

Body Image in Hispanic/Latino vs. European American Adolescents: Implications for Treatment and Prevention of Obesity in Underserved Populations

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Abstract: Hispanic/Latino (H/L) vs. European American (EA) perceptions of current and ideal body image as well as body dissatisfaction were examined in 416 adolescents aged 12–15 years. Gender, culture, and body mass index (BMI) were hypothesized to affect measures of self-perceived body image and dissatisfaction differentially. Participants completed a computerized survey with gender-specific versions of applicable test items. Overall, body dissatisfaction (BD) was higher among EAs vs. H/Ls, females vs. males, and unhealthy BMI vs. healthy BMI ($p < .01$). A gender \times ethnicity interaction trend was also noted ($p > .06$), in which BD was highest among EA females, followed by H/L females, EA males, and H/L males. Results suggest that gender and cultural differences in body image among adolescents are significant. This study is an important step toward clarifying the nature of weight-related health risks facing the understudied population of Hispanic/Latino teens.

Key words: Obesity, adolescents, body image, Latinos.

Obesity has become a nationwide epidemic. Prevalence rates for obesity in the United States have increased over time from 19.4% in 1997 to 27.6% in 2009.¹ Hispanics/Latinos in the Texas-Mexico border region constitute one of the most strongly affected groups.² This is an issue of increasing importance as the Hispanic/Latino population is projected to constitute approximately 18% of the total U.S. population in 2020 and approximately 25% in 2050.^{3,4} Although much is known about the health consequences of increased obesity,⁵ the literature remains sparse with regard to the risk factors associated with obesity among Hispanics/Latinos.

The rapid rise in obesity among Hispanics/Latinos stands in contrast to the high value often placed on being thin in the U.S., a valuation that may lead many adolescents to feel dissatisfied with their bodies and to engage in risk behaviors such as cycles of binge eating and compensatory dieting.⁶ Current literature, although collected primarily in European American female populations, identifies thin body ideal internalization and body dissatisfaction as major risk factors for dieting and eating pathology.⁷ Furthermore,

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researchers suggest a bidirectional relationship between the aforementioned health risk behaviors and the development of overweight or obesity.^{8,9}

Whereas studies focusing on European Americans have emphasized restrictive eating pathology or cycles of bingeing and purging, the relatively few studies conducted in the Hispanic/Latino community have revealed that in this population unhealthy practices such as binge eating are more prevalent than disorders such as anorexia or bulimia.¹⁰ Furthermore, this pattern is particularly significant for less acculturated Latinas.¹⁰

The literature remains unsettled with regard to studies of health risk behaviors and body dissatisfaction among Hispanics/Latinos. Some studies indicate no significant difference between Hispanics/Latinos and European Americans with regard to self-perceived body image.^{11,12} Other studies indicate that Hispanics/Latinos do not endorse the view of the ultra-thin body as positive, preferring a larger body type.^{11,13} Considering additional factors such as gender, age, acculturation, and socioeconomic status may help clarify this inconsistent literature. For example, Ayala and colleagues¹⁴ found that a strong identification with Mexican culture was a significant predictor of body dissatisfaction during the earlier stages of childhood, whereas, among teens, individuals who identified more strongly with body ideals portrayed in the popular media were more likely to experience body dissatisfaction. Although a number of studies have reported that the relationship between body image, unhealthy eating practices, and obesity may be similar for males and females,¹⁵ other researchers have suggested that these effects are weaker in males and have postulated the need for more gender-comparative studies.^{16,17}

A number of studies have examined adolescents' endorsement of body stereotypes while viewing silhouettes of same-sex peers. Such studies have found that obesity is highly stigmatized relative to other physical disabilities,¹⁸ and that children are more likely than adults to stigmatize obese people.¹⁸ Among adolescents, overweight body shape is associated with negative stereotypes such as poor social functioning, impaired academic success, and low perceived health, healthy eating, and fitness.¹⁹ A number of studies have shown that participants' own weight does not affect their stigmatization of obesity.^{18,19} Gender differences in these measures have been noted in studies focusing on mixed-age populations.¹⁸ However, among adolescents, Hill and Silver¹⁹ noted that gender had only limited impact on these stereotypical judgments. Research on the endorsement of body stereotypes within the Hispanic/Latino community is limited; nevertheless, some studies have noted instances in which obese silhouettes evoke negative responses from adolescents and adults alike.²⁰

A better understanding of the relationship between body dissatisfaction and attitudes about overweight/obesity within the Hispanic/Latino community could lead to the development of better treatment and prevention programs. Various intervention models have suggested that approaches that address socio-cultural attitudes toward appearance may be effective at reducing both the prevalence of body image dissatisfaction and related obesity.¹⁴ Adolescents are a particularly relevant target for this work, as childhood and adolescent obesity have a significant impact on mortality and morbidity in adulthood.²¹ To address this issue, the authors extracted the current data from a larger, online survey of Hispanic/Latino and European American male and female adolescents in the middle school setting. The authors hypothesized that gender, culture, and body

mass index (BMI) would differentially affect participants' responses regarding current and ideal body image, body stereotypes, and related factors.

