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THE MODERATING EFFECT OF SCHOOL RACIAL/ETHNIC COMPOSITION ON THE RELATIONSHIP BETWEEN RACE/ETHNICITY AND WEIGHT PECEPTION ACCURACY IN U.S. ADOLESCENTS

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ABSTRACT

The current study examines how the racial/ethnic composition of adolescents' schools moderates the association between individual race/ethnicity and weight perception accuracy. Prior research has emphasized how the combination of race/ethnicity and gender shape weight perception accuracy but has not adequately addressed whether the racial composition of adolescents' schoolmates impacts this relationship. I argue that adolescents engage in social comparison with comparison groups that change depending on the racial/ethnic composition of their schoolmates. To examine this, I analyze data from the National Longitudinal Study of Adolescent to Adult Health (N = 13,994) collected in 1994-1995. Using hierarchical multinomial logistic regression models, I find that the proportion of White students in schools moderates the relationship between underestimation of weight for boys and overestimation of weight for both boys and girls. These findings offer limited support of social comparison theory but suggest that the racial/ethnic composition of schools does moderate the relationship between race/ethnicity and weight perception under- and overestimation of weight. The findings also suggest that further research should explore what other characteristics adolescents use in comparisons that might shape weight perception accuracy.

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INTRODUCTION

One's perception of his or her weight has important ramifications for physical and mental health. Overweight individuals who underestimate their weight are unlikely to adopt healthier behaviors (Barisic et al. 2014), while normal weight individuals who incorrectly perceive being too heavy or too lean are at risk of psychological distress (Frisco et al. 2010). Adolescents may be particularly prone to inaccurate perceptions of their weight because this life course stage involves so many changes to young people's bodies and physical appearances.

Prior research on adolescents' weight perception accuracy suggests that patterns of underestimation and overestimation of weight vary by gender and race/ethnicity. For example girls are generally more likely to overestimate their weight while boys are more likely to underestimate it (Ibrahim et al. 2014). However, Black boys and girls are both more likely to underestimate their weight than Whites. Prior research has also found that the intersection of gender and race/ethnicity produces different risks of underestimation and overestimation of weight for adolescents in each group.

In this study, I extend this research by asking whether the risk of weight underestimation or overestimation by adolescents from different racial/ethnic and gender backgrounds is dependent on social context. This line of reasoning is motivated by social comparison theory, which argues that individuals compare themselves to others within a given social context (Festinger 1954). This theory has been applied to adolescent social phenomena to suggest that individuals intentionally or unknowingly internalize contextual influences that shape behavior (e.g. Mueller et al. 2010).

Adolescents spend a large majority of their time in school where they have frequent and intense interaction with peers, making schools an important context for comparisons generally and weight comparisons specifically. I argue that the racial/ethnic composition of schools may change the way that male and female adolescents from different racial/ethnic backgrounds perceive their actual weight because it modifies the groups to whom adolescents compare their weight. To test this supposition, I analyze data from the National Longitudinal Survey of Adolescent to Adult Health, a nationally representative school-based sample of adolescents in grades 7-12.

REVIEW OF THE LITERATURE

The relationships between race/ethnicity and weight perception accuracy

Several studies have shown that an adolescent's perception of his or her weight can have important consequences for health that are different and independent from those related to weight status alone (Frisco et al. 2010). Adolescents' weight perceptions are associated with depression (Atlantis and Ball 2008; Frisco et al. 2010), eating disorders (Keel et al. 2007), and unhealthy weight behaviors (Rahman and Berenson 2011). Inaccurate weight perceptions, defined as underestimation or overestimation of weight, can also impact adolescents' health. Adolescents with inaccurate weight perceptions are less likely to enact healthy weight behaviors (Barisic et al. 2014). Because of the higher prevalence of underestimation of weight, more adolescents are at risk of unhealthy weight gain than unhealthy weight-loss behaviors (Barisic et al. 2014). This is especially disconcerting given the prevalence of adolescent overweight.

While some previous studies have focused on gender and racial/ethnic differences in weight perception accuracy separately, many studies suggest that it is the combination of the two characteristics that shape perception of one's own weight. Therefore, I compare racial/ethnic differences in weight perception accuracy by gender. In general, boys are more likely to underestimate their weight than girls (Martin et al. 2009; Gee et al. 2013; Ibrahim et al. 2014), and boys' overall odds of inaccuracy are also higher than that of girls (Martin et al. 2009). There is mixed evidence that boys' accuracy patterns further vary by race/ethnicity. Using a dichotomous measure of accuracy (i.e. accurate vs. inaccurate), some studies have found that Black boys are less accurate overall than Whites (Park 2011), while Yang et al. (2014) found that White boys less accurately estimate their weight than Blacks and Hispanics. However, differences in overall accuracy do not imply that one group will be more or less likely to underor overestimate their weight than another. For example, Brener et al. (2004) found that Black adolescents were more likely to underestimate their weight than Whites. However, Martin et al. (2009) found no differences in underestimation of weight between these groups. Additionally, Martin et al. (2009) found no differences in accuracy between Hispanic and White boys or Asians and Whites.

One possible source of inconsistency in these findings may be changes in adolescent males' assessment of their weight or body type preference over time. Because the operationalization of weight perception accuracy is consistent across these studies, another possibility is that these findings are inconsistent due to differences in the data analyzed. Brener et al. (2004) utilized the Youth Risk Behavior Survey, a convenience sample of high school students, and Park et al. (2011) analyzed the 2007 Minnesota Student Survey, which is not nationally representative. Martin et al. (2009) analyzed students in grades 7-12 during the 1995-1996 wave of Add Health, while Yang et al. (2014) analyzed data from only those 16-19 years old in the 2009-2010 National Health and Nutrition Examination Survey.

There is consistent evidence that girls are more likely to overestimate their weight than boys (Talamayan et al. 2006; Gee et al. 2012; Ibrahim et al. 2014). Analyses of girls' weight perception accuracy has also generally found that Black girls are more likely to underestimate and less likely to overestimate their weight than Whites (Brener 2004; Martin et al. 2009; Yost et al. 2010; Park 2011; Yang et al. 2014). This finding is robust over time and across study samples. However, differences in weight perception accuracy between Hispanic and White girls are less clear. At least one study has also found no differences in weight perception accuracy between White and Hispanic girls (Martin et al. 2009), while others have found that White girls are more accurate than Hispanics (Park 2011; Yang et al. 2014). The inconsistency of this finding may be the result of different sampling strategies. Martin et al. (2009) also found that Asian girls have greater odds of underestimation of weight than White girls.

Social comparison theory as a lens for incorporating school racial/ethnic context into weight perception accuracy

The research described above demonstrates how the combination of race/ethnicity and gender shapes adolescents' perceptions of their own weight. Lacking in previous research is a consideration of whether the racial/ethnic composition of adolescents' schools plays an important role in shaping how their own race/ethnicity and gender influence their perceptions of their own weight.

Social comparison theory suggests that it will. Festinger (1954) argued that individuals evaluate themselves by comparing themselves with others. Support for the use of social comparison among adolescents has been found across a range of outcomes, including weight attitudes and behaviors. Some studies ask respondents whether and how often they engage in comparison with others. These studies provide evidence that social comparisons shape self-esteem and weight loss strategies among adolescent males and females (Paxton et al. 1999; Morrison et al. 2004), women's body dissatisfaction and body image concerns (Paxton et al. 1999; Tiggemann and McGill 2000; Jones 2001), and disordered eating and dietary restraint (Paxton et al. 1999; Tylka and Sabik 2010). Furthermore, other studies find that adolescents are aware of and engage in comparisons with others over weight (Wertheim et al. 1996; Krayer et al. 2007).

Social comparison theory has also been applied to examine adolescents' weight attitudes and behaviors in the school context. Mueller and colleagues (2010) examined whether adolescent girls’ weight loss strategies were associated with the characteristics of the students in their school environments. The authors found that girl’s weight-loss strategies were associated with the weight-loss strategies of their schoolmates of the same weight status. In other words, overweight girls’ engagement in weight control practices is associated with the proportion of overweight girls who report engaging in weight control behaviors in their schools. This finding lends support to the notion that individuals compare themselves to others who share a trait that is important to the characteristic being compared.

This idea that individuals are more likely to compare themselves to others when fewer differences exist between the groups is another key component of social comparison theory (Festinger 1954). Race/ethnicity can therefore be a source of similarity that encourages comparison. There is evidence that body comparisons are generally made within one’s racial/ethnic group. Evans and McConnell (2003) found that Black women’s beauty comparisons were informed by their race. In that study, Black women did not identify with photographs of White women that were intended to emphasize White beauty standards. The authors argue that Black women may employ self-protective strategies that emphasize in-group similarities rather than comparisons across groups. They support their finding with the theoretical contributions of Crocker and Major (1989) who argue that members of stigmatized groups may be protected from some of the psychological effects of stigmatization by emphasizing within-group values rather than between-group differences. Evans and McConnell (2003) extend this argument to include beauty standards.

