Predicting Young Adult's Obesity: The Role of Body Image during Adolescence and Race/Ethnicity

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Abstract

Obesity among adolescents and young adults has become a national health concern. Using the first and third waves of the National Longitudinal Study of Adolescent Health (AddHealth), we examine the effects of adolescents' body image and weight management behaviors on their chances of being overweight or obese as young adults. Controlling for actually Wave I weight, we find that adolescents who think they are overweight and are trying to lose weight at Wave I are more likely to be overweight or obese at Wave III. These effects are particularly strong for Blacks and Hispanics. This suggests that Blacks and Hispanics may be particularly likely to engage in unsuccessful weight control behaviors. Being overweight at Wave I increases the chances of being overweight or obese at Wave III. Although race was shown to be a significant predictor of overweight and obesity in girls, it was not a significant predictor for boys.

Introduction

Obesity has reached epidemic proportions among adolescents. The National Health and Nutrition Examination Study found that approximately 30 percent of adolescents age 12 – 19 are currently overweight (Body mass index at the 95th percentile for age) or are at risk for becoming overweight (Body mass index at the 85th percentile for age) (Ogden et al, 2002). The rates for adolescent overweight and risk for overweight are higher for non-Hispanic Blacks (40.4%) and Mexican Americans (43.8%) than non-Hispanic whites (26.5%).

Adolescent obesity is a serious problem because it is associated with an increased risk of adult obesity, coronary heart disease (CHD), and mortality (particularly from CHD) (Field et al, 2005: Freedman, et al., 2001). Obesity also negatively affects other aspects of adolescents' lives. Overweight adolescent girls report being stigmatized (Neumark-Sztainer et al, 1998), and overweight young adults are less likely to marry, and earn lower incomes than their non-overweight peers (Gortmaker et al., 1993).

Sixty percent of overweight adolescent females engage in unhealthy weight control behaviors (UWCBs) such as smoking, using laxatives, taking diet pills, and self-induced vomiting (Eisenberg et al, 2005). Further, the "culture of thinness" in the US media (Smolak et al., 2001) can lead even normal weight girls to have a negative body image (Jones, 2004) and 40% of normal weight adolescent girls engage in UWCBs (Eisenberg et al, 2005).

While weight gain is directly caused by physical processes (calorie intake exceeds caloric expenditure), the behavior of over (and under) eating is influenced by social and social psychological factors. Hesse-Biber et al., (2004) defines body image as "concerns that individuals have about their bodies (which) manifest themselves in a multitude of ways including dissatisfaction with hair, skin, height, weight, or any other physical

attribute." Body image is an important construct because it affects how we perceive and evaluate ourselves and others in social interactions (Jung and Lee, 2006). For the purposes of this analysis, body image concerns are conceptualized in terms of one's perception of their body weight condition.

Body Image

Several studies have analyzed the connection between body image and weight. A conclusive finding consistent with many of them is the more socially acceptable your weight, the more positive your body image. Though most prevalent in women, this has been found in men as well. For example, Smolak et al. (2001) found that the negative body image experiences of boys and men mirror those of women and girls, but are less prevalent, and when present less severe. On average, girls and women report greater investment in and lower levels of satisfaction with their body than do boys and men (Cash et al., 2004 and Thomas et al., 2000). This greater concern in body image in women has spawned much research in understanding female body image (Hargreaves and Tiggemann, 2006). Unlike women who tend to feel dissatisfied with their weight and wish to be thinner, men are most likely to report dissatisfaction with their muscle size and shape and wish to be more muscular, particularly in the upper torso (Garner 1997).

We are particularly interested in the differences in the role of body image between ethnic minorities and non-Hispanic whites. Although African-American women tend to be heavier than Caucasian women (Robert and Reither, 2004), they tend to have a more positive body image (Harris et al., 2003; Caldwell et al., 1997; Kelly et al., 2005, Frisby, 2004, Poran 2002). A recent study of 2,357 female middle and high school students found that high body satisfaction was most common among African-American girls (40.1%) (Kelly et al., 2005). One qualitative study found that a reason for this is a strong

pressure among black women to be self-accepting of their physical shape, to be "happy with what God gave them," (Baturka et al., 2001).

