HHS Public Access

Author manuscript

J Clin Child Adolesc Psychol. Author manuscript; available in PMC 2018 August 22.

Published in final edited form as:

J Clin Child Adolesc Psychol. 2017 ; 46(1): 150–158. doi:10.1080/15374416.2016.1188703.

Emotional Implications of Weight Stigma across Middle School: The Role of Weight-Based Peer Discrimination

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Abstract

Objective—The study considered the emotional consequences of weight stigmatization in early adolescence by examining the effects of weight-based peer discrimination across middle school.

Method—Sampled across 26 urban middle schools, 5,128 youth (52% girls) with complete BMI data at 6th or 7th grade were included: 12% African-American/Black, 14% East/Southeast Asian, 30% Latino, 21% White, 14% Multiethnic, and 9% from other specific ethnic groups.

Results—About one third of the sample reported at least one weight-discrimination incident at 7th grade. Controlling for 6th grade adjustment, perceptions of weight-based peer discrimination at 7th grade were stronger predictors of body dissatisfaction, social anxiety, loneliness (and somatic symptoms for girls, but not boys) at 8th grade than 7th grade BMI. Moreover, heavier body stature during the first year in middle school was associated with increased body dissatisfaction and social anxiety by the end of middle school in part due to weight-related disrespectful, exclusionary, and demeaning treatment by peers.

Conclusion—Weight-based peer discrimination helps us understand one of the stigmatizing mechanisms underlying the relation between heavy body stature and the progression of emotional problems in early adolescence.

Keywords

weight-based peer discrimination; emotional adjustment; body mass index

Despite obesity rates tripling among youth since the mid 1990's (Gordon-Larsen, The, & Adair, 2010), there is no evidence that heavy weight has become less stigmatized. A comprehensive review of studies conducted across the past two decades consistently indicated that youth with heavier weight (overweight or obese) are negatively stereotyped, socially marginalized by their peers, and exhibit more negative self-views as well as increased depression compared to peers with normal weight (Puhl & Latner, 2007). Dissatisfied with their bodies, adolescents whose weight exceeds normal weight are also at elevated risk for eating problems (Neumark-Sztainer et al., 2002a). Given the persistence of obesity in adolescence into adulthood (Freedman et al., 2015) and that psychological problems tend to promote poor health habits (Tomiyama, 2014), it is critical to understand

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factors contributing to the psychological problems associated with heavy weight over time. We focus here on the emotional effects of perceived weight-based peer discrimination across three years of middle school.

Although children with obesity are less liked and more rejected by their peers than normal-weight classmates starting in elementary school (Strauss, Smith, Frame, & Forehand, 1985), heavy stature is a particularly salient and consequential social stigma in early adolescence for several reasons. Concerns of peer approval are heightened (LaFontana & Cillessen, 2010), and appearance norms become increasingly important for youth during the onset of puberty (Tremblay & Lariviere, 2009). While worries about peer approval intensify as youth transition from elementary school to middle school because they need to re-establish their social networks (Juvonen, 2007), “fitting in” might be particularly challenging for youth with heavy weight as social status is related physical appearance in early adolescence (Adler & Adler, 1998; Harter, 1993).

A number of studies suggest that the mental health problems of youth with heavy weight are related to the ridicule, disrespect, and exclusion they often experience at the hands of their peers. Youth with obesity and overweight are at an elevated risk for being bullied (Janssen, Craig, Boyce, & Pickett, 2004; Lumeng et al., 2010) and socially marginalized in school (Strauss & Pollack, 2003). Weight-based peer mistreatment, in turn, is concurrently associated with lower self-esteem and elevated depression, over and above actual weight (i.e., body mass index, BMI) (Eisenberg, Neumark-Sztainer, & Story, 2003; Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006). These findings are consistent with recent research on adults suggesting higher BMI is indirectly related to concurrent psychological and physical health through perceived weight discrimination (Hunger & Major, 2015; Rosenthal et al., 2015). The latest evidence on adults also suggests that weight-discrimination might be an even more potent predictor of health than other attributions for discrimination (Sutin, Stephan, & Terracciano, 2015).