However, comparisons may encourage changes in behavior that can improve social desirability and reduce differences between the individual and the group of comparison (Festinger 1954). Additionally, an individual’s basis for comparison need not be stable across all contexts. The ability of non-White groups to identify with and maintain weight and body attitudes that align with their race/ethnicity may change depending on their social context. As the proportion of Whites in schools increases, non-White adolescents may not have as many possible comparison targets of the same race/ethnicity and may be more likely to compare themselves to Whites. Therefore, I expect to find that the weight perception accuracy of racial/ethnic groups will be increasingly similar to Whites as the proportion of White students in schools increases.

Hypotheses

Black adolescents exposed to larger proportions of White students may assess their weight more harshly than their racial/ethnic counterparts in schools with smaller proportions of Whites. White adolescents are more dissatisfied with their bodies (Parker et al. 1995) and more likely to engage in weight loss practices than other racial/ethnic groups (Neff et al. 1997), while Black adolescents have more positive body image than Whites (Siegel et al. 2002), favor heavier body types than Whites (Parnell et al. 1996), and have more flexible conceptions of beauty than Whites (Parker et al. 1995).

Some previous research suggests that Black boys are more likely to underestimate weight than Whites (Brener et al. 2004). Therefore, I hypothesize that that Black boys' odds of underestimation of weight will be significantly lower than that of Whites when the proportion of White students in schools is low, but that this gap will decrease as the proportion of White students increases. Given that an increase in the odds of underestimation must be offset by a decrease in the combined odds of accurate estimation and overestimation, it is possible that Black boys' odds of overestimation will decrease as the proportion of Whites increases. However, prior literature does not find significant differences between Black and White boys' odds of overestimation. I thus hypothesize that Black boys' odds of overestimation will not vary compared to that of Whites as the proportion of White students increases.

Prior literature finds that Black girls are more likely to underestimate weight and less likely to overestimate weight than Whites (Brener 2004; Martin et al. 2009; Yost et al. 2010; Park 2011; Yang et al. 2014). Because I argue that weight perceptions are informed by social comparisons, I hypothesize that Black girls' odds of underestimation will decrease as the proportion of White students in schools increases. I also hypothesize that Black girls' odds of overestimation will simultaneously increase as the proportion of Whites increases. I therefore expect that the gap between Black and White girls in the odds of underestimation and overestimation will close as the proportion of Whites increases. This suggests a tradeoff of one form of weight perception inaccuracy for another based on school racial composition: schools with smaller proportions of White students are protective against overestimation, while schools with larger proportions of White students are protective against underestimation.

Previous studies have produced inconsistent findings regarding differences in underestimation and overestimation of weight between Hispanics and Whites. It is therefore difficult to predict whether Hispanics' and Whites' weight perception accuracy are similar as the proportion of White students varies. The null hypothesis suggests that Hispanic adolescents' weight perception accuracy does not vary by the proportion of White students in schools. This hypothesis is consistent with research that finds no differences in body image or body type preference between Hispanics and Whites (Siegel et al. 1999; Ricciardelli et al. 2007). Alternatively, Hispanics' odds of underestimation and overestimation may resemble those of Blacks when accounting for school racial composition: there is some evidence that Hispanics, like Blacks, hold weight attitudes that are less concerned with excess weight and more accepting of larger body types than Whites (Dounchis et al. 2001; Ricciardelli et al. 2007). In that case, my hypotheses for Hispanic boys and girls mirror those of Black adolescents described above. I expect to find that Hispanic boys' odds of underestimation will be lower than that of White boys when the proportion of White students in schools is low but that this gap will decrease as the proportion of Whites in schools increases. I hypothesize that Hispanic girls' odds of underestimation will be higher than that of Whites when the proportion of White students is low but that the odds of underestimation for these groups will be increasingly similar as the proportion of Whites increases. I also expect to find that Hispanic girls' odds of overestimation will be lower than that of Whites when the proportion of Whites in schools is low but that this gap will decrease as the proportion of Whites in schools increases.

DATA AND METHODS

Sample

I analyze data from Wave I of the National Longitudinal Study of Adolescent to Adult Health (Add Health), a longitudinal, nationally representative, school-based sample of adolescents in grades 7 through 12 from 134 public and private schools (Harris et al. 2013). Wave I of Add Health (1994-1995) sampled 90,118 students across 134 schools for an in-school interview. After completing the in-school questionnaire, 20,745 students were also interviewed in greater depth at home. Roughly 15,000 of those respondents were interviewed again in subsequent waves in 1996, 2001-2002, and 2007-2008. I draw from data in the Wave I school, home, parent, and school administrator surveys to test my hypotheses. I exclude those who did not participate in the school questionnaire (N = 5,389), those without a valid sample weight (N = 745), and female adolescents who were pregnant in 1994 or 1995 (N = 336). I also exclude adolescents who consistently identified their race/ethnicity as "Native American/Other" on the in-school and in-home questionnaire due to their small sample size (N = 157). When they were retained in statistical models, the interaction between this racial/ethnic category and the percentage of White students in schools became unstable and uninterpretable, but results present here were not significantly different from models that retained these 157 cases (results available upon request). My final analytic sample therefore includes 13,994 respondents (6,936 male and 7,058 female).

I used multiple imputation to replace missing data on all analytic variables using the "mi chained impute" command in Stata SE 13.1. Multiple imputation estimates missing data by iteratively replacing it with predicted values based on respondents' available data for other variables while taking into account random elements that may lead missing data to deviate from established patterns in the data, thus creating multiple complete datasets (Allison 2001). I average empirical results across ten imputation samples and account for random variation across samples to calculate standard errors (Royston 2011). Most variables have little missing data, but 44% of cases had missing data on at least one study variable, and a few analytic variables derived from parent surveys had particularly high levels of missing data (e.g. family income=25% and generational status = 20%).

Measures

Accuracy of weight perceptions

I operationalize accuracy of weight perceptions using Wave I indicators of height and weight, which I use to construct body mass index (BMI) categories and adolescent weight perceptions.

I use Centers for Disease Control and Prevention (CDC) guidelines for utilizing height and weight to created age and sex adjusted BMI percentiles. I then use the same CDC guidelines to classify adolescents as underweight (BMI $< 15^{th}$ percentile), normal weight (5^{th} percentile ≤ BMI $<85^{th}$ percentile), and overweight or obese (BMI $\geq 85^{th}$ percentile) (Ogden et al. 2002).

Weight perceptions were assessed by asking respondents at Wave I "How do you think of yourself in terms of weight?" Response options include "very underweight", "slightly underweight", "about the right weight", "slightly overweight", and "very overweight". I collapse these responses into three categories: "underweight," "about the right weight," and "overweight" similar to previous research on weight perception accuracy (e.g. Martin et al. 2009).

Weight categories and weight perception categories are then used to create a variable that indicates concordance between the two. Adolescents who perceive their actual weight classification as lower than their reported weight are classified as underestimating their weight. Respondents whose weight perceptions align with their actual weight classification are classified as accurately estimating their weight. Finally, adolescents whose weight perceptions are heavier than their weight classification are coded as overestimating their weight.

Race/ethnicity

Respondents were asked to self-identify racial and ethnic identity in both the school and home questionnaires at Wave 1. I follow Add Health guidelines and classify respondents' self-reported race/ethnicity in both questionnaires as either Hispanic (any race), non-Hispanic Black, non-Hispanic Asian, or non-Hispanic White (the reference category). I then compared the two indicators of race/ethnicity reported at school and at home because previous research indicates that racial/ethnic identification is not consistent between the Add Health school and home questionnaires, especially for those who identify as Hispanic at school (Perez 2008). Respondents who reported an inconsistent racial/ethnic identity are classified in a separate category because school racial/ethnic context may have a different meaning, especially for perceptions of weight, for those who report different racial/ethnic classifications in different social contexts.

In supplementary analyses I also included another racial/ethnic classification that indicated whether Add Health respondents reported more than one racial/ethnic identification. Supplementary analyses that account for reports of multiple racial/ethnic classifications were substantively and statistically similar to results presented here. I also estimated supplementary analyses that classified Hispanic adolescents into subcategories indicating that they were of Mexican, Central and South American, or mixed or of another Hispanic background. Results from these models suggested that sub-groups of Hispanic adolescent boys and girls had similar perceptions of their weight, and as a result, findings from models with this level of detail produced results substantively and statistically similar to results shown here.

Proportion of White students in schools

I operationalize the proportion of non-Hispanic White students in schools by aggregating data from the school questionnaire asking students their race/ethnicity. Note that this variable was constructed by aggregating up all responses from the school surveys and not simply from the subsample of Add Health respondents in my study. In supplementary models, I created an analogous variable from the in-home reports of race/ethnicity. These measures are highly correlated, and supplementary analyses using this alternate construct are substantively and significantly similar to the findings presented here.

