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The Relationship between Body Size and Depressed Mood: Findings from a Sample of African American Middle School Girls

Ellen M. Granberg,

Department of Sociology 139 Brackett Hall Clemson University Clemson SC 29634 864-656-3238
granber@clemson.edu

Ronald L. Simons,

Department of Sociology 116 Baldwin Hall University of Georgia Athens GA 30602 706-542-3232
rsimons@uga.edu

Frederick X. Gibbons, and

Department of Psychology Iowa State University 475B Science I Ames IA, 50011 510-294-8924
fgibbons@iastate.edu

Janet Nieuwsma Melby

Institute for Social and Behavioral Research Iowa State University 2625 N Loop #500 Room 502
Ames IA, 50011 510-294-8144 jmelby@iastate.edu

Abstract

The relationship between body weight and depression among adolescent females has been the subject of considerable attention from researchers. The risk of experiencing this distress, however, is not equally distributed across members of all racial groups. African American girls are generally more satisfied with their bodies and thus may be less vulnerable to experiencing depression as a result of weight concerns. Several scholars have suggested that membership in African American culture provides social resources that protect black females from experiencing high levels of weight-based psychological distress. We examine the relationship between body size and depression and the potentially moderating role of African American cultural experiences using data from the Family and Community Health Study (FACHS). Assessing a cohort of 342 African American girls ages 12-14, we found support for a link between weight and depression. There was no evidence, however, that exposure to African American culture moderated this relationship.

Keywords

Body Weight; Depression; Ethnic Identity

Obesity is a serious health threat for young people, and particularly for African American youth. Indeed, the percentage of overweight black teenagers has doubled since 1980 and African American girls are among those most likely to be overweight (McNutt et al., 1997). Along side heightened health risks that accompany obesity, the greater likelihood of being overweight also increases vulnerability to social consequences that can range from teasing to overt discrimination (Paul & Townsend, 1995; Register & Williams, 1990; Young & Powell, 1985). Paradoxically, however, while African American women and girls may be more vulnerable to these penalties, there is also considerable evidence that they experience less

weight related psychological distress than do their peers from other racial groups (Kumanyika, Wilson, & Guilford-Davenport, 1993; Lovejoy, 2001; Siegel, 2002).

This juxtaposition of vulnerabilities and strengths makes it particularly important that researchers understand how African American girls think about and respond to their bodies. To date, much of the empirical evidence for this association has been based upon comparisons between white youths and youths of color. This research has documented important forms of resilience, but may also have encouraged a simplistic view of African American girls as immune to weight-based distress and thus in need of less support when coping with its effects (Beaufort-Lafontant, 2003; Grant et al., 1999).

In this paper we examine the relationship between weight and depression in a cohort of African American girls. In our analysis, we focus first on the psychological consequences of being overweight and experiencing weight gain, specifically as they contribute to depression among a middle school aged cohort. Next, we take up the question of ethnicity and culture as protective influences and examine factors unique to being African American that may moderate the relationship between weight and depression.

Body Size and Weight Concern among African American Girls

As noted above, the majority of work documenting a protective effect with respect to weight among African American females has been comparative in nature (Grant et al., 1999) and the results have drawn attention to potential strengths of this group with respect to weight and body image (Adams, Sargent, Thompson, & Richter, 2000; Cash & Henry, 1995; Cohn et al., 1987; Henriques, Calhoun, & Cann, 1996; Siegel, 2002; Thompson, Rafiroiu, & Sargent, 2003). Given the physical and social consequences of obesity, however, such attitudes are best viewed as a double-edged sword (Beaufort-Lafontant, 2003). What these patterns signal most clearly, we argue, is that much more research is needed on the consequences of weight and weight concern among African American girls. Such attention is especially warranted during the adolescent years, a time of particular attention to weight and appearance for teens of all racial and ethnic groups.

It is during early adolescence that interest in romantic relationships develops, making concerns about appearance more salient (French, Story, & Perry, 1995) and there is evidence that these concerns may be associated with increased depression among African American girls (Siegel, 2002). Such links are not surprising since this is when young people begin making tentative contacts with members of the opposite sex and the potential for rejection is quite high, particularly for overweight adolescents (Cawley, 2001; Seiffge-Krenke, 2003; Sobal, Nicolopoulos, & Lee, 1995). Further, though it is sometimes argued that African American males prefer larger bodies (potentially making overweight African American girls less vulnerable to rejection), there is little empirical evidence to support this assertion among teenagers (Thompson, Sargent, & Kemper, 1996; Webb, Looby, & Fults-McMurtery, 2004).

The strong links between weight and attractiveness during this developmental period suggest that both being overweight and experiencing an increase in weight may be distressing. Puberty is a life stage in which weight fluctuations may be both particularly common and particularly salient, contributing to the distress young women feel (Xiaoja. Ge, Elder, Regnerus, & Cox, 2001; Siegel, 2002). Consequently in this paper, we consider both objective body size and perceptions of weight increase in their effect on psychological distress.

The early adolescent developmental stage of these respondents also suggests that family environment and quality of parenting will strongly influence vulnerability to depression. Parenting is a very robust predictor of depressive symptoms in this age group; rejection and low involvement have been shown to increase depression whereas warmth and support

decrease it (Simons et al., 2002). The specific association between parenting practices and children's weight is unclear, but there is evidence that a parent's behaviors does influence his or her children's dieting behaviors and vulnerability to developing eating disorders (A. B. Archibald, Graber, & Brooks-Gunn, 1999). In this analysis we anticipate that quality of parenting will have a strong negative association with depressed mood but that body size and weight gain will also show significant associations.

Ethnic Identity as a Protective Factor

Although it is our expectation that respondents will find both being overweight and perceiving evidence of weight gain depressing, a large body of theoretical work suggests that factors unique to being African American may moderate these relationships. Scholars have argued that elements of African American cultural life are the source of these attitudes, shielding young black women from weight-related psychological difficulties (Beaufort-Lafontant, 2003; Kumanyika et al., 1993; Lovejoy, 2001). We explore this argument empirically by considering two factors – the development of strong, positive ethnic identity, and associations with non-African Americans– and examine their effect on the relationship between weight and depression.

