported by Latinas was such that more satisfaction with specific appearance areas was consistently associated with higher levels of eating disorder symptoms, in contrast to the negative association predicted by theory.

**Comparisons of strengths of associations.** Strength of association between satisfaction with specific appearance areas and overall eating pathology differed between African Americans and Latinas in 17 of the 24 appearance areas assessed (Tables 18). African Americans and Asian Americans did not differ in reported strengths of association between satisfaction with specific appearance areas and overall eating pathology, nor did Asian Americans and Latinas.

Strength of association between satisfaction with specific appearance areas and dietary restraint differed in one area, color of eyes, between African Americans and Latinas (Table 19). African Americans did not differ from Latinas in reported strengths of association between any other appearance areas and dietary restraint. African Americans and Asian Americans did not differ in reported strengths of association between satisfaction with specific appearance areas and dietary restraint, nor did Asian Americans and Latinas.

Strength of association between satisfaction with specific appearance areas and bulimic symptoms differed between African Americans and Latinas in 15 of the 24 appearance areas assessed (Table 20). African Americans and Asian Americans did not differ in reported strengths of association between satisfaction with specific appearance areas and bulimic symptoms, nor did Asian Americans and Latinas.

**Follow-up analyses given unexpected findings for Latinas.** In order to better understand the nature of these associations, follow-up analyses were run comparing associations between satisfaction with specific racially salient appearance areas and eating pathology in

Caucasian Latinas versus non-Caucasian Latinas (Table 21), and in first generation versus non-first generation Latinas (Table 22).

***Caucasian versus non-Caucasian Latinas.*** In terms of association with overall eating pathology, Caucasian Latinas reported significant negative associations between satisfaction with 3 appearance areas (size of thighs, size of hips, and size of waist) and overall eating pathology. These women reported a significant positive correlation between satisfaction with shape of eyes and overall eating pathology. In contrast, non-Caucasian Latinas reported significant positive associations between satisfaction with five appearance areas (size of nose, shape of eyes, eyelid fold, height of cheekbones, and prominence of cheekbones) and overall eating pathology. In pairwise comparisons, Caucasian Latinas and non-Caucasian Latinas differed significantly in reported strengths of association between satisfaction with four appearance areas (size of thighs, size of hips, size of nose, and height of cheekbones) and overall eating pathology.

In terms of association with dietary restraint, Caucasian Latinas reported significant positive correlations between satisfaction with three appearance areas (hair length, shape of eyes, and eye slant angle) and dietary restraint. Non-Caucasian Latinas reported significant positive correlations between satisfaction with seven appearance areas (shape of lips, shape of eyes, eye slant angle, color of eyes, face shape, height of cheekbones, and prominence of cheekbones) and dietary restraint. In pairwise comparisons, Caucasian Latinas and non-Caucasian Latinas did not differ significantly in reported strengths of association between satisfaction with specific appearance areas and dietary restraint.

In terms of association with bulimic symptoms, Caucasian Latinas reported significant negative correlations between satisfaction with four appearance areas (skin tone, size of waist, face shape, and height of cheekbones) and bulimic symptoms. In contrast, non-Caucasian Latinas

reported significant positive correlations between satisfaction with eight appearance areas (size of buttocks, shape of buttocks, size of thighs, size of hips, size of nose, width of nose, height of cheekbones, and prominence of cheekbones) and bulimic symptoms. In pairwise comparisons, Caucasian Latinas and non-Caucasian Latinas differed significantly in reported strength of association between height of cheekbones and bulimic symptoms.

*First generation versus non-first generation Latinas.* In terms of association with overall eating pathology, first generation Latinas reported significant positive correlations between satisfaction with six appearance areas (shape of lips, size of lips, size of nose, face shape, height of cheekbones, and prominence of cheekbones) and overall eating pathology. Non-first generation Latinas reported significant positive correlations between satisfaction with two appearance areas (shape of eyes and eyelid fold) and overall eating pathology, and a significant negative correlation between satisfaction with size of waist and overall eating pathology. In pairwise comparisons, first generation and non-first generation Latinas did not differ significantly in reported strengths of association between satisfaction with specific appearance areas and overall eating pathology.

In terms of association with dietary restraint, first generation Latinas reported a significant positive correlation between satisfaction with prominence of cheekbones and dietary restraint. Non-first generation Latinas reported significant positive correlations between satisfaction with three appearance areas (shape of eyes, eye slant angle, and color of eyes) and dietary restraint. In pairwise comparisons, first generation and non-first generation Latinas did not differ significantly in reported strengths of association between satisfaction with specific appearance areas and dietary restraint.

In terms of association with bulimic symptoms, first generation Latinas reported significant positive correlations between satisfaction with two appearance areas (size of thighs and size of hips) and bulimic symptoms. Non-first generation Latinas reported a significant negative correlation between satisfaction with size of waist and bulimic symptoms. In pairwise comparisons, first generation and non-first generation Latinas did not differ significantly in reported strengths of association between satisfaction with specific appearance areas and bulimic symptoms.

## DISCUSSION

Overall, this study's findings emphasize the importance of including ethnicity-related factors in models of eating disorders in racial/ethnic minorities, given their relation to various types of disordered eating.

**Sample characteristics.** Findings should be interpreted in the context of characteristics of the study sample. In particular, there was notable heterogeneity within each of the racial/ethnic groups sampled. For example, participants in each racial/ethnic group identified a number of countries of origin that may have different beauty ideals and appearance expectations, making it more difficult to draw broader conclusions about the racial/ethnic group as a whole. Thus, while the study provides information regarding these racial/ethnic groups, there may be within-group differences pertinent to body image that were not captured at the racial/ethnic level. Findings regarding racial/ethnic groups should be interpreted with the understanding that more work examining culture at a finer-grained level (e.g., comparing differences in culture between different countries) may be necessary to clarify specific cultural elements salient to racial/ethnic minority individuals.

Latinas reported a range of racial identifications, and due to this, it would be expected that Latinas also represented a range of phenotypes, potentially more so than the other racial/ethnic groups. Unique amongst the racial/ethnic minority groups, the subset of Latinas who identify as Caucasian may actually have phenotypes that align with the dominant Caucasian thin ideal (e.g., light skin, straight hair), making this ideal attainable for them in a way that it is not for other racial/ethnic minorities. Given this, Latinas with different racial identifications may

experience different levels of motivation to strive for the Caucasian thin ideal. Additionally, due to their appearance, Caucasian Latinas may be treated differently by others, for example, experiencing less discrimination because their minority status may not be signaled by their phenotype. Thus, these Latinas' experiences of their cultural identities may be different than those of non-Caucasian Latinas and other racial/ethnic minorities.

Racial/ethnic groups did differ in the amount of eating pathology reported, as well as in the proportion of individuals meeting criteria for probable eating disorder, as measured by the EAT-26. However, the significant differences that emerged all involved Caucasians reporting higher levels of disordered eating than African Americans and/or Latinas, with Asian Americans reporting intermediate levels of disordered eating. African Americans, Asian Americans, and Latinas did not report different levels of disordered eating from each other, thus, they might be considered comparable in terms of severity of their eating pathology. As the focus of this study was racial/ethnic minority women, the differences in eating pathology observed between Caucasians and racial/ethnic minorities would not be expected to change the interpretations of the findings.

In the current study, a significantly higher percentage of Latinas reported being diagnosed with an eating disorder than African Americans. As there is literature suggesting that eating disorders may be under-diagnosed in racial/ethnic minorities, and in African Americans in particular (Gordon, Brattole, Wingate, & Joiner, 2006), this difference may not reflect a true difference in prevalence so much as differential rates of diagnosis based on clinician beliefs about who develops eating disorders. Taken together with the findings of similar levels of eating pathology in the racial/ethnic minority groups based on continuous measures of disordered

eating, this disparity in rates of diagnosis did not suggest the need to change interpretation of the results.

### **Aim 1: Associations between Ethnicity-Related Factors and Eating Disorder Symptoms in African American, Asian American, and Latina Women**

#### Acculturation and acculturative stress

Contrary to study hypotheses, acculturation was not associated with disordered eating in any of the racial/ethnic groups. In contrast, acculturative stress was consistently associated with disordered eating in these racial/ethnic groups, with the exception of acculturative stress being unrelated to dietary restraint for Asian Americans. Theoretically, acculturative stress may be associated with disordered eating through both of the routes described in the dual pathway model, as proposed in some prior research (Claudat et al., 2016; Capodilupo & Forsyth, 2014).

The differential findings regarding acculturation and acculturative stress clarify the role of these factors in disordered eating in racial/ethnic minority women, and contribute to the growing body of evidence suggesting that acculturative stress may be a better predictor of eating disorder risk than acculturation (Claudat et al., 2016).

#### Discrimination stress

Each of the racial/ethnic groups reported significant correlations between discrimination stress and both bulimic symptoms and overall eating pathology, with African American women also reporting significant correlations between this risk factor and dietary restraint. Although this study did not assess for negative affect as the mediator between discrimination stress and engagement in disordered eating, this is likely the mechanism through which the two are related, as it is supported through theory and prior empirical research (Harrington et al., 2016; Kempa & Thomas, 2000). Given these study findings, it may be important to account for the effect of



discrimination stress on eating pathology in racial/ethnic minorities when constructing models of eating disorder risk.

### Ethnic identity

Ethnic identity was not generally supported as a protective factor against disordered eating, as it was not significantly associated with disordered eating in the racial/ethnic minorities, with the exception of African American women reporting a significant negative correlation between ethnic identity and bulimic symptoms.

It is possible that overall sense of identification with one's racial/ethnic group does not significantly impact how likely one is to engage in disordered eating. The construct of ethnic identity, as it was measured, may be too broad to accurately distinguish elements of ethnic identity that may be more closely tied to body image and eating pathology. For example, an individual may report an overall strong sense of ethnic identity, while experiencing different levels of identification with various aspects of ethnic identity (e.g., demonstrating a strong interest in learning more about her cultural group, but not identifying with cultural expectations surrounding appearance). When taken in context with previous mixed findings, findings from the current study suggest that careful consideration of how this construct is conceptualized and measured may clarify whether there is a link between ethnic identity and disordered eating. Regarding the inverse correlation between ethnic identity and bulimic symptoms reported by African American women, one potential explanation is that African American culture may contain unique elements that bolster esteem, thus reducing likelihood of negative affect resulting in disordered eating. Higher self-esteem may protect African American women from internalizing dominant standards of beauty (Lokken, Worthy, Ferraro, & Attmann, 2008).

### Satisfaction with racially salient appearance areas

Overall satisfaction with racially salient appearance areas was inconsistently correlated with overall eating pathology and bulimic symptoms in the current study. African American women reported negative associations between satisfaction with these areas and overall eating pathology and bulimic symptoms, findings that aligned with theory and the study hypothesis. These findings may indicate that in African Americans, overall dissatisfaction with these appearance areas affects disordered eating by generating negative affect, thus increasing the risk of bulimic symptoms via the mechanism described by escape theory.

Surprisingly, Latina women reported a positive association between overall satisfaction with racially salient appearance areas and overall eating pathology, which is the opposite direction from that hypothesized. This finding led to further investigation of Latina women and their satisfaction with specific racially salient appearance areas, including examination of subgroups within the Latina sample to clarify whether a subset of individuals might be driving the findings. To the author's knowledge, there is no clear theoretical framework described in the existing literature to explain the positive association between satisfaction with racially salient appearance areas and disordered eating reported by Latinas. These findings are discussed in further detail below.

Asian Americans reported no significant associations between overall satisfaction with these appearance areas and disordered eating. It may be that although Asian Americans also experience dissatisfaction with racially salient appearance areas, these areas may be less central to Asian Americans' self-concept, which in turn would lead to little association between their attitudes towards these physical features and disordered eating. However, this would run counter to the limited prior research, primarily qualitative, which suggests that at least some of these

appearance areas are salient to Asian American body image (e.g., Brady et al., 2017; Hall, 1995). Given this puzzling finding, there may be some other, unmeasured factor affecting the way that Asian Americans' satisfaction with racially salient physical features affects their body image and engagement in disordered eating.

The variety of findings pertaining to overall satisfaction with racially salient appearance areas may indicate that examination of aggregate satisfaction with these physical characteristics should be combined with more fine-grained examination of attitudes toward specific physical characteristics, to better understand racial/ethnic minorities' experiences and thoughts surrounding these appearance areas. Alternatively, it may be more informative to solely focus on subsets of appearance areas that are particularly salient to specific racial/ethnic groups.

#### Comparisons of strengths of associations

Notably, the racial/ethnic groups studied only differed in strengths of association between ethnicity-related factors and disordered eating in one of the factors, overall satisfaction with racially salient appearance areas. The African American-Latina disparity in the strengths of association between overall satisfaction with racially salient appearance areas and disordered eating suggests that these groups may differ in terms of how central racially salient appearance areas are to their body image, at least in relation to disordered eating.

For the other ethnicity-related factors of acculturation, acculturative stress, discrimination stress, and ethnic identity, the fact that the racial/ethnic groups studied did not differ significantly in reported strengths of association between these factors and disordered eating suggests that these constructs may affect different minority groups in similar ways, pointing to a less culture-specific mechanism through which ethnicity-related constructs are related to disordered eating.

Correlations between specific racially salient appearance areas and disordered eating, controlling for overall body dissatisfaction

For each racial/ethnic group, a different set of racially salient appearance areas was selected based on characteristics previously identified in the literature as salient to racial/ethnic minority body image and appearance areas for which satisfaction with the area was significantly associated with disordered eating in the current study. One particular difficulty arose in determining which appearance areas should be considered to have theoretical support in each racial/ethnic group. Research regarding satisfaction with specific racially salient physical characteristics is highly limited, and in many cases, does not identify more specific aspects of physical characteristics that might be relevant to racial/ethnic minority body image. For example, Latinas have been found to report dissatisfaction with their lips, eyes, and nose (Warren, 2014) but it was unclear what aspects they were dissatisfied with (e.g., shape, size). It may be important to parse out these specific aspects of physical appearance, as individuals may receive cultural messages regarding some aspects but not others, rendering them more salient to body image and disordered eating risk.

Due to the combined approach of examining both areas with some theoretical support and those for which satisfaction with the area was associated with disordered eating, many more areas were examined in African Americans and Latinas, as they reported more significant correlations between satisfaction with specific appearance areas and disordered eating.

Broadly speaking, for African American women the associations between satisfaction with specific appearance areas and disordered eating disappeared after partialing out body dissatisfaction. Similarly, for the fewer associations between satisfaction with specific appearance areas and disordered eating for Asian Americans, significant correlations did not

hold up after controlling for body dissatisfaction. These findings may suggest that the eating disorder risk conferred by feeling dissatisfied with racially salient appearance areas may largely overlap with that which is captured by the more “traditional” measure of body dissatisfaction in these two groups. It is also possible that the physical characteristics uniquely relevant to these groups were not fully captured by the items used in the study. For example, there is evidence that African American women may often aspire to a thick/curvy body type that differs from the Caucasian thin ideal (Awad et al., 2015), thus making body curviness a racially salient physical characteristic that was not assessed by items measuring satisfaction with specific physical characteristics.

In contrast to African Americans and Asian Americans, for Latinas 1) a relatively large number of the appearance areas examined remained significantly correlated with disordered eating after partialing out body dissatisfaction, and 2) these correlations were in a positive direction, such that higher satisfaction with these specific appearance areas was associated with more disordered eating. As previously described, this is the opposite relationship from that which was hypothesized based on current literature, and opposite from that observed in the other two racial/ethnic groups. The direction of the associations reported hints at the existence of some cultural factor experienced by Latinas, which may cause them to link higher satisfaction with non-weight/shape physical characteristics with increased efforts to control their weight/shape. One potential explanation for this is that Latinas may feel that whatever beauty ideal they are striving for is within reach, if they like the phenotype of their racially salient appearance areas, thus becoming more motivated to strive also for a more ideal body weight/shape through dietary restraint.

## **Aim 2: Associations between Perfectionism, Impulsivity, and Thin Ideal Internalization and Disordered Eating in Racial/Ethnic Minorities**

In the realm of broad risk factors, African Americans displayed a pattern of findings most consistent with that theorized based on previous literature. In contrast, findings in Asian Americans and Latinas differed somewhat from those predicted by theory. There may be cultural elements shared by Asian Americans and Latinas, such as higher collectivist orientation and family expectation pressure, that may change the links between these risk factors and disordered eating. However, taken as a whole, findings suggest that there are more similarities than differences in how these broad risk factors affect each racial/ethnic minority group. Study data contribute to the body of evidence suggesting that specific personality factors are associated with disordered eating in these groups, indicating that it is important to account for these factors in models of eating disorder risk in racial/ethnic minorities.