Control variables

I control for several confounders in multivariate models. Individual-level confounders include adolescents' age at Wave I (measured in years), generational status, grade point average (GPA), athletic involvement, parental obesity, average parental education, and family income. Generational status is derived by combining measures of adolescent and parental nativity. Adolescents are categorized as 1st generation immigrants if they reported that they were born outside the U.S. and were not U.S. citizens. Adolescents with U.S. citizenship but at least one parent who was not a U.S. citizen are considered to be 2nd generation. Adolescents with citizenship and native-born parents are 3rd generation (the reference category). GPA is the average of adolescent reports of grades across the core subjects of mathematics, social studies, science, and language arts. Athletic involvement is a dichotomous measure describing whether adolescents reported that they participated in an organized school sport, exercised, or played an active sport five or more times a week. Parental obesity is constructed from parent reports of maternal and paternal obesity. It is a series of four dummy variables indicating that neither parent is obese (the reference category), only the mother is obese, only the father is obese, or both parents are obese. Parental education is the average level of education of the adolescent's parents as reported in the parental questionnaire. It ranges from 1 (neither parent attended school) to 8 (both parents attended post-college education). Family income is operationalized as the log of the family's income for 1994-1995 as reported in the parental questionnaire.

I also adjust multilevel models for school-level characteristics, including the proportion of female students in a respondent's school, the proportion of overweight students in a respondent's school, average parental education within a respondent's school, average family income within a respondent's school, the school's size, the school's regional location, and the school's urbanicity. Most school-level control variable were assessed by aggregating all responses to the in-home questionnaire (the proportion of female students, proportion of overweight students, average parental education, and average family income). School size, school region, and urbanicity were reported by school administrators.

Analytic strategy

I begin by discussing the descriptive characteristics of my analytic sample in Table 1. I then estimate a sequence of multilevel multinomial logistic regression models to estimate the relationship between race/ethnicity and whether adolescents underestimate, accurately estimate, or overestimate their weight. This method allows me to estimate the odds of my categorical dependent variable while accounting for the multilevel nature of the data and my study variables. I use HLM 7.0 to estimate weighted statistical models to account for non-independence of students within the same school and adjust standard errors for within-group (defined as schools) and between-group variance. All control variables are grand mean centered.

Models are estimated separately for boys (Tables 2) and girls (Tables 3). Model 1 contains all individual-level control variables to demonstrate how weight perception accuracy differs by race/ethnicity before accounting for school-level characteristics. In Model 2, I add the proportion of White students in schools and the cross-level interaction between adolescent's reported race/ethnicity and the proportion of White students in schools. Model 2 therefore allows me to estimate how the proportion of White students in schools moderates the relationship between race/ethnicity and weight perception accuracy. Finally, in Model 3, I add all other school-level controls to determine whether these characteristics explain any estimated effects observed in Model 2. I also estimate a null model (not shown) without any variables to determine the extent that underestimation or overestimation of weight vary across schools

Note that in models shown here, the reference category for race/ethnicity is non-Hispanic, White. In supplementary analyses, I switched out the reference category for race/ethnicity so that I can report all significant racial/ethnic differences in weight perception accuracy. I denote these differences using superscripts.

RESULTS

Descriptive statistics of my analytic sample

I begin by presenting characteristics of my analytic sample (Table 1). A higher proportion of boys underestimate weight than girls (29% versus 13%). Likewise, a larger proportion of girls overestimate weight than boys (22% versus 6%). The majority of my sample members are White (44%), followed by Black (20%), Hispanic (17%), Asian (7%), and inconsistent in reporting race/ethnicity (12%). On average, adolescents in my sample attend schools which are 49% White. However, this variable ranges from 0% to 95% White.

Race/ethnicity, school racial/ethnic context, and adolescent boys' odds of weight under- and overestimation

I begin by discussing results for adolescent boys. My multinomial logistic regression models estimate the odds of underestimation and overestimation of weight versus the reference category of accurately estimating weight. Estimates of how covariates predict underestimation of weight (versus accurate weight perceptions) are shown in Panel 1 of Table 2 while estimates of how covariates predict overestimation of weight (versus accurate weight perceptions) are shown in Panel 2 of Table 2.

I begin by discussing results from models predicting boys' odds of underestimation versus accurate estimation of weight (henceforth "underestimation"). Results from the null model (not shown) suggest that there are significant differences in the odds of underestimation between schools, with a residual school-level variance of .067. Model 1 of Table 2 provides estimates of racial/ethnic differences in underestimation net of individual-level confounders. This model allows me to assess whether my results replicate the work of prior studies that

Table 1. Descriptive Statistics of the Analytic Sample, Averaged Across All Imputed Datasets

	Mean (SD) or Percent					
	All		Boys		Girls	
Individual-level variables (Level 1)						
Race/ethnicity						
White	44%		44%		45%	
Black	20%		18%		21%	
Hispanic	17%		18%		16%	
Asian	7%		8%		6%	
Inconsistent	12%		13%		12%	
Weight perception accuracy						
Underestimation	21%		29%		13%	
Accurate Estimation	65%		65%		66%	
Overestimation	14%		6%		22%	
Age (years)	15.6	(1.7)	15.7	(1.7)	15.5	(1.7)
Mean parental education	5.1	(1.6)	5.1	(1.6)	5.1	(1.6)
Family income (logged)	9.9	(1.7)	9.9	(1.7)	9.9	(1.7)
GPA	2.8	(0.8)	2.7	(0.8)	2.9	(0.8)
Generation Status						
3rd+	71%		70%		71%	
2nd	11%		11%		10%	
1st	19%		18%		19%	
Parental obesity						
Neither obese	78%		78%		77%	
Mother obese	13%		13%		13%	
Father obese	4%		4%		4%	
Both obese	5%		5%		5%	
Athletic	70%		75%		65%	
School-level variables (Level 2)						
Proportion White	49%	(0.3)	49%	(0.3)	49%	(0.3)
Proportion female	50%	(0.1)	49%	(0.1)	50%	(0.1)
Mean parental education	5.0	(0.7)	5.0	(0.7)	5.1	(0.7)
Mean family income (logged)	10.0	(0.5)	10.0	(0.5)	9.9	(0.5)
Proportion overweight	24%	(0.1)	24%	(0.1)	24%	(0.1)
Urbanicity						
Rural	17%		17%		17%	
Suburban	54%		54%		54%	
Urban	29%		29%		30%	
Region						
Northeast	16%		17%		16%	
Midwest	22%		22%		23%	
South	39%		39%		39%	
West	22%		22%		22%	
Size						
Small	14%		13%		15%	
Medium	38%		37%		38%	
Large	48%		49%		47%	
N	13,994		6,936		7,058	

Source: National Longitudinal Study of Adolescent to Adult Health, Wave I examined racial/ethnic differences in weight perception accuracy. Results from Model 1 show no significant differences in the odds of underestimation between boys from different racial/ethnic groups. While some studies find significant differences in underestimation between White and Black boys (Brener et al. 2004), my findings are consistent with prior research that utilizes the same sample of adolescents in Add Health (Martin et al. 2009). For boys, there are no racial/ethnic differences in the odds of weight underestimation.

To assess whether the relationship between race/ethnicity and weight underestimation varies based on the racial composition of the school, Model 2 adds a variable indicating the proportion of White students in schools as well as the cross-level interaction term between individual race/ethnicity and the proportion of White students in schools. In this model, the coefficient representing the proportion of White students is positive but not significant. The coefficient for the interaction between Hispanic ethnicity and the proportion of Whites is negative and significant, as are coefficients representing the interactions between the proportion of Whites in schools and individual-level reports of being Asian or inconsistently reported race/ethnicity. These findings suggest that, compared to White adolescent boys, all boys from different racial/ethnic backgrounds except for Blacks evaluate their weight differently as the proportion of White students in schools increases. To ensure that these findings are not the result of other school-level characteristics, I add school-level confounders in Model 3. The estimated effects of all components of the cross-level interaction (individual-level race dummy variables, the proportion of White students in schools, and the cross-level interaction terms) are largely unchanged, although the coefficient for the interaction between reports of being Asian and the percentage of White students in schools moves just outside of the bounds of statistical significance ($p<.06$) and the magnitude of the coefficient for the variable indicating the

Table 2. Multinomal Logistic Regression Models Predicting Whether Adolescent Males Underestimate or Overestimate Their Weight (Versus Have Accurate Weight Perceptions)