Another reason for the more positive body image among Black adolescents is that thinness is less emphasized. In fact, being "thick" is associated with being sexually attractive for Black females (Hesse-Biber et al., 2004). If the causes of obesity, especially with respect to the role of the peer group, are found to differ among racial/ethnic minorities, then there are important social implications especially regarding school or community-based programs aimed at reducing obesity among minority adolescents.

Weight Management

In a study of adolescents, Adams et al. (2000) reported that more white girls reported that they are trying to lose weight compared to blacks. Males expressed less personal concern about weight and were less likely to engage in weight loss. This study did not address the impact of adolescent weight control practices on young adult weight. African-American women have been reported as less likely to engage in weight-loss programs are less likely to have weight loss-success than women of other races and ethnicities (Davis et al., 2005).

Self-Esteem

Using qualitative data analysis, Hesse-Biber et al., (2004) found that race is intrinsically linked to the notion of self-esteem and this factor serves to prevent African Americans from the development of body image dissatisfaction. Other researchers have pointed to the stereotypical "Mammy" figure as a contributor to higher self-esteem. They posit that historically, it was black women who displayed the heavier "Mammy" figure, who held more respectable positions (albeit still oppressive) than the thinner black women (Wade and DiMaria, 2003). They conclude that this ideal remains true into the

present day. According to them, there is no professional consequence for being overweight for African American women the way it is for Caucasian women. Therefore, there is a lesser incentive for African American women to strive for thinness. In addition, being heavier may even heighten self-esteem for African American women due its professional benefits. Racial identity literature cites a positive relationship between ethnic identity and self-esteem (Goodstein and Ponterotto, 1997). Based on this literature, we expect for self-esteem to emerge as a significantly more positive for blacks than other races.

Significance of Current Study

While the predictors of obesity in adolescence have been studied, there are several important limitations to current research. First, the great majority of studies are cross-sectional. This makes it difficult to investigate the role of body image as it is obviously a reaction, in addition to a contributor, to an adolescent's obesity. Secondly, few samples are large and nationally representative, limiting generalizability. Finally, because most studies have been based on small samples, there have been insufficient cases to examine the roles of body image and weight control in prediction of obesity among ethnic minorities.

The current study utilizes a nationally representative sample to investigate the contribution of adolescent body image and weight management to adolescent obesity. In particular, it outlines any cultural, ethnic, or gender variation that may be taking place in this phenomenon. We are particularly interested in the interaction of weight management and body image as it relates to obesity outcomes in adolescents and young adults. We expect to find that weight management and body image do interact but this interaction varies by race/ethnicity and gender. Specifically, we expect among those who are trying to lose weight at Wave I, black and Hispanic women will have a more positive body

image but will have a higher prevalence of overweight and obesity at Wave III than white women. We expect the population of Asian and women of other races who are trying to lose weight to be much smaller and yield insignificant results. We expect to find similar results among men who are trying to lose weight. We expect for those who are trying to gain weight to be a smaller group consisting mostly of men. For all black and Hispanic men who are trying to gain weight, we expect a higher prevalence of obesity at Wave III than white men. This expectation is based on prior research that states black and Hispanics desire larger body types. We expect a lower prevalence of obesity at Wave III for Asian men and men of other races. This expectation is again based on the lower population of men in these races. To our knowledge, there has not been a study that has used a nationally representative sample to analyze this relationship and how race and gender can make a difference in the various outcomes.

Theoretical Framework

We use social comparison theory as our framework. Social comparison assumes that people have a drive to evaluate their opinions and abilities and that, in the absence of objective bases for comparison, the need to evaluate can be satisfied by engaging in a social comparison with similar others. Social comparison is important in opinion formation (Frisby, 2004).