Although adjustment problems, including body dissatisfaction, low self-esteem, and increased depression, are concurrently related to weight-based peer mistreatment, longitudinal evidence is limited. For example, we could not find a study where BMI and weight-based peer discrimination are measured simultaneously to predict subsequent psychological adjustment when controlling for earlier levels of adjustment. By comparing the relative effects of concurrent BMI and weight-based mistreatment on changes in emotional adjustment, we can learn whether youth with higher BMI come to feel worse about themselves because of their weight, peer mistreatment, or both. We are particularly interested in extending past research on weight discrimination and adolescent well-being to study changes in social emotions, including social anxiety and loneliness. If youth are concerned about being rejected by their peers and feeling isolated, they may actively withdraw from social events and situations at the developmental phase when peer affiliations serve vital developmental functions (Blakemore & Mills, 2014). It is particularly important to study indicators of social anxiety and loneliness in light of evidence suggesting that social isolation from peers in early adolescence is related to greater physical health problems by early adulthood (Allen, Uchino, & Hafen, 2015). We presume that weight-related peer mistreatment would help account for the association between earlier BMI and subsequent

body dissatisfaction, loneliness, social anxiety, and somatic problems. Although some mediational models have been tested over time (Eisenberg et al., 2006; Rosenthal et al., 2015), they have been limited to two times points. A more rigorous statistical approach would establish temporal precedence of such processes by examining hypothesized predictors, mediators, and outcomes at three distinct time points (e.g., Chmura Kraemer, Kiernan, Essex, & Kupfer, 2008).

Current Study

Two main goals guide the current study. First, we test the relative effects of simultaneously assessed BMI and weight-based peer discrimination (at 7th grade) on increased emotional problems between 6th and 8th grade. Such analyses are important before examining whether BMI during the first year in middle school (i.e., 6th grade) is indirectly related to emotional problems by the end of middle school through perceived weight-based peer discrimination at the 7th grade. While the first set of analyses enables us to gauge whether weight-based peer discrimination predicts emotional problems over and above concurrent BMI, the latter examine the processes by which earlier BMI is linked with subsequent discrimination and, in turn, changes in indicators of emotional distress. We hypothesized that higher BMI in the beginning of middle school increases the risk of weight-based peer discrimination by 7th grade, which in turn predicts increased emotional distress between the first and final year of middle school (i.e., 8th grade distress when controlling for 6th grade baseline).

This study extends prior research in several ways. First, by controlling for initial levels of emotional adjustment, our analyses provide a methodologically rigorous test of the indirect effects of BMI on changes on emotional adjustment between the first and last year of middle school. Second, in addition to assessing body dissatisfaction, we focus on less frequently examined emotional indicators (social anxiety, loneliness, somatic symptoms) that are highly relevant to understanding both short and long term effects on physical health (Allen et al., 2015). Third, we rely on a newly-developed 4-item measure of weight-based peer discrimination based on the Adolescent Discrimination Distress Index (ADDI; Fisher, Wallace, & Fenton, 2000) rather than a general measure of peer victimization to gauge the degree to which youth attribute multiple forms of peer mistreatment specifically to their weight. Fourth, consistent with research demonstrating stronger associations between weight-based peer victimization and emotional adjustment among girls than boys (Puhl & Luedicke, 2011), we examine whether weight-based peer discrimination and social-emotional adjustment vary by sex. Finally, by relying on a large ethnically diverse public school sample, our goal is to obtain findings generalizable across a wide range of demographic groups.

Method

The current study relies on data from a larger, longitudinal study of youth recruited from 26 public middle schools in California that varied systematically in ethnic composition (N= 5,991). Our analytic sample consisted of 5,128 adolescents (52% girls) with complete BMI data at 6th or 7th grade (4,485 at 6th grade and 4,322 adolescents with complete BMI data at 7th grade). The 6th grade sample overlaps with a sample of girls (n= 2,636) used by Lanza,

Echols & Graham (2013) to examine sample-based ethnic BMI norms. The ethnic distribution for our analytic sample was 12% African-American/Black, 14% East/Southeast Asian, 21% White, 30% Latino, 14% Multiethnic, and 9% from other specific ethnic groups.

Procedure

The study was approved by the relevant Institutional Review Board and school districts. All eligible 6th grade students and families received informed consent and informational letters. To increase the return rates of parental consent forms, two $50 gift cards were raffled in each school for those students who returned a consent form, regardless of parental permission to partake in the study. Additionally two iPods were raffled among study participants. Parental consent rates averaged 81% across the schools.