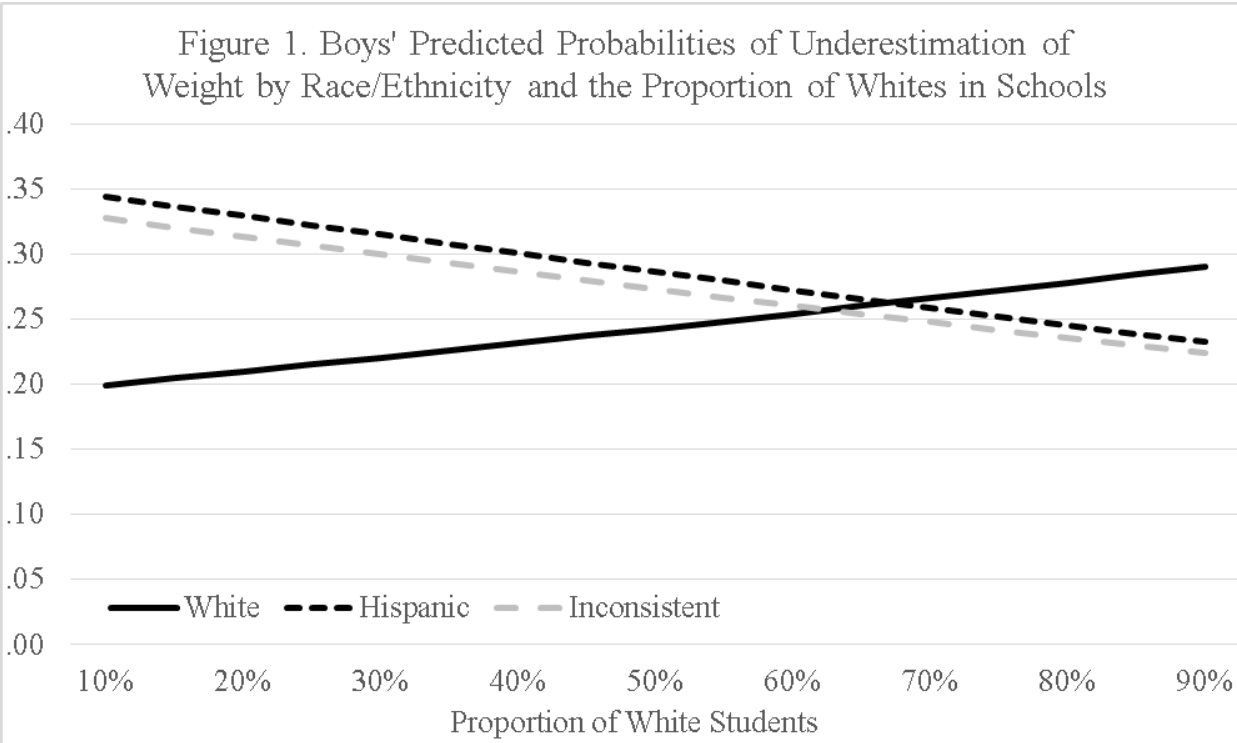
	Panel 1: Underestimate (Versus Accurate Estimation) of Weight			Panel 2: Overestimation (Versus Accurate Estimation) of Weight		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	-0.905 (0.06) ***	-1.196 (0.22) ***	-1.312 (0.23) ***	-2.217 (0.10) ***	-2.013 (0.30) ***	-1.882 (0.33) ***
Individual-level variables (Level 1)						
Race/Ethnicity (reference = White)						
Black	0.155 (0.11)	0.512 (0.26) †	0.471 (0.29) †	-0.520 (0.22) * c	-0.028 (0.38)	0.078 (0.39)
Hispanic	0.200 (0.13)	0.892 (0.28) **	0.885 (0.28) **	-0.008 (0.23)	0.088 (0.49)	0.106 (0.49)
Asian	0.197 (0.18)	0.912 (0.31) **	0.901 (0.32) **	0.314 (0.41) a	0.925 (0.66)	0.858 (0.67)
Inconsistent	-0.001 (0.12)	0.775 (0.33) *	0.763 (0.33) *	-0.010 (0.21)	-0.353 (0.49)	-0.334 (0.50)
Age (years)	0.001 (0.02)	0.001 (0.02)	-0.007 (0.02)	0.059 (0.04)	0.064 (0.04)	0.054 (0.04)
Mean parental education	0.027 (0.03)	0.033 (0.03)	0.040 (0.03)	0.097 (0.05) †	0.097 (0.05) †	0.099 (0.06) †
Family income (logged)	-0.018 (0.03)	-0.018 (0.03)	-0.010 (0.03)	0.046 (0.06)	0.044 (0.06)	0.037 (0.06)
GPA	0.006 (0.05)	0.007 (0.05)	0.011 (0.05)	-0.141 (0.10)	-0.142 (0.10)	-0.143 (0.10)
Generation Status (reference = 3rd+)						
2nd	0.023 (0.15)	-0.029 (0.15)	-0.018 (0.15)	0.033 (0.29)	0.031 (0.30)	-0.009 (0.31)
1st	-0.163 (0.17)	-0.195 (0.16)	-0.184 (0.17)	0.141 (0.33)	0.147 (0.33)	0.113 (0.33)
Parental Obesity (reference = neither)						
Mother obese	-0.464 (0.14) ***	-0.469 (0.13) ***	-0.473 (0.14) ***	-0.228 (0.24)	-0.223 (0.24)	-0.216 (0.24)
Father obese	-0.156 (0.22)	-0.145 (0.23)	-0.148 (0.23)	0.555 (0.25) *	0.567 (0.26) *	0.572 (0.26) *
Both parents obese	-0.470 (0.17) **	-0.464 (0.17) **	-0.477 (0.17) **	-0.239 (0.32)	-0.238 (0.32)	-0.237 (0.33)
Athletic	0.172 (0.09) *	0.166 (0.09) †	0.177 (0.09) *	-0.299 (0.16) †	-0.277 (0.16) †	-0.295 (0.16) †
School-level variables (Level 2)						
Proportion White		0.375 (0.30)	0.551 (0.33) †		-0.326 (0.44)	-0.743 (0.49)
Proportion female			-0.158 (0.39)			0.831 (0.69)
Mean parental education			0.000 (0.08)			-0.316 (0.14) *
Mean family income (logged)			-0.199 (0.11) †			0.179 (0.20)
Proportion overweight			0.555 (0.54)			-4.633 (1.35) ***
Urbanicity (reference = Rural)						
Suburban			0.045 (0.11)			0.092 (0.22)
Urban			-0.041 (0.14)			-0.120 (0.27)
Region (reference = Northeast)						
Midwest			0.093 (0.14)			-0.144 (0.24)
South			0.080 (0.11)			-0.182 (0.20)
West			0.091 (0.16)			-0.328 (0.24)
Size (reference = Small)						
Medium			0.217 (0.10) *			0.377 (0.21) †
Large			0.295 (0.13) *			0.013 (0.21)
Cross-Level Interaction (Level 1*Level 2)						
Individual Race/Ethnicity (L1) * School Proportion White (L2)						
Black * Proportion White		-0.528 (0.46)	-0.455 (0.50)		-2.188 (0.75) ** d	-2.421 (0.81) ** d
Hispanic * Proportion White		-1.374 (0.52) **	-1.338 (0.53) *		-0.365 (1.02)	-0.410 (1.00)
Asian * Proportion White		-1.584 (0.78) *	-1.507 (0.78) †		-2.171 (1.30) †	-2.171 (1.38)
Inconsistent * Proportion White		-1.249 (0.49) *	-1.222 (0.49) *		0.569 (0.73) a	0.542 (0.74) a
Variance between schools	0.063 ***	0.063 ***	0.053 ***	0.277 ***	0.284 ***	0.143 ***

N = 6,936

Source: National Longitudinal Study of Adolescent to Adult Health, Wave I

*** p<.001, ** p<.01, * p<.05, †<.06

a = significantly different from Black, b = significantly different from Hispanic, c = significantly different from Asian, d = significantly different from Inconsistent proportion of White students in schools is slightly larger and also now marginally significant. While there is still significant variation in underestimation between schools, Model 3 accounts for 20% of the school-level variance.



To ease the interpretation of results from Model 3, I graphed the relationship between individual-level race/ethnicity and the probability of underestimating weight as the proportion of White students in schools increases (Figure 1). This graph displays the predicted probabilities of weight underestimation for White, Hispanic, and inconsistent boys on the vertical axis when all control variables in Model 3 are held that their mean values. For White boys, represented by the solid black line, the racial/ethnic composition of schools has a weak but positive effect on the probability of underestimating weight. Conversely, the dotted black line representing Hispanic boys indicates that their predicted probability of underestimating weight decreases as the proportion of Whites in schools increases. The dotted gray line, representing boys who inconsistently report race/ethnicity in the in-home and school survey, is nearly identical to that of

Hispanics in slope and follows a similar pattern. Both Hispanic and inconsistent boys have greater probabilities of underestimating weight than Whites when 10% of a school's students are White. However, the predicted probabilities of underestimating weight for Whites, Hispanics, and the inconsistent reporters of race/ethnicity converge and eventually cross as the proportion of Whites in schools increases.