In a 1990 review, Phinney outlined the components of ethnic identity (Phinney, 1990). At its most basic level, ethnic identity is the ethnic self-label (or labels) one may adopt. In addition, however, it includes sense of belonging, attitudes towards one's ethnic group, and involvement in social life or cultural practices. An extensive body of research has examined the relationship between racial identity and psychological distress and the results suggest that it has its strongest influence as a moderator, buffering the negative psychological consequences of experiences such as discrimination (Mossakowski, 2003; Noh, Beiser, Kaspar, Hou, & Rummens, 1999; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). A number of scholars have also proposed that this buffering effect may extend to the relationship between body weight and social psychological outcomes such as depression (Kumanyika et al., 1993; Lovejoy, 2001).

Although relatively little empirical work has been done in this area, there is reason to expect that a strong, positive African American ethnic identity may mitigate weight related distress because it should encourage social comparisons with other black women (who are, on average, heavier than white women), identification with black female role models, and attachment to the norms and standards found within African American culture (Kumanyika et al., 1993; Lovejoy, 2001). All of these may encourage the development of a more positive body image as well as a self-concept that is more holistic and less appearance focused than that found among other adolescents. Based upon these arguments, one would expect that African American females with positive ethnic identities should show a weaker relationship between body size and depression relative to their peers whose ethnic identities are not as strong.

It is also possible that the factors which moderate the relationship between weight and depression are rooted in social structure rather than personal identity. For example, friendship networks and residential housing patterns may combine to limit the amount of contact some adolescents have with non-African Americans, shielding them (at least to some degree) from the norms and expectations of a majority culture which focuses on slenderness as an important aspect of femininity and status (Dorn, Crockett, & Petersen, 1988; Freedman, 1984; Rierdan & Koff, 1997). Conversely, the greater one's contact with white culture, the more influence it may have, leading to associations that are similar to those seen among whites. Thus, black women and girls who have extensive contact with Caucasians may be more influenced by white appearance standards than would girls with less contact. Of course, the ubiquity of media images glorifying slenderness (Bordo, 1993; Smolak & Levine, 2001) may override these more local networks. However, comparisons with proximal others are typically quite influential and

there is some evidence that, with respect to evaluations of body size, they have the ability to override more distal media-based comparisons (Gecas, 1982; Morrison, Kalin, & Morrison, 2004). In making this argument, we do not rule out a role for the media in these processes; however in this analysis we focus on more locally available comparison others.

We do not regard our proposed moderators as mutually exclusive. Rather, we expect that they are interrelated elements of the larger experience of ethnicity in western culture. In this paper, we examine the joint impact of these factors in order to assess whether they influence the relationship between weight and depression among African American middle school girls.

The Present Study

In the present study we focus on the relationship between weight status and depression among African American middle school girls. We consider two aspects of weight status: objective body size as assessed by a neutral observer and respondents' self-reports of recent weight gain. We anticipate that both indicators of weight status will be positively associated with depression. In addition, we consider arguments that strong, positive ethnic identities or exposure to the dominant white culture may moderate the relationship between body size and depression. We anticipate that having a strong, positive ethnic identity will reduce the impact of weight on depression while exposure to the “mainstream” culture will increase it.

We test for these main and moderating effects while controlling for several factors that are known to be related to body weight and depression. As discussed earlier, the quality of parenting a child receives is strongly associated with his or her level of depressive symptoms and there is some evidence that parenting may also influence a child's weight (Andrea Bastini Archibald, Linver, Graber, & Brooks-Gunn, 2002; Simons et al., 2002). In order to account for these effects we control for quality of parenting. In addition, the correlation between weight gain and pubertal development is well known (Xiaoja Ge et al., 2001; Koff & Rierdan, 1991) as is the association between puberty and depression (Xiaoja Ge, Conger, & Elder, 2001; Xiaoja Ge et al., 2003). Since our sample is taken from an age group in which puberty should be well underway, we wanted to account for the role that might be played by puberty in influencing either body size or depression. Finally, overweight persons are more often prevalent in lower income ranges (Garn, 1981) and stresses associated with poverty may contribute to depressed mood (Eamon, 2002). In order to account for these relationships, we included a control for family class status.

METHODS

Sample

The data for this analysis are from the Family and Community Health Study (FACHS), a multi-site study of the emotional and social health and development of African American pre-teens and adolescents. The FACHS sample is unique among data sets focusing on African Americans because it was designed to identify contributors to African American children's development in families living in settings outside the urban inner city core and from a wide range of socioeconomic strata. A complete discussion of the study and the procedures used to gather the sample can be found in Simons, et al., (2002).

Four hundred and eighteen girls participated in the FACHS data collection used for this analysis; of those, 393 identified as “black” or “African American.” Missing data from the body size measure brought the final sample to 343. The analysis indicated that those for whom body size data were available did not differ significantly from those for whom it was not available on incidence of depression or the major explanatory variables. All respondents were between the ages of 12 and 14 at the time of data collection.

Measures

Depression—The dependent variable in this analysis was depressive symptoms, which we measured using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV). DISC was developed over a 15-year period of research on thousands of children and parents and has demonstrated reliability and validity (Shaffer et al., 1993). Coefficient alpha for the 22-item symptom count scale was .83 for the sample included in this analysis.

Recent Weight Gain—We captured respondents' views of recent weight gain using their answers to the question “Have you noticed an increase in your weight over the last few months?” Responses were coded on a 1 to 3 scale where “1” indicated no recent weight increase and “3” indicated significant recent weight increase.

Body Size—Our measure of body size was coded from videotapes obtained as a part of the FACHS data collection process. Coding staff at the Institute for Social and Behavioral Research at Iowa State University worked with principal investigators on the FACHS study to develop a series of decision rules for use in concert with figural drawings for rating respondent body size. (The final version of the decision rules can be found in Appendix 1.) The two coders assigned to this task received two hours of training during which the project was explained and pilot tapes were reviewed. During the review of the tapes, several figural rating scales were considered; the team selected the figures that appeared most developmentally appropriate for this sample and whose features and details were less explicitly Caucasian (Bulik et al., 2001).

