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Associations between Race and Eating Disorder Symptom Trajectories in Black and White Girls

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Abstract

Epidemiological research suggests racial differences in the presentation of eating disorder symptoms. However, no studies have examined associations between race and eating disorder symptom trajectories across youth and adolescence, which is necessary to inform culturally sensitive prevention programs. The purpose of the current study was to examine the trajectories of eating disorder symptoms from childhood to young adulthood and to examine whether race was associated with trajectory group membership. Data were drawn from 2,305 Black and White girls who participated in a community-based longitudinal cohort study (Pittsburgh Girls Study) examining the development of psychopathology. The child and adult versions of the Eating Attitudes Test assessed self-reported eating disorder symptoms at six time points between ages 9 and 21 years. Growth mixture modeling was used to examine developmental trajectories of dieting, bulimia/food preoccupation, and total eating disorder symptom scores. Given potential confounds with race and disordered eating, financial strain (i.e., receiving public assistance) and weight were included as covariates. Four to six distinct developmental patterns were found across eating disorder symptoms, including none, increasing, decreasing, or increasing-decreasing trajectories. Black girls had a greater likelihood of being in the decreasing trajectories for dieting, bulimia/food preoccupation, and total eating disorder symptom scores. White girls were more likely to follow increasing trajectories of dieting and total eating disorder symptom scores compared to Black girls. These results highlight the importance of examining the influence of

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racial background on eating disorder symptoms and the potential need for differences in the timing and focus of prevention interventions in these groups.

Keywords

disordered eating; trajectory; Pittsburgh Girls Study; adolescents; development; racial differences

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Disordered eating behaviors and attitudes such as dieting, binge eating, and shape/weight concerns are prevalent in youth (Croll, Neumark-Sztainer, Story, & Ireland, 2002; DeLeel, Hughes, Miller, Hipwell, & Theodore, 2009; Field et al., 1999; Swanson, Crow, Le Grange, Swendsen, & Marikangas, 2011). These features are associated with significant distress and impairment (Mond, Hay, Rodgers, & Owen, 2011; Tabler & Utz, 2015; Vannucci et al., 2013; Wade, Wilksch, & Lee, 2012) and substantially increase risk for diagnosable eating disorders (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). Improved understanding of the temporal course of disordered eating is necessary to prevent the development of clinically significant eating disorders and reduce the morbidity and mortality associated with these problems. Thus, the aims of the current study were to examine trajectories of eating disorder symptoms from childhood to young adulthood and to explore the influence of race on symptom trajectories.

General Developmental Patterns for Eating Disorder Symptoms

Onset of eating disorders typically occurs during late adolescence and is preceded by the emergence of subsyndromal eating disorder symptoms (Hudson, Hiripi, Pope, & Kessler, 2007), highlighting the transition from childhood to adolescence as a key risk period for the development of eating disorder psychopathology. Longitudinal studies generally have found patterns of increasing weight/shape concerns and overall eating disorder psychopathology from early/mid adolescence (ages 11–16 years) to early adulthood (ages 22–25 years) (Calzo et al., 2012; Garber, Brooks-Gunn, Paikoff, & Warren, 1994; Slane, Klump, McGue, & Iacono, 2014). However, patterns of binge eating have been more variable between and within studies. For example, Sonnevile and colleagues (2013) found a general increase in binge eating from ages 9 to 24 years, with decreases in symptoms from 16 to 17, stability from 17 to 18, and decreases from 22 to 23. Others have found that binge eating increases up to ages 16 to 18, and may level off or decline after this age (Skinner, Haines, Austin, & Field, 2012; Slane et al., 2014).

Individual Patterns of Development of Eating Disorder Symptoms

Although eating disorder symptoms generally increase over adolescence (Hudson et al., 2007; Rohde, Stice, & Marti, 2015; Slane et al., 2014), there is evidence for individual differences in the patterns of symptom development. Specifically, recent findings suggest that girls follow different eating disorder symptom trajectories across adolescence and early adulthood (Aime, Craig, Pepler, Jiang, & Connolly, 2008; Fairweather-Schmidt & Wade

2016; Fay & Lerner, 2013; Pearson & Smith, 2015; Rodgers, McLean, Marques, Dunstan, & Paxton, 2015; Smith, Simmons, Flory, Annus, & Hill, 2007). Using latent class growth analysis (Aime et al., 2008; Fay & Lerner 2013; Pearson & Smith, 2015; Rodgers et al. 2015; Smith et al., 2007) or growth mixture modeling (Fairweather-Schmidt & Wade, 2016), researchers have examined longitudinal trajectories of binge eating, purging, dietary restriction/drive for thinness, and composite eating disorder symptoms.