Social comparison was used in a study by Stormer and Thompson (1996) to examine if it was a significant predictor of body dissatisfaction and eating disturbance. Their study consisted of 162 college females drawn from introductory psychology courses at the University of South Florida. Approximately 85% of this sample consisted of white women. They found social comparison to be among the most significant predictors of body dissatisfaction and eating disturbance among this population. The current analysis also tests social comparison theory. However, here it will be tested on a

much larger, national sample includes representative racial and ethnic groups as well as males.

In applying this theory to body image as it relates to adult obesity, it is hypothesized that black women will compare themselves to other black women as opposed to the white women who comprise the "ideal" American body image type. This comparison will yield young black women to accept larger body types than their white counterparts. This will be illustrated by their more positive body images despite their larger size. This outcome is not expected to occur among men, however. Since there is less cultural variation among men regarding their ideal body image, it is expected that race will not be a significant predictor of young adult obesity in men.

METHOD

Participants

The current analysis utilizes data from the National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based study designed to assess the health of adolescents in grades 7 through 12 and to explore their health related behaviors. The study population includes a representative sample of all pubic and private high schools in the United States. About 20,000 in home interviews were completed in 1995 during Wave I. Wave II took place one year later in which 15,000 adolescents from Wave I were re-interviewed. Wave III was conducted between August 2001 and April 2002, six years following Wave I. At this time, respondents were between 18 and 26 years of age. Approximately 15,000 original Wave I respondents were re-interviewed Wave III (Harris et al., 2003). Thus, we are able to examine the influence of weight status, diet behavior, and body images of adolescents on their weight at Wave 3 when they are young adults. Because Add Health is a Clustered Survey Design we use the Survey Techniques in STATA to correct the standard errors of our coefficients.

For the purposes of the current longitudinal analysis, Waves I and III are utilized. After subtracting missing data due to Wave III attrition, the final number of cases is 8784 which consists of 4479 adolescent girls and 4305 adolescent boys. Their mean ages are 15 and 21 at waves 1 and 3 respectively.

Measures

Body Mass Index (BMI) was assessed at both waves one and three. For childhood BMI, was calculated using body mass index for age percentile charts developed by the National Center for Health Statistics and the National Center for Chronic Disease Prevention and Health Promotion (http://www.cdc.gov/growthcharts) using self-reported height and weight. Adult BMI was computed as self-reported weight in pounds divided by squared self-reported height in inches multiplied by 703 (Centers for Disease Control and Prevention, 2003). Goodman, Hinden, and Khandelwal (2000) reported that the correlation between self-reported and measured height in Wave II Add Health data was .94 for weight was .95. This increases the validity of the present study's measure of BMI. Actual BMI was then categorized into, "Underweight/Normal Weight", "Overweight", and "Obese" per CDC guidelines, for analysis.

Body Image was assessed at Wave I by using the question, "Do you think you are underweight, overweight, or about the right weight?" A dummy variable was created to analyze this item with, "About the right weight" used as the reference group.

Trying to Lose/Gain/Do Nothing about Weight was measured in Wave I from the question, "Are you trying to lose weight, gain weight, or stay the same weight?" The answers provided were, "Lose weight," "Gain weight," "Stay the same weight", or "Not trying to do anything about weight". For the purposes of this analysis, dummy variables were created for those "trying to lose" weight and those "trying to gain" weight.

Therefore the reference group became all those were not actively trying to change their current weight status.

Self-Esteem was assessed in both Waves I and III by using the following four items addressing feelings of self-worth and acceptance (Galliher et al., 2004): "Do you agree or disagree that you have many good qualities?", "Do you agree or disagree that you have a lot to be proud of?", "Do you agree or disagree that you like yourself just the way you are?", and "Do you agree or disagree that you feel that you are doing things just about right". Participants responded to these items on a 5-point Likert scale (1= *strongly agree;* 5= *strongly disagree).* Good reliability was indicated by a coefficient alpha of 0.87.