Methods

Participants and procedures. Four hundred sixteen participants (177 male), aged 12 to 15, were recruited from junior high schools and after school programs throughout Central Texas. The participant sample was 3.6% African American, 3.6% Asian American, 24.0% European American, 60.6% Hispanic/Latino, 2.6% Native-American, and 3.4% Other. Approximately 2.2% of participants declined to endorse a race/ethnicity category. Only data from self-identified European American and Hispanic/Latino participants were included in further statistical analysis due to small sizes of other racial/ethnic groups. Data from 33 participants were removed due to a high degree of missing data across variables. The final sample consisted of 319 adolescents (190 male), 28.5% European American ($n=91$) and 71.5% Hispanic/Latino ($n=228$). The study was approved by the Texas State University Institutional Review Board. Written consent was not required due to the anonymous nature of the data collection. The survey was administered in English. Monitored testing sessions were conducted in the computer labs of participating schools/programs, and groups of participants simultaneously completed an online survey of approximately 30 minutes duration. Gender-specific versions of test items were presented where this was suitable. Although participants were not directly surveyed regarding their proficiency/comfort level with computer-based surveys, assistance with the survey (provided by teachers and research assistants) was equally available to all students.

Survey instruments. *Background variables.* Self-reported demographic information included age, current height and weight, ethnicity, city of residence, and familial country of origin.

Acculturation was assessed using an instrument developed by the authors and their collaborators. As an index of acculturation, Hispanic/Latino participants were asked to indicate various characteristics of their Spanish language abilities. These items included self-rating (four-point scale) of ability to understand Spanish and ability to speak Spanish. In addition, the frequency of using Spanish was assessed by asking participants to indicate with whom they communicate in Spanish, using a list of descriptors and a 10-point scale. Similar methods have been employed successfully by other researchers.^{6,22} Individuals with a greater degree of acculturation were expected to exhibit lower levels of Spanish language ability and frequency of use than less acculturated individuals.

Familial socioeconomic status (SES) was estimated based on the highest level of schooling completed by the participants' parents.²³

Body image. Gender-specific adolescent silhouette drawings based on the Figure Rating Scale (FRS) were used to assess body image.²⁴ Silhouette drawings are recognized as a standard assessment technique for perceived body size.^{25,26} Nine different figures, ranging from underweight to obese, were presented for females,²⁷ and seven figures were presented for males.²⁸ Reliability and validity values for the FRS have been reported as 0.89 to 0.92 and 0.63 to 0.92, respectively.²⁷ Participants were asked to think about the silhouette as a whole rather than focusing on any individual body parts and to choose

the silhouette drawing that 1) represented their current appearance, 2) represented their ideal appearance.

Kaufer-Horwitz and colleagues²⁵ report a positive correlation ($r=0.702$ in males, $r=0.766$ in females) between objective BMI measurements and self-perceived body shape silhouettes among Mexican American male and female participants. This work suggests that body shape silhouettes may be a useful method for defining overweight and obesity in settings where scales might not be available.²⁵ Further, the discrepancy between current and ideal body silhouette figures has frequently been used as an index of body dissatisfaction.^{29,30}

Additional questions included two items regarding body-thinness preoccupation derived from the Children's Eating Attitudes Test (ChEAT-26³¹), and three items created by the authors: one item assessing participants' desire (or lack of desire) to add more muscles to his/her body, and two items addressing pressure from parents to gain weight (one item) and lose weight (one item). Research has shown that concerns about body muscularity may also be relevant for body satisfaction among males.^{11,32} However, it is important to note that an additional body of literature exists that suggests that body dissatisfaction and drive for muscularity are not completely parallel constructs.³³ Parental expectation items were included to reflect cultural norms for a desirable body size in the adolescents' familial environments.

Body stereotypes. This assessment was based on the Siperstein Adjective Checklist (ACL).^{34,35} Participants completed two test trials: one in which they were presented with a thin silhouette target figure and one in which they were presented with an overweight silhouette target figure. In each trial, participants selected words from a checklist of 16 positive and 16 negative adjectives that they felt best described the personality traits of the target figure.

Body mass index. Self-reported height and weight information was used to compute a body mass index (BMI; weight kg/height m²) based on Centers for Disease Control and Prevention guidelines.³⁶ Adolescents' BMI values were then used to identify the gender and age-specific percentile for each participant.³⁷ Participants with BMI percentiles below 85 were classified as non-overweight (healthy weight). Individuals with BMI percentiles equal to or higher than 85, but lower than 95, were classified as overweight; those with BMI percentiles equal to or higher than 95 were classified as obese.

Data analysis. Differences between genders, ethnicities, and BMI groups on demographic, body image, and weight-stereotype variables were examined by a series of analyses of variance (ANOVAs) for independent samples and analyses of covariance (ANCOVAs) using SES and acculturation level (if applicable) as covariates. The Tukey's HSD test was used for all reported pairwise comparisons.