Binge-eating and purging trajectories have been examined in two studies of adolescents from ages 10.8 to 14.8 years and 12.8 to 14.8 years, respectively (Pearson & Smith, 2015; Smith et al., 2007). These studies identified four binge-eating trajectory groups, including low/no symptoms, moderate/high stable symptoms, increasing symptoms, and decreasing symptoms (Pearson & Smith, 2015; Smith et al., 2007). Results were similar for purging behaviors with one study identifying three groups (i.e., none, “dabble”, increasing) (Pearson & Smith, 2015) and the other identifying four (i.e., none, moderate, increasing, high decreasing) (Smith et al., 2007).

Two other studies (Fay & Lerner, 2013; Rodgers et al., 2015) examined latent class trajectories of dietary restriction/drive for thinness with inconsistent findings. Rodgers et al. (2015) found three trajectory groups for dietary restriction whereas Fay and Lerner (2013) identified six trajectory groups for drive for thinness. These differences likely were driven by variability in the constructs examined, age at baseline, and length of follow-up. Indeed, the developmental time frames differed across these studies with one examining symptoms over 2 years starting at age 14.9 (Fay & Lerner, 2013) and the other examining symptoms over 14 months starting at age 12.8 (Rodgers et al., 2015).

Finally, only two studies have examined trajectories of composite eating disorder symptoms. Aime and colleagues (2008) examined symptoms across late adolescence from age 15.2 years at baseline to age 19 years at the final assessment and found five distinct trajectory groups, including none, low stable, moderate stable, high decreasing, and increasing. Fairweather-Schmidt and Wade (2016) examined symptoms across mid to late adolescence in individuals aged 12 to 15 at baseline who were followed for 3 years and identified three symptom trajectories, namely none, increasing, and decreasing groups.

In summary, the number of groups emerging in studies examining eating disorder symptom trajectories has ranged from three to six, with the majority finding groups characterized by stable-low levels of symptoms, increasing symptoms, and decreasing symptoms over time. Some studies also have identified groups reflecting stable-high symptoms (Aime et al., 2008; Fay & Lerner, 2013; Pearson & Smith, 2015), suggesting the presence of disordered eating prior to baseline assessments. With one exception (Pearson & Smith, 2015), previous studies examining latent class trajectories have focused on mid-adolescence (i.e., baseline ages 12–15 years), and the longest duration of follow-up has been 4 years (range 14 months to 4 years). Thus, there is a clear need for studies examining a broader developmental time frame. Moreover, prior research has focused on eating disorder symptom trajectories primarily in White samples of high socioeconomic status (SES), limiting knowledge of whether demographic variables influence symptom trajectories.

Race as a Risk Factor for Individual Differences in Eating Disorder Symptom Trajectories

There has been great interest in the role of race as a putative risk factor for eating disorder psychopathology (Wildes & Forbush, 2015). Sociocultural theories of eating disorders posit that racial differences in cultural beauty ideals and internalization of these ideals may increase risk for eating disorder symptoms and disorders in White girls and women (Shaw, Ramirez, Trost, Randall, & Stice, 2004). Consistent with these ideas, studies have found increased drive for thinness, dieting, use of diet products, exercise for weight control, and purging in White compared to Black adolescent females (e.g., Choa et al., 2008; Striegel-Moore et al., 2000). However, results from a large community sample of middle school students (Austin et al., 2011) revealed that Black female youth were more likely to engage in weight control behaviors (i.e., vomiting, laxative use, diet pill use) compared to their same-aged White peers. Evidence also suggests similar (e.g., Cassidy et al., 2012; Regan & Cachelin, 2006) or higher (e.g., Marques et al., 2011; Striegel-Moore et al., 2000) prevalence of binge eating in Black adult or adolescent females compared to non-Hispanic White adult and adolescent females.