### Perfectionism

The patterns of association between the two dimensions of perfectionism and disordered eating differed across each racial/ethnic groups, indicating that it may be important to use multidimensional constructs to assess perfectionism in these groups to better understand their effect on eating disorder risk. Self-oriented perfectionism was not related to disordered eating in Asian Americans and Latinas, while socially prescribed perfectionism was related to overall eating pathology and bulimic symptoms. Perceiving that others have high expectations for oneself may be more distressing for Asian Americans and Latinas, thus explaining the connection with bulimic symptoms as a possible escape route from negative affect, while having high expectations for oneself may be less so. This may be because Asian Americans' and Latinas' cultures of origin tend to emphasize more collectivistic norms, thus increasing the

importance of gaining others' approval (Frederick et al., 2016). Familial approval may be particularly important to these groups, due to a cultural emphasis on family relationships. The concept of *familismo*, the valuing of close, interdependent family relationships may be salient to Latinas (Santiago-Rivera, Arredondo, & Gallardo-Cooper, 2002), and Asian Americans have reported concerns about meeting parental expectations (DiBartolo & Redon, 2012), as well as defining themselves through a more interdependent lens that emphasizes honoring the family through meeting the expectations of others (Frederick et al., 2016). These findings do fit within the context of existing literature, which has found socially prescribed perfectionism to be associated with bulimic symptoms, while self-oriented perfectionism has been less consistently associated with disordered eating (Bardone-Cone, 2007).

In African American women, both dimensions of perfectionism were related to disordered eating, suggesting that these individuals may experience relatively more distress when they perceive that they are unable to meet high expectations, regardless of the source of these expectations. As self-oriented perfectionism was linked to dietary restraint in this group, this may indicate that African American women high in self-oriented perfectionism may be more likely to strive to meet the thin ideal through efforts to control their eating, as theorized in some previous literature (Bardone-Cone, 2007).

Looking across risk factors assessed in this study, African American women also reported significant associations between acculturative stress and dietary restraint, and between discrimination stress and dietary restraint. This was surprising because acculturative stress and discrimination stress are both theorized to influence disordered eating primarily through the path described by escape theory: that is, they are expected to cause negative affect, which individuals then attempt to escape through impulsive engagement in binge eating (Claudat et al, 2016;

Kempa & Thomas, 2000). Thus, it would be expected that acculturative stress and discrimination stress would be tied to bulimic symptoms rather than dietary restraint. Of note, acculturative stress was also related to dietary restraint among Latinas, suggesting there may be a common factor across African Americans and Latinas that influences the link between acculturative stress and propensity for engaging in dietary restraint.

### Impulsivity

Impulsivity in the form of negative urgency was related to bulimic symptoms in all three racial/ethnic minority groups, as well as being related to overall eating pathology in African Americans and Latinas. These findings fit with prior research carried out in primarily Caucasian samples, and support the theorized link between higher impulsivity and propensity for engaging in disordered eating as a way to manage negative affect.

### Thin ideal internalization

Thin ideal internalization was related to disordered eating across all racial/ethnic groups and all measures of disordered eating. This emphasizes the deleterious effect that internalization of the dominant Caucasian thin ideal has on racial/ethnic minorities and the importance of continuing to clarify how ethnicity-related factors might buffer the effects of thin ideal internalization on racial/ethnic minorities. Although there were differences in the level of thin ideal internalization reported by the racial/ethnic groups, the way that it relates to disordered eating is similar across these groups.



### **Aim 3: Interactive Models Predicting Eating Pathology with Ethnicity-Related Factors, Thin Ideal Internalization, Perfectionism, and Impulsivity**

#### Ethnicity-related factors as moderators of relations between thin ideal internalization and disordered eating

Ethnic identity was not supported as a moderator of the relations between thin ideal internalization and disordered eating. As previously discussed, it may be that the broad measure ethnic identity used in the current study did not capture aspects of this construct more salient to body image. Alternatively, it may be that ethnic identity does not buffer individuals from the deleterious effects of thin ideal internalization. Although it is still possible that ethnic identity indirectly protects racial/ethnic minority individuals from disordered eating by reducing negative affect, it could be that the relative size of this effect is eclipsed by the harmful effect of thin ideal internalization. The robust associations between thin ideal internalization and disordered eating found in this study may indirectly support this explanation.

Overall satisfaction with racially salient appearance areas was also not supported as a moderator of the relations between thin ideal internalization and disordered eating. As the measure of this construct was created for this study, further refinement is likely necessary to capture aspects of this factor most relevant to body image. It may be that the eating disorder risk captured by this measure in its current form overlaps a great deal with that which is captured by assessing thin ideal internalization. Conceptually, using an overall measure of satisfaction with these appearance areas may be less informative than parsing out satisfaction with specific areas or clusters of areas that are more salient to different racial/ethnic groups.

Overall satisfaction with racially salient appearance areas as a moderator of relations between dimensional perfectionism and disordered eating

Satisfaction with racially salient appearance areas was generally not supported as a moderator of the relations between dimensional perfectionism and disordered eating for African Americans or Asian Americans. However, satisfaction with racially salient appearance areas did moderate the relation between socially prescribed perfectionism and bulimic symptoms in Latinas. This may relate to the surprising positive correlation between satisfaction with these areas and bulimic symptoms. Potentially, Latinas who perceive that others have high expectations for them may experience more social pressure to try to attain the low body weight emphasized by the thin ideal through disordered eating if they feel satisfied that they conform to the thin ideal in other aspects of their physical appearance.

Impulsivity as a moderator of the relation between discrimination stress and bulimic symptoms

Impulsivity was not supported as a moderator of the relation between discrimination stress in African Americans or Asian Americans, suggesting that discrimination stress may act as a consistent stressor that increases these individuals' likelihood of engaging in disordered eating, regardless of their general propensity for engaging in impulsive behavior as an emotion regulation strategy. In contrast, Latinas again differed from the other two racial/ethnic groups, such that highly impulsive Latinas experiencing discrimination stress reported the highest level of bulimic symptoms. Impulsive Latinas may be more sensitive to the effects of discrimination stress, and have a lower threshold for engaging in bulimic behaviors as an emotion regulation strategy.

### **Exploratory Aim: Specific Racially Salient Appearance Areas and Disordered Eating**

The findings of this exploratory aim are discussed by racial/ethnic group below. As a general comment, while a number of significant associations were found between satisfaction with specific areas and overall eating pathology, as well as between satisfaction with specific areas and bulimic symptoms, relatively few associations emerged between satisfaction with specific areas and dietary restraint. This may support the theory that dissatisfaction with racially salient appearance areas primarily relates to disordered eating through its influence on negative affect, which would be expected to affect engagement in bulimic behaviors.

**African Americans.** African Americans reported a number of significant negative correlations between satisfaction with specific appearance areas and overall eating pathology, as well as between satisfaction with these areas and bulimic symptoms. These appearance areas ranged broadly from facial characteristics such as size of lips to body part characteristics related to overall body shape. However, most of these correlations became non-significant after controlling for body dissatisfaction. Given these findings, it is possible that African Americans may conceptualize their body image as a broad aggregate of attitudes towards all physical characteristics, rather than being more focused on individual appearance areas or body weight/shape. If this is the case, then satisfaction with specific racially salient appearance areas may be coupled with body weight/shape dissatisfaction to some degree. Attempting to separately assess satisfaction with specific racially salient appearance areas may yield relatively little additional information, if body dissatisfaction has been assessed. This may speak to the importance of trying to identify significant clusters of racially salient appearance areas that may be more relevant to describing African American body image.

**Asian Americans.** Asian Americans reported few significant correlations between satisfaction with specific appearance areas and disordered eating. The two characteristics significantly related to disordered eating in this group, shape of eyes and eyelid fold, pertain to eye appearance, which has been identified as salient to Asian American body image (Hall, 1995; Kaw, 1993). However, the partial correlations after controlling for body dissatisfaction were not significant. Some research has identified body weight as racially salient to Asian Americans, as they may experience pressure to be slimmer and “more delicate” due to stereotypes about Asians having slender body types (Frederick et al., 2016; Wong et al., 2017). Thus, assessing satisfaction with weight and shape separately in relation to disordered eating may be more the direction to pursue in understanding the role of body image in eating attitudes/behaviors among ~~how~~ Asian Americans.

**Latinas.** Latinas reported some significant correlations between satisfaction with specific appearance areas and each of the measures of disordered eating, all in the positive direction. Of note, the only significant differences in strengths of association between satisfaction with specific racially salient appearance areas and disordered eating were observed between African Americans and Latinas, who tended to report significant associations in opposite directions. The Latina sample was examined in more detail to gain additional insight into what might explain the surprising direction of these associations. As Latinas represent a highly heterogeneous group of individuals, subgroups of Latinas were compared to see if specific subgroups of Latinas might be driving these findings.

*Caucasian versus non-Caucasian Latinas.* As Latinas may be of any racial background, Caucasian Latinas might be expected to more closely resemble the Caucasian thin ideal than non-Caucasian Latinas. An implication of this is that they may perceive the dominant thin ideal

as more attainable, motivating attempts to diet as a way to shape their bodies to fit this ideal. Theoretically, then, Caucasian Latinas who are more satisfied with their racially salient appearance areas might also engage in more disordered eating as the thin ideal seems within reach. Thus, Caucasian Latinas were compared to non-Caucasian Latinas in strengths of association between satisfaction with specific racially salient appearance areas and disordered eating. There were few significant differences between strengths of association in Caucasian and non-Caucasian Latinas. However, this may have been due to the relatively small sample sizes, which reduced the power to detect significant differences. In examining significant correlations between satisfaction with racially salient appearance areas and disordered eating, a striking pattern emerged wherein Caucasian Latinas reported primarily negative associations between satisfaction with appearance areas and disordered eating, while non-Caucasians reported positive associations. Thus, it seemed that non-Caucasian Latinas were driving the unexpected direction of the findings, as they reported that the more satisfied they were with the appearance of their racially salient physical characteristics, the more likely they were to engage in disordered eating. It could be that this group has already implemented changes in their eating behavior, perhaps as a way to fit in, and perceive that they are seeing the desired results in terms of weight loss, which might contribute to higher overall body satisfaction, which then trickles down to increased satisfaction with specific physical characteristics.

*Caucasian versus non-Caucasian Latinas.* As Latinas may be of any racial background, Caucasian Latinas might be expected to more closely resemble the Caucasian thin ideal than non-Caucasian Latinas. An implication of this is that they may perceive the dominant thin ideal as more attainable, motivating attempts to diet as a way to shape their bodies to fit this ideal. Theoretically, then, Caucasian Latinas who are more satisfied with their racially salient

appearance areas might also engage in more disordered eating as the thin ideal seems within reach. Thus, Caucasian Latinas were compared to non-Caucasian Latinas in strengths of association between satisfaction with specific racially salient appearance areas and disordered eating. There were few significant differences between strengths of association in Caucasian and non-Caucasian Latinas. However, this may have been due to the relatively small sample sizes, which reduced the power to detect significant differences. In examining significant correlations between satisfaction with racially salient appearance areas and disordered eating, a striking pattern emerged wherein Caucasian Latinas reported primarily negative associations between satisfaction with appearance areas and disordered eating, while non-Caucasians reported positive associations. Thus, it seemed that non-Caucasian Latinas were driving the unexpected direction of the findings, as they reported that the more satisfied they were with the appearance of their racially salient physical characteristics, the more likely they were to engage in disordered eating. It could be that this group has already implemented changes in their eating behavior, perhaps as a way to fit in, and perceive that they are seeing the desired results in terms of weight loss, which might contribute to higher overall body satisfaction, which then trickles down to increased satisfaction with specific physical characteristics.

*First generation versus non-first generation Latinas.* Latinas were also examined in the subgroups of first generation Latinas versus non-first generation Latinas. First generation Latinas might experience more pressure to conform to culture of origin beauty standards due to their relatively longer exposure to that culture and the higher likelihood of being connected to social networks emphasizing culture of origin beauty standards. No significant differences emerged in strengths of association between satisfaction with specific appearance areas and disordered eating reported by first generation versus non-first generation Latinas. However, as with the

previous comparison of Caucasian versus non-Caucasian Latinas, the small sample sizes limited power to detect differences. First generation Latinas did tend to report relatively strong positive associations between satisfaction with appearance areas and overall eating pathology, which might point to some factor specific to Latin culture which pairs higher satisfaction with physical characteristics with increased efforts to control body weight through disordered eating.

**Between-group comparisons.** All significant differences in strengths of association between satisfaction with specific racially salient appearance areas and disordered eating were observed between African Americans and Latinas, who tended to report significant associations in opposite directions. As the findings regarding Latinas are more discrepant with theory, it may be beneficial to consider ways in which Latina culture may contribute to positive associations between satisfaction with racially salient appearance areas and disordered eating.

### **Additional Considerations**

#### Influence of racial context on body dissatisfaction

The racial context of individuals' environments may influence their reports of satisfaction with their weight and shape, as well as their reports of satisfaction with racially salient appearance areas. A racial/ethnic minority individual living in an area populated predominately by Caucasians might be cued to experience higher levels of dissatisfaction with racially salient appearance areas, as they might regularly compare themselves to Caucasians they encounter and feel both higher levels of pressure to conform to the dominant Caucasian thin ideal, and experience more reminders of ways in which they are unable to conform to that ideal due to their racially salient phenotypic characteristics.

In contrast, a minority individual living in an area populated predominately by others of their minority group might be more likely to actively attempt to conform to their cultural beauty

ideal or decide not to try to conform to the Caucasian thin ideal. This may result in less dissatisfaction with racially salient appearance areas, as there would be others around them who are phenotypically similar, which might normalize the experience of differing from the Caucasian thin ideal. However, it is also possible that being around more similar others might prompt higher rates of comparison, per Festinger's social comparison theory (Festinger, 1954). Indeed, there is some evidence that Asian American women may tend compare themselves to other Asians, particularly in contexts where there are relatively more Asian Americans (Wong et al., 2017). Given the within-ethnic group variability in phenotypes of racially salient appearance areas, such as variations in skin tone, it may be especially distressing to stand out negatively on one of these physical characteristics in this context.

#### Aspirational beauty ideal

A question that remains to be answered is what factors determine whether a racial/ethnic minority individual aspires to conform to her culture of origin beauty ideal or the dominant Caucasian thin ideal, or whether she may try to meet another beauty ideal altogether. The degree to which an individual's aspirational beauty ideal changes over time, whether over the longer term (potentially influenced by factors such as developmental changes in body image or changes in personal values) or over the shorter term (potentially influenced by factors such as impactful appearance-related personal experiences and immersion in different social contexts), is also poorly understood. Regarding shorter term changes in ideals that women may strive for, consider an African American who interacts both in primarily Caucasian contexts and in primarily African American contexts. She might be more likely to groom herself in a way that emphasizes racially salient appearance areas that conform to the Caucasian thin ideal if she is attending a business meeting in a predominately Caucasian workplace, in order to reduce the likelihood of



experiencing microaggressions and discrimination (Awad et al, 2015; Sue, Capodilupo, & Holder, 2008). In contrast, she might choose to emphasize different characteristics that fit her cultural beauty ideal, such as a thicker body type, when meeting with African American friends.

Immigration generation may also influence what beauty ideal an individual might strive for. It is possible that first generation immigrants may be more likely to continue to adhere to the beauty ideals of their country of origin due to internalization of those beauty standards and social pressure from individuals from that culture, such as family members. Subsequent generations of individuals who have spent more time in the U.S. may have both internalized the dominant thin ideal to a greater degree and experience less social pressure to conform to the ideal of their culture of origin. There is evidence that familial expectations may have an important influence on what beauty ideals racial/ethnic minority women try to meet. African American and Asian American women have reported being affected by familial expectations regarding their presentation and behavior (DiBartolo & Redon, 2012; Rubin, Fitts, & Becker, 2003).

Racial/ethnic minority women's phenotypic presentation may also influence which beauty ideal they try to reach. There is wide variation in the degree to which minority women physically conform to the Caucasian thin ideal (e.g., one woman may have dark skin and straight hair, whereas another has light skin and tightly curled hair). Minority women whose features conform more to the Caucasian thin ideal, for example, a Latina with light hair and skin, may feel that this ideal is more attainable and thus aspire to reach it. In contrast, women whose features are more different from the Caucasian thin ideal may opt to strive for their culture of origin beauty ideal, an approach that has been theorized to function as a strategy for preserving self-esteem (Evans & McConnell, 2003). If, however, they to strive for the Caucasian ideal, they

may more likely face negative affect and possibly certain patterns of disordered eating if the ideal is more unattainable.

### Meanings of racially salient appearance areas

Racially salient appearance areas may carry different meanings for different groups. For example, the cultural meaning attached to having darker skin tones may differ between African Americans and Caucasians. African Americans have historically and currently experienced colorism, in which individuals with lighter skin tones are more positively regarded than those with darker skin tones (Awad et al., 2015; Hill, 2002, Hunter, 2002, Wilder & Cain, 2011). In African American women, skin color satisfaction has been found to relate to body image satisfaction (Falconer & Neville, 2000). In contrast, darker skin tone in Caucasians is to some degree considered attractive, as evidenced by the common practice of Caucasian women tanning to darken their skin (Greene & Brinn, 2003).

Additionally, certain racially salient appearance areas may be emphasized and carry more cultural meaning in certain groups, but not be culturally salient in others. An example of this might be the eyelid fold: while eyelid shape is highly salient and commonly discussed in East Asian cultures, there is less evidence suggesting that it is a salient feature in other racial/ethnic minority groups (Hall, 1995; Kaw, 1993; Pham, 2014). Due to the different meanings that specific appearance areas may or may not carry for different groups, the validity of responses regarding satisfaction with these areas may also vary by racial/ethnic group. An African American woman answering a question about how she feels about her eyelids may not have a strong opinion about them because she may not think about her eyelid shape, whereas an Asian American woman may have received messages from childhood regarding the desirability of her

eyelid shape, and thus have a more clearly defined opinion regarding how she feels about this physical characteristic.