After completing the training, coders independently coded ten additional pilot tapes, making notes about any scoring difficulties or questions. The coding team and their supervisors again met to compare scores and clarify decision rules. After it was determined that the team members were achieving close agreement on ratings, coders began independently scoring the study videotapes. Approximately 18% of the tapes were selected at random for scoring by a second independent rater. During the duration of the coding process, the group continued to meet weekly in on-going training sessions during which score differences were reconciled and decision rules further clarified. Rating differences not resolved in this way were reconciled through meetings at which the original scorers met together to view the tape and to agree upon a “final” score. At both group and dyadic consensus sessions, coders resolved score differences without knowledge of their initial individual scores. Using the intra-class correlation (ICC - Shrout & Fleiss, 1979; Suen & Ayers, 1989) to evaluate inter-observer agreement on the non-reconciled scores, the ICC for the videotape scoring was $ICC = .81$, which is acceptable for these types of data (Kenny, 1991; Mitchell, 1979).

Ethnic Identity—All respondents included in this analysis identified themselves as either “black” or “African American.” To capture additional elements of ethnic identity (Phinney, 1990), we used eight items taken from the Multigroup Ethnic Identity Measure (Phinney, 1992). These items focus upon the extent to which respondents identify with and take pride in their racial or ethnic group and include statements such as: “You are happy that you are a member of the ethnic group you belong to.” The response format for the items ranges from 1 to 4 and was recoded as necessary so that higher responses equated to more positive ethnic identity. The scale has been shown to have strong psychometric properties with African American children and adults (Phinney, 1992; Phinney & Kohatsu, 1997). The Chronbach's Alpha for this scale was .60.

Association with non-African Americans—On the basis of literature arguing that contact with African Americans may directly impact the way African American women and girls evaluate their bodies (Abrams, Allen, & Gray, 1993; Dorn et al., 1988; Freedman, 1984; Rierdan & Koff, 1997), we created a separate measure of association with non-African

Americans. This four-item measure included questions that assessed respondents' frequency of association, as well as their willingness to associate with non-African Americans. The four items that comprise this measure were also taken from the Multigroup Ethnic Identity Measure (Phinney, 1992). Responses were recoded as needed so that a high response indicated higher levels of involvement with non-African Americans and the Chronbach's Alpha for this sample was .70. The questions included in this measure did not ask respondents to differentiate between friendships with whites as compared to Asian-Americans, Native Americans, or persons of Hispanic descent. However, in both Iowa and Georgia, the percentage of the population that is either African American or Caucasian nears or exceeds 95%. Therefore, we thought it was reasonable to consider this a measure of contact with whites.

Percent African American in Block Group—In order to more fully capture the impact of social structure on our measures of interest, we also included a measure of the density of African Americans in respondents' neighborhoods. We used the percentage of African Americans living in the respondents' Block Group (BG), the smallest geographical area for which the decennial U.S. Census reports data. These data are from the 1990 census and the measure reports the percent of the population in each respondent's BG that was African American.

Pubertal Status—Pubertal status was assessed using the Pubertal Development Scale (PDS; Petersen, Crockett, Richards, & Boxer, 1988). On a scale ranging from 1 (*have not begun*) to 4 (*development completed*), the respondents indicated the extent to which they had experienced pubertal growth (e.g., body hair development and menarche) during the past 12 months. The total PDS scores for the five items were averaged to maintain the original metric (range = 1 to 4). Cronbach's alpha was above .75, indicating acceptable reliability.

Family Social Class—We measured family class status by ranking respondents based on a combination of the primary caregiver's work status and the total household income (Billingsley, 1992). This method of assessing class status reflects unique elements of class experience among African Americans, such as a lower return for years of education and greater likelihood of being asked to support extended family members. The measure generates five class groups: (1) nonworking poor, (2) working poor (3) working nonpoor, (4) middle class, (5) upper class.

Authoritative Parenting—In an effort to increase the validity of our measure of authoritative parenting, primary caregiver self-reports and child reports about the caregiver's parenting were summed to form a composite measure (Furman, Jones, Buhrmester, & Alder, 1989; Olson, 1977). The items for the scales were adapted from instruments developed for the Iowa Youth and Families Project (IYFP; Conger et al., 1992; Conger & Jr., 1994) and have been shown to have high validity and reliability (Conger et al., 1992; Simons, 1996; Simons, Chao, Conger, & Elder, 2001; Simons, Johnson, Conger, & Elder, 1998). Focus group feedback prior to data collection indicated that these items are meaningful to African American parents and capture what they consider to be the important dimensions of effective parenting.

Primary caregivers completed 21 questions regarding their parenting practices in five areas: monitoring, consistency of discipline, inductive reasoning, problem solving and positive reinforcement. The response format for all of these items ranged from 1 (never) to 5 (always). Negatively worded items were recoded so that high scores on all items indicated effective parenting. Coefficient alpha for the instrument was approximately .75. These same items were reworded so that the target child could use this scale to rate the primary caregiver's parenting behavior. In addition to these items, the child-report measure of parenting included nine items concerning parental warmth. Coefficient alpha for this 30-item scale was approximately .90. Caregiver-report and child-report scores were standardized and summed to form a composite measure of quality of parenting.

RESULTS

Complete data for the measures used in this analysis were available for 343 female respondents. Close to 40 percent of these girls reported they were either currently gaining weight or had gained weight in the past few months. Twenty-eight percent had noticed a very slight increase in weight while 32 percent reported no recent weight changes. In terms of objective body size, the mean value assigned by video coders was 4.5 (s.d. = 1.5) and the median value was four (out of a possible 9). Approximately 12 percent of respondents were in the top three weight categories (7, 8, and 9). Respondents' scores on the depression measure ranged from zero to 19 (out of a possible 22). The mean score was 6.8 (s.d.= 4.6). Twenty-eight percent reported three or fewer symptoms while fewer than three percent reported more than 16 symptoms.