Race/Ethnicity is based on the self-report of the respondent. For the present analyses, race/ethnicity is a five category variable. Those categories were "Whites", "Blacks", "Hispanics", "Asians", and "Other". "Whites" are identified by participants who indicated they are "White-only". "Blacks" are identified by those who indicated they are "Black-only". "Hispanics" are identified by all participants who indicated they are of Hispanic ethnicity (of any race) and "Asians" were identified by those who indicated they are of Asian background. "Others" consist of races not mentioned and those who are multi-racial. The reasons participants who are multi-racial and who are of other races were placed in the same category for this analysis are 1) it is expected that body image trends will be more salient among those who identify with only one race and 2) for this study, those who did not identify as belonging to a white, black, Hispanic or Asian group did not make up enough cases to analyze on their own. In analyses, it is dummy coded with whites serving as the reference category.

Age was assessed at Wave I from the item that asks participants' year and month of birth. It is measured in number of months.

Parental Education was assessed at Wave I. Consistent with other studies on this subject manner, highest parental education level was used as a proxy for SES (Newmark-Sztainer et al., 2002). This is the highest educational level achieved by the respondent's resident father- or mother- figure, whichever is greater, as reported by the adolescent at Wave I. Pertaining to the resident mother or father, the actual question was "How far did [s]/he go in school?" The responses were, separated into four categories: "Less than High School," "High School graduate or GED," "Business School, Trade School, Vocational School, or Some College," and "College graduate or professional training beyond a four-year college or university." This measure was assessed at Wave I as proxy for the socioeconomic status of the adolescent while growing up.

RESULTS

Descriptives

Table 1 and 2 lists descriptive information about all variables used in the current analysis. Individual means for age, measured in months; parent education, and self-esteem are listed by race. Categorical percentages are given for Waves I and III weight statuses as measured by BMI, Wave I body image, and Wave I weight management, measured by those trying to lose, gain, or not do anything about their weight, by race. Because the Add Health surveys use a multi-stage, clustered sampling design, survey statistical techniques are used in all analyses. In Tables 1 and 2 the means and percentages are weighted and the standard errors are corrected for the sample design effects.

Girls. As expected, in terms of weight status Asians girls are less likely to be overweight or obese than whites at both Wave I and Wave III. However, of some concern is that the percentage of overweight and obese Asian females jumps from 5.88% to 17.37% between Waves I and III. Black and Hispanic females are more likely to be

overweight and obese than white girls at both Waves I and III. Of great concern is that at Wave III over 60% of Black young adult women are overweight or obese.

While Asian boys are less likely that white boys to be obese at both Waves I and III, they are not less likely to be overweight. At Wave III 47% of Asian boys are overweight or obese, compared to 50% of white boys. Black and Hispanic boys are slightly more likely than whites to be obese at Wave I, while in only Wave III young Black men, not Hispanic, are more likely to be obese than young white men. Black men are less likely to be overweight (even thought they are more likely to be obese) making the combined overweight and obese percents similar across all racial/ethnic groups for young men at Wave III. Comparing by sex within racial categories, we see that as young adults Asian and White females are more likely to be normal weight than their male counterparts, while Black men are more likely to be normal weight than Black women. For Hispanics similar percentages of young men and women are normal weight.

Despite the differences in Wave I actual weight, the percentages of girls who think they are overweight does not differ among Whites, Blacks, and Hispanics. For White and Asian girls the difference between the percentages who are overweight or obese and who think that they are overweight is huge. For example, 21% of white girls are overweight or obese, but double that amount (42%) think that they are overweight. Among Asians only 6% of girls are overweight or obese at Wave 1, but over five times that many (33%) think that they are overweight. For Hispanic and Black girls the perceptions are more accurate. Among Blacks 37% are overweight or obese at Wave 1 and 41% think that they are overweight. Among Hispanics 30% are overweight or obese while 43% think that they are overweight. Not only do larger percentages of girls believe they are overweight than really are overweight, they are also acting on those beliefs. For every single racial category the percentage of girls who report that they are

trying to lose weight is greater than the percentage who are overweight or obese, and is also greater than then number who think that they are overweight. Around 50% of all White, Black, Hispanic and Asian women report trying to lose weight. This is particularly a concerning statistic for Asian girls. While less than 6% are overweight or obese, over 47% are trying to lose weight. These larger numbers of girls who think that they are overweight and are trying to lose weight than are actually overweight indicates that the image of thinness as a desirable goal for women has encouraged many normal weight girls to try to lose weight.