Few theories exist to explain racial disparities in binge eating and purging-related weight control behaviors. Some scholars have suggested that racial differences in eating disorder psychopathology may be due to differences in SES and/or overweight status (Austin et al., 2011; Rodgers, Watts, Austin, Haines, & Neumark-Sztainer, 2016). Black race often is confounded with lower SES, and greater food insecurity and accessibility of highly palatable versus healthful foods among lower SES families (Alaimo, Olson, Frongillo, & Briefel, 2001) may underlie associations found between Black race and binge eating. Additionally, Black girls and women are significantly more likely to be overweight compared to their White peers (Baskin, Ard, Franklin, & Allison, 2005), which may contribute to or be a consequence of binge eating and influence extreme forms of weight-control behavior. Alternatively, there may be a shared mechanism underlying the propensity for both increased adiposity and excessive food intake among Black individuals. Notably, few studies have accounted for differences in overweight or SES, which is necessary for explicating associations between race and developmental trajectories of eating disorder psychopathology as well as understanding the relative influence of these factors on disordered eating.

In sum, studies examining disordered eating trajectories among both White and Black girls followed across a broader developmental spectrum are needed to elucidate the complex relationship between race and eating disorder development (Wildes & Forbush, 2015). Accordingly, the aims of the current study were to assess trajectories of eating disorder symptoms in a diverse, community-based sample of young girls and to examine associations between race and trajectory group membership. We focused on girls, because they are at significantly greater risk for onset of eating pathology than young boys (Hudson et al., 2007). Participants were evaluated at six time points over approximately 10 years beginning at age 9. We hypothesized that increasing, decreasing, and low psychopathology classes would emerge across symptoms. In light of prior research documenting racial differences in eating disorder symptoms, we hypothesized that Black girls would be more likely to follow an increasing trajectory of binge-eating related symptoms and less likely to follow

increasing trajectories of dieting and composite eating disorder symptoms compared to White girls. Additionally, we hypothesized that associations between Black race and binge-eating symptoms would be attenuated when accounting for financial strain and adiposity.

Method

Participants and Procedures

Data were drawn from the Pittsburgh Girls Study ($N = 2,450$), a community-based longitudinal cohort study examining the development of psychopathology and psychosocial functioning in females from middle childhood to young adulthood (Keenan et al., 2010). A stratified, random household sampling method, with oversampling of households in low-income neighborhoods, was used to identify girls for the first data collection wave (when girls were ages 5–8 years) (Hipwell et al., 2002). Between 1998–1999, all homes in neighborhoods in which at least 25% of the residents were living at or below the poverty level were contacted in person to ascertain whether there was an age-eligible girl living in the home, and a random selection of 50% of households in non-risk neighborhoods was contacted. From this enumeration process, 3,118 households in which an age-eligible girl resided were identified. Families were excluded ($n = 15$) if the girl was severely developmentally delayed or hearing impaired or the primary caregiver did not speak English. A further 111 were designated ineligible because the interviewee was not the primary caregiver or the family had moved out of the area. In addition, one child had died between enumeration and recruitment. A further 117 families could not be located before wave 1 data collection. Of the remaining 2,874 families, 2,450 agreed to participate in the study.

Girls and their caregivers completed separate, annual interviews in the home. The current study used data collected at ages 9, 10, 12, 14, 16, and 18–21 years due to the availability of measures relevant to the study aims. The majority of participants were Black ($n = 1,296$, 52.9%), 41.2% ($n = 1,009$) were White, 0.9% ($n = 22$) were Asian, and 4.9% ($n = 119$) identified as being multi-racial. Four participants did not provide information on racial background. Given the current study's focus on examining associations of race with symptom trajectories, only participants identifying as White or Black were included ($n = 2,305$). Approximately 31% ($n = 715$) of the families were receiving public assistance (i.e., Women, Infants, and Children, food stamps, welfare) at the baseline assessment (age 9) in the current analyses.

All study procedures were approved by the University of Pittsburgh Human Research Protection Office. Primary caretakers provided written informed consent, and verbal assent was obtained from the girls starting at age 10. At age 18, girls provided their own written, informed consent. Youth and their primary caregivers were each compensated for completing the annual interview.