### **Strengths and Limitations**

A key strength of this study is its diverse sample of racial/ethnic minority women, which allowed for examination of between-group comparisons within the same study. This study investigated ethnicity-related risk factors for eating pathology that have not been widely studied and contributed to knowledge of eating disorder risk in racial/ethnic minorities. This study also used a novel measure to assess satisfaction with racially salient appearance areas, and linked satisfaction with specific racially salient appearance areas to disordered eating, although in many cases, these relationships disappeared when accounting for weight/shape concern.

The study also has limitations that should be noted. Due to missing data and the difficulty of recruiting large samples of racial/ethnic minorities, this study might have been underpowered for detecting the hypothesized interaction effects. Additionally, analyses comparing Caucasian Latinas and non-Caucasian Latinas, as well as those comparing first generation and non-first generation Latinas, had reduced power due to the smaller sample sizes of these subgroups. Although survey completers did not differ significantly from partial completers on most of the study constructs, missing data from the partial completers introduced the possibility of biased estimates. Future analyses with study data should consider using methods for handling missing data such as multiple imputation, which could provide less biased estimates, thus mitigating the potential bias introduced by the missing data. The cross-sectional nature of the study design limited the ability to establish temporal relations between the hypothesized risk factors and disordered eating behavior. As the study measures were self-report, there was the possibility of

intentional or unintentional misreporting by participants, which may have affected how well the study constructs were captured by the survey.

Some characteristics of the study sample may limit the generalizability of the study findings. Due to the self-selected nature of the study, and the use of multiple recruitment sources, there is the potential that the sample was systematically biased in some way that was not assessed. For example, individuals with pre-existing interest in body image and disordered eating may have been more likely to participate in this study, and those individuals might have developed this interest through salient personal experiences pertaining to these areas.

The pools of individuals who are reached through the different recruitment methods might differ systematically from each other. For example, participants recruited from Mechanical Turk may be relying on it as a source of income and potentially have lower income than the undergraduate women recruited from Sona and listservs, who might be expected to represent a group generally higher in socioeconomic status. There is some evidence that Mechanical Turk samples may differ from the general U.S. population in terms of having lower average incomes and higher educational attainment (Levay, Freese, & Druckman, 2016).

Due to the culturally-focused nature of the organizations whose listservs were emailed, participants recruited from this source had already expressed some interest in cultural issues. Individuals seeking out these organizations may find ethnicity-related factors to be more salient to their experiences, and may differ from those not in these organizations in the degree to which they have considered their cultural identities, which might affect their reports on the ethnicity-related study constructs.

As racial/ethnic minorities were deliberately recruited to reach a certain sample size for each minority group, the relative proportions of the total sample that they make up was

artificially controlled and not reflective of the proportions in which these minorities are found in community samples (Harris, 2009). In particular, Asian Americans were oversampled in order to obtain the data necessary to investigate study questions and thus, a larger proportion of the study sample identifies as Asian American than that found in general population.

Although participants were categorized by racial/ethnic identity for the purposes of the analyses, each of the broad racial categories encompassed a heterogeneous group of individuals who may be influenced by significantly different sets of cultural values and experiences. For example, although individuals reporting Mexico as their country of origin and those reporting Argentina as their country of origin would both be categorized as Latina, the specific cultural messages, expectations, and beauty ideals may differ between individuals of different national and ethnic origins, thus making it more difficult to draw conclusions about Latinas as a whole (Romo, Mireles-Rios, & Hurtado, 2015). Similarly, the Latinas in the sample represented a diverse group spanning a variety of racial identifications, which may affect their individual relationships with their bodies and the beauty standards to which they adhere.

### **Clinical Implications**

The following clinical implications would be bolstered by future research supporting the significant correlates identified in this work as being causally related to eating pathology. Prevention efforts may target ethnicity-related factors and facilitate discussion about factors contributing to clients' body image. The link between ethnicity-related factors and eating pathology indicates that during assessment, it is important for the clinician to take these factors into account when forming a conceptualization of a racial/ethnic minority client. Intervention efforts could target ethnicity-related factors and work on cognitive restructuring of thoughts

surrounding stressors such as discrimination stress. Importantly, clinicians should keep in mind that some factors may be more salient to some racial/ethnic minority groups than others.

### **Future Directions**

The findings from this study demonstrate that more work is needed to explore ethnicity-related factors and eating disorder risk in racial/ethnic minorities. While the factors investigated in the current study add to our understanding of influences on disordered eating in minority women, it is unclear in some cases why these factors are related to eating disorder risk in each racial/ethnic group. To better understand these links, researchers may need to identify more specific elements of culture unique to each racial/ethnic group that combine to create distinct sets of risk and protective factors for individuals from different cultural backgrounds. Additionally, explicit assessment of theoretically relevant factors such as negative affect would further clarify the relationships between ethnicity-related factors and disordered eating.

#### Other ethnicity-related factors

While this study examined some of the primary ethnicity-related factors theorized to be risk and protective factors for eating pathology, other ethnicity-related factors that were not examined may also be relevant to racial/ethnic minorities' experiences of disordered eating. For example, religiosity and racial socialization have been proposed as protective factors against disordered eating (Akrawi, Bartrop, Potter, & Touyz, 2015; Kempa & Thomas, 2000; Spangler, 2010). Other factors that might affect minorities' likelihood of engaging in disordered eating include specific gender roles (e.g., "Strong Black Woman" in African Americans and *marianismo* in Latinas; Galanti, 2003; Harrington, Crowther, & Shipherd, 2010; Lopez, Corona, & Halfond, 2013) and collectivistic/individualistic orientation in culture of origin. These factors

should be further investigated in order to form a more comprehensive picture of eating disorder risk in minority women.

#### Satisfaction with racially salient appearance areas

More work is also needed to explore satisfaction with racially salient appearance areas and its link to disordered eating. It is necessary to refine the measure of satisfaction with racially salient appearance areas, for example, by performing a factor analysis of the measure in larger samples of racial/ethnic minorities. Relatedly, the correlations between satisfaction with racially salient appearance areas and disordered eating might be considered more robust if clusters of physical features were combined to form subscale scores, rather than assessed as single-item measures. Future work should use larger sample sizes to identify unique clusters of racially salient appearance areas to form subscale scores that may differ in item content across racial/ethnic groups.

To examine this construct in more detail, future studies should also assess both satisfaction with racially salient appearance areas and individuals' desired changes to these appearance areas. Combined with more objective measures of an individual's phenotype (e.g., what is her hair texture? What shade is her skin?), this information would allow for a clearer interpretation of findings regarding satisfaction with these appearance areas. This information could clarify whether individuals desire to conform to the Caucasian thin ideal or their cultural minority ideal, or if there is another, unknown set of standards they are attempting to meet.

#### Within-group heterogeneity

As each of the broad racial/ethnic groups is composed of a heterogeneous group of individuals, future research should aim to examine cultural factors at a more specific level. For example, instead of studying Asian Americans as a whole, it would be informative to learn about

the experiences of Indian American women versus Korean American women. In this way, the impact of unique factors such as cultural values and country of origin beauty ideals could be assessed. Similarly, considering Latinas' racial identifications may yield information regarding how they perceive their bodies.

### Multiracial individuals

A more complete exploration of these topics would include examination of the experiences of multiracial individuals. Though these individuals make up a growing portion of the population and have unique experiences in terms of identity formation and body image formation, they are not well-studied in the eating disorder literature. The issues of identification with minority vs. dominant culture grow even more complex when considering that multiracial individuals may vary widely in how they synthesize multiple cultural identities and the degree to which they adhere to dominant cultural ideals. This could depend upon factors such as whether an individual's cultures of origin are multiple minority cultures, or include both dominant and minority culture. Multiracial individuals may also differ widely in their phenotypic presentations, affecting how they are perceived by others and the degree to which they feel they are able to achieve different beauty ideals.

### **Conclusion**

This study examined associations between ethnicity-related risk factors and disordered eating in African Americans, Asian Americans, and Latinas, including examining a previously unstudied aspect of racial/ethnic minority body image, satisfaction with racially salient appearance areas. Additionally, this study examined relations between broadly applicable risk factors and disordered eating in African Americans, Asian Americans, and Latinas, and ethnicity-related factors that might interact with these factors. Given the significant associations



found between ethnicity-related risk factors and disordered eating, and the surprising nature of the findings regarding satisfaction with specific racially salient appearance areas, continued research is needed to better understand these influences on racial/ethnic minority individuals' body image. By considering how ethnicity-related factors may be integrated into conceptualizations of eating pathology in racial/ethnic minorities, as well as continuing to expand knowledge of risk factors for disordered eating in minorities, we will be able to form a more complete understanding of eating disorders in these understudied populations.

Table 1

*Means, Standard Deviations, and Mean Comparisons of Demographic Variables*

	<b>African Americans M(SD)</b>	<b>Asian Americans M(SD)</b>	<b>Latinas M(SD)</b>	<b>Caucasians M(SD)</b>	<b>Overall group comparisons</b>	<b>Significant pairwise comparisons</b>
<b>Age</b>	20.60(2.12)	20.20(2.07)	21.17(2.36)	20.76(2.42)	$F(3, 495) = 3.11, p = .026,$ partial $\eta^2 = .02$	Asian American < Latina
<b>BMI</b>	25.65(5.93)	22.26(3.79)	24.35(6.81)	23.50(4.85)	$F(3, 482) = 7.09, p < .001,$ partial $\eta^2 = .02$	African American > Caucasian African American > Asian American Asian American < Latina
<b>Parental education (% with 4-year college degree)</b>	59%	76%	56%	70%	$\chi^2(3, N = 499) = 12.31,$ $p = .006$	Asian American > Latina Asian American > African American Caucasian > Latina

*Note.* Pairwise comparisons listed were significant at least at  $p < .05$ .

Table 2

*Immigration Generations of Self, Mother, and Father in African American, Asian American, Latina, and Caucasian Women*

<b>Self Immigration Generation</b>	<b>African Americans /Blacks (%)</b>	<b>Asian Americans (%)</b>	<b>Latinas (%)</b>	<b>Caucasians (%)</b>
<b>1<sup>st</sup> generation</b>	8.5	17.9	20.8	6.3
<b>2<sup>nd</sup> generation</b>	14.2	63.2	50.0	5.2
<b>3<sup>rd</sup> generation</b>	4.7	9.5	9.4	7.8
<b>4<sup>th</sup> generation+</b>	67.0	6.4	12.2	68.8
<b>Unsure or unreported</b>	5.7	3.2	7.5	12.0

<b>Mother's Immigration Generation</b>	<b>African Americans /Blacks (%)</b>	<b>Asian Americans (%)</b>	<b>Latinas (%)</b>	<b>Caucasians (%)</b>
<b>1<sup>st</sup> generation</b>	19.8	68.4	61.3	10.9
<b>2<sup>nd</sup> generation</b>	5.7	11.6	15.1	7.3
<b>3<sup>rd</sup> generation</b>	2.8	8.4	5.7	16.7
<b>4<sup>th</sup> generation+</b>	63.2	3.2	8.5	53.1
<b>Unsure or unreported</b>	8.5	8.5	9.4	12.0

<b>Father's Immigration Generation</b>	<b>African Americans /Blacks (%)</b>	<b>Asian Americans (%)</b>	<b>Latinas (%)</b>	<b>Caucasians (%)</b>
<b>1<sup>st</sup> generation</b>	21.7	71.6	59.4	11.5
<b>2<sup>nd</sup> generation</b>	2.8	13.7	14.2	6.8
<b>3<sup>rd</sup> generation</b>	4.7	4.2	3.8	9.9
<b>4<sup>th</sup> generation+</b>	60.4	3.2	11.3	54.7
<b>Unsure or unreported</b>	10.4	7.4	11.3	17.2

*Note:* Percentages in columns may not sum to 100.0% due to rounding

Table 3

*Means, Standard Deviations, and Mean Comparisons of Study Constructs*

		<b>African Americans M(SD)</b>	<b>Asian Americans M(SD)</b>	<b>Latinas M(SD)</b>	<b>Caucasians M(SD)</b>	<b>Overall group comparisons</b>	<b>Significant pairwise comparisons</b>
<b>Ethnicity-related factors</b>	<b>Acculturation</b>	48.75(8.15)	46.63(9.94)	46.89(8.76)	-	$F(2, 220) = .97, p = .381$ , partial $\eta^2 = .01$	-
	<b>Acculturative stress</b>	48.30(20.24)	48.83(20.57)	54.85(23.86)	-	$F(2, 282) = 2.74, p = .066$ , partial $\eta^2 = .02$	-
	<b>Discrimination stress</b>	41.63(18.65)	37.35(18.05)	41.12(20.50)	-	$F(2, 265) = 1.30, p = .275$ , partial $\eta^2 = .01$	-
	<b>Satisfaction with racially salient appearance areas</b>	5.23(1.04)	4.85(1.12)	4.94(1.01)	-	$F(2, 260) = 3.07, p = .048$ , partial $\eta^2 = .02$	African American > Asian American
	<b>Ethnic identity</b>	3.84(.87)	3.77(.96)	3.73(.87)	-	$F(2, 269) = .35, p = .707$ , partial $\eta^2 = .003$	-
<b>Broadly applicable factors</b>	<b>Thin ideal internalization</b>	2.94(1.17)	3.43(.88)	3.27(.91)	3.63(.98)	$F(3,453) = 10.63, p < .001$ , partial $\eta^2 = .07$	African American < Asian American African American < Caucasian Latina < Caucasian
	<b>Self-oriented perfectionism</b>	72.15(17.28)	74.28(16.65)	72.39(13.96)	72.78(16.05)	$F(3,417) = .28, p = .837$ , partial $\eta^2 = .002$	-
	<b>Socially prescribed perfectionism</b>	54.91(13.80)	58.27(12.50)	59.05(11.40)	57.92(13.26)	$F(3,421) = 1.65, p = .178$ , partial $\eta^2 = .01$	-
	<b>Impulsivity</b>	2.24(.79)	2.30(.73)	2.31(.66)	2.42(.72)	$F(3,418) = 1.14, p = .261$ , partial $\eta^2 = .01$	-
	<b>Body dissatisfaction</b>	2.32(1.84)	2.57(1.58)	2.57(1.62)	2.81(1.78)	$F(3,475) = 1.84, p = .138$ , partial $\eta^2 = .01$	-
<b>Disordered eating</b>	<b>Overall eating pathology</b>	8.96(9.15)	10.23(10.38)	11.76(12.76)	13.42(12.66)	$F(3,492) = 3.84, p = .010$ , partial $\eta^2 = .02$	African American < Caucasian
	<b>Dietary restraint</b>	8.19(5.32)	9.22(5.10)	7.97(4.96)	10.11(5.02)	$F(3,481) = 5.26, p = .001$ , partial $\eta^2 = .03$	African American < Caucasian Latina < Caucasian
	<b>Bulimic symptoms</b>	1.66(3.14)	1.91(3.58)	2.26(4.25)	2.30(3.70)	$F(3,478) = .80, p = .497$ , partial $\eta^2 = .01$	-

*Note:* Construct measures are as follows [Measure name(possible range of scores)]: Acculturation = SMAS(15 to 60); Acculturative stress = SAFE(0 to 120); Discrimination stress = SRE(17 to 102); Satisfaction with racially salient appearance areas = RESAA(1 to 7); Ethnic identity = MEIM-R(1 to 5); Thin ideal internalization = SATAQ-4(1 to 5); Self-oriented perfectionism = MPS-SOP(15 to 105); Socially prescribed perfectionism = MPS-SPP(15 to 105); Impulsivity = UPPS(1 to 4); Body dissatisfaction = EDE-Q Weight/Shape Concern(0 to 6); Overall eating pathology = EAT-26(0 to 78); Dietary restraint = TFEQ-R(0 to 20); Bulimic symptoms = EDI-Bulimia(0 to 21). Higher scores reflect higher levels of the construct. Descriptive statistics for the Caucasian sample are presented only for the broadly applicable risk factors and the disordered eating constructs, not for the ethnicity-related factors. Pairwise comparisons listed were significant at least at  $p < .05$ .

Table 4

*African American Women: Correlations among Study Constructs*

<i>N</i> = 106	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Acculturation	-												
2. Acculturative stress	-.002	-											
3. Discrimination stress	.03	.66***	-										
4. Satisfaction with racially salient appearance areas	.14	-.53***	-.37***	-									
5. Ethnic identity	.03	-.19	-.17	.42***	-								
6. Thin ideal internalization	.09	.40***	.45***	-.37***	-.17	-							
7. Self-oriented perfectionism	.24	.17	.09	-.13	.08	-.45***	-						
8. Socially prescribed perfectionism	.14	.47***	.35**	-.38***	-.12	.31**	.36**	-					
9. Impulsivity	-.04	.35**	.37**	-.26*	-.04	.30**	.01	.34**	-				
10. Body dissatisfaction	.16	.47***	.50***	-.46***	-.19	.74***	.42***	.36**	.33**	-			
11. Overall eating pathology	.05	.46***	.42***	-.36**	-.15	.51***	.36**	.43***	.30**	.65***	-		
12. Dietary restraint	.12	.29**	.38***	-.14	-.06	.69***	.33**	.29**	.22*	.58***	.54***	-	
13. Bulimic symptoms	.05	.41***	.51***	-.34**	-.23*	.40***	.15	.28*	.32**	.60***	.69***	.28**	-

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Construct measures are as follows: Acculturation = SMAS; Acculturative stress = SAFE; Discrimination stress = SRE; Satisfaction with racially salient appearance areas = RESAA; Ethnic identity = MEIM-R; Thin ideal internalization = SATAQ-4; Self-oriented perfectionism = MPS-SOP; Socially prescribed perfectionism = MPS-SPP; Impulsivity = UPPS; Body dissatisfaction = EDE-Q Weight/Shape Concern; Overall eating pathology = EAT-26; Dietary restraint = TFEQ-R; Bulimic symptoms = EDI-Bulimia. Higher scores reflect higher levels of the construct.