Boys. In contrast, boys do not accurately recognize that they are overweight. A higher percentage of White (28%), Black (28%) and Hispanic (31%) are overweight and obese than think that they are overweight (26%, 16%, and 25% respectively). Further, the percentage of boys who are trying to lose weight is much lower than for girls. In fact, for every racial/ethnic group the percentage of boys who are trying to gain weight at Wave I exceeds the percentage who are trying to lose weight. For males are major disconnect between body weight and body image is with respect to belief that they are underweight. Only 2% of white and black boys are underweight, but 21% of white boys and 22% of black boys think that they are underweight. The pattern is similar for Hispanic and Asian boys with 4% and 6% (respectively) being underweight, while 22% and 27% (respectively) think that they are underweight. It appears that boys thinking that they are underweight when they aren't and failing to recognize that they are overweight when they are has long-term consequences. By Wave III a very high percentage of boys are overweight or obese. Approximately 50% of boys of all racial groups are overweight or obese at Wave III. This has distressing implications for long term health problems for half of American males

Ordered Logit

In the current analysis, we used ordered logistic regression using the survey procedures in STATA to correct for the clustered survey design of Add Health (Tables 3 and 4). In Model 1 we only include the race, parental education and age of the respondent as predictors of overweight and obesity at Wave III. We find that only age is a significant predictor of young adult weight for boys, but age and race are significant for girls. Black and Hispanic girls are more likely and Asian girls are less likely than white girls to become overweight at Wave III. However, the Pseudo R-Squares are very low, .01 for boys and .02 for girls. In Model 2 we add the Wave I weight categories and the R-Squares increase to .21 for girls and .20 for boys, indicating that adolescent weight (Wave I) is a strong predictor of young adult (Wave 3) weight. Controlling for Wave I weight, black girls are more likely to be overweight or obese at Wave III than white girls whereas Hispanic girls are not. This indicates that the difference in the rates of overweight and obesity between young adult Hispanic and white females is attributable to weight differences established by adolescence, rather than to weight gains during adolescence.

Model 3 adds body image to the equation. For both boys and girls, controlling for actual Wave I weight category, those who think that they are overweight at Wave I are more likely to be overweight or obese at Wave III. Further, those who think of themselves as underweight are less likely to become overweight or obese. Since BMI is a crude measure, only taking into account height and weight, it could be that the teens who think that they are overweight actually have a higher percentage of body fat than those who do not think of themselves as overweight. It could also be that thinking that you are overweight or obese leads you to behaviors that result in overweight and obesity. These behaviors will be discussed later.

Model 4 adds Wave I self-esteem and Model 5 adds the weight management behaviors. For both boys and girls, adolescent self-esteem was not a significant predictor of Wave 3 weight. This suggests that programs geared to increase the self-esteem of adolescents will not be an effective deterrent to obesity. In Model 5 we find that controlling for both actual and perceived overweight status, both boys and girls who are trying to lose weight at Wave I are more likely to be overweight or obese at Wave III. This suggests that adolescents who try to lose weight are engaging in weight control behaviors that actually result in an increased risk of overweight and obesity. Most people who diet are unable to keep off the weight that they lose. It may be that those who start the diet process in adolescence are more likely to give up and accept being overweight by young adulthood. Another possibility is that adolescents choose unhealthy ways to lose weight such as crash dieting that may result in reducing their metabolism rate, increasing their chances of being overweight as a young adult. This result deserves further study. Despite an inappropriately large percentage of boys reporting a desire to gain weight at Wave 1, trying to gain weight was not associated with being overweight or obese as a young adult. This will be discussed more below.