We rely here on data collected in the spring of 6th (demographics, BMI and emotional health), 7th (BMI and weight-based peer discrimination), and 8th (emotional health) grades. Data collection was conducted in schools. Surveys were read aloud in each classroom by trained researchers, and students received $5 in the spring of 6th grade and $10 in 7th and 8th grade for completion of the surveys.

Measures

Body mass index (BMI)—BMI was calculated as a function of participants' age, gender and self-reported height and weight in the spring of 6th and 7th grade. As typical of self-reported height and weight data (Himes, 2009), 22% of the 6th grade sample and 26% of the 7th grade sample was missing height, weight, or age. BMI z-scores were calculated based on Centers for Disease Control and Prevention (CDC) 2000 growth charts for age and gender. Records with height-for-age, weight-for-age, or BMI-for-age values that were identified as implausible based on the World Health Organization's recommended exclusion ranges were excluded from the analyses (CDC, 2015; WHO, 1995). These exclusion criteria resulted in the loss of 237 6th graders and 116 7th graders.

Weight-based peer discrimination—Adolescents' perceptions of weight-based peer discrimination were assessed using 4 items adapted from the Adolescent Discrimination Distress Index (ADDI; Fisher, Wallace, & Fenton, 2000) at 7th grade. Items asked participants whether they had experienced exclusion, disrespectful treatment, threats, or name calling by their peers because of their weight (e.g., "How often did kids exclude you from their activities because of your weight?"). Means of the 5-point rating scales (1 = *never* to 5 = *a whole lot*) were computed, with higher scores indicating higher levels of discrimination ($\alpha_{7th\ grade}$ = .86). This measure was correlated with a seven item self-report measure of general peer victimization (r = .42), adapted from Neary and Joseph (1994).

Emotional adjustment—Four indicators were used to assess adjustment at 6th and 8th grade: body dissatisfaction, social anxiety, loneliness, and somatic symptoms.

Body dissatisfaction: Body dissatisfaction was assessed by relying on 4 items adapted from the Appearance subscale of the Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson, Mendelson, & White, 2001) (e.g., "I like what I see when I look in the mirror").

Ratings of the 6-point scale were reverse coded and averaged such that higher values indicated greater body dissatisfaction ($\alpha_{6th\ grade}$ = .87; $\alpha_{8th\ grade}$ = .89).

Social anxiety: Social anxiety was measured using the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998). The 6-items were aggregated from two subscales: Fear of Negative Evaluation (e.g., "I worry about what others say about me"), and Social Avoidance and Distress-General (e.g., "It's hard for me to ask others to do things with me"). Responses were rated on a 5-point scale (1 = *not at all* to 5 = *all the time*), summed and averaged ($\alpha_{6th\ grade}$ = .82; $\alpha_{8th\ grade}$ = .81).

Loneliness: A 5-item version of Asher and Wheeler's (1985) Loneliness Scale was used to measure feelings of loneliness at school (e.g., "I feel alone"). Students rated the items on a 5-point scale (1 = *not at all* to 5 = *all of the time*). Means were computed such that higher scores indicated more loneliness ($\alpha_{6th\ grade}$ = .91; $\alpha_{8th\ grade}$ = .92).

Somatic symptoms: Participants rated how many times in the past two weeks they had experienced five somatic symptoms (e.g., headaches, fatigue, stomachaches, nausea, poor appetite). Each symptom was rated on a 4-point scale (1 = *not at all* to 4 = *almost every day*). The symptoms included here were adapted from the larger list used in the National Longitudinal Study of Adolescent Health (Add Health; Udry & Bearman, 1998). Ratings were summed and averaged ($\alpha_{6th\ grade}$ = .75; $\alpha_{8th\ grade}$ = .76), with higher values indicating poorer health.

Control variables—Several control variables were used in the analyses. Students reported their sex and ethnicity in the 6th grade. We relied on parental education (using a 6-point scale) as an indicator of socioeconomic status (SES). Finally, participants rated their physical development compared to their same-sex and same-aged peers (Dubas, Graber, & Petersen, 1991), on a 5-point scale, with higher values indicating faster maturation (M =2.90, SD = .91).