Measures

Eating Disorder Symptoms.—Eating disorder symptoms were assessed using the Children's Eating Attitudes Test (ChEAT) (Maloney, McGuire, & Daniels, 1988) or the Eating Attitudes Test (EAT) (Garner & Garfinkel, 1979), both 26-item self-report measures

that have been used widely to assess disordered eating attitudes and behaviors in clinical and non-clinical samples. Items are rated on a six-point scale ranging from one (*never*) to six (*always*) with higher scores indicating greater severity of eating disorder symptoms. Item content is identical in the two measures; however, the wording of select items on the ChEAT is modified for use with children (Maloney et al., 1988). The ChEAT was administered at ages 9, 10, 12, and 14, and the EAT was administered at age 16 for all cohorts and once between the ages of 18–21 with age at the second EAT administration dependent on cohort.

The (Ch)EAT comprise three subscales (i.e., dieting, bulimia/food preoccupation, oral control) and a total score. The dieting subscale includes 13 items such as “I have been dieting” and “I think a lot about wanting to be thinner.” The bulimia/food preoccupation subscale includes six items such as “I have gone on eating binges where I feel that I might not be able to stop” and “I think that food controls my life.” Finally, the oral control subscale includes six items such as “I can show self-control around food” and “I cut my food into small pieces.” Internal consistencies for the total score, dieting subscale, and bulimia/food preoccupation subscale were good across all time points (Cronbach’s $\alpha=.66-.88$). However, the oral control subscale displayed inadequate internal consistencies across assessment points in the current study (Cronbach’s $\alpha < .60$). Given its poor reliability and decreased focus on specific eating disorder behaviors, this subscale was not examined in the current study.

Adiposity and Demographics.—Interviewer-measured height and weight were used to determine body mass index (BMI; kg/m^2), which served as a measure of adiposity. In order to adjust for age and sex, BMI percentile was used in analyses. Girls’ age, race, and financial strain were based on caregiver-report. Financial strain was defined by familial receipt of public assistance (i.e., Women, Infants, and Children, food stamps, welfare).

Data Analysis—Growth mixture modeling with *Mplus 7* was used to determine the latent trajectories of eating disorder symptoms across ages 9 to 21 years. As outlined by Wickrama, Lee, O’Neal, and Lorenz (2016), an unconditional latent growth curve model was fit to the data to examine whether significant variances in growth parameters existed. Poor fit indices and/or statistically significant variances of growth factors suggest the presence of heterogeneous trajectories, and in turn, provide rationale to conduct latent class analyses (Wickrama et al., 2016). A series of growth mixture models (GMMs) were conducted to examine the presence of subgroups with distinct symptom trajectories as outlined by Wickrama et al. We specified models in which variances were constrained to be equal across classes or variances of the intercepts and slopes were freely estimated for each class. However, these latter models resulted in problems with model convergence and estimation, so only GMMs with constrained variance were compared.

The determination of the optimal number of classes was informed by Bayesian information criteria (BIC) and sample-size adjusted BIC, adjusted Lo-Mendell-Rubin likelihood test (adjusted-LRT), bootstrap likelihood ratio tests (BLRT), entropy, average latent class probabilities, and class size. Better fitting models generally produce lower absolute values of BIC and adjusted-BIC, high entropy ($> .80$) and high average probabilities ($> .70$), indicating clear class separation (Nagin, 2005; Nylund, Asparouhov, & Muthen, 2007;

Wickrama et al., 2016). The likelihood ratio tests (i.e., adjusted-LRT and BLRT) compare two adjacent class models, with statistically significant p -values indicating that the less parsimonious model is a better fit to the data (Lo, Mendell, & Rubin, 2001; Wickrama et al., 2016). Finally, sample size of the smallest class (5% and/or > 25 participants; Wickrama et al., 2016), extant research findings, and theory were considered.

Once the optimal model was selected, predictors of latent class membership, including race, receipt of public assistance, and baseline BMI percentile¹ were entered into the model using the 3-step approach, which is based on logistic regression analysis (Asparouhov & Muthen, 2014; Wickrama et al., 2016). This approach first estimates the unconditional latent class model, and then takes class uncertainty rates into account prior to estimating the effects of the covariates. This procedure protects the formation of latent trajectory classes from the influence of predictors and covariates (Asparouhov & Muthen, 2014; Wickrama et al., 2016). We examined each predictor independently as well as its influence while controlling for the others.