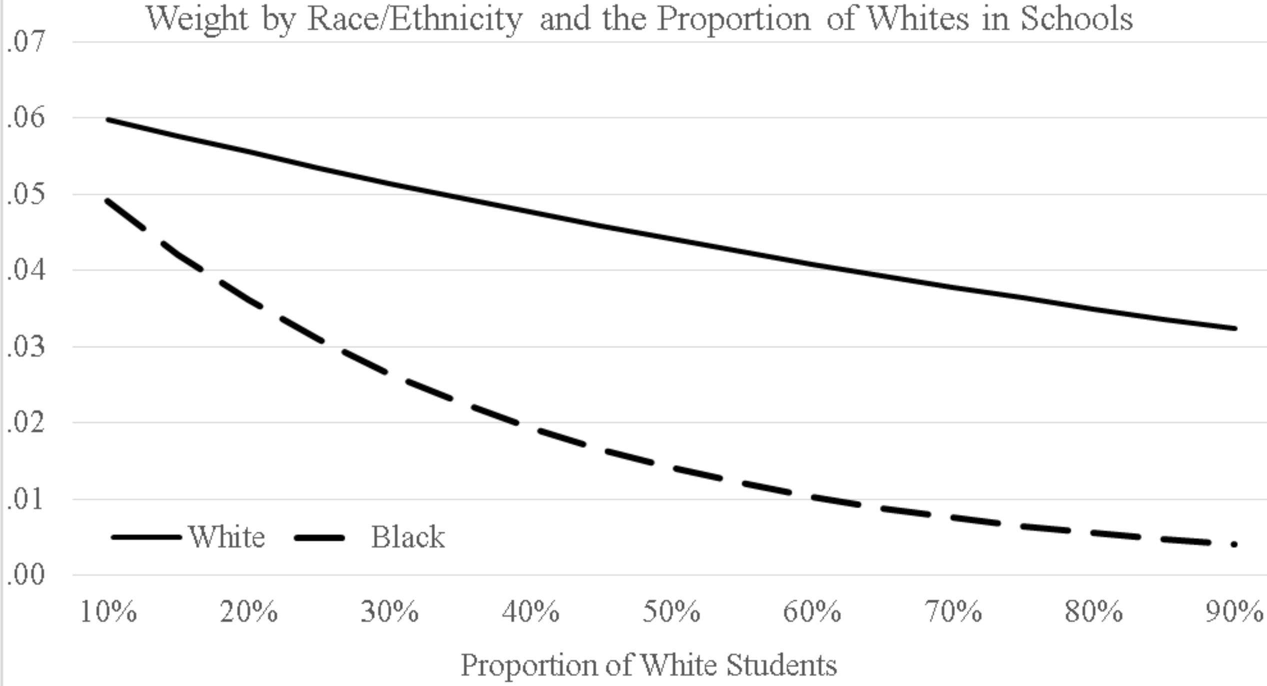
I now turn to boys estimates of overestimation versus accurate estimation of weight (henceforth "overestimation") in Panel 2 of Table 2. Results from the null model (not shown) suggest that there are significant differences in the odds of overestimation between schools, with a residual variance of .248. Estimates from Model 1 suggest that Black boys have roughly 40% lower odds of weight overestimation than White boys when controlling for all individual-level confounders (OR = .59, $p<.05$). This is consistent with prior research using Add Health (Martin et al. 2009). The superscripts in Model 1 represent differences in overestimation of weight between racial/ethnic groups when I switch out the reference category in supplementary models. They suggest that Black boys also have significantly lower odds of overestimation than Asians.

Estimates in Model 2 assess whether the relationship between adolescent boys' race/ethnicity and overestimation of weight is moderated by the proportion of White students in schools. The level 1 coefficient for Black boys suggests that there is no significant difference in the odds of overestimation between Black and White boys when the proportion of Whites in schools is 0. However, the coefficient representing the interaction between being Black and the proportion of Whites in schools is large and negative. This indicates that Black boys' odds of overestimation decrease compared to that of White boys as the proportion of Whites in schools increases. The superscripts denote significant differences the way that adolescent boys who are

Black and those who report an inconsistent race across the in-school and in-home survey overestimate weight as the proportion of White students in schools increases.

In Model 3, when controlling for other possible school-level confounders of overestimation of weight, results remain essentially unchanged from Model 2. This model explains roughly 42% of level 2 variance. Results from this model are graphed in Figure 2. The slope of White boys, represented by the solid black line, is slightly negative. In contrast, the slope for Black boys, represented by the dashed black line, is negative but much steeper. When the proportion of Whites in a school is low, Black boys odds of overestimation are similar to that of Whites. However, as the proportion of Whites in schools increases, the gap in overestimation between Blacks and Whites grows such that Blacks have substantially lower odds of overestimation than Whites when 90% of a school's population is White.

Figure 2. Boys' Predicted Probabilities of Overestimation of Weight by Race/Ethnicity and the Proportion of Whites in Schools



Race/ethnicity, school racial/ethnic context and adolescent girls' odds of weight under- and overestimation

I now turn to results from models predicting adolescent girls' odds of underestimation versus accurate estimation of weight in Panel 1 of Table 2. Results from the null model (not shown) suggest that there are significant differences in the odds of underestimation between schools, with a residual variance of .166. Estimates from Model 1 suggest that Black girls' odds of underestimation are roughly twice that of White girls (OR = 2.05, p<.001), Hispanic girls have roughly 65% greater odds of underestimation than Whites (OR = 1.65, p<.05), and Asian girls' odds of underestimation are roughly 2.3 times as large as that of Whites (OR = 2.27, p<.01). This is largely consistent with Martin et al. (2009) with the exception of the coefficient for Hispanics. While Martin and colleagues (2009) did not find that White and Hispanic girls' odds of underestimation were significantly different, my finding of a significant difference may be due to the fact that I account for consistency of racial/ethnic identity between the home and school surveys. Some individuals who reported Hispanic ethnicity at home did not also report being Hispanic at school and are therefore categorized as inconsistent. The superscripts in Model 1 suggest that Black and Asian girls also have significantly higher odds of underestimation than inconsistent girls in models where the reference category is switched out.

Estimates in Model 2 assess whether the relationship between girls' individual race/ethnicity and underestimation of weight is moderated by the proportion of White students in schools. While the level 1 coefficients suggest that Black and Hispanic girls have higher odds of underestimation than Whites when the proportion of Whites in schools is low, there are no significant differences in the coefficients that represent the interaction between individual race/ethnicity and the proportion of White students in schools. Furthermore, these results remain

Table 3. Multinomal Logistic Regression Models Predicting Whether Adolescent Females Underestimate or Overestimate Their Weight (Versus Have Accurate Weight Perceptions)

	Panel 1: Underestimate (Versus Accurate Estimation) of Weight			Panel 2: Overestimation (Versus Accurate Estimation) of Weight		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	-2.041 (0.09) ***	-1.972 (0.32) ***	-2.048 (0.33) ***	-1.137 (0.07) ***	-1.340 (0.26) ***	-1.250 (0.29) ***
Individual-level variables (Level 1)						
Race/Ethnicity (reference = White)						
Black	0.718 (0.12) *** d	0.677 (0.33) *	0.658 (0.35) †	-0.220 (0.13) † b	-0.511 (0.27) †	-0.530 (0.29) †
Hispanic	0.500 (0.21) *	0.761 (0.38) *	0.772 (0.37) *	0.300 (0.17) † a	0.502 (0.32)	0.490 (0.33)
Asian	0.824 (0.26) ** d	0.570 (0.45)	0.640 (0.45)	0.200 (0.21)	0.525 (0.36)	0.511 (0.36)
Inconsistent	0.231 (0.15) ac	0.612 (0.42)	0.603 (0.42)	-0.103 (0.15)	0.015 (0.38)	0.012 (0.40)
Age (years)	-0.063 (0.03) †	-0.061 (0.03) †	-0.047 (0.04)	0.096 (0.03) ***	0.093 (0.02) ***	0.095 (0.03) ***
Mean parental education	0.016 (0.04)	0.019 (0.04)	0.033 (0.04)	0.027 (0.03)	0.030 (0.03)	0.026 (0.03)
Family income (logged)	-0.013 (0.04)	-0.014 (0.04)	-0.006 (0.04)	0.047 (0.04)	0.046 (0.04)	0.041 (0.04)
GPA	-0.061 (0.08)	-0.056 (0.08)	-0.061 (0.08)	-0.069 (0.06)	-0.068 (0.06)	-0.070 (0.06)
Generation Status (reference = 3rd+)						
2nd	-0.152 (0.20)	-0.206 (0.21)	-0.223 (0.20)	0.233 (0.18)	0.239 (0.18)	0.236 (0.18)
1st	0.095 (0.19)	0.078 (0.19)	0.081 (0.19)	0.202 (0.17)	0.209 (0.17)	0.205 (0.18)
Parental Obesity (reference = neither)						
Mother obese	-0.434 (0.18) *	-0.431 (0.18) *	-0.446 (0.18) *	0.093 (0.14)	0.091 (0.14)	0.096 (0.14)
Father obese	-0.873 (0.39) *	-0.873 (0.39) *	-0.864 (0.39) *	0.203 (0.22)	0.204 (0.22)	0.197 (0.22)
Both parents obese	-0.236 (0.29)	-0.227 (0.29)	-0.257 (0.30)	-0.341 (0.21)	-0.345 (0.21)	-0.333 (0.21)
Athletic	0.072 (0.11)	0.077 (0.11)	0.074 (0.11)	0.062 (0.09)	0.055 (0.09)	0.046 (0.09)
School-level variables (Level 2)						
Proportion White		-0.110 (0.42)	0.043 (0.46)		0.313 (0.36)	0.143 (0.40)
Proportion female			1.405 (1.17)			-0.336 (0.83)
Mean parental education			-0.008 (0.11)			-0.010 (0.10)
Mean family income (logged)			-0.027 (0.13)			-0.026 (0.14)
Proportion overweight			1.459 (0.81) †			-1.532 (0.84) †
Urbanicity (reference = Rural)						
Suburban			-0.041 (0.16)			-0.023 (0.16)
Urban			-0.034 (0.19)			-0.077 (0.17)
Region (reference = Northeast)						
Midwest			-0.407 (0.18) *			-0.156 (0.17)
South			-0.193 (0.16)			-0.123 (0.16)
West			-0.163 (0.19)			-0.122 (0.17)
Size (reference = Small)						
Medium			-0.089 (0.16)			-0.144 (0.15)
Large			-0.137 (0.20)			-0.243 (0.14) †
Cross-Level Interaction (Level 1*Level 2)						
Individual Race/Ethnicity (L1) * School Proportion White (L2)						
Black * Proportion White		0.011 (0.54)	0.100 (0.57)		1.010 (0.49) * bc	1.038 (0.51) * bcd
Hispanic * Proportion White		-0.870 (1.06)	-0.913 (0.92)		-0.354 (0.54) a	-0.358 (0.56) a
Asian * Proportion White		0.747 (0.86)	0.700 (0.86)		-0.749 (0.79) a	-0.758 (0.79) a
Inconsistent * Proportion White		-0.708 (0.60)	-0.673 (0.60)		-0.166 (0.56)	-0.166 (0.57) a
Variance between schools	0.073	0.072 ***	0.049 ***	0.121 ***	0.110 ***	0.094 ***