Model 6 adds the interactions of race/ethnicity and weight management behaviors. For our reference group whites, for both boys and girls trying to gain weight at Wave I is unrelated to the risk of being overweight or obese at Wave III. However, for Black girls and for Black and Asian boys, those who are trying to gain weight at Wave I are less likely to be overweight or obese at Wave III. This suggests that the attempts of these groups to gain weight may be attempts to put on muscle, which is a protective factor against overweight or obesity, as muscular bodies have higher metabolism rates. For girls, we find that Blacks, Hispanics and Asians, and for boys Blacks and Hispanics who are trying to lose weight are more likely than their white counterparts to be

overweight as young adults. This suggests that these groups are engaging in ineffective weight loss strategies that put them at increased risk for obesity as young adults. Thus, research is needed on the weight loss strategy of ethnic minority teens so that effective, culturally-relevant prevention strategies can be created.

Conclusions

A major strength of our paper is its longitudinal design. A vast majority of studies conducted regarding body image and body weight outcomes use cross-sectional studies. Our longitudinal analysis allows us to examine the influence of adolescent body image and weight control behavior on overweight and obesity in young adulthood. The primary limitation of our study is that we do not have specific information regarding their diet and exercise behaviors, although we will examine this in an upcoming study.

The present study examined gender and racial/ethnic differences in predicting adolescent obesity using body image and weight management as focal variables. We first find that even among these very young adults, obesity is of epic proportions. A significant number of adolescents are already overweight or obese at Wave I which strongly predicts their overweight or obese status as young adults. At Wave III, approximately 60% black girls and 50% of Hispanic girls, and 50% of black, white, and Hispanic boys are either overweight or obese. Also of great importance, we found that trying to lose weight at Wave I is associated with being overweight or obese at Wave III. This finding indicates our need to stress to adolescents the importance of adopting lifelong healthy eating behaviors and active lifestyles instead of periodic and less effective dieting strategies.

Another important finding is that both boys and girls have inaccurate body images. A higher percentage of girls think they are overweight than actually are, while for boys more think they are underweight than actually are. These inaccurate perceptions

drive many normal weight girls to try to lose weight and many normal weight boys to try to gain weight.

The overarching factor that emerges for blacks is they have a greater comfort level being overweight or obese that their white counterparts. This topic is of interest due primarily to the health disparities these groups face when it comes to their cardiovascular health. Studies have already shown that whites who have overweight or obese health statuses tend to be more active in overcoming this. Literature states this is primarily due to their belief that larger sizes are not aesthetically pleasing. However Blacks and Hispanics tend to be more complacent due to their unique "larger-is-better" body images. If we can begin a health campaign that targets "health" not "appearance", we may be able to find more efficient methods of targeting good health in these groups. Our results suggest that in gaining a greater understanding of how Blacks and Hispanics feel about their weight, we will be able to help design a national health campaign to properly target these at-risk populations.

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Table 1: Means - Adolescent Characteristics for Girls by Race

	White	Black	Hispanic	Asian	Other	Total
W1 Characteristics						
Age in Months (mean in months)	185.09	188.27	186.29	190.17*	185.35	
Parental Education (mean)	2.59	2.54	2.56	2.70*	2.53*	
W1 Weight Status						
Obese BMI at Wave 1 (%'s)	7.86	16.49*	11.60*	2.07*	11.77*	9.56
Overweight BMI at Wave 1 (%'s)	12.91	21.68*	18.60*	3.81*	7.76*	14.68
Normal BMI at Wave 1 (%'s)	77.58	61.26*	67.13*	93.00*	75.02*	74.13
Underweight BMI at Wave 1** (%'s)	1.65	0.57*	2.67*	1.12	5.45*	1.63
Body Image (W1)						
Think They are Underweight (%'s)	8.49	10.85*	11.17*	19.87*	21.51*	9.59
Think They are Overweight (%'s)	42.18	40.64	42.65	32.92*	38.04*	41.73
Think They are Right Weight (%'s)	49.34	48.51	46.18	47.20	40.45*	48.68
W1 Self Esteem (means)	15.78	16.56*	15.61*	15.40*	16.14*	
W1 Weight Management						
Trying to lose weight (%'s)	49.72	45.24*	51.33	47.43	51.17	49.17
Trying to gain weight (%'s)	3.32	14.48*	7.14*	10.83*	13.65*	5.84
Not trying to do anything about weight (%'s)	46.96	40.28*	41.53*	41.75*	35.18*	44.99
W3 Weight Status						
Obese BMI at Wave 3 (%'s)	16.98	32.20*	24.42*	3.39*	22.40*	20.05
Overweight BMI at Wave 3 (%'s)	20.35	28.72*	24.20*	13.98*	18.67	21.99
Normal BMI at Wave 3 (%'s)	60.74	37.36*	49.59*	76.82*	54.98*	55.96
Underweight BMI at Wave 3** (%'s)	1.93	1.72*	1.79*	5.81*	3.95*	2.00