Results

Background variables. Mexico was listed as the country of origin for 67% of Hispanic/Latino families. Females represented 59.6 % ($n=190$) of the sample. The age range of participants was 12–15 years ($M=13.30$, $SD=0.78$); 13.8% of the sample was 12 years of age at the time of testing, 48.6% of the sample was 13 years of age, 31.3% of the sample was 14 years of age, and 6.3% of the sample was 15 years of age. The Hispanic/Latino

teens were significantly older than the European Americans ($F(1, 315)=7.29, p<.01$; H/L $M=13.40, SE=0.05, EA M=13.13, SE=0.09$). There was also a trend in which males were older than females ($F(1, 315)=3.31, p<.07$; males: $M=13.35, SE$ (standard errors) = 0.08; females: $M=13.17, SE=0.06$). There was no significant interaction effect of ethnicity and gender on age ($p=.54$).

Body mass index. Participants of healthy weight constituted 61.4% of the sample, while 14.1% were overweight, and 24.5% were obese. Gender was distributed unequally across weight categories ($\chi^2(2, n=319) = 19.52, p<.001$). A higher percentage of males than of females were identified as obese (35.7% vs. 16.8%). Similar results were noted for overweight (17.1% of males vs. 12.1% of females). A lower percentage of males vs. females were classified as having a healthy weight (47.3% vs. 71.1% respectively).

Across ethnic groups, 57% of Hispanic/Latinos were in a healthy weight category, 15.8% were overweight, and 27.2% were obese, compared with 72.5%, 9.9%, and 17.6%, respectively, among European Americans ($\chi^2(2, n=319)=6.61, p<.04$).

Acculturation. An acculturation index was computed as a sum of self-ratings reflecting understanding and speaking abilities multiplied by frequency of use of Spanish in communication with others. The resulting acculturation scores ranged from 0 to 54 ($M=11.66, SD=12.61$).] A two-factor ANOVA for independent samples revealed no significant differences in the acculturation index between gender or BMI groups

Table 1.

DISTRIBUTION OF BODY MASS INDEX (BMI) STATUS ACROSS GENDER AND ETHNIC GROUPS OF ADOLESCENTS.

	Total N=319	European Americans (n=91)		Hispanic/ Latinos (n=228)	
		Girls (n=59)	Boys (n=32)	Girls (n=131)	Boys (n=97)
BMI^a					
Mean	22.41	20.81	21.53	22.23	23.91
SD	5.05	3.65	3.65	4.49	6.39
Weight status^b					
Non-overweight	61.4%	81.4%	56.3%	66.4%	44.3%
At risk of overweight	14.1%	8.5%	12.5%	13.8%	18.6%
Overweight	24.5%	10.1%	31.2%	19.8%	37.1%

^aBMI based on age/gender specific percentile.

^bDistribution of BMI status within each ethnic and gender group; Non-overweight = BMI percentile less than 85, At Risk of Overweight = BMI equal to or higher than 85 but less than 95, Overweight = higher than 95 percentile.

BMI = body mass index

SD = standard deviation

among Hispanic/Latino teens and no significant gender \times BMI interaction ($p > .05$ for all effects).

Socioeconomic status. The composite index of parental education level was created by summing responses to both items regarding parental education (i.e., mother and father). Missing or partial responses (i.e., only one parent's education provided) were replaced by a median education level computed separately for each ethnic group. The amount of missing data for this variable ranged from approximately 12% for European Americans to 20% and 30% for Hispanic/Latino mothers and fathers, respectively.

The parental education level of Hispanic/Latino adolescents' was the same for both, mothers and fathers, and ranged from *6th grade or less* to *completed graduate school* with *completed high school* as the median response. In contrast, the maternal education level of European American teens ranged from *completed high school* to *completed graduate school* with *completed college* as the median. The father's education reported by European American teens ranged from *completed some high school* to *completed graduate school* with *completed college* as a median.

The effects of ethnicity, gender, and BMI status on SES were also examined. The participants' BMI statuses were entered to analysis at two levels: healthy vs. unhealthy body weight (overweight and obese groups combined). The two BMI groups were collapsed in order to achieve sufficient group size for comparisons. The 2 (ethnicity) \times 2 (gender) \times 2 (BMI status) ANOVA conducted on SES revealed significant effects of ethnicity ($F(1,311) = 123.04$, $p < .001$, $\eta^2 = .28$), BMI ($F(1, 311) = 9.23$, $p < .01$, $\eta^2 = .03$), and ethnicity \times BMI interaction ($F(1,311) = 6.78$, $p < .01$, $\eta^2 = .02$). Overall, Hispanic/Latino SES was lower than that of European Americans ($M = 8.35$, $SE = .20$ vs. $M = 12.89$, $SE = .36$). Among European Americans, participants with unhealthy BMI reported lower SES than those with healthy BMI ($M = 11.74$, $SE = .60$ vs. $M = 14.05$, $SE = .39$). However, among Hispanics/Latinos, SES did not significantly differ by BMI status (Healthy: $M = 8.44$, $SE = .27$ vs. Unhealthy: $M = 8.26$, $SE = .30$).