Table 5

*Asian American Women: Correlations among Study Constructs*

<i>N</i> = 95	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Acculturation	-												
2. Acculturative stress	-.30**	-											
3. Discrimination stress	-.22	.69***	-										
4. Satisfaction with racially salient appearance areas	.02	-.25*	-.18	-									
5. Ethnic identity	-.01	-.09	-.02	.15	-								
6. Thin ideal internalization	-.002	.18	.13	-.13	.04	-							
7. Self-oriented perfectionism	-.12	.12	.08	-.09	-.01	.15	-						
8. Socially prescribed perfectionism	-.19	.52***	.42***	-.28*	.21	.30**	.38**	-					
9. Impulsivity	-.002	.33**	.22	-.45***	-.29	.16	.01	.23*	-				
10. Body dissatisfaction	.03	.30**	.33**	-.41***	-.12	.54***	.32**	.39***	.20	-			
11. Overall eating pathology	.11	.36**	.34**	-.06	-.13	.46***	.17	.33**	.06	.65***	-		
12. Dietary restraint	.06	.13	.13	-.04	.04	.34**	.03	.20	-.16	.50***	.55***	-	
13. Bulimic symptoms	-.05	.41***	.44***	-.13	-.12	.28**	-.02	.23*	.34**	.53***	.61***	.28**	-

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Construct measures are as follows: Acculturation = SMAS; Acculturative stress = SAFE; Discrimination stress = SRE; Satisfaction with racially salient appearance areas = RESAA; Ethnic identity = MEIM-R; Thin ideal internalization = SATAQ-4; Self-oriented perfectionism = MPS-SOP; Socially prescribed perfectionism = MPS-SPP; Impulsivity = UPPS; Body dissatisfaction = EDE-Q Weight/Shape Concern; Overall eating pathology = EAT-26; Dietary restraint = TFEQ-R; Bulimic symptoms = EDI-Bulimia. Higher scores reflect higher levels of the construct.

Table 6

*Latina Women: Correlations among Study Constructs*

<i>N</i> = 106	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Acculturation	-												
2. Acculturative stress	.07	-											
3. Discrimination stress	.11	.55***	-										
4. Satisfaction with racially salient appearance areas	.15	-.08	-.08	-									
5. Ethnic identity	.25*	.21*	.13	.17	-								
6. Thin ideal internalization	.13	.18	.09	.08	-.01	-							
7. Self-oriented perfectionism	.26*	.001	.07	.20	.30**	.20	-						
8. Socially prescribed perfectionism	.15	.46***	.47***	-.01	.33**	.29**	.47***	-					
9. Impulsivity	.06	.24*	.33**	-.04	.10	.21	-.15	.29	-				
10. Body dissatisfaction	.08	.34**	.39***	-.10	.03	.63***	.17	.37**	.35**	-			
11. Overall eating pathology	.05	.49***	.40**	.22*	.12	.53***	.10	.37**	.31**	.65***	-		
12. Dietary restraint	.10	.31**	.12	.18	-.03	.48***	-.06	.11	.09	.49***	.61***	-	
13. Bulimic symptoms	-.06	.45***	.45**	.18	.09	.34**	.02	.28**	.30**	.47***	.74***	.29**	-

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Construct measures are as follows: Acculturation = SMAS; Acculturative stress = SAFE; Discrimination stress = SRE; Satisfaction with racially salient appearance areas = RESAA; Ethnic identity = MEIM-R; Thin ideal internalization = SATAQ-4; Self-oriented perfectionism = MPS-SOP; Socially prescribed perfectionism = MPS-SPP; Impulsivity = UPPS; Body dissatisfaction = EDE-Q Weight/Shape Concern; Overall eating pathology = EAT-26; Dietary restraint = TFEQ-R; Bulimic symptoms = EDI-Bulimia. Higher scores reflect higher levels of the construct.



Table 7

*Non-Latina Caucasian Women: Correlations among Study Constructs Examined in this Sample*

<i>N</i> = 192	1	2	3	4	5	6	7	8
1. Thin ideal internalization	-							
2. Self-oriented perfectionism	.29***	-						
3. Socially prescribed perfectionism	.36***	.43***	-					
4. Impulsivity	.35***	-.03	.31***	-				
5. Body dissatisfaction	.69***	.24**	.45***	.42***	-			
6. Overall eating pathology	.46***	.23**	.33***	.28***	.62***	-		
7. Dietary restraint	.52***	.23**	.17*	.21**	.59***	.65***	-	
8. Bulimic symptoms	.25***	.003	.30***	.36***	.49***	.56***	.26***	-

*Note.* \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . Construct measures are as follows: Thin ideal internalization = SATAQ-4; Self-oriented perfectionism = MPS-SOP; Socially prescribed perfectionism = MPS-SPP; Impulsivity = UPPS; Body dissatisfaction = EDE-Q Weight/Shape Concern; Overall eating pathology = EAT-26; Dietary restraint = TFEQ-R; Bulimic symptoms = EDI-Bulimia. Higher scores reflect higher levels of the construct.

Table 8

*Strengths of Association between Race/Ethnicity-Related Factors and Disordered Eating with Pairwise Comparisons amongst African American, Asian American, and Latina Women based on Fisher's  $r$ -to- $z$  transformations*

Race/ethnicity-related factor	Association with overall eating pathology			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Acculturation	.05	.11	.05	.734	1.00	.697
Acculturative stress	.46***	.36**	.49***	.418	.787	.285
Discrimination stress	.42***	.34**	.40***	.542	.873	.653
Satisfaction with racially salient appearance areas	-.36**	-.06	.22*	.039	.0001 <sup>+</sup>	.067
Ethnic identity	-.15	-.13	.12	.897	.070	.010

Race/ethnicity-related factor	Association with dietary restraint			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Acculturation	.12	.06	.10	.734	.912	.795
Acculturative stress	.29**	.13	.31**	.259	.881	.201
Discrimination stress	.38***	.13	.12	.080	.063	.944
Satisfaction with racially salient appearance areas	-.14	-.04	.18	.509	.034	.153
Ethnic identity	-.06	.04	-.03	.509	.842	.646

Race/ethnicity-related factor	Association with bulimic symptoms			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Acculturation	.05	-.05	-.06	.576	.542	.952
Acculturative stress	.41***	.41***	.45***	1.00	.734	.741
Discrimination stress	.51***	.44***	.45***	.555	.603	.936
Satisfaction with racially salient appearance areas	-.34**	-.13	.10	.147	.0004 <sup>+</sup>	.043
Ethnic identity	-.23*	-.12	.09	.453	.03	.165

Note: \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ ; <sup>+</sup> = significant difference in strength of correlation after controlling for false discovery rate with Benjamini-Hochberg procedure.

Table 9

*African American Women: Partial Correlations of Disordered Eating with Selected Racially Salient Appearance Areas when Controlling for Overall Body Dissatisfaction*

Association with overall eating pathology		Association with dietary restraint		Association with bulimic symptoms	
Racially Salient Appearance Area	Partial correlation (r)	Racially Salient Appearance Area	Partial correlation (r)	Racially Salient Appearance Area	Partial correlation (r)
Skin tone	-.13	Skin tone	.04	Skin tone	-.003
Hair texture	-.11	Hair texture	-.05	Hair texture	.08
Hair color	-.11	Color of eyes	-.05	Hair color	-.09
Shape of buttocks	-.03			Shape of buttocks	.002
Size of thighs	-.05			Size of thighs	-.02
Size of hips	-.05			Size of hips	-.03
Size of waist	-.07			Size of breasts	-.20
Shape of lips	-.14			Shape of lips	-.19
Size of lips	-.24*			Size of lips	-.33**
Size of nose	.02			Size of nose	-.03
Color of eyes	-.06			Width of nose	-.02
Face shape	-.04			Height of nose bridge	-.07
Height of cheekbones	-.03			Shape of eyes	-.12
Prominence of cheekbones	-.07			Eye slant angle	-.17
Height	-.24*			Color of eyes	-.06
				Height of cheekbones	-.21*
				Prominence of cheekbones	-.10
				Height	-.22*

Note. \*  $p < .05$ . \*\*  $p < .01$ .

Table 10

*Asian American Women: Partial Correlations of Disordered Eating with Selected Racially Salient Appearance Areas when Controlling for Overall Body Dissatisfaction*

<b>Association with overall eating pathology</b>		<b>Association with dietary restraint</b>		<b>Association with bulimic symptoms</b>	
<b>Racially Salient Appearance Area</b>	<b>Partial correlation (r)</b>	<b>Racially Salient Appearance Area</b>	<b>Partial correlation (r)</b>	<b>Racially Salient Appearance Area</b>	<b>Partial correlation (r)</b>
Skin tone	.19	Skin tone	.13	Skin tone	.11
Size of breasts	.22*	Size of breasts	.17	Size of breasts	.10
Shape of eyes	.12	Shape of eyes	.19	Shape of eyes	-.10
Eyelid fold	.19	Eyelid fold	.06	Eyelid fold	-.10

*Note.* \*  $p < .05$ .

Table 11

*Latina Women: Partial Correlations of Disordered Eating with Selected Racially Salient Appearance Areas when Controlling for Overall Body Dissatisfaction*

Association with overall eating pathology		Association with dietary restraint		Association with bulimic symptoms	
Racially Salient Appearance Area	Partial correlation (r)	Racially Salient Appearance Area	Partial correlation (r)	Racially Salient Appearance Area	Partial correlation (r)
Shape of buttocks	.17	Shape of buttocks	.07	Size of buttocks	.29**
Size of waist	.28**	Size of waist	.15	Shape of buttocks	.29**
Size of breasts	.18	Size of breasts	.12	Size of thighs	.38***
Shape of lips	.31**	Shape of lips	.29**	Size of hips	.33**
Size of lips	.18	Size of lips	.24*	Size of waist	.16
Size of nose	.33**	Size of nose	.07	Size of breasts	.12
Width of nose	.34**	Width of nose	.13	Shape of lips	.08
Height of nose bridge	.31**	Height of nose bridge	.12	Size of lips	-.004
Size of eyes	.18	Size of eyes	.22*	Size of nose	.38***
Shape of eyes	.29**	Shape of eyes	.30**	Width of nose	.31**
Eye slant angle	.25*	Eye slant angle	.37***	Height of nose bridge	.17
Color of eyes	.35**	Color of eyes	.31**	Size of eyes	-.05
Eyelid fold	.33**	Face shape	.35**	Eye slant angle	.01
Prominence of cheekbones	.41***	Height	.26*	Prominence of cheekbones	.34**
Height	.25*				

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 12

*African American Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Thin Ideal Internalization and Disordered Eating*

Step and predictors: African American women	B	SE B	$\beta$	$t$ (dfs)	$\Delta R^2$
DV = Overall eating pathology					
Step 1					.27***
Ethnic identity	.05	1.05	.01	.05(2, 86)	
Thin ideal internalization	4.26	.76	.52***	5.62(2, 86)	
Step 2					.01
Thin ideal internalization x Ethnic identity	-1.04	1.02	-.10	-1.03(1, 85)	
DV = Dietary restraint					
Step 1					.49***
Ethnic identity	.41	.47	.07	.85(2,89)	
Thin ideal internalization	3.22	.35	.71***	9.14(2,89)	
Step 2					.02
Thin ideal internalization x Ethnic identity	-.68	.39	-.13	-1.72(1,88)	
DV = Bulimic symptoms					
Step 1					.19***
Ethnic identity	-.61	.35	-.17	-1.73(2,89)	
Thin ideal internalization	1.00	.26	.37***	3.83(2,89)	
Step 2					.01
Thin ideal internalization x Ethnic identity	-.31	.30	-.10	-1.05(1,88)	
DV = Overall eating pathology					
Step 1					.29***
Racially salient appearance areas	-1.75	.86	-.20*	-2.04(2,87)	
Thin ideal internalization	3.39	.76	.43***	4.45(2,87)	
Step 2					.02
Thin ideal internalization x Racially salient appearance areas	-1.17	.68	-.16	-1.72(1,86)	
DV = Dietary restraint					
Step 1					.50***
Racially salient appearance areas	.67	.42	.13	1.60(2,87)	
Thin ideal internalization	3.38	.37	.74***	9.07(2,87)	
Step 2					.01
Thin ideal internalization x Racially salient appearance areas	-.43	.34	-.10	-1.27(1,86)	
DV = Bulimic symptoms					
Step 1					.20***
Racially salient appearance areas	-.67	.31	-.22*	-2.15(2,87)	
Thin ideal internalization	.86	.28	.32**	3.10(2,87)	
Step 2					.02
Thin ideal internalization x Racially salient appearance areas	-.32	.25	-.13	-1.31(1,86)	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 13

*Asian American Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Thin Ideal Internalization and Disordered Eating*

Step and predictors: Asian American women	B	SE B	$\beta$	<i>t</i> (dfs)	$\Delta R^2$
DV = Overall eating pathology					
Step 1					.24***
Ethnic identity	-1.58	1.03	-.15	-1.52(2,83)	
Thin ideal internalization	5.54	1.13	.47***	4.89(2,83)	
Step 2					.01
Thin ideal internalization x Ethnic identity	-.72	1.00	-.07	-.72(1,82)	
DV = Dietary restraint					
Step 1					.12**
Ethnic identity	.17	.55	.03	.21(2,83)	
Thin ideal internalization	1.96	.60	.34**	3.27(2,83)	
Step 2					.01
Thin ideal internalization x Ethnic identity	.42	.53	.09	.80(1,82)	
DV = Bulimic symptoms					
Step 1					.09*
Ethnic identity	-.47	.39	-.13	-1.21(2,83)	
Thin ideal internalization	1.15	.43	.28**	2.71(2,83)	
Step 2					.004
Thin Ideal Internalization x Ethnic identity	.21	.38	.06	.57(1,82)	
DV = Overall eating pathology					
Step 1					.22
Racially salient appearance areas	.02	.92	.002	.02(2,81)	
Thin ideal internalization	5.48	1.17	.46***	4.67(2,81)	
Step 2					.01
Thin ideal internalization x Racially salient appearance areas	.82	1.07	.08	.77(1,80)	
DV = Dietary restraint					
Step 1					.12**
Racially salient appearance areas	.01	.48	.001	.01(2,81)	
Thin ideal internalization	1.97	.61	.34**	3.22(2,81)	
Step 2					.02
Thin ideal internalization x Racially salient appearance areas	.83	.55	.17	1.51(1,80)	
DV = Bulimic symptoms					
Step 1					.09*
Racially salient appearance areas	-.30	.34	-.09	-.86(2,81)	
Thin ideal internalization	1.09	.44	.27*	2.49(2,81)	
Step 2					.01
Thin ideal internalization x Racially salient appearance areas	.33	.40	.09	.83(1,80)	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 14

*Latina Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Thin Ideal Internalization and Disordered Eating*

Step and predictors: Latina women	B	SE B	$\beta$	$t (dfs)$	$\Delta R^2$
DV = Overall eating pathology					
Step 1					.30***
Ethnic identity	1.87	1.32	.13	1.42(2,87)	
Thin ideal internalization	7.41	1.26	.53***	5.88(2,87)	
Step 2					.02
Thin ideal internalization x Ethnic identity	2.48	1.46	.16	1.70(1,86)	
DV = Dietary restraint					
Step 1					.23***
Ethnic identity	-.13	.53	-.02	-.25(2,88)	
Thin ideal internalization	2.61	.51	.48***	5.14(2,88)	
Step 2					.03*
Thin ideal internalization x Ethnic identity	1.16	.58	.19*	1.99(1,87)	
DV = Bulimic symptoms					
Step 1					.12**
Ethnic identity	.43	.49	.09	.88(2,88)	
Thin ideal internalization	1.59	.47	.34**	3.42(2,88)	
Step 2					.03
Thin ideal internalization x Ethnic identity	.85	.54	.16	1.58(1,87)	
DV = Overall eating pathology					
Step 1					.31***
Racially salient appearance areas	2.28	1.14	.18*	2.00(2,85)	
Thin ideal internalization	7.19	1.26	.51***	5.69(2,85)	
Step 2					.002
Thin ideal internalization x Racially salient appearance areas	.65	1.26	.05	.51(1,84)	
DV = Dietary restraint					
Step 1					.25***
Racially salient appearance areas	.69	.46	.14	1.49(2,85)	
Thin ideal internalization	2.55	.51	.47***	4.98(2,85)	
Step 2					.01
Thin ideal internalization x Racially salient appearance areas	-.53	.51	-.10	-1.03(1,84)	
DV = Bulimic symptoms					
Step 1					.14**
Racially salient appearance areas	.62	.43	.15	1.46(2,85)	
Thin ideal internalization	1.53	.47	.33**	3.25(2,85)	
Step 2					.01
Thin ideal internalization x Racially salient appearance areas	.39	.47	.09	.84(1,84)	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