*Mean is significantly different from Whites at the .05 level.

**Underweight status is not included in the present analysis due to its low frequencies but is shown here for informational purposes

Note: Weighted Percentages are Shown.

Table 2: Means - Adolescent Characteristics for Boys by Race

	White	Black	Hispanic	Asian	Other	Total
W1 Characteristics						
Age in Months (mean in months)	186.92	189.49	189.64	185.90	185.42	
Parental Education (mean)	2.56	2.51	2.68*	2.65*	2.49*	
W1 Weight Status						
Obese BMI at Wave 1 (%'s)	12.37	15.33*	15.11*	4.21*	28.96*	13.18
Overweight BMI at Wave 1 (%'s)	16.41	13.64*	16.20	16.11	19.21*	16.01
Normal BMI at Wave 1 (%'s)	68.98	68.84	64.42*	73.56*	47.93*	68.16
Underweight BMI at Wave 1** (%'s)	2.24	2.19	4.27*	6.12*	3.90*	2.65
Body Image (W1)						
Think They are Underweight (%'s)	20.45	21.76	22.19	26.81*	24.06*	21.13
Think They are Overweight (%'s)	25.64	15.99*	25.29	18.80*	25.97	23.93
Think They are Right Weight (%'s)	53.91	62.25*	52.53	54.39	49.97*	54.94
W1 Self Esteem (means)	16.79	17.23*	16.64*	16.49*	16.86	
W1 Weight Management						
Trying to lose weight (%'s)	21.04	17.67*	27.96*	20.45	30.16*	21.56
Trying to gain weight (%'s)	26.63	36.27*	28.12	34.26*	30.00*	28.57
Not trying to do anything about weight (%'s)	52.32	45.84*	43.93*	45.29*	39.84*	49.82
W3 Weight Status						
Obese BMI at Wave 3 (%'s)	17.05	21.28*	16.45	10.26*	29.39*	17.61
Overweight BMI at Wave 3 (%'s)	33.27	28.66*	35.70*	36.75*	37.91*	33.07
Normal BMI at Wave 3 (%'s)	48.94	48.99	46.93	52.38	32.23	48.51
Underweight BMI at Wave 3*** (%'s)	0.74	1.07	0.92	0.61*	0.47*	0.81

*Mean is significantly different from Whites at the .05 level.

**Underweight status is not included in the present analysis due to its low frequencies but is shown here for informational purposes

Note: Weighted Percentages are Shown.

Table 3: Ordered Logit Regression Model for Variables Predicting Adult Obesity in Adolescent Girls at Wave 3