Body dissatisfaction. The body dissatisfaction index was computed as a difference in the ideal vs. actual body shape endorsed by adolescents (e.g., a lower score indicated more body dissatisfaction). A three-factor ANCOVA was performed on dissatisfaction scores with ethnicity, gender and BMI status (healthy vs. unhealthy) as independent factors and SES as a covariate.

Females were more dissatisfied with their bodies than males ($F(1, 310) = 30.16$, $p < .001$, $\eta^2 = .09$). Body dissatisfaction was also significantly increased among participants with an unhealthy BMI, compared with participants with a healthy BMI ($F(1, 310) = 15.12$, $p < .001$, $\eta^2 = .05$). Further, body dissatisfaction was higher among European Americans than among Hispanics/Latinos ($F(1, 310) = 6.97$, $p < .01$, $\eta^2 = .02$). Analyses showed a trend toward an interaction between ethnicity and gender ($p < .06$), in which body dissatisfaction (BD) was highest among European American females, followed by Hispanic/Latino females, European American males, and Hispanic/Latino males, consecutively (see Figure 1).

Body dissatisfaction among Hispanic/Latino participants appeared to be unrelated to acculturation level. The partial correlation between body dissatisfaction and acculturation index while controlling for SES was not significant ($r = .02$, $p = .84$, $n = 224$).

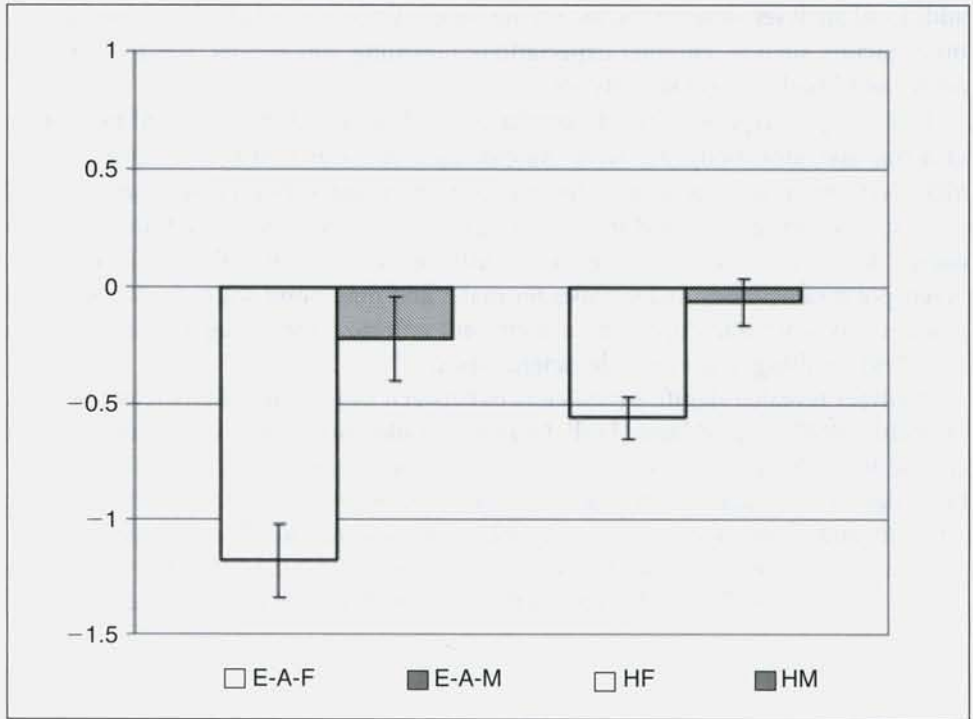


Figure 1. Body dissatisfaction by ethnicity and gender ($p < .06$).

E-A F = Euro-Am. females

E-A M = Euro-Am males

HF = Hispanic females

HM = Hispanic males

BMI = body mass index

In order to examine body dissatisfaction in our sample further, ethnicity, gender, and BMI status groups were compared on the desire to be thinner (two survey items) and dissatisfaction with body muscularity (one item).

The participants' answers to two survey items related to the desire to be thinner were averaged prior to analysis. A three-factor ANCOVA performed on average scores with ethnicity, gender, and BMI status as independent variables and SES as the covariate confirmed previously revealed gender differences in preferences for a thinner body. Female adolescents expressed a significantly stronger desire to be thinner than did the male participants ($F(1, 310) = 23.08, p < .001, \eta^2 = .07$). In addition, there was a statistical trend for adolescents with an unhealthy vs. healthy BMI to express a stronger desire to become thinner ($F(1, 310) = 3.29, p < .07, \eta^2 = .01$). There were no significant differences between ethnic groups, and no significant interactions were observed.

The same analysis was performed on responses to a question related to dissatisfaction with body muscularity. Results indicated no significant main effects or interactions.

To understand better the roots of the body dissatisfaction findings reported above,

additional analyses were conducted on measures of current and ideal body image, and other factors such as parental expectations regarding adolescents' weight gain, and adolescents' body weight stereotypes.