Table 15

*African American Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Personality Variables and Disordered Eating*

Step and predictors: African American women	B	SE B	$\beta$	$t$ (dfs)	$\Delta R^2$
DV = Dietary restraint					
Step 1					.12**
Self-oriented perfectionism	.10	.03	.32**	2.99(2,78)	
Racially salient appearance areas	-.52	.55	-.10	-.94(2,78)	
Step 2					<.001
Self-oriented perfectionism x Racially salient appearance areas	.002	.03	.01	.08(1,77)	
DV = Bulimic symptoms					
Step 1					.14***
Socially prescribed perfectionism	.04	.34	.16	1.55(2,79)	
Racially salient appearance areas	-.82	.34	-.27*	-2.40(2,79)	
Step 2					.01
Socially prescribed perfectionism x Racially salient appearance areas	-.02	.02	-.11	-1.04(1,78)	
DV = Bulimic symptoms					
Step 1					.28***
Impulsivity	.60	.42	.15	1.45(2,77)	
Discrimination stress	.08	.02	.46***	4.38(2,77)	
Step 2					.57
Discrimination stress x Impulsivity	-.01	.02	-.06	-.57(1,76)	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 16

*Asian American Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Personality Variables and Disordered Eating*

Step and predictors: Asian American women	B	SE B	$\beta$	$t (dfs)$	$\Delta R^2$
DV = Dietary restraint					
Step 1					.003
Self-oriented perfectionism	.01	.04	.03	.25(2,74)	
Racially salient appearance areas	-.18	.53	-.04	-.34(2,74)	
Step 2					.03
Self-oriented perfectionism x Racially salient appearance areas	.05	.03	.18	1.55(1,73)	
DV = Bulimic symptoms					
Step 1					.06
Socially prescribed perfectionism	.06	.03	.21	1.80(2,75)	
Racially salient appearance areas	-.22	.37	-.07	-.58(2,75)	
Step 2					.02
Socially prescribed perfectionism x Racially salient appearance areas	.03	.02	.16	1.40(1,74)	
DV = Bulimic symptoms					
Step 1					.26***
Impulsivity	1.25	.50	.26*	2.49(2,74)	
Discrimination stress	.08	.02	.39***	3.75(2,74)	
Step 2					.01
Discrimination stress x Impulsivity	.02	.03	.08	.82(1,73)	

Note. \*  $p < .05$ . \*\*\*  $p < .001$ .

Table 17

*Latina Women: Hierarchical Multiple Regression Analyses of Ethnicity-Related Factors as Moderators of the Relation between Personality Variables and Disordered Eating*

Step and predictors: Latina women	B	SE B	$\beta$	<i>t</i> (dfs)	$\Delta R^2$
DV = Dietary restraint					
Step 1					.04
Self-oriented perfectionism	-.03	.04	-.10	- .87(2,80)	
Racially salient appearance areas	.98	.55	.20	1.78(2,80)	
Step 2					.002
Self-oriented perfectionism x Racially salient appearance areas	.02	.04	.04	.38(1,79)	
DV = Bulimic symptoms					
Step 1					.11**
Socially prescribed perfectionism	.11	.04	.28**	2.70(2,80)	
Racially salient appearance areas	.75	.44	.18	1.69(2,80)	
Step 2					.06*
<i>Socially prescribed perfectionism x Racially salient appearance areas</i>	.08	.04	.24*	2.27(1,79)	
DV = Bulimic symptoms					
Step 1					.23***
Impulsivity	1.08	.67	.17	1.61(2,79)	
Discrimination stress	.08	.02	.40***	3.81(2,79)	
Step 2					.08**
<i>Discrimination stress x Impulsivity</i>	.10	.03	.30**	2.99(1,78)	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . *Italicized* = significant finding after Holm-Bonferroni correction for multiple comparisons.

Table 18

*Associations between Satisfaction with Racially Salient Appearance Areas and Overall Eating Pathology in African Americans, Asian Americans, and Latinas*

Racially Salient Appearance Area	Association with overall eating pathology			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Skin tone	-.26*	-.08	-.03	.223	.119	.749
Hair texture	-.26*	-.08	.15	.223	.006 <sup>+</sup>	.129
Hair length	-.04	-.14	.14	.542	.230	.074
Hair color	-.23*	-.02	.11	.159	.024 <sup>+</sup>	.412
Size of buttocks	-.20	.09	.17	.055	.012 <sup>+</sup>	.562
Shape of buttocks	-.31**	.04	.07	.019	.010 <sup>+</sup>	.849
Size of thighs	-.28**	-.03	.10	.097	.010 <sup>+</sup>	.384
Size of hips	-.24*	.03	.10	.074	.024 <sup>+</sup>	.653
Size of waist	-.26*	-.09	-.14	.234	.401	.719
Size of breasts	-.14	.03	.15	.271	.271	.441
Shape of lips	-.24*	-.02	.20	.147	.003 <sup>+</sup>	.150
Size of lips	-.29**	.01	.16	.044	.003 <sup>+</sup>	.342
Size of nose	-.22*	-.05	.13	.254	.254	.242
Width of nose	-.27	-.06	.10	.150	.150	.303
Height of nose bridge	-.18	-.10	.17	.569	.018 <sup>+</sup>	.610
Size of eyes	-.18	-.05	.13	.368	.038	.246
Shape of eyes	-.18	-.08	.30**	.516	.001 <sup>+</sup>	.011
Eye slant angle	-.24*	-.02	.20	.139	.004 <sup>+</sup>	.165
Color of eyes	-.27*	-.08	.24*	.201	.001 <sup>+</sup>	.035
Eyelid fold	-.08	-.07	.23*	.912	.035 <sup>+</sup>	.049
Face shape	-.23*	-.10	.15	.379	.013 <sup>+</sup>	.112
Height of cheekbones	-.22*	-.01	.17	.168	.010 <sup>+</sup>	.250
Prominence of cheekbones	-.25*	-.09	.28**	.280	.0004 <sup>+</sup>	.016
Height	-.36**	-.01	.21*	.016	.0001 <sup>+</sup>	.144

*Note:* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ ; <sup>+</sup> = significant difference in strength of correlation after controlling for false discovery rate with Benjamini-Hochberg procedure.

Table 19

*Associations between Satisfaction with Racially Salient Appearance Areas and Dietary Restraint in African Americans, Asian Americans, and Latinas*

Racially Salient Appearance Area	Association with dietary restraint			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Skin tone	-.12	-.06	.03	.689	.313	.549
Hair texture	-.20	-.04	.06	.280	.080	.522
Hair length	-.03	-.12	.13	.535	.303	.103
Hair color	-.11	-.03	.05	.603	.294	.603
Size of buttocks	-.10	.16	.06	-.091	.276	.535
Shape of buttocks	-.19	.12	.02	.040	.168	.490
Size of thighs	-.13	-.06	-.01	.638	.352	.734
Size of hips	.03	-.01	.01	.787	.873	.912
Size of waist	-.14	-.10	-.14	.787	.976	.810
Size of breasts	.13	.04	.11	.555	.912	.638
Shape of lips	.002	.02	.23*	.897	.131	.177
Size of lips	-.07	-.01	.23*	.697	.047	.114
Size of nose	-.18	-.04	-.03	.337	.313	.976
Width of nose	-.20	-.12	-.004	.582	.171	.453
Height of nose bridge	-.01	-.08	.06	.660	.653	.912
Size of eyes	-.14	-.11	.18	.834	.030	.054
Shape of eyes	-.04	.03	.32**	.646	.014	.049
Eye slant angle	-.08	-.03	.32**	.741	.006	.018
Color of eyes	-.24*	-.02	.25*	.147	.001 <sup>+</sup>	.075
Eyelid fold	-.09	-.11	.15	.897	.119	.095
Face shape	-.08	-.01	.24*	.667	.032	.093
Height of cheekbones	-.03	-.01	.20	.905	.131	.168
Prominence of cheekbones	-.02	-.04	.20	.912	.136	.114
Height	-.13	-.04	.24*	.549	.013	.063

Note: \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ ; <sup>+</sup> = significant difference in strength of correlation after controlling for false discovery rate with Benjamini-Hochberg procedure.

Table 20

*Associations between Satisfaction with Racially Salient Appearance Areas and Bulimic Symptoms in African Americans, Asian Americans, and Latinas*

Racially Salient Appearance Area	Association with bulimic symptoms			Pairwise comparisons		
	African Americans (r)	Asian Americans (r)	Latinas (r)	African Americans – Asian Americans (p-value)	African Americans – Latinas (p-value)	Asian Americans – Latinas (p-value)
Skin tone	-.16	-.09	-.10	.631	.667	.960
Hair texture	-.11	-.04	.15	.646	.091	.226
Hair length	.05	-.12	.15	.254	.516	.075
Hair color	-.21*	-.05	.01	.298	.153	.711
Size of buttocks	-.12	.02	.23*	.368	.021 <sup>+</sup>	.168
Shape of buttocks	-.30**	-.06	.21*	.105	.001 <sup>+</sup>	.075
Size of thighs	-.24*	-.07	.28**	.254	.0004 <sup>+</sup>	.019
Size of hips	-.21*	-.07	.25*	.347	.002 <sup>+</sup>	.020
Size of waist	-.20	-.07	-.12	.368	.576	.726
Size of breasts	-.26*	-.02	.11	.105	.012 <sup>+</sup>	.390
Shape of lips	-.27**	-.06	.05	.144	.031 <sup>+</sup>	.503
Size of lips	-.37***	-.06	.01	.031	.009 <sup>+</sup>	.667
Size of nose	-.24*	-.06	.24*	.226	.001 <sup>+</sup>	.047
Width of nose	-.26*	-.02	.16	.112	.005 <sup>+</sup>	.230
Height of nose bridge	-.26*	-.09	.11	.267	.015 <sup>+</sup>	.194
Size of eyes	-.14	-.14	-.05	1.00	.549	.555
Shape of eyes	-.24*	-.22*	.08	.881	.031 <sup>+</sup>	.048
Eye slant angle	-.28**	-.13	.01	.303	.044	.337
Color of eyes	-.25*	-.20	.11	.711	.014 <sup>+</sup>	.039
Eyelid fold	-.08	-.25*	.18	.259	.085	.005
Face shape	-.19	-.14	-.03	.734	.136	.472
Height of cheekbones	-.34**	-.08	.17	.072	.001 <sup>+</sup>	.107
Prominence of cheekbones	-.26*	-.17	.27*	.542	.0004 <sup>+</sup>	.004
Height	-.34**	.07	.14	.006	.001 <sup>+</sup>	.610

Note: \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ ; <sup>+</sup> = significant difference in strength of correlation after controlling for false discovery rate with Benjamini-Hochberg procedure.

Table 21

*Associations between Satisfaction with Racially Salient Appearance Areas and Disordered Eating in Caucasian Latinas vs. Non-Caucasian Latinas*

Racially Salient Appearance Area	Association with overall eating pathology			Association with dietary restraint			Association with bulimic symptoms		
	Caucasian Latinas (r) n=34	Non-Caucasian Latinas (r) n=56	Pairwise (p-value)	Caucasian Latinas (r) n=35	Non-Caucasian Latinas (r) n=56	Pairwise (p-value)	Caucasian Latinas (r) n=35	Non-Caucasian Latinas (r) n=56	Pairwise (p-value)
Skin tone	-.08	-.04	.857	.04	.02	.928	-.34*	-.09	.238
Hair texture	.22	.12	.646	.18	-.02	.368	-.02	.20	.322
Hair length	.13	.19	.787	.36*	-.001	.091	-.12	.24	.103
Hair color	-.04	.14	.424	.10	.02	.719	-.23	.02	.254
Size of buttocks	-.03	.25	.208	.07	.06	.968	-.07	.30*	.089
Shape of buttocks	-.28	.20	.031	-.02	.04	.787	-.06	.28*	.121
Size of thighs	-.34*	.25	.007 <sup>+</sup>	.08	-.06	.529	-.03	.35**	.077
Size of hips	-.40*	.24	.003 <sup>+</sup>	.07	-.03	.653	-.20	.33*	.015
Size of waist	-.49**	.01	.016	-.26	-.06	.358	-.43*	-.05	.067
Size of breasts	-.24	.22	.039	-.03	.20	.298	-.12	.10	.322
Shape of lips	.15	.22	.749	.15	.28*	.542	-.20	.09	.190
Size of lips	.11	.15	.857	.26	.21	.810	-.29	.04	.131
Size of nose	-.35*	.32*	.002 <sup>+</sup>	-.17	.08	.263	-.05	.32*	.089
Width of nose	-.26	.26	.019	-.11	.08	.395	-.25	.27*	.018
Height of nose bridge	.13	.16	.889	.20	-.06	.242	.07	.09	.928
Size of eyes	.09	.14	.826	.26	.13	.549	-.16	-.06	.653
Shape of eyes	.37*	.27*	.624	.39*	.28*	.582	-.06	.08	.535
Eye slant angle	.12	.23	.617	.34*	.31*	.881	-.27	.06	.134
Color of eyes	.21	.24	.889	.20	.28*	.704	-.09	.14	.303
Eyelid fold	.00	.29*	.395	.20	.11	.682	-.24	.24	.029
Face shape	.08	.19	.624	.19	.27*	.704	-.40*	.03	.043
Height of cheekbones	-.28	.36**	.003 <sup>+</sup>	.002	.35**	.105	-.40*	.31*	.001 <sup>+</sup>
Prominence of cheekbones	-.08	.43**	.017	-.05	.40**	.037	-.07	.37**	.0434
Height	.02	.23	.347	.27	.23	.849	-.32	.18	.022

Note: \*  $p < .05$ . \*\*  $p < .01$ ; <sup>+</sup> = significant difference in strength of correlation after controlling for false discovery rate with Benjamini-Hochberg procedure.

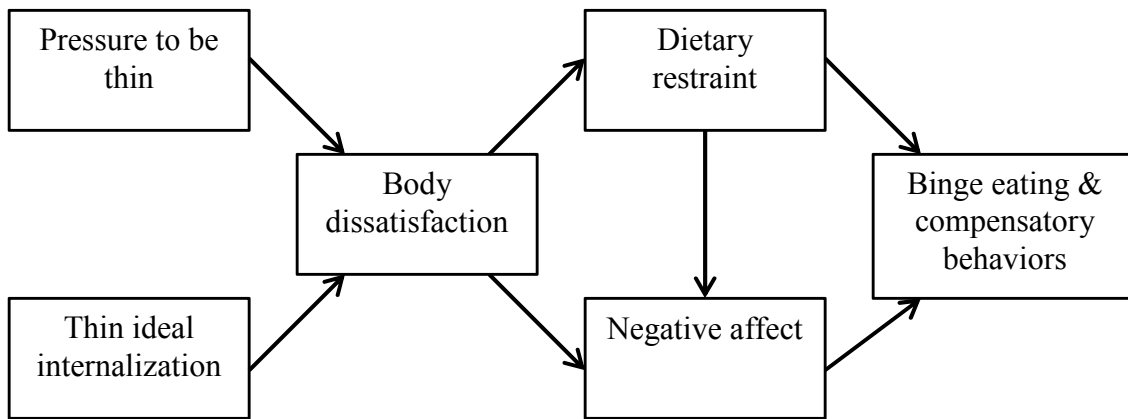
Table 22

*Associations between Satisfaction with Racially Salient Appearance Areas and Disordered Eating in First Generation vs. Non-First Generation Latinas*