Attrition and Treatment of Missing Data.—Sixty-one participants (2.6%) were missing (Ch)EAT data at all assessment points and were excluded from subsequent analyses. These participants did not differ significantly on BMI percentile, public assistance, or race from participants retained in the current study. Of the participants included in the study ($N = 2,244$), 75.6% ($n = 1,697$) completed all waves of data collection. Little's MCAR test provided evidence that (Ch)EAT total scores were missing completely at random ($\chi^2 = 145.27$, $df = 138$, $p = .32$). However, individuals with missing data were more likely to have lower baseline bulimia/food preoccupation subscale scores (9.6 versus 10.2, $t = 2.68$, $p < .01$, Cohen's $d = 0.14$) and lower baseline (Ch)EAT total scores (52.3 versus 54.3, $t = 4.26$, $p < .01$, Cohen's $d = 0.13$). Additionally, a greater proportion of White participants were missing data than Black participants (30.8% vs. 22.9%, $\chi^2 = 18.26$, $p < .001$). Full information maximum likelihood approach was used to incorporate subjects with missing longitudinal data (Enders, 2001); thus, the total sample size for trajectory analyses was 2,244.

Results

Descriptive Statistics

Approximately 31% of the sample received public assistance at baseline, with a higher number of families of Black girls ($n = 544$; 44.4%) receiving public assistance compared to families of White girls ($n = 171$; 17.9%, $\chi^2 = 171.4$, $p < .001$). Average BMI and BMI percentile for the full sample at age 10 were 20.3 (4.9) kg/m² and 65.14% (30.3), respectively. Black girls had significantly higher BMIs (20.8 kg/m² versus 19.5 kg/m², $t = 6.07$, $p < .001$, Cohen's $d = 0.27$) and BMI percentiles (68.0% versus 61.3%, $t = 5.04$, $p < .001$, Cohen's $d = 0.22$) at age 10 compared to White girls. Table 1 includes means and standard deviations for eating disorder symptom scores across each time point.

¹Due to the timing of data collection, BMI data from one cohort ($n = 621$) were unavailable at age 9 (baseline assessment for the current analyses). Age 9 and age 10 BMI were highly correlated ($r = .95$, $p < .001$), thus, we chose to co-vary for BMI percentile at age 10 in order to incorporate the full sample into logistic regression models.

Approximately 2.9% ($n = 59$) of the sample at age 16 and 3.7% ($n = 78$) at the last assessment (age 18–21) met the clinical cut-off score for the EAT (Garner & Garfinkel, 1979), indicating high-risk for clinically significant disordered eating. Compared to White girls, Black girls exhibited significantly higher scores on the dieting subscale ($t = 6.07$, $p < .001$, Cohen's $d = 0.27$), bulimia/food preoccupation subscale ($t = 8.05$, $p < .001$, Cohen's $d = 0.36$), and total score ($t = 8.00$, $p < .001$, Cohen's $d = 0.34$) at age 9 (Table 1).

Identification of Dieting Trajectories

The unconditional linear growth curve model for dieting showed less adequate fit than the unconditional latent quadratic growth curve. The unconditional latent quadratic growth curve for dieting provided good overall fit to the data (RMSEA = .063; CFI = 0.97; TFI = 0.96; SRMR = .04); however, significant variances for the intercept, linear slope, and quadratic slope indicated heterogeneity in dieting trajectories (Table 2). A quadratic growth model was used to estimate GMMs with variance-covariance equality across classes with up to six latent classes. Relative fit indices for the dieting models are presented in Table 3. Adjusted-BIC, LMR-LRT, and BLRT indicated preference for the 6-class model. Entropy values were high for all models, with the highest values for the GMM 5-class dieting model (.83). Average latent class probabilities were relatively high across dieting classes and generally decreased with each additional class. Although the 6-class GMM model exhibited a relatively small class ($n = 79$; 3.5%), examination of the plots indicated class separation. Given the relative rarity of more pathological symptom presentations, the presence of smaller classes is not unexpected. Thus, combining information from the model fit statistics, plots, and theory, the 6-class GMM model for dieting was retained (Figure 1).