Body image perception. Ethnicity, gender, and BMI status differences in self-perception of actual and ideal body size were examined by a series of ANCOVAs (covarying for SES) performed on responses to the visual body image scales. Prior to analyses, all participants' ratings obtained from the visual body image scales were transformed to correct for differences in the assessment instruments used for males vs. females (i.e., seven-point visual body image scales for males and nine-point scales for females). All females' scores were multiplied by a coefficient reflecting the scaling difference (i.e., a ratio 7/9) resulting in a new scale ranging from .77 to 7.0.

Analyses revealed significant differences between BMI groups. Participants with an unhealthy BMI selected larger body figures than did participants with a healthy BMI ($F(1,310)=62.79, p>.001, \eta^2=.17$). In addition, females endorsed significantly larger body figures than males endorsed ($F(1, 310)=56.48, p<.001, \eta^2=.15$). The effects of ethnicity and interactions between variables were not statistically significant.

When the same statistical analysis was repeated for ideal body figure ratings, in addition to the significant BMI status effect ($p<.001$), results also indicated a signifi-

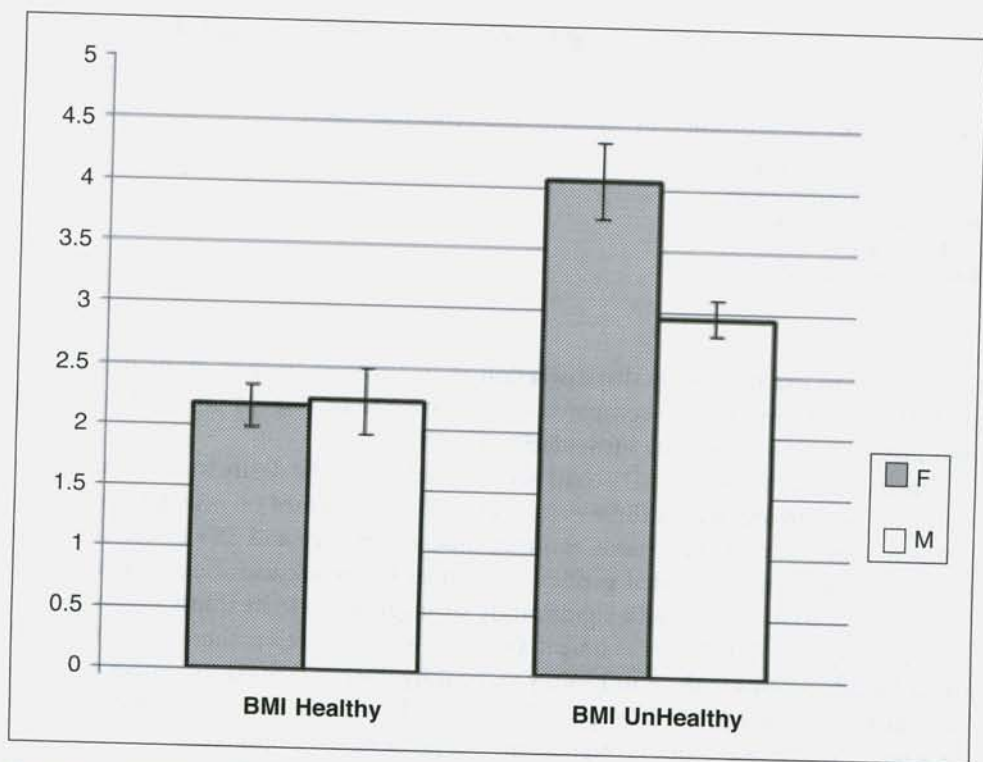


Figure 2. Parental preference for adolescents to lose weight by gender and BMI status (healthy vs. unhealthy), $p<.03$.

Unhealthy BMI female vs. unhealthy BMI male, $p<.01$

Healthy BMI female vs. healthy BMI male, $p=.26$

cant difference between ethnicity and gender groups ($F(1,310)=6.52, p<.01$ and $F(1, 310)=4.06, p<.05$, respectively). Hispanic/Latino adolescents indicated larger body figures as their ideal body image than did European American adolescents ($M=3.04, SE=.07$ vs. $M=2.72, SE=.10$), and females selected larger figures than did males ($M=2.99, SE=.07$ vs. $M=2.78, SE=.08$). Interaction effects were not statistically significant. It is important to note that, on average, body figures chosen by both groups were within a healthy range. Any differences between ethnic groups were due to subtle differences in selected body figures.

Parental expectations. The results of an ANCOVA performed on responses to the item *My parents would like me to lose some weight* showed a significant effect of BMI status ($F(1,299)=24.05, p<.001, \eta^2=.07$). Further, analyses revealed a higher parental preference for females to lose weight compared with males ($F(1,299)=3.90, p<.05, \eta^2=.01$), and a significant interaction of gender and BMI status ($F(1,299)=4.70, p<.03, \eta^2=.02$). Female adolescents with an unhealthy BMI reported the highest parental preference for them to lose weight. This preference was significantly higher than the parental preference to be thinner reported by males in the same BMI group ($p<.01$). This gender difference was not significant for healthy BMI status ($p>.05$). There were no significant differences between ethnic groups in reported parental expectations. Parental expectation results are shown in Figures 2 and 3.