N = 7,058

Source: National Longitudinal Study of Adolescent to Adult Health, Wave I

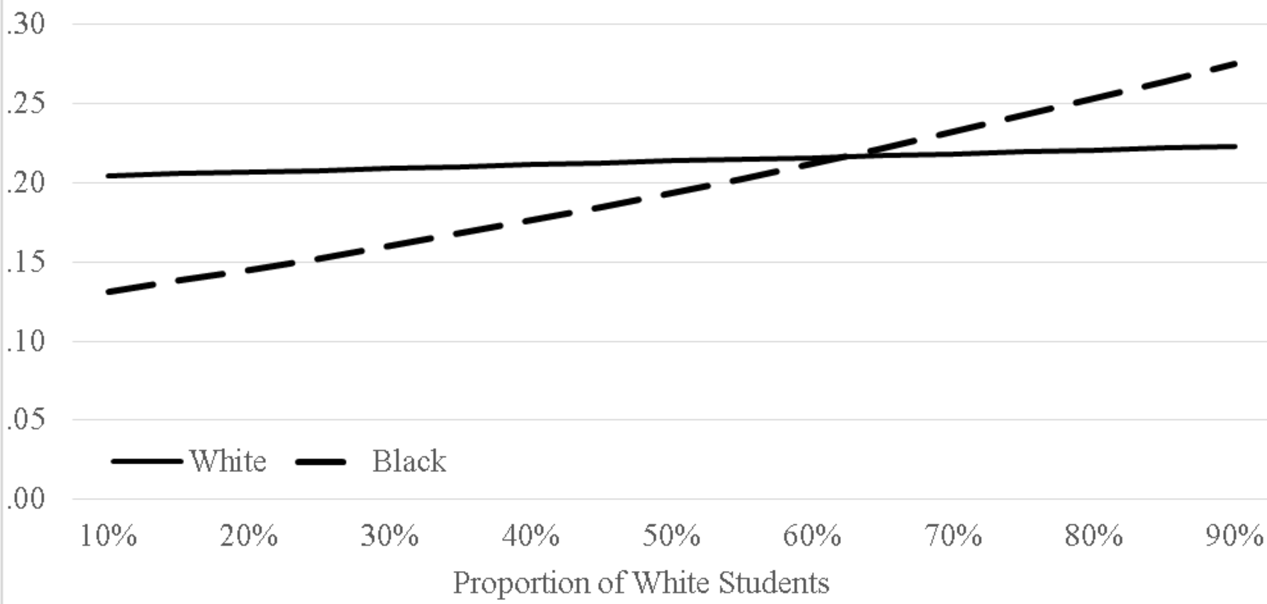
*** p<.001, ** p<.01, * p<.05, †<.06

a = significantly different from Black, b = significantly different from Hispanic, c = significantly different from Asian, d = significantly different from Inconsistent unchanged when other school-level confounders are included in Model 3. While Black, Hispanic, and Asian girls have significantly higher overall odds of underestimation of weight than White girls, these results suggest that this relationship is not moderated by the proportion of Whites in schools. However, Model 3 accounts for a substantial 72% of level 2 variance in underestimation between schools.

Finally, in Panel 2 of Table 2 I show results from models that predict girls' odds of overestimation versus accurate estimation of weight. Results from the null model (not shown) suggest that there are significant differences in the odds of overestimation between schools, with a residual variance of .144. Estimates from Model 1 suggest that there are no significant differences in overestimation of weight between Whites and any other group at the $p<.05$ level. This contrasts with a multitude of previous studies (Brener 2004; Martin et al. 2009; Yost et al. 2010; Park 2011; Yang et al. 2014) that found that Black girls are less likely to overestimate than White girls. Model 1 suggests that Black girls have roughly 20% lower odds of overestimation than White girls ($p<.06$). In supplementary models which do not account for inconsistency of racial/ethnic reporting, this coefficient is significant at the $p<.05$ level, consistent with the previous studies listed above. Black girls also have significantly lower odds of overestimation than Hispanic girls.

Estimates in Model 2 assess whether the relationship between individual race/ethnicity and overestimation of weight is moderated by the proportion of White students in schools. The coefficient representing the interaction between girls reporting that they are Black and the proportion of White students in schools is significant and positive. This suggests that Black girls' odds of overestimation increase compared to that of White girls as the proportion of Whites in schools increases. This same interaction term is also significantly different than that of the interactions between reporting Hispanic or Asian ethnic identity and the proportion of White students in schools. When adding other school-level characteristics in Model 3, results remain unchanged from Model 2. Model 3 explains 35% of school-level variance in overestimation of weight. White and Black girls' predicted probabilities of overestimation of weight are displayed in Figure 3. As suggested by the interaction term in Model 3, White girls' predicted probability of weight overestimation is largely flat as the proportion of White girls in schools increases. However, for Black girls, the predicted probability of weight overestimation is lower than that of Whites when the proportion of Whites in schools is low, but the gap between these groups decreases as the proportion of Whites in schools increases until eventually Black girls' predicted probability of weight overestimation surpasses that of Whites.

Figure 3. Girls' Predicted Probabilities of Overestimation of Weight by Race/Ethnicity and the Proportion of Whites in Schools



DISCUSSION

The goal of this study was to examine whether adolescents' weight perception accuracy is influenced by their school contexts. Specifically, I assessed whether the relationship between students' race/ethnicity and weight perception accuracy is moderated by the proportion of White students in their schools. Using social comparison theory, I argued that adolescents' weight perceptions are influenced by the racial composition of their schools because it shapes who they compare their weight to and how those comparisons lead adolescents to perceive their weight. My findings provided support for social comparison theory for adolescent boys and girls from some racial/ethnic groups, although I did find that school racial contexts were an important moderator of the way that race/ethnicity was related to perceptions of actual weight.

I found strong support for social comparison theory when estimating how a schools' racial/ethnic context moderates Black (versus White) girls' odds of weight overestimation. Black girls' odds of weight overestimation increase and become more similar to the odds of White girls as the proportion of White students in schools increases. In fact, at a tipping point, Black girls' predicted probability of overestimating their weight actually surpasses that of White girls, suggesting that Black girls may very well internalize the strong expectations for leanness generally held by White girls when their reference group for weight includes more White students.

More limited support for social comparison theory was also found in results suggesting that Black boys are also less likely to overestimate weight as the proportion of white students in their schools increased. That said, their probability of weight overestimation versus accurate estimation is reduced more than that of White peers as the proportion of Whites in schools increases when models are adjusted for individual-level and school-level controls. Social comparison theory suggests that I should have found the opposite trend for Black boys: if Black boys in schools with larger proportions of White students have pools of comparison targets that are largely White, we might expect their odds of overestimation to resemble that of Whites in those schools. While this suggests that student populations that are increasingly White are protective of overestimation in Black boys, it does not align with my argument that posited that the odds of overestimation should be similar between Black and White boys in schools with larger proportions of White students. It is unclear why having a larger comparison group of White students would have a more substantial influence on Black versus White boys.

In models predicting boys' perceptions of their own weight, I also found that the proportion of White students in a school moderates the estimated relationship between race/ethnicity and under- versus accurate estimation of weight. The predicted probability of underestimation decreased as the proportion of Whites in schools increases among Asian boys, Hispanic boys and boys with inconsistent reports of race/ethnicity at home and school, while White boys saw an increase in their probability of underestimating weight that is marginally significant (as indicated by the coefficient for the estimated effect of the proportion of White students in schools; $p < .06$). The fact that the odds of weight underestimation go in opposite directions for Hispanics, Asians, and boys whose racial/ethnic identity was inconsistent versus White boys as the proportion of White students suggests that social comparisons may not be the explanation for the reason why school racial/ethnic context moderates the effect of race.