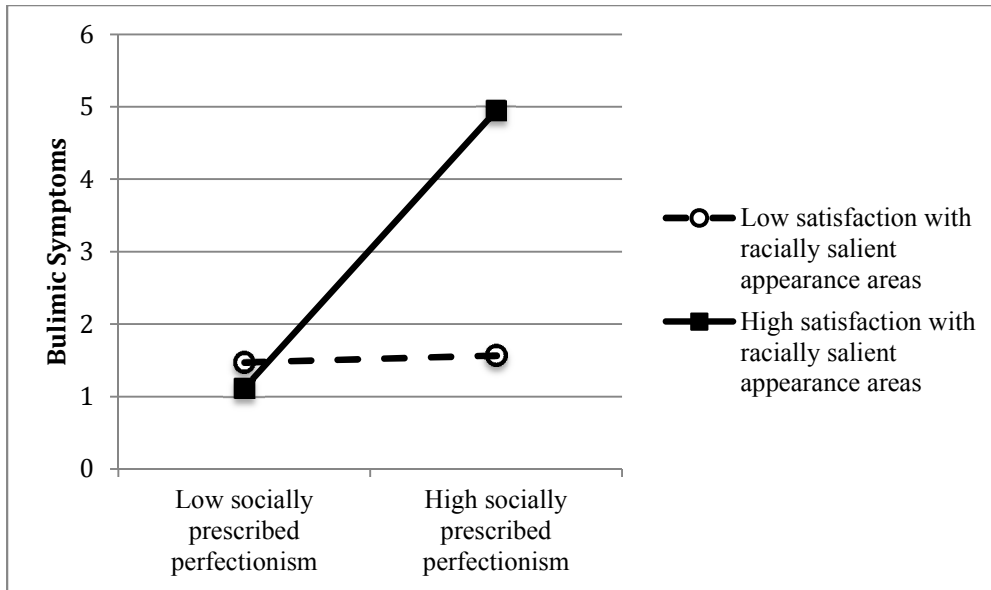
<b>Racially Salient Appearance Area</b>	<b>Association with overall eating pathology</b>			<b>Association with dietary restraint</b>			<b>Association with bulimic symptoms</b>		
	<b>First generation Latinas (r) n=16</b>	<b>Non-first generation Latinas (r) n=68</b>	<b>Pairwise (p-value)</b>	<b>First generation Latinas (r) n=16</b>	<b>Non-first generation Latinas (r) n=68</b>	<b>Pairwise (p-value)</b>	<b>First generation Latinas (r) n=16</b>	<b>Non-first generation Latinas (r) n=68</b>	<b>Pairwise (p-value)</b>
Skin tone	.02	-.02	.889	.26	-.04	.317	-.15	-.05	.757
Hair texture	.18	.16	.928	.24	.02	.465	.15	.14	.976
Hair length	.22	.13	.741	.11	.12	.992	.28	.13	.610
Hair color	.28	.05	.435	.12	.01	.734	.16	-.06	.465
Size of buttocks	.17	.21	.873	.06	.10	.881	.18	.23	.873
Shape of buttocks	-.01	.19	.516	-.06	.10	.589	.18	.21	.920
Size of thighs	.40	.02	.190	.29	-.06	.242	.53*	.20	.208
Size of hips	.48	.03	.103	.21	-.01	.472	.51*	.18	.211
Size of waist	.28	-.27*	.060	-.07	-.14	.834	.32	-.25*	.051
Size of breasts	.15	.14	.984	-.19	.17	.234	.25	.05	.490
Shape of lips	.52*	.02	.066	.32	.18	.617	.19	-.03	.484
Size of lips	.56*	.03	.049	.31	.20	.704	.18	-.05	.453
Size of nose	.53*	.08	.091	.12	.01	.704	.41	.16	.368
Width of nose	.43	.01	.144	.01	-.02	.920	.34	.10	.418
Height of nose bridge	.40	.17	.412	.08	.11	.897	.24	.07	.582
Size of eyes	.23	.12	.704	.01	.24	.435	.20	-.15	.259
Shape of eyes	.37	.25*	.646	.33	.29*	.897	.13	.05	.787
Eye slant angle	.34	.17	.549	.27	.32**	.857	.13	-.02	.631
Color of eyes	.38	.19	.497	.17	.28*	.682	.21	.06	.631
Eyelid fold	.39	.26*	.465	.17	.20	.920	.13	.15	.928
Face shape	.66**	-.03	.007	.14	.17	.904	.27	-.12	.194
Height of cheekbones	.57*	.14	.089	.47	.20	.298	.31	.10	.465
Prominence of cheekbones	.52*	.19	.215	.50*	.19	.242	.23	.24	.992
Height	.42	.16	.337	.40	.18	.412	.31	.11	.503

Note: \*  $p < .05$ . \*\*  $p < .01$ . Strengths of correlation did not differ between first and non-first generation Latinas after controlling for false discovery rate.





*Figure 1.* Stice's dual-pathway model (Stice, 1994, 2001)



*Figure 2.* Simple slope graph of satisfaction with racially salient appearance areas as a moderator of the relation between socially prescribed perfectionism and bulimic symptoms in Latina women

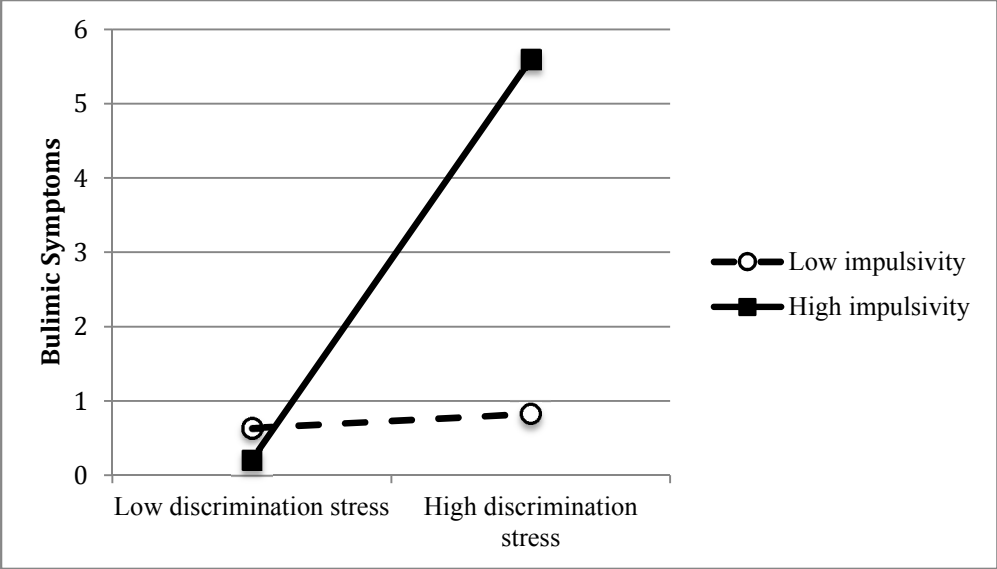


Figure 3. Simple slope graph of impulsivity as a moderator of the relation between discrimination stress and bulimic symptoms in Latina women

APPENDIX: MEASURE OF SATISFACTION WITH RACIALLY SALIENT APPEARANCE  
AREAS

Please read the following questions and answer them honestly. Be sure to read the answer choices carefully, as they change from question to question.

1a) How satisfied are you with your skin tone (how light or dark it is)?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

1b) If you could change your skin tone, would you make it...

- 1 - Much darker
- 2 - Moderately darker
- 3 - Slightly darker
- 4 - I would not change my skin tone
- 5 - Slightly lighter
- 6 - Moderately lighter
- 7 - Much lighter

2a) How satisfied are you with your hair texture?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

2b) If you could change your hair texture, would you make it...

- 1 - Much curlier/kinkier
- 2 - Moderately curlier/kinkier
- 3 - Slightly curlier/kinkier
- 4 - I would not change my hair texture
- 5 - Slightly straighter
- 6 - Moderately straighter
- 7 - Much straighter

3a) How satisfied are you with your hair length?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

3b) If you could change your hair length, would you make it...

- 1 - Much shorter
- 2 - Moderately shorter
- 3 - Slightly shorter
- 4 - I would not change my hair length
- 5 - Slightly longer
- 6 - Moderately longer
- 7 - Much longer

4a) How satisfied are you with your natural hair color?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

4b) If you could change your natural hair color, would you make it...

- 1 - Much darker
- 2 - Moderately darker
- 3 - Slightly darker
- 4 - I would not change my hair color
- 5 - Slightly lighter
- 6 - Moderately lighter
- 7 - Much lighter

4c) If you could change your natural hair color, what color would you make it?

Blonde (1)

Red/auburn (2)

Brown (3)

Black (4)

Other (please specify) (5) \_\_\_\_\_

Not applicable - I would not change my natural hair color (6)

5a) How satisfied are you with the size of your buttocks?

1 - Extremely dissatisfied

2 - Moderately dissatisfied

3 - Slightly dissatisfied

4 - Neither satisfied nor dissatisfied

5 - Slightly satisfied

6 - Moderately satisfied

7 - Extremely satisfied

5b) If you could change the size of your buttocks, would you make them...

1 - Much larger

2 - Moderately larger

3 - Slightly larger

4 - I would not change my buttock size

5 - Slightly smaller

6 - Moderately smaller

7 - Much smaller

Q126 6a) How satisfied are you with the shape of your buttocks?

1 - Extremely dissatisfied

2 - Moderately dissatisfied

3 - Slightly dissatisfied

4 - Neither satisfied nor dissatisfied

5 - Slightly satisfied

6 - Moderately satisfied

7 - Extremely satisfied

6b) If you could change the shape of your buttocks, would you make them...

- 1 - Much rounder/curvier
- 2 - Moderately round/curvier
- 3 - Slightly rounder/curvier
- 4 - I would not change my buttock shape
- 5 - Slightly flatter
- 6 - Moderately flatter
- 7 - Much flatter

7a) How satisfied are you with the size of your thighs?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

7b) If you could change the size of your thighs, would you make them...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my thigh size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

8a) How satisfied are you with the size of your hips?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

8b) If you could change the size of your hips, would you make them...

- 1 - Much wider
- 2 - Moderately wider
- 3 - Slightly wider
- 4 - I would not change my hip size
- 5 - Slightly narrower
- 6 - Moderately narrower
- 7 - Much narrower

9a) How satisfied are you with the size of your waist?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

9b) If you could change the size of your waist, would you make it...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my waist size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

10a) How satisfied are you with the size of your breasts?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied



10b) If you could change the size of your breasts, would you make them...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my breast size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

11a) How satisfied are you with the shape of your lips?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

11b) If you could change the shape of your lips, would you make them...

- 1 - Much fuller
- 2 - Moderately fuller
- 3 - Slightly fuller
- 4 - I would not change my lip shape
- 5 - Slightly thinner
- 6 - Moderately thinner
- 7 - Much thinner

12a) How satisfied are you with the size of your lips?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

12b) If you could change the size of your lips, would you make them...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my lip size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

13a) How satisfied are you with the size of your nose?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

13b) If you could change the size of your nose, would you make it...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my nose size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

14a) How satisfied are you with the width of your nose?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

14b) If you could change the width of your nose, would you make it...

- 1 - Much wider
- 2 - Moderately wider
- 3 - Slightly wider
- 4 - I would not change my nose width
- 5 - Slightly narrower
- 6 - Moderately narrower
- 7 - Much narrower

15a) How satisfied are you with the height of your nose bridge?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

15b) If you could change the height of your nose bridge, would you make it...

- 1 - Much taller
- 2 - Moderately taller
- 3 - Slightly taller
- 4 - I would not change my nose bridge
- 5 - Slightly shorter
- 6 - Moderately shorter
- 7 - Much shorter

16a) How satisfied are you with the size of your eyes?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

16b) If you could change the size of your eyes, would you make them...

- 1 - Much larger
- 2 - Moderately larger
- 3 - Slightly larger
- 4 - I would not change my eye size
- 5 - Slightly smaller
- 6 - Moderately smaller
- 7 - Much smaller

17a) How satisfied are you with the shape of your eyes?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

17b) If you could change the shape of your eyes, would you make them...

- 1 - Much rounder
- 2 - Moderately rounder
- 3 - Slightly rounder
- 4 - I would not change my eye shape
- 5 - Slightly more elongated
- 6 - Moderately more elongated
- 7 - Much more elongated

18a) How satisfied are you with the angle at which your eyes are slanted?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

18b) If you could change the angle at which your eyes are slanted, would you make it...

- 1 - Much less slanted
- 2 - Moderately less slanted
- 3 - Slightly less slanted
- 4 - I would not change the angle of my eyes
- 5 - Slightly more slanted
- 6 - Moderately more slanted
- 7 - Much more slanted

19a) How satisfied are you with the color of your eyes?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

19b) If you could change the color of your eyes, what would you change it to?

- Blue
- Green
- Gray
- Hazel
- Brown
- Black
- Other
- I would not change my eye color

20a) How satisfied are you with your eyelid fold?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

20b) If you could change your eyelid fold, what would you change it to?

Single eyelid / Monolid

Double eyelid

Other (please specify) \_\_\_\_\_

I don't know what these terms mean

I would not change my eyelid fold

21a) How satisfied are you with your face shape?

1 - Extremely dissatisfied

2 - Moderately dissatisfied

3 - Slightly dissatisfied

4 - Neither satisfied nor dissatisfied

5 - Slightly satisfied

6 - Moderately satisfied

7 - Extremely satisfied

21b) If you could change your face shape, would you make it...

1 - Much narrower

2 - Moderately narrower

3 - Slightly narrower

4 - I would not change my face shape

5 - Slightly rounder

6 - Moderately rounder

7 - Much rounder

22a) How satisfied are you with the height of your cheekbones?

1 - Extremely dissatisfied

2 - Moderately dissatisfied

3 - Slightly dissatisfied

4 - Neither satisfied nor dissatisfied

5 - Slightly satisfied

6 - Moderately satisfied

7 - Extremely satisfied

22b) If you could change the height of your cheekbones, would you make them...

1 - Much lower

2 - Moderately lower

3 - Slightly lower

4 - I would not change my cheekbone height

5 - Slightly higher

6 - Moderately higher

7 - Much higher

23a) How satisfied are you with the prominence of your cheekbones?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

23b) If you could change the prominence of your cheekbones, would you make them...

- 1 - Much less prominent
- 2 - Moderately less prominent
- 3 - Slightly less prominent
- 4 - I would not change my cheekbone prominence
- 5 - Slightly more prominent
- 6 - Moderately more prominent
- 7 - Much more prominent

24a) How satisfied are you with your height?

- 1 - Extremely dissatisfied
- 2 - Moderately dissatisfied
- 3 - Slightly dissatisfied
- 4 - Neither satisfied nor dissatisfied
- 5 - Slightly satisfied
- 6 - Moderately satisfied
- 7 - Extremely satisfied

24b) If you could change your height, would you make yourself...

- 1 - Much taller
- 2 - Moderately taller
- 3 - Slightly taller
- 4 - I would not change my height
- 5 - Slightly shorter
- 6 - Moderately shorter
- 7 - Much shorter

## REFERENCES

- Abrams, K. K., Allen, L. R., & Gray, J. J. (1993). Disordered eating attitudes and behaviors, psychological adjustment, and ethnic identity: A comparison of Black and White female college students. *International Journal of Eating Disorders, 14*, 49-57. doi: 10.1002/1098-108X(199307)14:1<49::AID-EAT2260140107>3.0.CO;2-Z
- Akan, G. E., & Grilo, C. M. (1995). Sociocultural influences in eating attitudes and behaviors, body image, and psychological functioning: A comparison of African-American, Asian-American, and Caucasian college women. *International Journal of Eating Disorders, 18*, 181-187. doi: 10.1002/1098-108X(199509)18:2<181::aid-eat2260180211>3.0.CO;2-m
- Akrawi, D., Bartrop, R., Potter, U., & Touyz, S. (2015). Religiosity, spirituality in relation to disordered eating and body image concerns: A systematic review. *Journal of Eating Disorders, 3*, 1-24.
- Alegria, M., Woo, M., Cao, Z., Torres, M., Meng, X., & Striegel-Moore, R. (2007). Prevalence and correlates of eating disorders in Latinos in the United States. *International Journal of Eating Disorders, 40*, S15-S21. doi:10.1002/eat.20406
- Awad, G. H., Norwood, C., Taylor, D. S., Martinez, M., McClain, S., Jones, B., ... & Chapman-Hilliard, C. (2015). Beauty and body image concerns among African American college women. *Journal of Black Psychology, 41*, 540-564. doi:10.1177/0095798414550864
- Ayala, G. X., Mickens, L., Galindo, P., & Elder, J. P. (2007). Acculturation and body image perception among Latino youth. *Ethnicity and Health, 12*, 21-41. doi: 10.1080/13557850600824294
- Bardone-Cone, A. M. (2007). Self-oriented and socially prescribed perfectionism dimensions and their associations with disordered eating. *Behaviour Research and Therapy, 45*, 1977-1986. doi: 10.1016/j.brat.2006.10.004
- Bardone-Cone, A. M., & Boyd, C. A. (2007). Psychometric properties of eating disorder instruments in Black and White young women: Internal consistency, temporal stability, and validity. *Psychological Assessment, 19*, 356-362. doi: 10.1037/1040-3590.19.3.356
- Bardone-Cone, A. M., Weishuhn, A. S., & Boyd, C. A. (2009). Perfectionism and bulimic symptoms in African American college women: Dimensions of perfectionism and their interactions with perceived weight status. *Journal of Counseling Psychology, 56*, 266-275. doi: 10.1037/a0015003
- Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., & Simonich, H. (2007). Perfectionism and eating disorders: Current status and future directions. *Clinical Psychology Review, 27*, 384-405. doi: 10.1016/j.cpr.2006.12.005
- Belon, K. E., McLaughlin, E. A., Smith, J. E., Bryan, A. D., Witkiewitz, K., Lash, D. N., & Winn, J. L. (2015). Testing the measurement invariance of the eating disorder inventory