Missing Data

To maximize power while allowing for measurement efficiency that lessens the time needed to complete all self-report measures, data for social anxiety, loneliness, and somatic symptoms at 8th grade were each completed by two-thirds of randomly selected respondents (see Graham, Taylor, Olchowski, & Cumsille, 2006; Little, Jorgensen, Lang, & Moore, 2014). Full information maximum likelihood (FIML) estimation methods are used for missing data. FIML allows for the inclusion of all available data in the analyses by fitting the covariance structure model directly to the observed raw data for each participant (Enders, 2010). Only participants with missing or implausible BMI data were excluded from the analyses.

Results

Analysis Plan

We first present descriptive statistics indicating weigh categories and level of weight discrimination by ethnic groups. Next, we present regression models examining the effects of the simultaneously assessed BMI and weight-based peer discrimination at 7th grade on the 8th grade adjustment outcomes. Finally, we turn to mediation models that examine the indirect effect of 6th grade BMI on 8th grade emotional adjustment through 7th grade weight discrimination. In all analyses we control for 6th grade baseline adjustment.

Descriptive Statistics

The mean 6th and 7th grade BMI percentiles among boys were 59.91 (*SD*= 29.00) and 58.16 (*SD*= 29.75), and 54.36 (*SD*= 29.60) and 56.98 (*SD*= 28.10) among girls. At each grade level, 23% of youth were classified with overweight or obesity (BMI ≥ 85th percentile according to CDC growth charts), with an overrepresentation of African-American and Latino youth (see Table 1). Adolescents with overweight or obesity reported significantly more weight-discrimination by their peers than those with average and underweight, $t(4208) = -2.44$, $p=.015$ at 7th grade. About a third (32%) of the sample reported at least one weight discriminatory experience by peers at 7th grade; no ethnic or gender differences were observed.

BMI and Peer Discrimination Predicting Adjustment

In our regression models predicting 8th grade adjustment, we capture the progression of adjustment difficulties across the middle school grades by controlling for 6th grade levels of each outcome (cf. Eisenberg et al., 2006). Regression models include all control variables (ethnicity dummy coded with Latinos as the largest group for the reference) and consider the effects of both BMI and weight discrimination at 7th grade, as well as their interactions with sex. When interactions of BMI and discrimination were explored with ethnicity, only one significant difference across the pan-ethnic groups was obtained showing that weight-discrimination was not related to body dissatisfaction among African-American youth. For the sake of parsimony, the five ethnicity × weight-discrimination terms for each emotional indicator are not included in Table 2.

Examining the results simultaneously across all four adjustment measures based on Table 2, a sex difference was documented only for body dissatisfaction and somatic symptoms, with girls reporting higher levels than boys for both outcomes. The differences across the pan-ethnic groups showed that compared to Latino youth, African-American youth reported lower body dissatisfaction, whereas Asian and White students displayed higher social anxiety and loneliness in addition to greater body dissatisfaction at 8th grade. Over and above these differences and baseline effects for each outcome, there were no significant effects of 7th grade BMI on 8th grade outcomes. Instead, 7th grade weight-based peer discrimination was a consistent predictor of each emotional problem at 8th grade. Significant discrimination × sex interactions revealed that the association between discrimination and loneliness was stronger for girls than boys, and that discrimination was related to somatic symptoms for girls but not for boys at 8th grade. Taken together, these findings suggest that

when controlling for BMI, youth are more dissatisfied with their bodies as well as feel more anxious, lonely, and sick because of the way they perceive to get treated by their peers due to their weight.

Indirect Effects of BMI

To test how weight might indirectly predict the development of emotional problems, we examined the effects of an earlier (i.e., 6th grade) BMI on emotional problems at 8th grade through 7th grade weight-based peer discrimination. Following recommended procedures, we used bias-corrected bootstrapping procedures (10,000 bootstraps) in Mplus version 7.31 to estimate these indirect effects and corresponding 95% confidence intervals (Preacher & Hayes, 2008; Muthén & Muthén, 1998–2012). Confidence intervals (C.I.) that do not include zero are considered statistically significant. Given the above reported sex differences, the models were tested separately for girls (n= 2,308) and boys (n=2,177), controlling for ethnicity, SES, and pubertal development.

Body dissatisfaction—Students with higher BMI at 6th grade were more likely to experience weight-based peer discrimination at 7th grade, which in turn predicted higher levels of body dissatisfaction (see Figure 1a). There was evidence of partial mediation for girls and boys (indirect effect=.020, C.I.=.012–.032 for girls; .018, C.I.=.008–.029 for boys). That is, although 6th grade BMI predicted higher body dissatisfaction at 8th grade, this association was partially accounted for by 7th grade weight discrimination.