The average pubertal status score for this sample was 2.5, (s.d. = .5) and close to 80 percent of the girls reported that they had experienced menarche, both of which indicate puberty was well underway in this group. Overall, the pubertal development levels among the children in the present sample appear to be within the normative range for girls of these ages (Xiaoja Ge, Conger, & Elder, 1996).

One of the benefits of the FACHS sample is the presence of a diversity of class backgrounds among the respondents. The sample used in this analysis includes respondents from all major class groups (Billingsley, 1992): non-working poor (7.6%), working-class poor (7.6%), working-class non-poor (33.3%), middle class (32.5%), and upper class (17.1%). The mean category was working-class non-poor; the median category was middle class.

The bivariate relationships between the independent and dependent variables appear in Table 1, as do uncentered means and standard deviations for all the measures. Both measures of weight correlate significantly with depression. Of the measures of ethnic identity and exposure to non-African Americans, only association with non-African Americans and the percentage of African Americans in respondents' block groups were significant at the bivariate level. In addition, authoritative parenting was associated with decreased depression while puberty predicted an increase. Class status did not correlate with depression among these respondents.

Our first research question concerned the effect of weight and weight gain on depressive symptoms. We assessed this question using ordinary least squares regression. The results are presented in Table 2. Model 1 shows the effect of the weight measures on depressive symptoms after controlling for the other study variables. Both recent weight gain and body weight show a significant association. The beta coefficients are .214 and .102, respectively. Although weight concern may be less prevalent among African American girls relative to white girls, these results do suggest a relationship between recent weight gain and depression. In addition, objective body size may also influence risk for depression, with girls observers judged to have a larger body size being more likely to be depressed than their smaller peers.

Although the analysis presented in Model 1 assumes a linear relationship between weight and depression, it is possible that the association is nonlinear, with weight exerting little or no effect on depression among thinner girls but strongly impacting depression among heavier girls or among girls who have noticed significant weight gain. In order to assess this possibility, we created squared terms for the two weight measures and included them in our regression model. The results are not shown for the sake of parsimony. However, neither of the interaction terms approached significance.

We also considered the possibility that the relationship between weight gain and depression varied by body size; for example recent weight gain may be most distressing for girls who are very thin and thus on whom the weight change may be more noticeable, than for other girls. We tested for this possibility by including in the regression equation the interaction term formed

by centering and multiplying the two weight measures. Although not shown, this interaction did not approach significance. Finally, we tested the possibility that the impact of either weight gain or weight varied by quality of parenting, pubertal stage or family class background. Again, although not shown, none of these interaction terms approached significance. Together, these findings suggest a linear relationship between our body size and weight gain measures and depressive symptoms.

In addition to the two weight measures, Table 2 shows that some of the other variables included in Model 1 are also related to depression. First, consistent with prior studies, authoritative parenting reduces the risk of depression. The two indicators of involvement in African American culture also show significant effects. Interaction with non-African Americans is positively related to depression whereas living in a neighborhood with a high proportion of African Americans is negatively related to depression. (The latter effect only approaches significance with a p of .06.) Ethnic identity, on the other hand, is unrelated to depression in these models.

Our second research question focused on the degree to which identification or involvement with African-American culture moderated the association between weight and depression. We addressed this issue by examining the effects of the interaction terms formed by centering and multiplying ethnic identity, association with non-African Americans, and living in a neighborhood with a high percentage of African Americans by each of the weight variables. Model 2 shows the results of adding to our regression equation the interaction terms formed by multiplying ethnic identity, association with non-African Americans, and living in a neighborhood with a high percentage of African Americans by recent weight gain. None of these interaction terms approaches statistical significance. Model 3 reports the results of adding to our regression equation the interaction terms formed by multiplying ethnic identity, association with non-African Americans, and living in a neighborhood with a high percentage of African Americans by body size. Again, none of these interactions approach significance. Thus the findings reported in Models 2 and 3 fail to support our expectation that a strong African American identity or involvement in African American culture reduces the association between body size or weight gain and depression.

DISCUSSION

We began this project with two primary aims: to assess the impact of body size and recent weight gain on depression among a group of socio-economically diverse African American girls and to explore arguments that ethnically relevant identities or experiences may influence this relationship. We found that, among this sample of early adolescents, both weight gain and body size were positively associated with depression. Consistent with other research in this area (A. B. Archibald et al., 1999; Pesa, Syre, & Jones, 2000; Rierdan & Koff, 1997), we also found that the predominant influence came from subjective perceptions of weight gain rather than our objective measures of body size. Girls whose responses indicated they were either gaining weight or had recently gained weight were more likely to be depressed than girls who noticed little or no recent weight gain; this relationship held after controlling for differences in pubertal development. Important as well, although quality of parenting showed the expected strong and significant association with depressive symptoms, it did not account for the influence of either body size or weight gain.

These results are important because they reinforce calls for more attention to the particular ways in which African American girls experience body weight concern. While there is substantial evidence that they benefit from a more flexible definition of appropriate weight, this does not mean they are unaffected by weight concerns. Based on the results presented here,

it appears early adolescent African American girls find evidence they are gaining weight to be distressing and that this may be a risk factor for depression in this age group.

Of course, these relationships may also work in the opposite direction, wherein being depressed makes one more likely to put on weight or perceive a weight gain. With respect to body size, for example, this logic would predict that girls who are depressed may eat more, resulting in a larger body size. Though depression clearly influences eating behaviors, we do not believe the patterns reported here reflect such a process. Most studies that have examined this question in detail have found the effect of depression on eating varies, producing increased eating in some persons but decreased eating in others (McCabe & Vincent, 2003; Wertheim et al., 1992) and, among African Americans specifically, loss of appetite appears to be the more common response (Avalon & Young, 2003). In addition, longitudinal work by Patton and colleagues examined the relationship between depression and weight change and found that increases in depression scores predicted weight loss, rather than weight gain among adolescents (Patton, Coffey, Posterino, Carlin, & Wolfe, 2000).