Intercept and slope estimates for the 6-class dieting model are included in Table 4. The largest group ($n = 1,696$, 75.7%) consisted of participants who reported low levels of dieting at each assessment point. Two groups with decreasing symptom trajectories emerged. One group of 136 (6.1%) participants reported relatively high dieting at baseline with decreasing dieting at each assessment point. The other group ($n = 97$, 4.3%) reported similar symptoms at baseline with relatively stable dieting symptoms through age 12, and a slow decrease in symptoms thereafter (i.e., “delayed decrease”). In contrast, a group of 79 (3.5%) participants reported stable-low levels of dieting with increasing symptoms after age 12 (“delayed increase”). Another group ($n = 146$, 6.5%) reported low levels of dieting at baseline with higher levels at each subsequent assessment (“increasing”). Finally, a group of 86 (3.8%) participants reported increasing levels of dieting through age 14 and decreasing levels after that assessment point (“increasing-decreasing”).

Identification of Bulimia/Food Preoccupation Trajectories

The unconditional linear and quadratic growth curves for bulimia/food preoccupation provided poor fit to the data (e.g., RMSEA $\geq .086$; CFI < 0.88 ; TFI < 0.85). Additionally, variances for the intercept, linear, and quadratic slopes were significant, providing rationale for examining latent class trajectories (Table 2). A quadratic growth model was used to estimate GMMs with two to five latent classes. GMMs with variances estimated resulted in problems with negative variances; thus, for these models the variance for the intercept and/or quadratic term were fixed to zero. Relative fit indices are presented in Table 3. BICs,

adjusted LMR-LRT, and BLRT indicated preference for the GMM 5-class bulimia/food preoccupation model; however, entropy values favored the 4-class model. Average latent class probabilities were adequate across classes, generally decreasing with each additional class. Although the GMM 5-class model had slightly better fit in terms of BIC/adjusted-BIC, it had decreased entropy and a very small class size for one of the groups (1.7% of sample). Thus, given the higher entropy, significant likelihood ratio tests, and small class emerging in the 5-class model, the 4-class GMM model for bulimia/food preoccupation was retained (Figure 1).

Intercept and slope estimates for the 4-class bulimia/food preoccupation model are presented in Table 4. The largest group ($n = 1,856$, 82.7%) consisted of participants who reported low bulimia/food preoccupation scores at all assessment points. The next largest group ($n = 217$, 9.7%) consisted of participants who reported relatively higher scores at baseline and decreasing bulimia/food preoccupation scores at each subsequent assessment point. The third group ($n = 89$, 4.0%) followed an “increasing-decreasing” trajectory in which bulimia/food preoccupation scores increased through age 14, then decreased at each subsequent assessment. The smallest group ($n = 81$, 3.6%) reported increasing bulimia/food preoccupation scores across assessment points.

Identification of Overall Eating Disorder Symptom Trajectories

The unconditional linear growth curve model for eating disorder psychopathology showed less adequate fit than the unconditional latent quadratic growth curve. However, the unconditional latent quadratic growth curve provided only adequate overall fit to the data (RMSEA = .077; CFI = 0.94; TFI = 0.92; SRMR = .04). Additionally, variances for the intercept, linear slope, and quadratic slopes were significant, indicating heterogeneity in eating disorder symptom trajectories (Table 2). Thus, a quadratic growth model was used to estimate GMMs for the (Ch)EAT total score. Relative fit indices for all models are presented in Table 3. Adjusted-BIC and BLRT indicated preference for the 6-class GMM model. The adjusted LMR-LRT indicated preference for the 4-class model over the 3- and 5-class models and preference for the 6-class model over the 5-class model. Entropy values and average latent class probabilities favored the 2-class model, but were adequate across classes. Given the small class size (1.5% of participants) in the 6-class model and similar fit statistics as the 4-class model, the more parsimonious GMM 4-class model for (Ch)EAT total scores was retained (Figure 1).

Intercept and slope estimates for the optimal quadratic model for total eating disorder symptoms are included in Table 4. The largest group ($n = 1,932$, 86.1%) consisted of participants with low levels of eating disorder psychopathology across all assessment waves. A group of 112 (5.0%) participants reported relatively high eating disorder psychopathology at baseline and a decrease in symptoms over time. Another group of 113 (5.0%) participants reported low symptom levels at baseline with an increase in symptoms over time. Finally, a group of 87 (3.9%) participants reported increasing eating disorder psychopathology through age 14, with decreasing symptoms at subsequent assessment points.