Social anxiety—As shown in Figure 1b, there was also a significant indirect path from BMI to social anxiety for both girls (indirect effect=.016, CI: .009–.026) and boys (.010, CI: .003–.020). Although the relation between 6th grade BMI and 8th grade social anxiety was not statistically significant, the indirect effects can be interpreted in light of our theoretical predictions (Rucker, Preacher, Tormala, & Petty, 2011). That is, higher 6th grade BMI predicted higher levels of weight-based peer discrimination at 7th grade, which in turn predicted increased social anxiety in 8th grade.

Loneliness—As shown in Figure 1c, a similar pattern emerged for loneliness. Higher BMI at 6th grade increased the risk for weight-based peer discrimination at 7th grade, in turn predicting higher levels of 8th grade loneliness. Although the relation between 6th grade BMI and 8th grade loneliness was not statistically significant, an indirect path from BMI to loneliness through weight-discrimination was significant for girls (indirect effect=.019, CI: .011–.032) and boys (.009, CI: .002–.019).

Somatic Symptoms—Although there was a significant indirect effect from BMI to somatic symptoms for girls (indirect effect= .008, CI: .002–.016), weight-discrimination did not predict somatic symptoms for boys (Figure 1d). These findings imply that 7th grade weight-based peer discrimination accounts only for the 8th grade physical health problems of girls with heavier weight in 6th grade.

In sum, the results suggest that heavier weight during the first year in middle school increases the risk that youth feel discriminated against by their peers at 7th grade, and such perceptions predict increased emotional problems by the end of middle school. The effects

were consistent across all our emotional indices for girls, while the effects were limited to body dissatisfaction and social anxiety among boys.

Discussion

Underscoring the social-emotional consequences of heavy weight, our analyses provide further insights about weight-based stigmatization in early adolescence. By relying on prospective longitudinal data at a time when appearance norms are salient, we show how perceptions of weight-based peer discrimination are associated not only with body dissatisfaction, but also social anxiety and loneliness by the end of middle school. Thus, in addition to having fewer friends (Strauss & Pollack, 2003), youth appear to feel the social burden of weight. When attributing negative peer treatment to their weight, they may come to view peer approval as contingent on their body stature (cf. Pierce & Wardle, 1997) and hence be particularly vulnerable to emotional and physical health problems over time.

Consistent with recent findings on adults (Hunger & Major, 2015), the current findings indicate that the connection between heavy weight and emotional adjustment is largely due to perceived weight discrimination. At 7th grade, it was weight-based peer discrimination rather than concurrently assessed BMI that predicted body dissatisfaction, social anxiety, and loneliness by 8th grade. When examining the effects of earlier BMI, our findings suggest that heavier weight during the first year in middle school puts youth at risk for weight-related disrespectful, exclusionary, and demeaning treatment by peers, in turn increasing their body dissatisfaction and social anxiety by the end of middle school. Additionally, girls reporting peer mistreatment because of their weight experienced greater loneliness and higher rates of somatic symptoms by 8th grade. Thus, weight-based peer discrimination helps us understand one of the stigmatizing mechanisms underlying the relation between 6th grade BMI and increased emotional problems by 8th grade.

Similarly to findings by Neumark-Sztainer and colleagues (2002b), about one third of all middle school students reported at least one weight-based peer discrimination experience and youth with overweight and obesity reported higher rates of such mistreatment. Although African-American and Latino youth were overrepresented in the categories with overweight and obesity, they did not report greater rates of weight-based discrimination. This finding might reflect different weight norms across ethnic groups (Lanza et al., 2013). That is, when a greater number of youth of a particular ethnic group have high BMI, heavy stature may be less stigmatizing. Indeed, it is important to recognize that weight norms are relative: previous analyses show that weight-based peer mistreatment is associated with worse psychological well-being across all weight categories (Eisenberg et al., 2003). This means that even a teen with average weight may feel socially anxious when excluded by peers who are skinnier than her. Thus, it should be recognized that in addition to weight, peer group norms about weight may also contribute to perceptions of weight-based peer discrimination.