As with body size, it is also possible that depressed girls may be more likely to believe they have recently put on weight as a part of a larger pattern of low self worth. This possibility has been examined in a few studies using racially diverse samples and the evidence suggests that the predominant effect goes from perceptions of body to depression, rather than the reverse (Siegel, Yancey, Aneshensel, & Schuler, 1999; Stice & Whitenton, 2002). Fully tracing the direction of causality between weight and depression will require substantial longitudinal work but, for the reasons we outline here, we believe that weight does impact vulnerability to depression particularly among girls in this early adolescent age group.

In addition to examining the direct effect of body size and weight gain on depression, we also looked at the role of ethnicity and association with African American culture as moderators of this relationship. We anticipated that a strong and positive ethnic identity would reduce the relationship between weight and depression while stronger ties to non-African Americans would increase it. To our surprise, however, we found no evidence that either affiliation with or distance from African American culture affected the relationship between weight and depression.

Of course, these results alone do not disprove arguments in favor of cultural protections against weight-related psychological distress. Taken in concert with other research, however, they suggest that protection provided by cultural association may be both more complex and more contingent than previously thought. For example, the fact that African American girls generally experience lower rates of weight distress may mean that experiencing such distress in non-normative. Thus, it may be that holding a salient weight perception is distressing not only because the perception (overweight or weight gain) has negative connotations but also because weight awareness itself violates normative expectations African American girls hold about their bodies (Siegel, 2002).

This account would explain the lack of effect for ethnic identity but does not explain why associations with non-African Americans failed to moderate the influence of either weight or weight gain. Here as well, it is premature to reject the idea that no protections exist. The work that has suggested a shielding effect was done with older respondents, such as college aged women (Abrams et al., 1993; Petersons, Rojhani, Steinhau, & Larkin, 2000) and it is possible that such protections take hold later in adolescent development or during early adulthood. The respondents in this analysis were aged 12 to 14 and thus were considerably younger than the participants in these other studies. It is also possible that the protection offered by ethnic identity has been reduced over time. In recent years, patterns of association have become more racially diverse, increasing numbers of Americans identify as multi-racial, African Americans have

become more affluent, and black celebrities are increasingly viewed as models of beauty for the culture as a whole. All of these factors may make a positive ethnic identity less protective than it once was.

There were also limits in the measures themselves that may have obscured the role such experiences play in the development of depression. In particular, both ethnic identity and non-African American friends were global measures and did not include questions specifically focused on definitions of beauty or expectations regarding weight. It is possible that ethnic identity and friendship association measures focused specifically on perceptions of weight and beauty would demonstrate associations not discernable with our current measures. In addition, our measures did not ask respondents to specify the race of their non-African American friends, and the inability to control for this may also have limited the results. Finally, our structural measure of contact with non-African Americans focused on the racial composition of the respondents' block group. A more local measure, such as the racial composition of the respondents' school, may be preferable. Such measures were not available with the FACHS dataset but future work could incorporate the racial composition of the respondents' school, potentially producing a different result.

Although our measure of parenting did not appear to influence the relationship between body size and depressive symptoms, its effect equaled that of our weight measures, reaffirming its critical role in child and adolescent mental health. This leads us to speculate about other ways in which parents' behavior towards their daughters may effect the association between body size and mental health. One possibility is that these dynamics are impacted by more specific socialization practices such as gender or racial socialization. For example, girls whose parents actively educate them about the meaning of being African American may be able to use this knowledge to resist dominant social pressure to be thin. Limitations in the FACHS data prevented us from assessing these arguments with respect to this age group but future work could investigate this possibility.

Finally, we were not able to explore the influence of media culture, with its widespread glorification of slenderness. Some work has suggested that comparisons with proximal others are more influential for evaluations of body size than are more distal images from the media (Morrison et al., 2004). However, given the ubiquity of Caucasian, female actresses, models, and other celebrities, the notion that such images may influence self evaluations deserves exploration. Further, the increasing prominence of black female celebrities also suggests the relevance of media for the self-evaluations of African American girls may increase. Research focusing specifically on these trends will be important for specifying the processes that links body size and mental health.

Interventions designed to influence the relationship between body size and mental health can make use of these results. One clear implication is that programs aimed at African American girls should acknowledge the degree to which experiencing weight related psychological distress is common at this developmental stage. Beaufort-Lafontant (2003) has criticized work on weight and African American women for adopting too eagerly what she calls the "discourse of strength;" one feature of this discourse is that it normalizes obesity among Black women. By framing obesity as "normal," she argues, this discourse denies African American women the full range of emotional expression, particularly vulnerability and neediness. She suggests that such denial may encourage African American women to turn to eating as a coping strategy, ultimately increasing the likelihood they will become obese. The results of this analysis are consistent with her argument that insufficient attention has been given to psychosocial vulnerabilities experienced by African American women with regard to weight. Interventions the both celebrate strengths and acknowledge weakness may be especially valuable for stemming the rising rates of obesity while preserving developmental assets. These results also

suggest that early adolescence may be a particularly fruitful time to begin interventions aimed at obesity prevention. If girls are experiencing weight related distress, they may be open to considering behavioral changes aimed at both improving physical health and relieving emotional and social discomfort.

African American women and girls are a unique group within the study of weight and weight related mental health. They generally feel good about their bodies and see their bodies accurately, both of which hold promise for the trajectory of their long-term psychological health. Yet, physically they are quite vulnerable to the health consequences of obesity and they clearly do suffer a substantial amount of weight related distress. This combination of assets and vulnerabilities means it is particularly important that researchers fully explore the role played by weight in the mental health trajectories of African American women and girls. Such analysis requires integration of the social and cultural context within which they experience their bodies but also has the potential to reap considerable benefits for long-term physical and psychological health not only among African American women, but also among women in general.