- in nonclinical samples of Hispanic and Caucasian women. *International Journal of Eating Disorders*, 48, 262-270. doi: 10.1002/eat.22286
- Belsley, D. A., Kuh, E., & Welsh, R. E. (1980). *Regression diagnostics*. New York: Wiley.
- Berry, J. W. (1970). Marginality, stress and ethnic identification in an acculturated Aboriginal community. *Journal of Cross-Cultural Psychology*, 1, 239-252. doi: 10.1177/135910457000100303
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology*, 46, 5-34. doi: 10.1111/j.1464-0597.1997.tb01087.x
- Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review*, 491-511.
- Berry, J. W., Trimble, J. E., & Olmedo, E. L. (1986). Assessment of acculturation. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in cross-cultural research* (pp. 291-324). Beverly Hills, CA: Sage.
- Bodell, L. P., Joiner, T. E., & Ialongo, N. S. (2012). Longitudinal association between childhood impulsivity and bulimic symptoms in African American adolescent girls. *Journal of Consulting and Clinical Psychology*, 80, 313-316. doi: 10.1037/a0027093
- Bond, S., & Cash, T. F. (1992). Black Beauty: Skin color and body images among African-American college women. *Journal of Applied Social Psychology*, 22, 874-888. doi: 10.1111/j.1559-1816.1992.tb00930.x
- Brady, J. L., Kaya, A., Iwamoto, D., Park, A., Fox, L., & Moorhead, M. (2017). Asian American women's body image experiences: A qualitative intersectionality study. *Psychology of Women Quarterly*, 41, 479-496. doi: 10.1177/0361684317725311
- Brownell, K. D. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. *Behavior Therapy*, 22, 1-12. doi: 10.1016/S0005-7894(05)80239-4
- Buchanan, T. S., Fischer, A. R., Tokar, D. M., & Yoder, J. D. (2008). Testing a culture-specific extension of objectification theory regarding African American women's body image. *The Counseling Psychologist*, 36, 697-718. doi:10.1177/0011000008316322
- Cachelin, F. M., Phinney, J. S., Schug, R. A., & Striegel-Moore, R. H. (2006). Acculturation and eating disorders in a Mexican American community sample. *Psychology of Women Quarterly*, 30, 340-347. doi: 10.1111/j.1471-6402.2006.00309.x
- Cachelin, F. M., Veisel, C., Barzegarnazari, E., & Striegel-Moore, R. H. (2000). Disordered eating, acculturation, and treatment-seeking in a community sample of Hispanic, Asian, Black, and White women. *Psychology of Women Quarterly*, 24, 233-244. doi:10.1111/j.1471-6402.2000.tb00206.x

- Cachelin, F. M., Weiss, J. W., & Garbanati, J. A. (2003). Dieting and its relationship to smoking, acculturation, and family environment in Asian and Hispanic adolescents. *Eating Disorders, 11*, 51-61. doi: 10.1080/10640260390167483
- Capodilupo, C. M. (2015). One size does not fit all: Using variables other than the thin ideal to understand Black women's body image. *Cultural Diversity and Ethnic Minority Psychology, 21*, 268-278. doi: 10.1037/a0037649
- Capodilupo, C. M., & Forsyth, J. M. (2014). Consistently inconsistent: A review of the literature on eating disorders and body image among women of color. In M. L. Miville & A. D. Ferguson (Eds.), *Handbook of race-ethnicity and gender in psychology* (pp. 343-359). New York: Springer.
- Chang, E. C., Ivezaj, V., Downey, C. A., Kashima, Y., & Morady, A. R. (2008). Complexities of measuring perfectionism: Three popular perfectionism measures and their relations with eating disturbances and health behaviors in a female college student sample. *Eating Behaviors, 9*, 102-110. doi: 10.1016/j.eatbeh.2007.06.003
- Chang, E. C., Yu, E. A., & Lin, E. Y. (2014). An examination of ethnic variations in perfectionism and interpersonal influences as predictors of eating disturbances: A look at Asian and European American females. *Asian American Journal of Psychology, 5*, 243-251. doi: 10.1037/a0034621
- Cheng, H. L. (2014). Disordered eating among Asian/Asian American women: Racial and cultural factors as correlates. *The Counseling Psychologist, 42*, 821-851. doi: 10.1177/0011000014535472
- Clark, J. D., & Winterowd, C. (2012). Correlates and predictors of binge eating among Native American women. *Journal of Multicultural Counseling and Development, 40*, 117-127. doi: 10.1002/j.2161-1912.2012.00011.x
- Claudat, K., White, E. K., & Warren, C. S. (2016). Acculturative stress, self-esteem, and eating pathology in Latina and Asian American female college students. *Journal of Clinical Psychology, 72*, 88-100. doi: 10.1002/jclp.22234
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3<sup>rd</sup> ed.). Mahwah, NJ: Erlbaum.
- Cotter, E., Kelly, N. R., Mitchell, K. S., & Mazzeo, S. E. (2015). An investigation of body appreciation, ethnic identity, and eating disorder symptoms in Black women. *Journal of Black Psychology, 41*, 3-25. doi: 10.1177/0095798413502671
- Croll, J., Neumark-Sztainer, D., Story, M., & Ireland, M. (2002). Prevalence and risk and protective factors related to disordered eating behaviors among adolescents: Relationship to gender and ethnicity. *Journal of Adolescent Health, 31*, 166-175. doi:10.1016/S1054-139X(02)00368-3

- Cyders, M. A., & Smith, G. T. (2007). Mood-based rash action and its components: Positive and negative urgency. *Personality and Individual Differences, 43*, 839-850. doi: 10.1016/j.paid.2007.02.008
- Davis, C., Katzman, M. A., & Katzman, M. (1999). Perfection as acculturation: A study of the psychological correlates of eating problems in Chinese male and female students living in the United States. *International Journal of Eating Disorders, 25*, 65-70. doi: 10.1002/(SICI)1098-108X(199901)25:1<65::AID-EAT8>3.0.CO;2-W
- DiBartolo, P. M., & Redon, M. J. (2012). A critical examination of the construct of perfectionism and its relationship to mental health in Asian and African Americans using a cross-cultural framework. *Clinical Psychology Review, 32*, 139-152. doi: 10.1016/j.cpr.2011.09.007
- Doninger, G. L., Enders, C. K., & Burnett, K. F. (2005). Validity evidence for Eating Attitudes Test scores in a sample of female college athletes. *Measurement in Physical Education and Exercise Science, 9*, 35-49. doi: 10.1207/s15327841mpee0901\_3
- Doris, E., Shekriladze, I., Javakhishvili, N., Jones, R., Treasure, J., & Tchanturia, K. (2015). Is cultural change associated with eating disorders? A systematic review of the literature. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 20*, 149-160. doi: 10.1007/s40519-015-0189-9
- Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review, 31*, 203-212. doi: 10.1016/j.cpr.2010.04.009
- Evans, P. C., & McConnell, A. R. (2003). Do racial minorities respond in the same way to mainstream beauty standards? Social comparison processes in Asian, Black, and White women. *Self and Identity, 2*, 153-167.
- Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16*, 363-370. doi: 10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-#
- Falconer, J. W., & Neville, H. A. (2000). African American college women's body image: An examination of body mass, African self-consciousness, and skin color satisfaction. *Psychology of Women Quarterly, 24*, 236-243. doi: 10.1111/j.1471-6402.2000.tb00205.x
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140. doi: 10.1177/001872675400700202
- Fischer, S., Peterson, C. M., & McCarthy, D. (2013). A prospective test of the influence of negative urgency and expectancies on binge eating and purging. *Psychology of Addictive Behaviors, 27*, 294-300. doi: 10.1037/a0029323

- Fischer, S., & Smith, G. T. (2008). Binge eating, problem drinking, and pathological gambling: Linked by common pathways to impulsive behavior. *Personality and Individual Differences*, 44, 789 – 800. doi: 10.1016/j.paid.2007.10.008
- Fischer, S., Smith, G. T., & Cyders, M. A. (2008). Another look at impulsivity: A meta-analytic review of types of impulsivity and bulimic symptoms. *Clinical Psychology Review*, 28, 1413–1425. doi:10.1016/j.cpr.2008.09.001
- Flowers, K. C., Levesque, M. J., & Fischer, S. (2011). The relationship between maladaptive eating behaviors and racial identity among African American women in college. *Journal of Black Psychology*, 38, 290-312. doi: 10.1177/0095798411416459
- Forbes, G. B., & Frederick, D. A. (2008). The UCLA body project II: Breast and body dissatisfaction among African, Asian, European, and Hispanic American college women. *Sex Roles*, 58, 449–457. doi: 10.1007/s11199-007- 9362-6
- Franko, D. L., Jenkins, A., Roehrig, J. P., Luce, K. H., Crowther, J. H., & Rodgers, R. F. (2012). Psychometric properties of measures of eating disorder risk in Latina college women. *International Journal of Eating Disorders*, 45, 592-596. doi: 10.1002/eat.20979
- Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, 51, 115-134. doi: 10.1002/eat.20979
- Frederick, D. A., Kelly, M. C., Latner, J. D., Sandhu, G., & Tsong, Y. (2016). Body image and face image in Asian American and white women: Examining associations with surveillance, construal of self, perfectionism, and sociocultural pressures. *Body image*, 16, 113-125. doi: 10.1016/j.bodyim.2015.12.002
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449-468. doi: 10.1007/BF01172967
- Galanti, G. (2003). The Hispanic family and male–female relationships: an overview. *Journal of Transcultural Nursing*, 14, 180–185.
- Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878. doi: 10.1017/S0033291700049163
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional Eating Disorder Inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2, 15-34. doi: 10.1002/1098-108X(198321)2:23.0.CO;2-6
- Gilbert, S. C., Crump, S., Madhere, S., & Schutz, W. (2009). Internalization of the thin ideal as a predictor of body dissatisfaction and disordered eating in African, African-American, and

- Afro-Caribbean female college students. *Journal of College Student Psychotherapy*, 23, 196-211.
- Gomez, C. (2000). The continual significance of skin color: An exploratory study of Latinos in the Northeast. *Hispanic Journal of Behavioral Sciences*, 22, 94-103. doi: 10.1177/0739986300221005
- Gordon, K. H., Castro, Y., Sitnikov, L., & Holm-Denoma, J. M. (2010). Cultural body shape ideals and eating disorder symptoms among White, Latina, and Black college women. *Cultural Diversity and Ethnic Minority Psychology*, 16, 135-143. doi:10.1037/a0018671
- Gowen, L. K., Hayward, C., Killen, J. D., Robinson, T. N., & Taylor, C. B. (1999). Acculturation and eating disorder symptoms in adolescent girls. *Journal of Research on Adolescence*, 9, 67-83. doi: 10.1207/s15327795jra0901\_4
- Granillo, T., Jones-Rodriguez, G., & Carvajal, S. C. (2005). Prevalence of eating disorders in Latina adolescents: Associations with substance use and other correlates. *Journal of Adolescent Health*, 36, 214-220. doi: 10.1016/j.jadohealth.2004.01.015
- Grant, R. L., Gillen, M. M., & Bernstein, M. J. (2014). The tan bias: Perceptions of tan and non-tan Caucasian faces. *Health Behavior and Policy Review*, 1, 484-489. doi: 10.14485/HBPR.1.6.6
- Greene, K., & Brinn, L. S. (2003). Messages influencing college women's tanning bed use: Statistical versus narrative evidence format and a self-assessment to increase perceived susceptibility. *Journal of Health Communication*, 8, 443-461.
- Guan, M., Lee, F., & Cole, E. R. (2012). Complexity of culture: The role of identity and context in bicultural individuals' body ideals. *Cultural Diversity and Ethnic Minority Psychology*, 18, 247-257. doi:10.1037/a0028730
- Hall, C. C. I. (1995). Asian eyes: Body image and eating disorders of Asian and Asian American women. *Eating Disorders*, 3, 8-19. doi: 10.1080/10640269508249141
- Harrington, E. F., Crowther, J. H., Payne Henrickson, H. C., & Mickelson, K. D. (2006). The relationships among trauma, stress, ethnicity, and binge eating. *Cultural Diversity and Ethnic Minority Psychology*, 12, 212-229. doi:10.1037/1099-9809.12.2.212
- Harrington, E. F., Crowther, J. H., & Shipherd, J. C. (2010). Trauma, binge eating, and the "Strong Black Woman". *Journal of Consulting and Clinical Psychology*, 78, 469-479. doi: 10.1037/a0019174
- Harris, K. M. (2009). The National Longitudinal Study of Adolescent to Adult Health (Add Health), Waves I & II, 1994-1996; Wave III, 2001-2001; Wave IV, 2007-2009 [machine-readable data file and documentation]. Chapel Hill, NC: Carolina Population Center, University of North Carolina at Chapel Hill. doi: 10.3886/ICPSR27021.v9

- Harrison, K. (2003). Television viewers' ideal body proportions: The case of the curvaceously thin woman. *Sex Roles, 48*, 255–264. doi:10.1023/A:1022825421647.
- Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin, 110*, 86-108. doi:10.1037/0033-2909.110.1.86
- Helms, J. E. (1990). Black and White racial identity: Theory, research and practice. Westport, CT: Greenwood Press.
- Henrickson, H. C., Crowther, J. H., & Harrington, E. F. (2010). Ethnic identity and maladaptive eating: Expectancies about eating and thinness in African American women. *Cultural Diversity and Ethnic Minority Psychology, 16*, 87-93. doi: 10.1037/a0013455
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*, 456-470. doi: 10.1037/0022-3514.60.3.456
- Higgins, M. K., Lin, S. L., Alvarez, A., & Bardone-Cone, A. M. (2015). Examining impulsivity as a moderator of the relationship between body shame and bulimic symptoms in Black and White young women. *Body Image, 14*, 39-46. doi: 10.1016/j.bodyim.2015.03.007
- Hill, M. E. (2002). Skin color and the perception of attractiveness among African Americans: Does gender make a difference? *Social Psychology Quarterly, 65*, 77-91.
- Holm, D. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics, 6*, 65-70.
- Hunter, M. L. (2002). "If you're light you're alright": Light skin color as social capital for women of color. *Gender & Society, 16*, 175-193. doi: 10.1177/08912430222104895
- Huynh, Q. L., Devos, T., & Dunbar, C. M. (2012). The psychological costs of painless but recurring experiences of racial discrimination. *Cultural Diversity and Ethnic Minority Psychology, 18*, 26-34. doi: 10.1037/a0026601
- Iyer, D. S., & Haslam, N. (2003). Body image and eating disturbance among south Asian American women: The role of racial teasing. *International Journal of Eating Disorders, 34*, 142-147. doi: 10.1002/eat.10170
- Joiner Jr, T. E., & Walker, R. L. (2002). Construct validity of a measure of acculturative stress in African Americans. *Psychological Assessment, 14*, 462-466. doi: 10.1037/1040-3590.14.4.462
- Kawamura, K., & Rice, T. (2009). Body image among Asian Americans. In N. Tewari & A. N. Alvarez (Eds.), *Asian American psychology: Current perspectives* (pp. 537–557). N.Y: Lawrence Erlbaum Associates.

- Kaw, E. (1993). Medicalization of racial features: Asian American women and cosmetic surgery. *Medical Anthropology Quarterly*, 7, 74-79. doi: 10.1525/maq.1993.7.1.02a00050
- Keel, P. K., & Klump, K. L. (2003). Are eating disorders culture-bound syndromes? Implications for conceptualizing their etiology. *Psychological Bulletin*, 129, 747-769. doi: 10.1037/00332909.129.5.747
- Kelly, N. R., Mitchell, K. S., Gow, R. W., Trace, S. E., Lydecker, J. A., Bair, C. E., & Mazzeo, S. (2012). An evaluation of the reliability and construct validity of eating disorder measures in White and Black women. *Psychological Assessment*, 24, 608-617. doi: 10.1037/a0026457
- Kempa, M. L., & Thomas, A. J. (2000). Culturally sensitive assessment and treatment of eating disorders. *Eating Disorders*, 8, 17-30. doi: 10.1080/10640260008251209
- Kiang, L., Grzywacz, J. G., Marin, A. J., Arcury, T. A., & Quandt, S. A. (2010). Mental health in immigrants from nontraditional receiving sites. *Cultural Diversity and Ethnic Minority Psychology*, 16, 386-394. doi:10.1037/a0019907
- King, M. B. (1989). Eating disorders in a general practice population. Prevalence, characteristics and follow-up at 12 to 18 months. *Psychological Medicine. Monograph supplement*, 14, 1-34.
- King, M. B. (1991). The natural history of eating pathology in attenders to primary medical care. *International Journal of Eating Disorders*, 10, 379-387.
- Kroon Van Diest, A. M. K., Tartakovsky, M., Stachon, C., Pettit, J. W., & Perez, M. (2014). The relationship between acculturative stress and eating disorder symptoms: Is it unique from general life stress? *Journal of Behavioral Medicine*, 37, 445-457. doi: 10.1007/s10865-013-9498-5
- Laessle, R. G., Tuschl, R. J., Kotthaus, B. C., & Pirke, K. M. (1989). Behavioral and biological correlates of dietary restraint in normal life. *Appetite*, 12, 83-94.
- Landrine, H., & Klonoff, E. A. (1996). The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. *Journal of Black Psychology*, 22, 144-168. doi: 10.1177/00957984960222002
- Lau, A. S., Lum, S. K., Chronister, K. M., & Forrest, L. (2006). Asian American college women's body image: A pilot study. *Cultural Diversity and Ethnic Minority Psychology*, 12, 259-274. doi: 10.1037/1099-9809.12.2.259
- Lee, M. R., & Thai, C. J. (2015). Asian American phenotypicality and experiences of psychological distress: More than meets the eyes. *Asian American Journal of Psychology*, 6, 242-251. doi: 10.1037/aap0000015