We presume one factor accounting for the robustness of our results pertains to the new measure used to capture weight-based peer mistreatment. Rather than relying on a single-item weight-teasing measure or a general measure of peer victimization frequently used to compare the plight of youth with obesity to those with average weight, each of our four peer

discrimination items referred to mistreatment specifically due to weight. Although this measure was moderately correlated with a measure of general peer victimization, the weight-based peer discrimination measure did not leave the attribution for the name-calling, exclusion etc. ambiguous. The associations with this measure were relatively robust across gender and ethnic groups, although weight-based peer victimization seems particularly impactful among girls (Puhl & Luedicke, 2011). Weight-based peer discrimination in 7th grade was related to increased loneliness and more frequent somatic symptoms at 8th grade only among girls. The finding regarding somatic complaints is consistent with research by Rosenthal et al. (2015), suggesting that girls manifest weight-discrimination related distress by feeling sick. The only ethnic difference pertained to body dissatisfaction, such that weight-discrimination was associated with body dissatisfaction for all but African-American youth. This finding, in turn, is consistent with research suggesting that weight-based stigma has fewer mental health consequences for African-American girls (Mustillo, Budd, & Hendrix, 2013).

Although the current study has several methodological strengths, there are also limitations. The most notable one pertains to our reliance on self-reported weight and height. Objective weight and height assessments would be ideal and possibly limit missing data. We also relied on self-reports of weight-based peer discrimination that are subjective. It would be important to examine whether the current findings replicate when relying on peer-reported discrimination measures (Rancourt & Prinstein, 2009). Also, a particular sequence (BMI → discrimination → adjustment) was presumed with the weight-discrimination data available only starting at 7th grade. Directionality of the associations could be further tested with cross-lagged panel data. Additionally, future studies need to examine whether the duration of weight-based peer discrimination might help account for an accumulation of adjustment problems over time, especially in light of the latest findings suggesting that weight-discrimination shortens life (Sutin et al., 2015). In light of our findings, particularly concerning are the potential negative health effects of earlier weight-based peer discrimination among girls.

Taken together, our main findings underscore that weight-related peer mistreatment needs to be addressed when trying to improve the well-being of youth with overweight. Many school-based health programs focus on fitness and may therefore narrow acceptable body size norms. Moreover, when health promotion programs underscore the importance of personal responsibility by promoting healthy eating habits and exercise (see Stice, Shaw, & Marti, 2006), they can further contribute to weight stigma—those who remain overweight may actually be blamed for their weight (e.g., Russell-Mayhew, 2006). Thus, programs that empower youth to take control of their health should also manage social implications of these messages (i.e., to prevent negative evaluations and the mistreatment of youth with heavy weight). Although general anti-bullying programs might help reduce at least overt forms of weight-based peer mistreatment (Juvonen & Graham, 2014), promoting weight acceptance and body shape diversity is also needed. Such programs have been shown to be effective in improving peer acceptance and reducing teasing of overweight students in elementary school (e.g., Irving, 2000), but developmentally sensitive methods need to be created to improve the emotional health of young adolescents experiencing peer discrimination because of their weight.

Acknowledgments

FUNDING

National Institutes of Health: 1R01HD059882-01A2

National Science Foundation: 0921306

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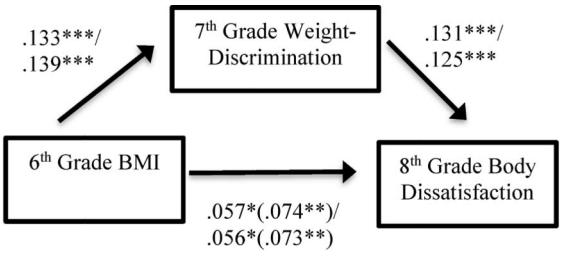
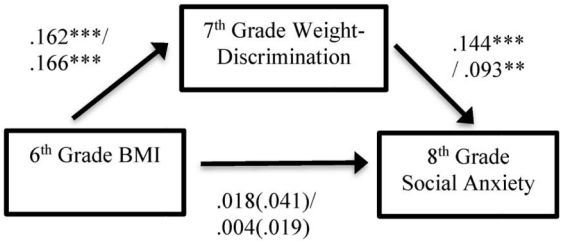
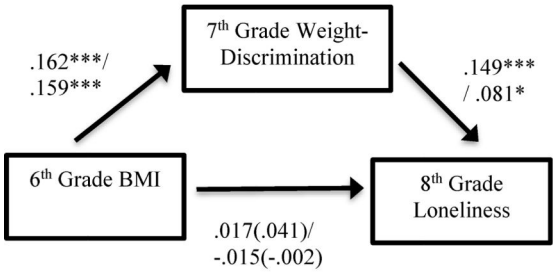