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Appendix 1 Decision Rules for Videotape Coding of Body Size

1. Watch the tape without sound for a very short time. If necessary, fast forward to a point in the tape where more of the body can be viewed.
2. Aspects of the body to pay attention to:
 - shoulders
 - hands
 - face/neck
 - belly
 - arms
 - legs
 - chest
3. If in doubt about a focal's gender, check sound or fast forward to another point in the tape. If still in doubt, ask the Lead Coder or Unit Director; they can check the other wave on the data set to verify focal gender.
4. Do not talk with other coders; save questions for discussions with the Lead Coder or Unit Director, or for a meeting.
5. If in doubt about body size, code to either end of the scale from the midpoint (5).
6. Do not code based on height. Pay attention to thickness or width versus height.
7. If the focal may be pregnant, pay most attention to neck, shoulders, arms, and leg areas.
8. Check the chart before assigning a number for body size, and double-check the images at least twice.

9. Choose body size rating based on the number that is best characterized by the majority of visible body parts.
10. If there is a big contrast in body size between the two focals, and you are having a hard time deciding on a score, cover up the focal you are not scoring and look at each separately.

Biographies

Ellen M. Granberg is Assistant Professor of Sociology at Clemson University. Her research interests focus on the intersection of social psychology and mental and physical health. Her recent research projects have examined the self and identity impacts of sustaining weight loss over time and the influence of parental racial socialization on the self esteem of adolescent African American girls.

Ronald L. Simons is Distinguished Research Professor of Sociology and Research Fellow in the Institute for Behavioral Research at the University of Georgia. Much of his research has focused on the manner in which family processes, peer influences, and community context combine to influence deviant behavior across the life course. He has also completed work on domestic violence and the effect of racial discrimination on child development.

Frederick Gibbons is Professor of Psychology at Iowa State University. He received his Ph.D. in social psychology from the University of Texas and studies health applications of social psychology theory, with a focus on health risk behavior. He also studies psychosocial factors related to health disparities.

Janet Nieuwsma Melby is Scientist and Observation Unit Director at the Institute for Social and Behavioral Research, and Adjunct Associate Professor of Human Development and Family Studies at Iowa State University. Her research interests include observational assessment, behavioral interactions, family and interpersonal processes, and youth competencies.

REFERENCES

- Abrams KK, Allen LR, Gray JJ. Disordered Eating Attitudes and Behaviors, Psychological Adjustment, and Ethnic Identity: A Comparison of Black and White Female College Students. *International Journal of Eating Disorders* 1993;14(1):49–57. [PubMed: 8339099]
- Adams K, Sargent RG, Thompson SH, Richter D. A study of body weight control practices of 4th and 7th grade adolescents. *Ethnicity and Health* 2000;5(1):79–94. [PubMed: 10858942]
- Archibald AB, Graber JA, Brooks-Gunn J. Associations among parent-adolescent relationships, pubertal growth, dieting, and body image in young adolescent girls: A short-term longitudinal study. *Journal of Research on Adolescence* 1999;9(4):395–415.
- Archibald AB, Linver MR, Graber JA, Brooks-Gunn J. Parent-Adolescent Relationships and Girls' Unhealthy Eating: Testing Reciprocal Effects. *Journal of Research on Adolescence* 2002;12(4):451–461.
- Avalon L, Young MA. A Comparison of Depressive Symptoms in African American and Caucasian Americans. *Journal of Cross-Cultural Psychology* 2003;34(1):111–124.
- Beaufort-Lafontant T. Strong and Large Black Women?: Exploring Relationships between Deviant Womanhood and Weight. *Gender and Society* 2003;17(1):111–121.
- Billingsley, A. *Climbing Jacob's Ladder: The Enduring Legacy of African-American Families*. Simon & Schuster; New York: 1992.
- Bordo, S. *Unbearable Weight: Feminism, Western Culture, and the Body*. University of California Press; Berkeley: 1993.