Class Consistency

Participants in the low psychopathology groups were consistently low across symptoms with overlap in low classes ranging from 82% to 98%. Approximately 33% of individuals following the decreasing trajectory and 58% of individuals following the increasing trajectory of bulimia/food preoccupation symptoms also followed a decreasing or increasing trajectory of dieting, respectively. Similarly, 29.6% of individuals assigned to a decreasing trajectory and 20.9% of individuals assigned to an increasing trajectory of dieting also were assigned to the decreasing or increasing trajectories for bulimia/food preoccupation symptoms, respectively. Approximately one third of participants (range 29.2%–44.8%) in an increasing-decreasing trajectory group for one symptom were assigned to the increasing-decreasing trajectory for another. The majority of individuals in the delayed-decrease (59.8%) or delayed-increase (60.8%) dieting trajectories followed the low bulimia/food preoccupation symptoms trajectory.

Finally, there was relatively little overlap between decreasing and increasing classes across symptoms (0–9.7%). Taken together, individuals may be more likely to follow consistent trajectories of symptoms or engage in individual disordered eating behaviors consistent with the development of specific eating disorder diagnoses.

Predictors of Overall Growth

A graphical depiction of the overall growth of symptoms separated by Black and White girls appears in Figure 2. Conditional latent growth curves were conducted to investigate whether covariates (i.e., race, public assistance, and BMI percentile) were systematically associated with the intercept, linear slope, and quadratic slope (Wickrama et al., 2016).

Dieting Scores.—Race was significantly associated with all growth parameters, including the intercept ($b = 0.31, p < .001$), linear slope ($b = -0.58, p < .001$), and quadratic slope ($b = 0.35, p < .001$ for dieting while controlling for receipt of public assistance and BMI percentile. As depicted in Figure 2A, Black girls had significantly higher initial dieting levels compared to White girls, with significant non-linear change in dieting over time. White girls demonstrated an increase in dieting levels, whereas Black girls demonstrated a decrease in dieting levels from age 9 to 14 and an increase in symptoms thereafter (Figure 2A). A similar pattern of results was found for public assistance. Receiving public assistance was associated with higher initial dieting (intercept: $b = 0.21, p < .001$) and a linear decrease in dieting over time (linear slope: $b = -0.22, p < .001$). Public assistance was not associated significantly with the quadratic slope ($b = 0.14, p = .12$). Finally, while controlling for race and public assistance, higher BMI percentile was associated with greater initial symptoms of dieting (intercept: $b = 0.38, p < .001$) and a significant change in symptoms over time (linear slope: $b = 0.14, p < .001$; quadratic slope: $b = -0.18, p < .001$).

Bulimia/Food Preoccupation Scores.—Race was significantly associated with all growth parameters, including the intercept ($b = 0.42, p < .001$), linear slope ($b = -0.43, p < .001$), and quadratic slope ($b = 0.33, p = .01$) for bulimia/food preoccupation scores while controlling for receipt of public assistance and BMI percentile. As demonstrated in Figure 2B, Black girls had significantly higher initial bulimia/food preoccupation scores and greater

change in scores over time compared to White girls. Receiving public assistance was associated with greater initial symptoms of bulimia/food preoccupation (intercept: $b = 0.25$, $p < .001$), but this variable did not predict linear ($b = -0.13$, $p = .26$) or quadratic ($b = 0.05$, $p = .72$) slopes. BMI percentile was not associated with any growth parameters for the bulimia/food preoccupation subscale.

Total Eating Disorder Symptom Scores.—Race was significantly associated with all growth parameters, including the intercept ($b = 0.43$, $p < .001$), linear slope ($b = -0.62$, $p < .001$), and quadratic slope ($b = 0.39$, $p < .001$) for (Ch)EAT total scores while controlling for receipt of public assistance and BMI percentile. As depicted in Figure 2C, Black girls had significantly higher initial symptoms and greater change in symptoms over time. Similarly, BMI percentile predicted all growth parameters including the intercept ($b = 0.15$, $p < .001$), linear slope ($b = 0.17$, $p < .001$) and quadratic slope ($b = -0.17$, $p < .001$). Receiving public assistance was associated with higher initial symptoms (intercept: $b = 0.24$, $p < .001$) and linear decrease in eating disorder symptoms over time ($b = -0.22$, $p = .01$), but this variable did not predict the quadratic slope ($b = 0.14$, $p = .13$).