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
W1 Characteristics						
Age in Months	0.008 ***	0.012 ***	0.010 ***	0.011 ***	0.011 ***	0.010 ***
Parental Education	-0.047	-0.079	-0.083	-0.089 *	-0.094 *	-0.100 *
Black	0.886 ***	0.635 ***	0.831 ***	0.826 ***	0.894 ***	0.437 *
Hispanic	0.438 ***	0.191	0.260	0.276	0.282 *	-0.042
Asian	-1.102 ***	-0.787 **	-0.821 ***	-0.794 ***	-0.858 ***	-2.909 ***
Other	0.145	-0.067	0.193	0.193	0.161	0.267
White	Ref	Ref	Ref	Ref	Ref	Ref
W1 Weight						
Overweight at Wave 1		2.344 ***	1.817 ***	1.828 ***	1.780 ***	1.759 ***
Obese at Wave 1		3.933 ***	3.387 ***	3.397 ***	3.326 ***	3.349 ***
Body Image						
Think They are Underweight			-0.613 ***	-0.604 ***	-0.460 *	-0.526 **
Think They are Overweight			0.996 ***	1.008 ***	0.720 ***	0.747 ***
Think They are Right Weight			Ref	Ref	Ref	Ref
Self Esteem (W1)				0.009	0.018	0.025
W1 Weight Management						
Trying to lose weight					0.615 ***	0.535 ***
Trying to gain wieght					-0.282	-0.080
Not doing anything about weight					Ref	Ref
Interaction - W1 Wt. mgmt * race						
W1 Try2Gain * Black						-2.124 ***
W1 Try2Lose * Black						1.365 ***
W1 Try2Gain * Hispanic						-0.301
W1 Try2Lose * Hispanic						0.647 **
W1 Try2Gain * Asian						1.351
W1 Try2Lose * Asian						2.518 ***
W1 Try2Gain * Other						-27.891 ***
W1 Try2Lose * Other						-0.140
Cut Point 1	1.817 ***	3.170 ***	3.097 ***	3.294 ***	3.589 ***	3.600 ***
Cut Point 2	2.933 ***	4.784 ***	4.765 ***	4.971 ***	5.282 ***	5.340 ***
Pseudo R2	0.023	0.209	0.236	0.237	0.245	0.259
N	4678	4506	4503	4487	4487	4479

*p<.05.**p<.01.***p<.001

Table 4: Ordered Logit Regression Model for Variables Predicting Adult Obesity in Adolescent Boys at Wave 3

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
W1 Characteristics						
Age in Months	0.009 ***	0.016 ***	0.018 ***	0.019 ***	0.020 ***	0.019 ***
Parental Education	0.015	-0.016	-0.019	-0.014	-0.009	-0.005
Black	0.056	-0.061	0.045	0.048	0.061	0.215
Hispanic	-0.010	-0.125	-0.095	-0.099	-0.132	-0.275
Asian	-0.273	0.005	0.040	0.052	0.035	0.046
Other	0.690	0.274	0.520	0.528	0.525	0.343
White	Ref	Ref	Ref	Ref	Ref	Ref
W1 Weight						
Overweight at Wave 1		2.255 ***	1.761 ***	1.782 ***	1.730 ***	1.681 ***
Obese at Wave 1		3.826 ***	3.123 ***	3.131 ***	3.050 ***	2.992 ***
Body Image						
Think They are Underweight			-1.255 ***	-1.240 ***	-1.174 ***	-1.194 ***
Think They are Overweight			0.780 ***	0.804 ***	0.601 ***	0.652 ***
Think They are Right Weight			Ref	Ref	Ref	Ref
Self Esteem (W1)				0.032	0.033	0.036
W1 Weight Management						
Trying to lose weight					0.379 **	0.277 *
Trying to gain wieght					-0.165	-0.090
Not doing anything about weight					Ref	Ref
Interaction - W1 Wt. mgmt * race						
W1 Try2Gain * Black						-0.947 ***
W1 Try2Lose * Black						1.458 ***
W1 Try2Gain * Hispanic						-0.673
W1 Try2Lose * Hispanic						0.966 ***
W1 Try2Gain * Asian						-1.524 *
W1 Try2Lose * Asian						0.794
W1 Try2Gain * Other						-0.746
W1 Try2Lose * Other						1.550 *
Cut Point 1	1.716 ***	3.583 ***	3.823 ***	4.486 ***	4.655 ***	4.524 ***
Cut Point 2	3.277 ***	5.918 ***	6.259 ***	6.933 ***	7.111 ***	7.047 ***
Pseudo R2	0.006	0.204	0.239	0.240	0.243	0.260
N	4385	4319	4318	4311	4311	4305

*p<.05.**p<.01.***p<.001