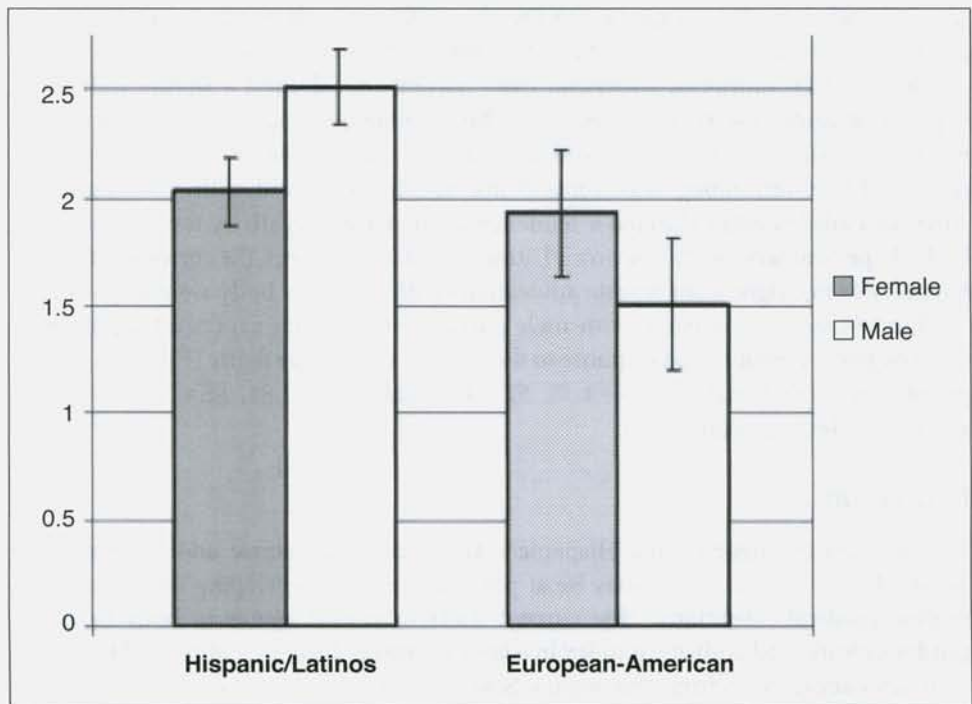


Figure 3. Parental preference for adolescents to gain weight by gender and ethnicity ($p<.05$).

Males Euro-Am. vs. Hispanic, $p<.01$

Females Euro-Am. vs. Hispanic, $p=.77$

The same analyses were conducted on responses to the survey item about parental preferences for adolescents to gain weight. Results revealed a significant effect of BMI status ($F(1, 305)=16.72, p<.001, \eta^2=.05$), and an additional significant main effect of ethnicity ($F(1, 305)=4.12, p<.05, \eta^2=.01$). An interaction of ethnicity and gender was also noted ($F(1, 305)=3.88, p<.05, \eta^2=.01$). The reported parental preference for adolescents to gain weight was higher overall among Hispanic/Latino participants, but within this ethnic group, the parental preference for adolescents' weight gain showed a tendency to be higher for males than for females ($p<.08$). Compared with the parents of European American males, the parents of Hispanic/Latino males appeared to express more concerns about their child's body being too thin. A trend in the opposite direction was revealed among European American adolescents, but pair-wise tests of corresponding differences showed they were not significant ($p>.05$).

Body stereotypes. For analyses of body image stereotypes, an index of positive attitude was computed as a total number negative traits subtracted from a total number of positive traits ascribed by participants to obese and thin body figures. Lower scores indicated a more negative attitude toward the body drawing. Separate ANCOVAs were used to examine differences between ethnicity, gender, and BMI status groups covarying for SES. Body stereotypes results are shown in Figure 4.

Obese silhouette. Results indicated significant interactions between ethnicity and gender ($F(1, 303)=3.85, p<.05, \eta^2=.01$) and ethnicity and BMI ($F(1, 305)=3.73, p<.05, \eta^2=.01$) with respect to responses to the obese silhouette drawing. A trend toward a gender difference in response to the obese silhouette was also noted ($F(1, 305)=3.55, p<.06, \eta^2=.01$). European American male participants showed a significantly more negative attitude toward the obese male body silhouette than did Hispanic/Latino male participants ($p<.02$), but this ethnic difference was not significant among females ($p>.05$). Moreover, among adolescents identified as having an unhealthy BMI, European American adolescents exhibited a tendency to increased negativity toward the obese body shape compared with Hispanics/Latinos ($p<.06$). However, the corresponding difference was not significant among adolescents with a healthy body weight ($p>.05$).

Thin silhouette. Compared with male participants, females expressed significantly more negative stereotypes in response to the same-sex thin body figure ($F(1, 304)=31.00, p<.001, \eta^2=.09$; females: $M=-1.38, SE=.64$; males: $M=3.84, SE=.70$). No other significant findings were noted.

Discussion

Recent research suggests that Hispanic/Latino male and female adolescents of the Texas-Mexico border region may be at particular risk of developing obesity and comorbid medical conditions.² The current study examined trends in body image by gender, culture, and body mass index in a large group of Hispanic/Latino and European American adolescents from this region. Several interesting trends emerged.