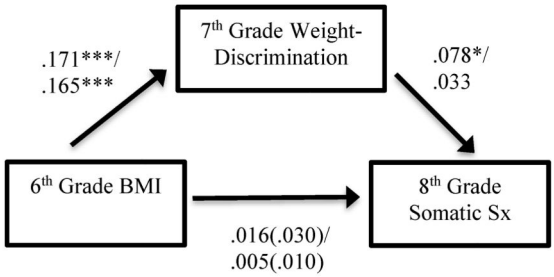
a. Standardized effect estimates of BMI predicting body dissatisfaction through weight-discrimination.



b. Standardized effect estimates of BMI predicting social anxiety through weight-discrimination.



c. Standardized effect estimates of BMI predicting loneliness through weight-discrimination.



d. Standardized effect estimates of BMI predicting somatic symptoms through weight-discrimination.

Figure 1.

Standardized effect estimates of BMI predicting adjustment outcomes through weight-discrimination. *Note.* Coefficients for girls, followed by boys, are separated by '/'. *p<.05; **p<.01; ***p<.001.

Table 1

Ethnic and gender breakdown of 6th grade sample weight category characteristics.

Ethnicity	**African American (*n*=519)**	**E/SE Asian (*n*=635)**	**Latino/a (*n*=1327)**	**White (*n*=952)**	**Multiethnic (*n*=656)**	**Other (*n*=393)**
Weight Status	Boys / Girls	Boys / Girls	Boys / Girls	Boys / Girls	Boys / Girls	Boys / Girls
Underweight (BMI <5 %ile)	5 / 3%	6 / 10%	3 / 2%	6 / 9%	3 / 7%	4 / 2%
Normal (BMI 5–84.9th %ile)	69 / 64%	73 / 77%	60 / 71%	79 / 80%	74 / 73%	70 / 86%
Overweight (BMI 85–94.9th %ile)	17 / 18%	13 / 10%	22 / 17%	10 / 8%	14 / 12%	16 / 6%
Obese (BMI ≥ 95th %ile)	9 / 15%	8 / 3%	15 / 10%	5 / 3%	9 / 8%	10 / 6%

J Clin Child Adolesc Psychol. Author manuscript; available in PMC 2018 August 22.

Table 2

Effects of 6th grade controls, 7th grade weight, and 7th grade weight-discrimination on psychosocial outcomes.

	8th Grade Outcomes (standardized coefficients and S.E.s)			
	Body Dissatisfaction	**Social Anxiety**	**Loneliness**	**Somatic Symptoms**
Sex	.216(.03)***	.063(.07)	.045(.05)	.138(.05)**
African American	−.107(.02)***	−.077(.05)	−.005(.02)	.021(.02)
Asian	.063(.02)***	.283(.05)***	.139(.02)***	.005(.02)
White	.043(.02)**	.160(.05)**	.074(.03)**	−.003(.03)
Multiethnic	−.034(.02)*	.043(.05)	.084(.02)***	−.011(.02)
Other	.001(.02)	.139(.06)*	.032(.02)	−.023(.02)
Parental Education (SES)	.039(.02)	.012(.01)	.023(.02)	−.013(.02)
6th Grade Pubertal Development	−.017(.01)	−.011(.02)	.009(.02)	.024(.02)
6th Grade Outcome	.376(.01)***	.430(.02)***	.326(.02)***	.363(.02)***
7th Grade BMI	.026(.02)	.009(.02)	−.011(.03)	.002(.03)
7th Grade Peer Weight-Discrimination	.102(.02)***	.104(.03)**	.054(.03)*	.026(.03)
Discrimination × Sex	.068(.04)†	.085(.05)	.136(.05)**	.113(.05)*
BMI × Sex	.017(.02)	.009(.03)	.033(.03)	.012(.03)

Note.

*** $p<.001$,

** $p<.01$,

* $p<.05$,

† $p<.07$.

Ethnicity reference group=Latino. Sex reference group=boys.