Results predicting girls' odds of underestimation versus accurate estimation of weight also do not support social comparison theory. Consistent with prior research (Martin et al. 2009), I find that Black and Asian girls have higher overall odds of underestimating their weight than

Whites. However, the proportion of White students in schools does not moderate the relationship between race/ethnicity and this outcome.

Social comparison theory was not as applicable to my study as I expected, but school racial/ethnic context is an important moderator of the way that adolescent boys and girls from some racial/ethnic groups evaluate their perceptions of accurate weight. As this project moves forward I will consider and develop other explanations. I should also note that I may have not found as much support for social comparison theory because it is possible that the social comparisons of weight that matter are among peer groups and not the entire student body of one's school or among other important reference groups such as families.

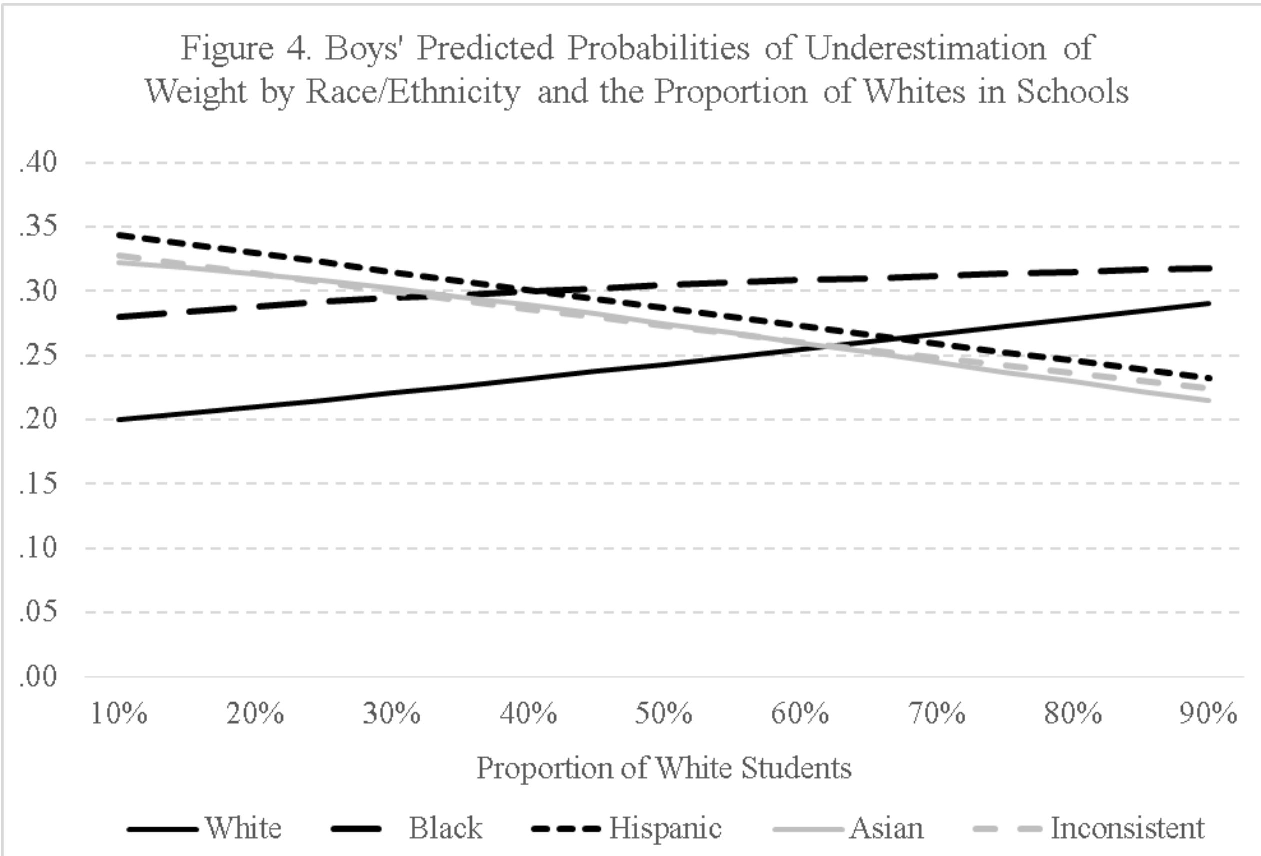
Before turning away from results, I should also note a few additional contributions of study findings. First is the importance of accounting for inconsistent racial/ethnic identification. In supplementary analyses that do not account for inconsistent racial/ethnic identity, I find that Black boys have greater odds of weight underestimation than Whites (available upon request). This contrasts with my findings presented here as well as earlier studies using Add Health (Martin et al. 2009). Categorizing adolescents who inconsistently report their racial/ethnic identity provides cleaner results and establishes that boys in this group have lower odds of underestimation of weight compared to Whites as the proportion of Whites increases. Analyses that do not account for inconsistent reporting of racial/ethnic identity risk grouping adolescents into racial/ethnic categories which may not reflect the complex meaning of identity in adolescents' lives. Additionally, other supplementary models demonstrate that Hispanic adolescents' odds of under- and overestimation of weight (versus accurately estimating weight) do not differ based on their country of origin.

Before closing, I must acknowledge study limitations First, Add Health sample members were a cohort of junior high and high schools students in the mid-1990s. At this time, messages about weight, the problems associated with obesity, and concerns about body image were already high suggesting that I would find similar results among more recent nationally representative cohorts of adolescents in junior and senior high schools. Nonetheless, it is possible that adolescents today may be even more sensitive to these concerns. Unfortunately, to my knowledge there is no other more recent nationally representative data source that assesses adolescent's weight, weight perceptions, race/ethnicity and school racial/ethnic context. An additional limitation of my study is that weight categories are based on indicators of self-reported height and weight. Measured height and weight are only available in Wave 2 and unfortunately, the racial/ethnic composition of adolescents' schools are not as well measured at Wave 2 because a sizable number of students change schools (making it difficult to even aggregate up from individual-level data to assess school racial composition for all students). Further, in Wave 2, the sample is reduced because Wave I high school seniors are dropped. While self-report bias exists and causes some underreporting of overweight, adolescents' reports of their height and weight are highly correlated with measured height and weight (Elgar et al. 2004) and if anything, this source of measurement error may make study findings slightly conservative since weight perceptions likely shape weight assessments. Finally, these analyses are cross-sectional and do not account for the possibility that an adolescent's weight or weight perceptions changed as a result of prior experiences which can only be accounted for longitudinally.

Despite these limitations, these analyses shed light on how a schools' racial/ethnic context can influence adolescents' weight perception accuracy. During a time of when young people's bodies rapidly change, adolescents' risk of underestimation and overestimation of weight are shaped by their own race/ethnicity combined with the racial/ethnic composition of their schools. This study helps to identify which adolescents are at risk of underestimation and overestimation of weight based on the intersection of their gender, race/ethnicity, and the racial composition of their schools. My findings further suggest that adolescents of the same race/ethnicity may face different psychological and physical health risks related to weight perception inaccuracy based on their social environment.

APPENDIX A

Graphs of the predicted probability of under- or overestimation of weight for all racial/ethnic groups