- Levay, K. E., Freese, J., & Druckman, J. N. (2016). The demographic and political composition of Mechanical Turk samples. *SAGE Open, January-March 2016*, 1-17. doi: 10.1177/2158244016636433
- Li, E. P., Min, H. J., Belk, R. W., Kimura, J., & Bahl, S. (2008). Skin lightening and beauty in four Asian cultures. *Advances in Consumer Research, 35*, 444-449.
- Liang, C. T., Li, L. C., & Kim, B. S. (2004). The Asian American Racism-Related Stress Inventory: Development, factor analysis, reliability, and validity. *Journal of Counseling Psychology, 51*, 103-114. doi: 10.1037/0022-0167.51.1.103
- Lokken, K. L., Worthy, S. L., Ferraro, F. R., & Attmann, J. (2008). Bulimic symptoms and body image dissatisfaction in college women: More affected by climate or race? *The Journal of Psychology, 142*, 386-394.
- Lopez, Corono, & Halfond (2013) Effects of gender, media influences, and traditional gender role orientation on disordered eating and appearance concerns among Latino adolescents. *Journal of Adolescence, 36*, 727-736.
- Lovejoy, M. (2001). Disturbances in the social body: Differences in body image and eating problems among African American and white women. *Gender and Society, 15*, 239-261. doi: 10.1177/089124301015002005
- Luce, K. H., & Crowther, J. H. (1999). The reliability of the Eating Disorder Examination—Self-report Questionnaire version (EDE-Q). *International Journal of Eating Disorders, 25*, 349-351. doi: 10.1002/(SICI)1098-108X(199904)25:3<349::AID-EAT15>3.0.CO;2-M
- Lynch, W. C., Heil, D. P., Wagner, E., & Havens, M. D. (2007). Ethnic differences in BMI, weight concerns, and eating behaviors: Comparison of Native American, White, and Hispanic adolescents. *Body Image, 4*, 179-190. doi: 10.1016/j.bodyim.2007.01.001
- Marin, G. (1992). Issues in the measurement of acculturation among Hispanics. In K. F. Geisinger (Ed.), *Psychological Testing of Hispanics* (pp. 235–251). Washington, DC: American Psychological Association.
- Marques, L., Alegria, M., Becker, A. E., Chen, C., Fang, A., Chosak, A., & Diniz, J. (2011). Comparative prevalence, correlates of impairment, and service utilization for eating disorders across US ethnic groups: Implications for reducing ethnic disparities in health care access for eating disorders. *International Journal of Eating Disorders, 44*, 412-420. doi: 10.1002/eat.20787
- Mastria, M. R. (2002). Ethnicity and eating disorders. *Psychoanalysis and Psychotherapy, 19*, 59–77.
- Mazzeo, S. E. (1999). Modification of an existing measure of body image preoccupation and its relationship to disordered eating in female college students. *Journal of Counseling Psychology, 46*, 42-50. doi: 10.1037/0022-0167.46.1.42



- Mellor, D., Waterhouse, M., bt Mamat, N. H., Xu, X., Cochrane, J., McCabe, M., & Ricciardelli, L. (2013). Which body features are associated with female adolescents' body dissatisfaction? A cross-cultural study in Australia, China and Malaysia. *Body Image, 10*, 54-61. doi: 10.1016/j.bodyim.2012.10.002
- Mena, F. J., Padilla, A. M., & Maldonado, M. (1987). Acculturative stress and specific coping strategies among immigrant and later generation college students. *Hispanic Journal of Behavioral Sciences, 9*, 207-225. doi: 10.1177/07399863870092006
- Mintz, L. B., & Kashubeck, S. (1999). Body image and disordered eating among Asian American and Caucasian college students: An examination of race and gender differences. *Psychology of Women Quarterly, 23*, 781-796. doi: 10.1111/j.1471-6402.1999.tb00397.x
- Mitchell, K. S., & Mazzeo, S. E. (2009). Evaluation of a structural model of objectification theory and eating disorder symptomatology among European American and African American undergraduate women. *Psychology of Women Quarterly, 33*, 384-395. doi: 10.1111/j.1471-6402.2009.01516.x
- Moeller, F. G., Barratt, E. S., Dougherty, D. M., Schmitz, J. M., & Swann, A. C. (2001). Psychiatric aspects of impulsivity. *American Journal of Psychiatry, 158*, 1783-1793. doi: 10.1176/appi.ajp.158.11.1783
- Mok, T. A. (1998). Getting the message: Media images and stereotypes and their effect on Asian Americans. *Cultural Diversity and Mental Health, 4*, 185-202. doi: 10.1037/1099-9809.4.3.185
- Nasser, M. (1997). *Culture and weight consciousness*. London: Routledge.
- Nicdao, E. G., Hong, S., & Takeuchi, D. T. (2007). Prevalence and correlates of eating disorders among Asian Americans: Results from the National Latino and Asian American Study. *International Journal of Eating Disorders, 40(Supl)*, S22-S26. doi: 10.1002/eat
- Nieri, T., Kulis, S., Keith, V. M., & Hurdle, D. (2005). Body image, acculturation, and substance abuse among boys and girls in the southwest. *American Journal of Drug and Alcohol Abuse, 31*, 617-639. doi: 10.1081/ADA-200068418
- Overstreet, N. M., Quinn, D. M., & Agocha, V. B. (2010). Beyond thinness: The influence of a curvaceous body ideal on body dissatisfaction in Black and White women. *Sex Roles, 63*, 91-103. doi: 10.1007/s11199-010-9792-4
- Padilla, A. M., Wagatsuma, Y., & Lindholm, K. J. (1985). Acculturation and personality as predictors of stress in Japanese and Japanese-Americans. *The Journal of Social Psychology, 125*, 295-305. doi: 10.1080/00224545.1985.9922890

- Patton, T. O. (2006). Hey girl, am I more than my hair?: African American women and their struggles with beauty, body image, and hair. *NWSA Journal*, *18*, 24-51.
- Perez, M., Voelz, Z. R., Pettit, J. W., & Joiner, T. R. (2002). The role of acculturative stress and body dissatisfaction in predicting bulimic symptomatology across ethnic groups. *International Journal of Eating Disorders*, *31*, 442-454. doi:10.1002/eat.10006
- Peterson, C. B., Crosby, R. D., Wonderlich, S. A., Joiner, T., Crow, S. J., Mitchell, J. E., ... & Le Grange, D. (2007). Psychometric properties of the eating Disorder Examination-Questionnaire: Factor structure and internal consistency. *International Journal of Eating Disorders*, *40*, 386-389. doi: 10.1002/eat.20373
- Pham, T. T. (2014). The medicalization of ethnicity in Vietnamese-American women: Cosmetic surgery and hybridization. *Mediterranean Journal of Social Sciences*, *5*, 92-101. doi:10.5901/mjss.2014.v5n22p92
- Phan, T., & Tylka, T. L. (2006). Exploring a model and moderators of disordered eating with Asian American college women. *Journal of Counseling Psychology*, *53*, 36-47. doi: 10.1037/0022-0167.53.1.36
- Phinney, J. S., & Ong, A. D. (2007). Conceptualization and measurement of ethnic identity: Current status and future directions. *Journal of Counseling Psychology*, *54*, 271-281. doi: 10.1037/0022-0167.54.3.271
- Rakhkovskaya, L. M., & Warren, C. S. (2014). Ethnic identity, thin ideal internalization, and eating pathology in ethnically diverse college women. *Body Image*, *11*, 438-445. doi: 10.1016/j.bodyim.2014.07.003
- Ro, A. E., & Choi, K. H. (2009). Social status correlates of reporting gender discrimination and racial discrimination among racially diverse women. *Women & Health*, *49*, 1-15. doi: 10.1080/03630240802694756
- Rogers, Wood, N. A., & Petrie, T. A. (2010). Body dissatisfaction, ethnic identity, and disordered eating among African American women. *Journal of Counseling Psychology*, *57*, 141-153. doi:10.1037/a0018922
- Romo, L. F., Mireles-Rios, R., & Hurtado, A. (2015). Culture, media, and peer influences on body beauty perceptions of Mexican American adolescent girls. *Journal of Adolescent Research*, 1-28. doi: 10.1177/0743558415594424
- Root, M. P. P. (1990). Disordered eating in women of color. *Sex Roles*, *22*, 525-536. doi:10.1007/BF00288168
- Sahay, S., & Piran, N. (1997). Skin-color preferences and body satisfaction among South Asian-Canadian and European-Canadian female university students. *The Journal of Social Psychology*, *137*, 161-171. doi: 10.1080/00224549709595427

- Santiago-Rivera, A. L., Arredondo, P., & Gallardo-Cooper, M. (2002). *Counseling Latinos and la Familia: A practical guide*. Thousand Oaks, CA: Sage.
- Schaefer, L. M., Burke, N. L., Thompson, J. K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., . . . & Swami, V. (2015). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychological Assessment, 27*, 54–57. doi:10.1037/a0037917
- Schoemaker, C., van Strien, T., & van der Staak, C. (1994). Validation of the Eating Disorders Inventory in a nonclinical population using transformed and untransformed responses. *International Journal of Eating Disorders, 15*, 387-393. doi: 10.1002/eat.2260150409
- Schooler, D., & Daniels, E. A. (2014). “I am not a skinny toothpick and proud of it”: Latina adolescents’ ethnic identity and responses to mainstream media images. *Body Image, 11*, 11-18. doi: 10.1016/j.bodyim.2013.09.001
- Sellers, R. M., Smith, M. A., Shelton, J. N., Rowley, S. A., & Chavous, T. M. (1998). Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Personality and Social Psychology Review, 2*, 18-39. doi: 10.1207/s15327957pspr0201\_2
- Shuttlesworth, M. E., & Zotter, D. (2011). Disordered eating in African American and Caucasian women: The role of ethnic identity. *Journal of Black Studies, 42*, 906-922. doi: 10.1177/0021934710396368
- Smolak, L. E., and Striegel-Moore, R. H. (2001). Challenging the myth of the golden girl: Ethnicity and eating disorders. In R. H. Striegel-Moore & L. E. Smolak (Eds.), *Eating disorders: Innovative directions in research and practice* (pp.111-132). Washington, DC: American Psychological Association.
- Solomon, A. (2005). *Naked: Black women bare all about their skin, hair, hips, lips, and other parts*. New York, NY: Penguin.
- Spangler, D. L. (2010). Heavenly bodies: Religious issues in cognitive behavioral treatment of eating disorders. *Cognitive and Behavioral Practice, 17*, 358-370. doi:10.1016/j.cbpra.2009.05.004
- Stein, K. F., Corte, C., & Ronis, D. L. (2010). Personal identities and disordered eating behaviors in Mexican American women. *Eating Behaviors, 11*, 197-200. doi: 10.1016/j.eatbeh.2010.02.001
- Stephenson, M. (2000). Development and validation of the Stephenson Multigroup Acculturation Scale (SMAS). *Psychological Assessment, 12*, 77-88. doi: 10.1037/1040-3590.12.1.77

- Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. *Clinical Psychology Review, 14*, 633-661. doi: 10.1016/0272-7358(94)90002-7
- Stice, E. (2001). A prospective test of the dual-pathway model of bulimic pathology: Mediating effects of dieting and negative affect. *Journal of Abnormal Psychology, 110*, 124-135. doi: 10.1037/0021-843X.110.1.124
- Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*, 825-848. doi: 10.1037/0033-2909.128.5.825
- Striegel-Moore, R. H., & Cachelin, F. M. (2001). Etiology of eating disorders in women. *The Counseling Psychologist, 29*, 635-661, doi:10.1177/0011000001295002.
- Striegel-Moore, R. H., Rosselli, F., Holtzman, N., Dierker, L., Becker, A. E., & Swaney, G. (2011). Behavioral symptoms of eating disorders in Native Americans: Results from the Add Health Survey Wave III. *International Journal of Eating Disorders, 44*, 561-566. doi:10.1002/eat.20894
- Striegel-Moore, R. H., & Smolak, L. (2000). The influence of ethnicity on eating disorders in women. In R. M. Eisler & M. Hersen (Eds.), *Handbook of gender, culture, and health* (pp. 227-253). Mahwah, NJ: Lawrence Erlbaum Associates.
- Stunkard, A. J., & Messick, S. (1985). The Three-Factor Eating Questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research, 29*, 71-83. doi: 10.1016/0022-3999(85)90010-8
- Sue, D., Capodilupo, C. M., & Holder, A. B. (2008). Racial microaggressions in the life experience of Black Americans. *Professional Psychology: Research and Practice, 39*, 329-336.
- Tewari, N. (2009). Seeking, receiving, and providing culturally competent mental health services: A focus on Asian Americans. In N. Tewari & A. N. Alvin (Eds.). *Asian American psychology: Current perspectives* (pp. 575-606). New York, NY: Routledge/Taylor & Francis Group.
- Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, D.C.: American Psychological Association.
- Thompson, J. K., & Stice, E. (2001). Thin ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science, 10*, 181-183. doi: 10.1111/1467-8721.00144
- Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3): Development and

- validation. *International Journal of Eating Disorders*, 35, 293-304. doi: 10.1002/eat.10257
- Tsai, G., Curbow, B., & Heinberg, L. (2003). Sociocultural and developmental influences on body dissatisfaction and disordered eating attitudes and behaviors of Asian women. *The Journal of Nervous and Mental Disease*, 191, 309-318. doi: 10.1097/01.NMD.0000066153.64331.10
- Uzogara, E. E., Lee, H., Abdou, C. M., & Jackson, J. S. (2014). A comparison of skin tone discrimination among African American men: 1995 and 2003. *Psychology of Men & Masculinity*, 15, 201-212. doi: 10.1037/a0033479
- Velez, B. L., Campos, I. D., & Moradi, B. (2015). Relations of sexual objectification and racist discrimination with Latina women's body image and mental health. *The Counseling Psychologist*, 43, 906-935. doi:10.1177/0011000015591287
- Wang, Y., & Beydoun, M. A., (2007). The obesity epidemic in the United States – gender, age, socioeconomic, racial/ethnic, and geographic characteristics: A systematic review and meta-regression analysis. *Epidemiologic Reviews*, 29, 6-28. doi: 10.1080/01419870.2012.716520
- Warren, C. S. (2014). Body area dissatisfaction in white, black and Latina female college students in the USA: An examination of racially salient appearance areas and ethnic identity. *Ethnic and Racial Studies*, 37, 537-556. doi: 10.1080/01419870.2012.716520
- Warren, C. S., Castillo, L. G., & Gleaves, D. H. (2010). The sociocultural model of eating disorders in Mexican American women. *Eating Disorders*, 18, 43-57. doi: 10.1080/10640260903439532
- Warren, C. S., & Rios, R. M. (2013). The relationships among acculturation, acculturative stress, endorsement of Western media, social comparison, and body image in Hispanic male college students. *Psychology of Men & Masculinity*, 14, 192-201. doi: 10.1037/a0028505
- Watson, L. B., Ancis, J. R., White, D. N., & Nazari, N. (2013). Racial identity buffers African American women from body image problems and disordered eating. *Psychology of Women Quarterly*, 3, 337-350. doi: 10.1177/0361684312474799
- Weafer, J., Baggott, M. J., & de Wit, H. (2013). Test–retest reliability of behavioral measures of impulsive choice, impulsive action, and inattention. *Experimental and Clinical Psychopharmacology*, 21, 475-481. doi: 10.1037/a0033659
- Webb, J. B., Warren-Findlow, J., Chou, Y. Y., & Adams, L. (2013). Do you see what I see?: An exploration of inter-ethnic ideal body size comparisons among college women. *Body Image*, 10, 369-379. doi: 10.1016/j.bodyim.2013.03.005

- Wenzel, K. R., Weinstock, J., Vander Wal, J. S., & Weaver, T. L. (2014). Examining the role of negative urgency in a predictive model of bulimic symptoms. *Eating Behaviors, 15*, 343-349. doi: 10.1016/j.eatbeh.2014.04.014
- White, M. A., & Griloa, C. M. (2005). Ethnic differences in the prediction of eating and body image disturbances among female adolescent psychiatric inpatients. *International Journal of Eating Disorders, 38*, 78-84. doi: 10.1002/eat.20142
- Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689. doi: 10.1016/S0191-8869(00)00064-7
- Wilder, J., & Cain, C. (2011). Teaching and learning color consciousness in Black families: Exploring family processes and women's experiences with colorism. *Journal of Family Issues, 32*, 577-604.
- Wildes, J. E., Emery, R. E., & Simons, A. D. (2001). The roles of ethnicity and culture in the development of eating disturbance and body dissatisfaction: A meta-analytic review. *Clinical Psychology Review, 21*, 521-551. doi: 10.1016/S0272-7358(99)00071-9
- Wong, S., Keum, B., Caffarel, D., Srinivasan, R., Morshedian, N., Capodilupo, C., & Brewster, M. (2017). Exploring the conceptualization of body image for Asian American women. *Asian American Journal of Psychology, 8*, 296-307. doi: 10.1037/aap0000077
- Yoon, E. (2011). Measuring ethnic identity in the Ethnic Identity Scale and the Multigroup Ethnic Identity Measure-Revised. *Cultural Diversity and Ethnic Minority Psychology, 17*, 144-155. doi: 10.1037/a0023361
- Yoshimura, K. (1995). Acculturative and sociocultural influences on the development of eating disorders in Asian-American females. *Eating Disorders: The Journal of Treatment & Prevention, 3*, 216-228. doi: 10.1080/10640269508249165