- Bulik CM, Wade TD, Heath AC, Martin NG, Stunkard AJ, Eaves LJ. Relating body mass index to figural stimuli: population-based normative data for Caucasians. *International Journal of Obesity* 2001;25(10):1517–1524. [PubMed: 11673775]
- Cash TF, Henry PE. Women's Body Images: The Results of a National Survey in the U.S.A. *Sex Roles* 1995;33(12):19–28.
- Cawley, J. Body weight and the dating and sexual experiences of young adolescents. In: Michael, RT., editor. *Social awakening: Adolescent behavior as adulthood approaches*. Russel Sage Foundation; New York: 2001. p. 174-198.
- Cohn LD, Adler NE, Irwin CE Jr. Millstein SG, Kegeles SM, Stone G. Body-Figure Preferences in Male and Female Adolescents. *Journal of Abnormal Psychology* 1987;96(3):276–279. [PubMed: 3680770]
- Conger RD, Conger K, Elder GH Jr. Lorenz FO, Simons RL, L.B. W. A family process model of economic hardship and influences on adjustment of early adolescent boys. *Child Development* 1992;63:526–541. [PubMed: 1600820]
- Conger, RD.; E., GH, Jr.. *Families in troubled times: Adaptation to change in rural America*. Aldine; New York: 1994.
- Dorn LD, Crockett LJ, Petersen LC. The relations of pubertal status to intrapersonal changes in young adolescents. *Journal of Early Adolescence* 1988;8(4):405–419.
- Eamon MK. Influences and Mediators of the Effect of Poverty on Young Adolescent Depressive Symptoms. *Journal of Youth and Adolescence* 2002;31(3):231–242.
- Freedman RJ. Reflections of beauty as it relates to health in adolescent females. *Women and Health* 1984;9:29–45.
- French S, Story M, Perry C. Self-Esteem and Obesity in Children and Adolescents: A Literature Review. *Obesity Research* 1995;3(5):479–490. [PubMed: 8521169]
- Furman, W.; Jones, L.; Buhrmester, D.; Alder, T. Children's, parents', and observers' perspectives on sibling relationships. In: Zukow, RG., editor. *Sibling interaction across cultures: Theoretical and methodological issues*. Springer-Verlag; New York: 1989.
- Garn S. Socioeconomic Aspects of Obesity. *Contemporary Nutrition* 1981;6(7)
- Ge X, Conger RD, Elder GH Jr. Coming of Age Too Early: Pubertal Influences on Girls' Vulnerability to Psychological Distress. *Child Development* 1996;67:3386–3400. [PubMed: 9071784]
- Ge X, Conger RD, Elder GH Jr. Pubertal Transition, Stressful Life Events, and the Emergence of Gender Differences in Adolescent Depressive Symptoms. *Developmental Psychology* 2001;37(3):404–417. [PubMed: 11370915]
- Ge X, Elder GH Jr. Regnerus M, Cox C. Pubertal transitions, perceptions of being overweight, and adolescents' psychological maladjustment: Gender and ethnic differences. *Social Psychology Quarterly* 2001;64(4):363–375.
- Ge X, Kim IJ, Brody GH, Conger RD, Simons RL, Gibbons FX, et al. It's About Timing and Change: Pubertal Transition Effects on Symptoms of Major Depression Among African American Youths. *Developmental Psychology* 2003;39(3):430–439. [PubMed: 12760513]
- Gecas V. The Self-Concept. *Annual Review of Sociology* 1982;8:1–33.
- Grant K, Lyons A, Landis D, Cho MH, Scudiero M, Reynolds L, et al. Gender, Body Image and Depressive Symptoms Among Low-Income African American Adolescents. *Journal of Social Issues* 1999;55(2):299–316.
- Henriques GR, Calhoun LG, Cann A. Ethnic differences on women's body satisfaction: An experimental investigation. *Journal of Social Psychology* 1996;136:689–697. [PubMed: 9043200]
- Kenny DA. A general model of consensus and accuracy in interpersonal perception. *Psychological Review* 1991;98:155–163. [PubMed: 2047511]
- Koff E, Rierdan J. Perceptions of weight and attitudes toward eating in early adolescent girls. *Journal of Adolescent Health* 1991;12:307–312. [PubMed: 1755870]
- Kumanyika S, Wilson JF, Guilford-Davenport M. Weight-Related Attitudes and Behaviors of Black Women. *Journal of the American Dietetics Association* 1993;93:416–422.
- Lovejoy M. Disturbances in the Social Body: Differences in Body Image and Eating Problems among African American and White Women. *Gender and Society* 2001;15(2):239–261.

- McCabe MP, Vincent MA. The Role of Biodevelopmental and Psychosocial Factors in Disordered Eating among Adolescent Males and Females. *European Eating Disorders Review* 2003;11(4):315–328.
- McNutt SW, Hu Y, Schreiber GB, Crawford PB, Obarzanek E, Mellin L. A Longitudinal Study of the Dietary Practices of Black and White Girls 9 and 10 Years Old at Enrollment: The NHLBI Growth and Health Study. *Journal of Adolescent Health* 1997;20:27–37. [PubMed: 9007656]
- Mitchell SK. Interobserver agreement, reliability, and generalizability of data collected in observational studies. *Psychological Bulletin* 1979;86:376–390.
- Morrison TG, Kalin R, Morrison MA. Body-Image Evaluation and Body-Image Investment among Adolescents: A Test of Sociocultural and Social Comparison Theories. *Adolescence* 2004;39(155):571–592. [PubMed: 15673231]
- Mossakowski KN. Coping with perceived discrimination: Does ethnic identity protect mental health? *Journal of Health and Social Behavior* 2003;44(3):318–331. [PubMed: 14582311]
- Noh S, Beiser M, Kaspar V, Hou F, Rummens J. Perceived racial discrimination, depression, and coping: A study of Southeast Asian refugees in Canada. *Journal of Health and Social Behavior* 1999;40(3):193–207. [PubMed: 10513144]
- Olson, DHL. Insiders' and outsiders' views of relationships: Research studies. In: Levinger, G.; Rausch, HL., editors. *Close relationships: Perspectives on the meaning of intimacy*. University of Massachusetts Press; Amherst, MA: 1977.
- Patton GC, Coffey C, Posterino M, Carlin JB, Wolfe R. Adolescent Depressive Disorder: A Population-Based Study of ICD-10 Symptoms. *Australian and New Zealand Journal of Psychiatry* 2000;34:741–747. [PubMed: 11037359]
- Paul RJ, Townsend JB. Shape Up or Ship Out? Employment Discrimination Against the Overweight. *Employee Responsibilities and Rights Journal* 1995;8(2):133–145.
- Pesa JA, Syre TR, Jones E. Psychosocial differences associated with body weight among female adolescents: The importance of body image. *Journal of Adolescent Health* 2000;26:330–337. [PubMed: 10775825]
- Petersen AC, Crockett L, Richards M, Boxer A. A self-report measure of pubertal status: Reliability, validity, and initial norms. *Journal of Youth and Adolescence* 1988;17:117–133.
- Petersons M, Rojhani A, Steinhaus N, Larkin B. Effect of ethnic identity on attitudes, feelings, and behaviors toward food. *Eating Disorders* 2000;8(3):207–219.
- Phinney JS. Ethnic Identity in Adolescent and Adults: Review of Research. *Psychological Bulletin* 1990;108(3):499–514. [PubMed: 2270238]
- Phinney JS. The multigroup ethnic identity measure: A new scale for use with diverse groups. *Journal of Adolescent Research* 1992;7:156–176.
- Phinney, JS.; Kohatsu, EL. Ethnic and racial identity development and mental health. In: Schulenberg, J.; Maggs, JJ.; Hurrelmann, K., editors. *Health risks and developmental transitions during adolescence*. Cambridge University Press; New York: 1997.
- Register CA, Williams DR. Wage Effects of Obesity Among Young Workers. *Social Science Quarterly* 1990;71(1):130–141.
- Rierdan J, Koff E. Weight, weight related aspects of body image, and depression in early adolescent girls. *Adolescence* 1997;32(127):615–624. [PubMed: 9360735]
- Seiffge-Krenke I. Testing theories of romantic development from adolescence to young adulthood: Evidence of a developmental sequence. *International Journal of Behavioral Development* 2003;27(6):519–531.
- Sellers RM, Caldwell CH, Schmeelk-Cone KH, Zimmerman MA. Racial Identity, Racial Discrimination, Perceived Stress, and Psychological Distress Among African-American Young Adults. *Journal of Health and Social Behavior* 2003;43(September):302–317. [PubMed: 14582310]
- Shaffer D, Fisher P, Piacentini J, Conners CK, Schwab-Stone M, Cohen P, et al. The Diagnostic Interview Schedule for Children Revised Version (DISC-R): Preparation, field testing, inter-rater reliability and acceptability. *Journal of the American Academy of Child and Adolescent Psychiatry* 1993;32:643–650. [PubMed: 8496128]
- Shrout PE, Fleiss JL. Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin* 1979;86(4):20428)