Overall, many survey results supported the BMI and gender differences reported in previous studies. For instance, females were found to be more dissatisfied with their bodies and expressed a significantly stronger desire to be thinner than males, and individuals with an unhealthy BMI reported significantly more body dissatisfaction overall than others. In addition, Hispanics/Latinos identified larger ideal body sizes than

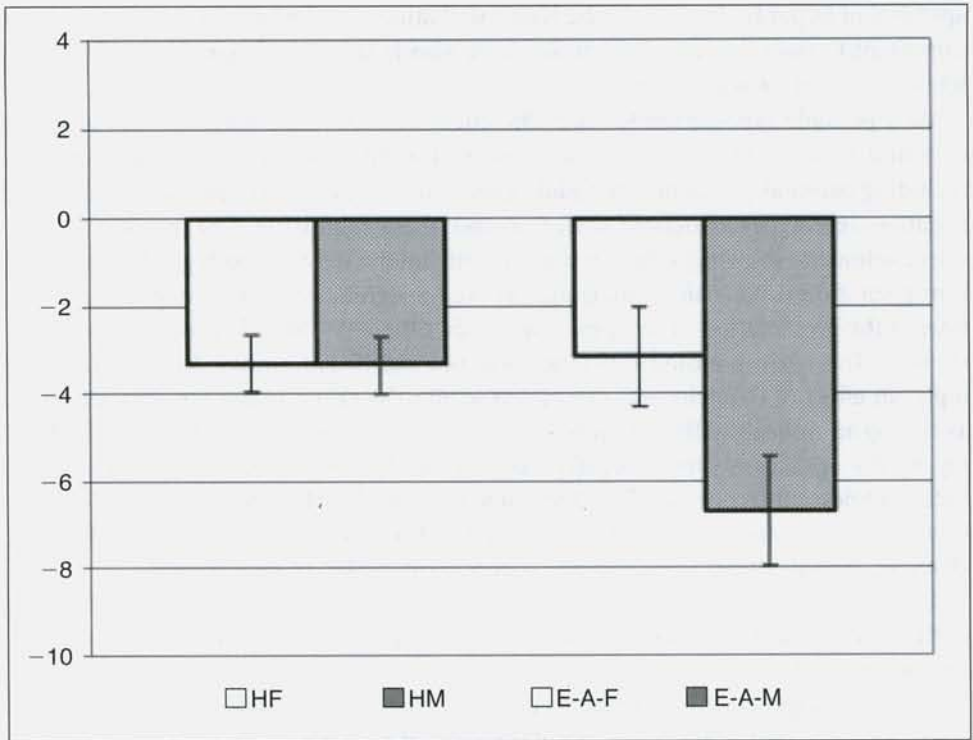


Figure 4. Obese body stereotype by ethnicity and gender ($p < .05$).

Euro-Am. males vs. Hispanic males, $p < .02$

Euro-Am. females vs. Hispanic females, $p = .90$

HF = Hispanic females

HM = Hispanic males

E-A F = Euro-Am. females

E-A M = Euro-Am. males

European Americans. These findings are consistent with previous work,^{11,38} although the literature remains unsettled overall.³⁵

In one of the most interesting findings of the current study, body dissatisfaction was higher among European Americans than among Hispanics/Latinos, and a trend was noted for an interaction between gender and ethnicity ($p < .06$). Body dissatisfaction was highest among European American females, followed by Hispanic/Latino females, European American males, and Hispanic/Latino males, in that order. Thus, although European American adolescents report greater body dissatisfaction overall, the pattern of body dissatisfaction within Hispanic/Latino and European American groups appears to be similar in that females report greater body dissatisfaction than males.

As reviewed in Caballero and Tenzer,³⁹ Hispanic/Latino views regarding body image tend to endorse the toleration or even celebration of individuals who are slightly overweight or plump. This body type is considered to reflect a state of being "well cared for and healthy"; this preference for a body type corresponding to the Spanish term *gordito* is particularly apparent in reference to children and adolescents.³⁹ Taken together, these attitudes may lessen the social pressure to lose weight; thus, contributing to the

approval of larger body types in the Hispanic/Latino populations.³⁹ However, it is also important to note that research studies have also failed to find significant ethnic differences in preferred body image.⁴⁰

As a possible explanation for the differences in body dissatisfaction between genders and between ethnic groups, a number of additional variables were examined, including parental preferences for adolescents' body sizes and adolescents' positive and negative stereotypes associated with thin and obese silhouettes. For responses to the obese silhouette drawing, ethnicity significantly interacted with both gender and BMI. European American male participants showed a significantly more negative attitude toward the presentation of an obese male body silhouette than Hispanic/Latino males showed. The corresponding difference was not significant among females. Interestingly, an effect of ethnicity was also noted within the group of participants identified as having an unhealthy BMI. European American adolescents with an unhealthy BMI reported a significantly more negative response to the obese silhouette than Hispanic/Latino adolescents reported. This effect could be related to Hispanic/Latino adolescent's preference for a larger ideal body size overall and was consistent with our finding that Hispanic parents prefer their children, particularly males, to gain weight.