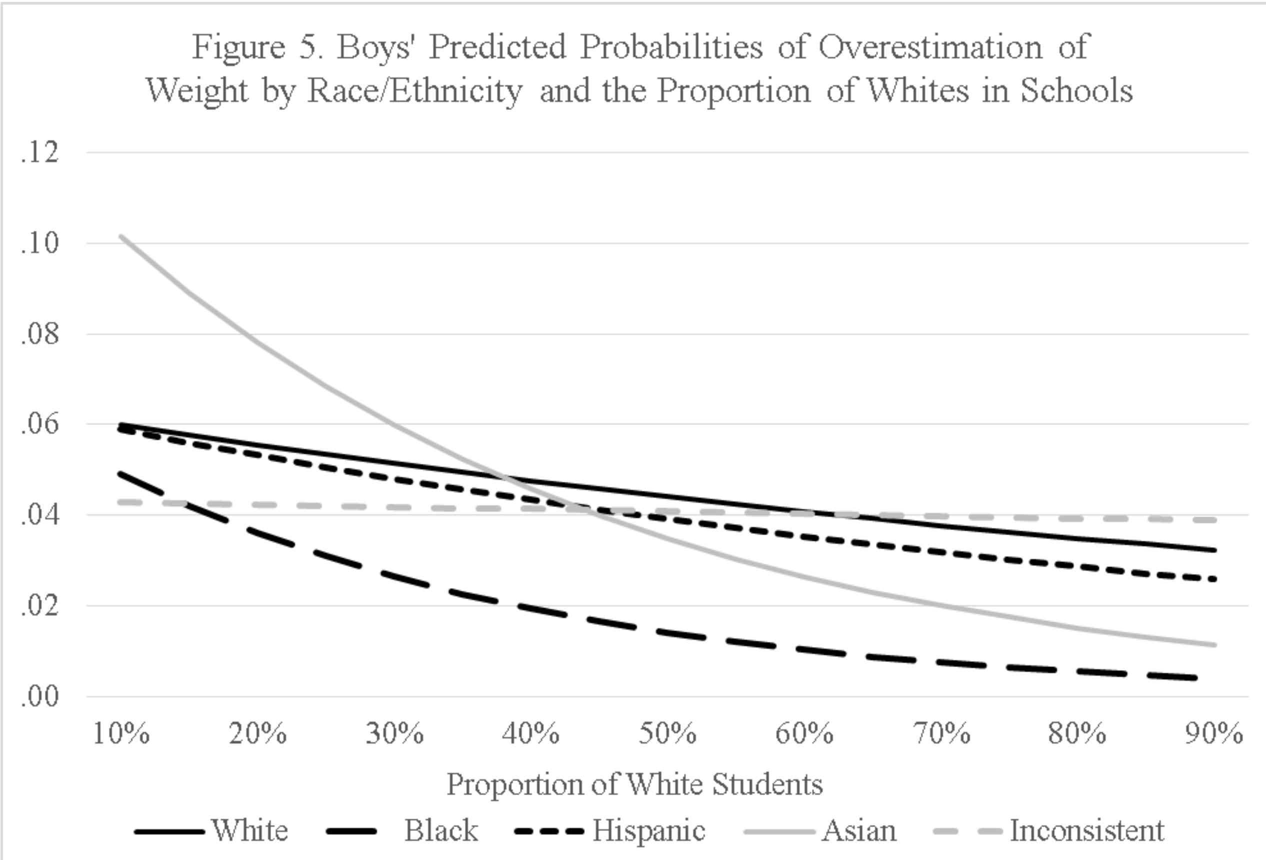


Figure 5. Boys' Predicted Probabilities of Overestimation of
Weight by Race/Ethnicity and the Proportion of Whites in Schools
.12
.10
.08
.06
.04
.02
.00
10%
20%
30%
40%
50%
60%
70%
80%
90%
Proportion of White Students
White
Black
Hispanic
Asian
Inconsistent

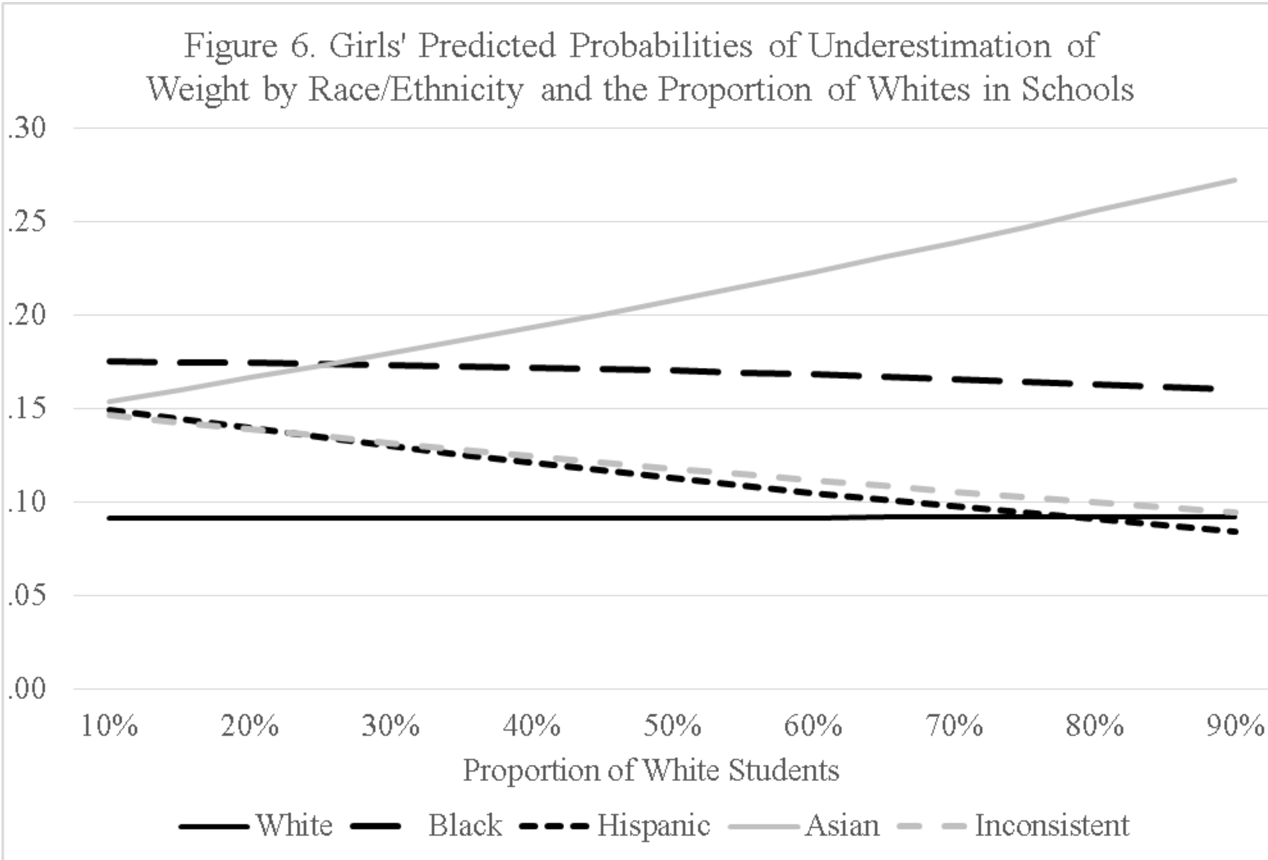
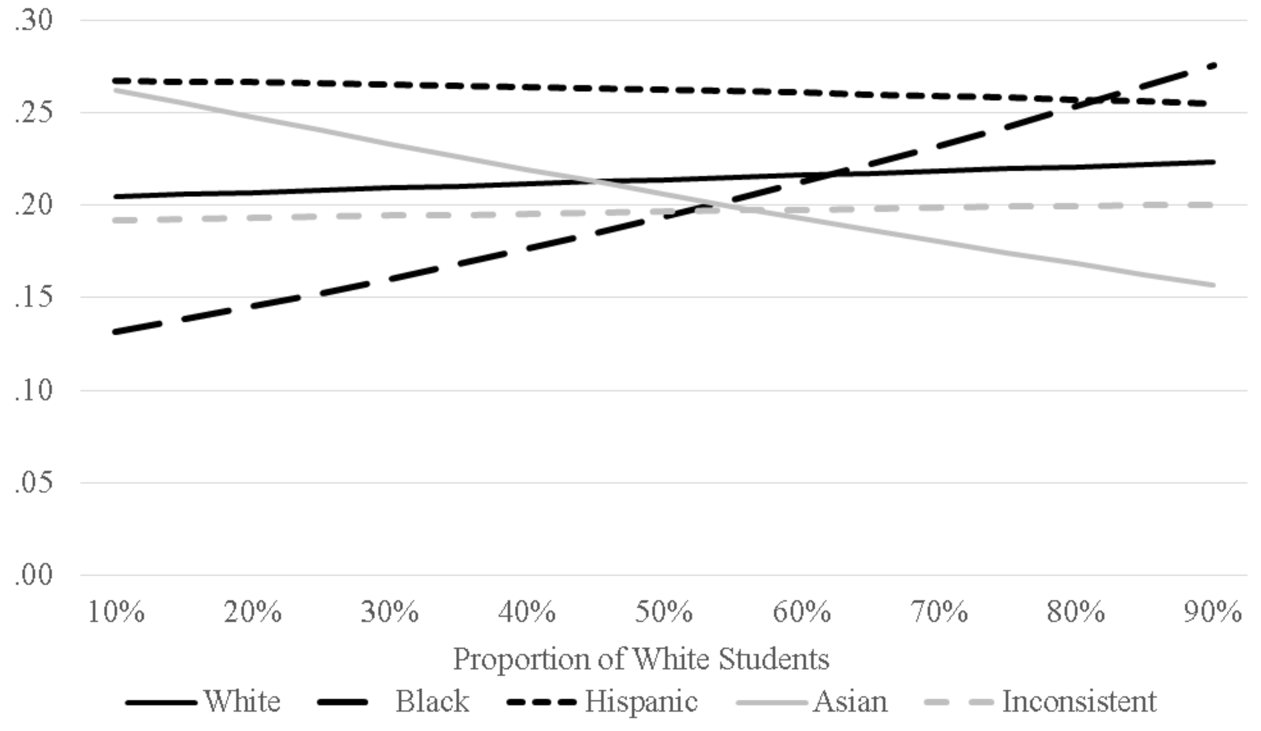


Figure 6. Girls' Predicted Probabilities of Underestimation of Weight by Race/Ethnicity and the Proportion of Whites in Schools
.30
.25
.20
.15
.10
.05
.00
10%
20%
30%
40%
50%
60%
70%
80%
90%
Proportion of White Students
White
Black
Hispanic
Asian
Inconsistent

Figure 7. Girls' Predicted Probabilities of Overestimation of Weight by Race/Ethnicity and the Proportion of Whites in Schools



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