- Siegel JM. Body Image Change and Adolescent Depressive Symptoms. *Journal of Adolescent Research* 2002;17(1):27–41.
- Siegel JM, Yancey AK, Aneshensel CS, Schuler R. Body Image, Perceived Pubertal Timing, and Adolescent Mental Health. *Journal of Adolescent Health* 1999;25:155–165. [PubMed: 10447043]
- Simons, RL., editor. Understanding differences between divorced and intact families: Stress, interaction, and child outcome. Sage; Thousand Oaks, CA: 1996.
- Simons RL, Chao W, Conger RD, Elder GH Jr. Quality of parenting as mediator of the effect of childhood deviance on adolescent friendship choices and delinquency: A growth curve analysis. *Journal of Marriage and the Family* 2001;63:63–79.
- Simons RL, Johnson C, Conger RD, Elder GH Jr. A test of latent trait versus life course perspectives on the stability of adolescent antisocial behavior. *Criminology* 1998;36:217–244.
- Simons RL, Murry VM, McLoyd V, Lin H-H, Cutrona CE, Conger RD. Discrimination, crime, ethnic identity, and parenting as correlates of depressive symptoms among African American children: A multilevel analysis. *Development and Psychopathology* 2002;14:371–393. [PubMed: 12030697]
- Smolak, L.; Levine, MP. Body Image in Children. In: Thompson, JK.; Smolak, L., editors. *Body Image, Eating Disorders, and Obesity in Youth: Assessment, Prevention, and Treatment*. American Psychological Association; Washington, D.C.: 2001.
- Sobal J, Nicolopoulos V, Lee J. Attitudes about overweight and dating among secondary school students. *International Journal of Eating Disorders*. 1995
- Stice E, Whitenton K. Risk Factors for Body Dissatisfaction in Adolescent Girls: A Longitudinal Investigation. *Developmental Psychology* 2002;38(5):669–678. [PubMed: 12220046]
- Suen, HK.; Ayers, D., editors. *Analyzing quantitative behavioral observational data*. Lawrence Erlbaum Associates; Hillsdale, NJ: 1989.
- Thompson SH, Rafiroiu AC, Sargent RG. Examining gender, racial, and age differences in weight concern among third, fifth, eighth, and eleventh graders. *Eating Behaviors* 2003;3:307–323. [PubMed: 15000992]
- Thompson SH, Sargent RG, Kemper K. Black and white adolescent males' perceptions of ideal body size. *Sex Roles: A Journal of Research* 1996;34(56):391–407.
- Webb TT, Looby EJ, Fults-McMurtery R. African American Mean's Perceptions of Body Figure Attractiveness: An Acculturation Study. *Journal of Black Studies* 2004;34(3):370–385.
- Wertheim EH, Paxton SJ, Maude D, Szmukler GI, Gibbons K, Hiller L. Psychosocial Predictors of Weight Loss Behaviors and Binge Eating in Adolescent Girls and Boys. *International Journal of Eating Disorders* 1992;12(2):151–160.
- Young LM, Powell B. The Effects of Obesity on the Clinical Judgments of Mental Health Professionals. *Journal of Health and Social Behavior* 1985;26(September):233–246. [PubMed: 4067239]

Table 1

Correlation Matrix for Variables in Regression Analysis (N=342)

	1	2	3	4	5	6	7	8	9
1. Depression.	---								
2. Recent Weight Gain	.254	---							
3. Body Weight	.141**	**	---						
4. Pubertal Status	.125*		.104*	---					
5. Family Social Class			.161**	.182**	---				
6. Authoritative Parenting					.110*	---			
7. Ethnic Identity						.041	---		
8. Assoc. w. Non-African Americans							.151**	---	
9. % African Americans in Block Group								.127*	---
Mean (Uncentered)	6.8	2.1	4.5	2.5	3.5	.12	26.5	13.5	45.7
Standard Deviation	4.7	0.8	1.5	.5	1.1	5.6	3.2	2.2	23.1

+ p<.10

* p<.05

** p<.01

Table 2
Standardized Regression Coefficients for Depression Regressed on Weight, Weight Gain, and Ethnic Identity Variables

Independent Variables	Model 1			Model 2			Model 3		
	β	Sig.		β	Sig.		β	Sig.	
Recent Weight Gain	.214	***		.216	***		.217	***	
Body Weight	.102	*		.103	*		.102	*	
Pubertal Status	.001			.004			.002		
Family Class Status	-.066			-.067			-.068		
Authoritative Parenting	-.227	***		-.225	***		-.225	***	
Ethnic Identity	-.038			-.038			-.034		
Association w. Non-African Americans	.154	**		.154	**		.155	**	
% African American in Block Group	-.086	+		-.085			-.087	+	
Ret Wt Gn. * Ethnic Identity				-.010			---		
Ret Wt Gn. * Assoc w. Non-AA				.005			---		
Ret Wt Gn. % AA in BG				-.034			---		
Body Weight * Ethnic Identity							-.011		
Body Weight * Assoc w. Non-AA							-.003		
Body Weight * AA in BG							-.044		
Adj R ²			14%			13%			13%

+ p<.10

* p<.05

** p<.01

*** p<.001