Female participants exhibited significantly more negative stereotypes than the male participants exhibited in response to thin same-sex figures. No other significant findings were noted.

These findings stand in contrast to previous reports in which gender¹⁹ and current BMI¹⁸ were not significant predictors of the association of negative stereotypes with the obese silhouette. However, as Hill and Silver¹⁹ studied younger adolescents, and Latner et al.¹⁸ included older participants, it is possible that our findings may be more specific to our pubertal sample ranging in age from 12 to 15. Previous work has suggested that this range may be a particularly sensitive time for youngsters around matters of body image.⁴¹ Further, few studies have included Hispanic/Latino adolescent populations.

In a notable exception, Greenleaf and colleagues³⁵ compared 157 European American and 117 Hispanic/Latino middle school students with regard to their responses to obese and thin body silhouettes, among other measures. Few differences were noted between Hispanic/Latino and European American participants. In comparison, the results of the current study suggest that racial/ethnic differences in responding to the body weight stereotypes instrument may be influenced significantly by other factors, such as gender and BMI. This finding is particularly interesting, as a number of previous studies have shown that Hispanic/Latino males typically prefer a larger body type and may be more likely to engage in extreme weight/muscle-building strategies such as the use of steroids.^{11,38}

Given the pattern of gender and ethnicity differences in parental preferences for adolescent weight/body size, as well as individual responses to obese and thin body silhouettes, it appears that these additional factors (e.g., ethnicity and individual body type preferences) may contribute to the body dissatisfaction levels and motivations regarding body size preferences among male and female adolescents.

Although the results of the current study are thought-provoking, a number of limitations should be corrected in future investigations. First, the current findings were obtained via online survey from a limited sample of adolescents in Central Texas; thus,

results may have been influenced by the collection method and also may not directly generalize to other geographical regions. In addition, these findings should be interpreted with caution due to the limitations of self-reported anthropometric data. It is important to note that BMI indices calculated based on self-reported height and weight estimates are commonly used by researchers and large scope national surveys.^{42,43} While some data indicate self-reported height/weight as an adequately accurate measure of actual height/weight,^{44,45} other researchers warn about systematic bias that might be introduced to anthropometric estimates based on participants' reports.^{46,47}

Specifically, self-reported weight and height values are often thought to underestimate a participant's true BMI,^{48,49} although gender appears to be an important factor in such misperceptions. Kuchler and Variyam⁵⁰ have noted that men who are obese or overweight are more likely than obese or overweight women to underestimate their weight status, whereas women who are healthy weight/underweight are more likely than men to believe they are overweight. Further, those who underestimated their weight frequently reported low levels of education and income, and those who overestimated their weight were frequently of a higher socioeconomic status.⁵⁰ However, it is important to note that much of the work on weight misperception has focused on adults.^{48,49}

Further, gender differences in responses to the obese and thin silhouettes might at least partially reflect responses to specific details of the body drawings, which were different for males and females and were originally designed for use in predominantly European American populations. Future studies should focus on the development and use of more culturally-relevant body drawings for Hispanic/Latino populations. In addition, research utilizing direct body height/weight assessment (i.e., objective BMI) is needed to examine more closely the nature of the potential discrepancy between actual, perceived, and ideal body size among Hispanic/Latino female adolescents. This promising line of investigation may lead to a better understanding of the psychological mechanisms contributing to increased body dissatisfaction among female adolescents.

Additional limitations and areas for further study include the assessment of acculturation and socioeconomic status within health research. To assess acculturation, the current study used an instrument developed by the authors and their collaborators, which focused on Spanish communication skills as an index of acculturation among Hispanic/Latino adolescents. Despite the relevance of language as an index of acculturation among adolescents, future studies employing more specific surveys of acculturation level are needed to substantiate the findings of the current study.

Further, the assessment of socioeconomic status in health research studies remains somewhat controversial, with recent publications calling for more extensive measures and better acknowledgment of the limitations of existing methods.³³ The current study utilized parental education as an index of socioeconomic status in a population of adolescents. The authors acknowledge that the use of parental schooling as a proxy is not the ideal method for assessing socioeconomic status. However, given the age and experience level of the current sample, a more extensive measure including income, wealth, occupation, neighborhood characteristics and/or past socioeconomic experiences, as recommended by Braveman and colleagues,³³ was not feasible. Future work should include age-appropriate adaptations of the recommendations made by Braveman and colleagues.³³

Conclusion. Body dissatisfaction and related traits are influenced by gender, culture, and their interaction. The results of the current study suggest that among both European American and Hispanic/Latino adolescents, females exhibit greater body dissatisfaction than males; however, European Americans reported greater body dissatisfaction overall than Hispanics/Latinos. This study represents an important step toward a better understanding of weight-related health risks facing the understudied population of Hispanic/Latino teens and an important contribution to the ongoing literature addressing socio-cultural attitudes toward appearance as an effective means of reducing body image satisfaction and co-morbid conditions such as obesity and disordered eating.¹⁴

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Notes

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