Predictors of Trajectory Groups—Table 5 includes odds ratios (ORs) and 95% confidence intervals (CI) for race, public assistance, and BMI percentile as independent predictors of trajectory class membership across symptoms.

Dieting Scores.—There were significant effects of race and BMI percentile on trajectory membership for dieting. As hypothesized, Black race was associated with a significantly lower likelihood of being in the increasing ($OR = 0.34$, $p < .001$) or increasing-decreasing ($OR = 0.50$, $p < .05$) dieting trajectory compared to being in the low dieting group (Table 5). Black race also was associated with a greater probability of being in the decreasing dieting trajectory compared to all other trajectory groups. These results remained significant while accounting for public assistance and BMI percentile.

Higher BMI percentile at age 10 was associated with greater likelihood of being in the decreasing, delayed-decrease, increasing, and increasing-decreasing dieting groups compared to the low dieting group ($ORs = 1.04$ – 1.23 , $ps < .05$) (Table 5). Lower BMI percentile was associated with greater likelihood of being in the delayed-increase dieting trajectory compared to the decreasing ($OR = 0.93$, 95% CI [0.94, 0.99], $p = .01$), delayed-decrease ($OR = 0.80$, 95% CI [0.64, 0.99], $p < .05$), and increasing-decreasing dieting trajectory groups ($OR = 0.97$, 95% CI [0.94, 0.99], $p < .01$), while accounting for race and public assistance.

Receiving public assistance was associated with greater likelihood of being in the decreasing dieting trajectory group compared to the low dieting group (Table 5); however, this finding did not remain significant after accounting for race and BMI percentile. Public assistance was not associated with any additional dieting trajectory groups.

Bulimia/Food Preoccupation Scores.—There were significant effects of race and public assistance on trajectory membership for bulimia/food preoccupation scores. While accounting for BMI percentile and public assistance, Black girls were significantly more

likely to be in the decreasing trajectory group compared to the low group ($OR = 2.71$, 95% CI [1.75, 4.20], $p < .001$). They also were less likely to be in the increasing group ($OR = 0.40$, 95% CI [0.20, 0.81], $p = .01$) compared to the decreasing group. Additionally, Black race was associated with higher odds of being in the increasing-decreasing trajectory group compared to the low group (Table 5), but this finding did not hold when accounting for BMI percentile and public assistance.

Receiving public assistance was associated with greater likelihood of being in the decreasing ($OR = 1.55$, 95% CI [1.07, 2.25], $p = .02$) and increasing-decreasing ($OR = 2.22$, 95% CI [1.28, 3.86], $p < .01$) trajectory compared to the low bulimia/food preoccupation group, while accounting for race and BMI percentile. BMI percentile was not associated with any bulimia/food preoccupation trajectories.

Total Eating Disorder Symptom Score.—There were significant effects of race, public assistance, and BMI percentile on trajectory membership for total eating disorder symptom scores. As hypothesized, Black race was associated with a significantly lower likelihood of being in the increasing compared to the low trajectory group while accounting for BMI percentile and public assistance ($OR = 0.56$, 95% CI [0.34, 0.93], $p = .03$). Furthermore, Black race was associated with heightened odds of being in the decreasing trajectory group compared to all other trajectory groups for (Ch)EAT total scores. These results remained significant while accounting for public assistance and BMI percentile.

Higher BMI percentile was associated with greater likelihood of being in the increasing-decreasing ($OR = 1.18$, 95% CI [1.02, 1.37], $p = .03$) and increasing ($OR = 1.02$, 95% CI [1.00, 1.03], $p < .01$) trajectory groups compared to the low trajectory group while accounting for race and public assistance. Lower BMI percentile heightened the odds of being in the decreasing trajectory ($OR = 0.85$, 95% CI [0.73, 0.99], $p = .03$) compared to increasing-decreasing trajectory group.

Finally, receipt of public assistance was associated with greater odds of being in the decreasing group compared to the low trajectory group for (Ch)EAT total score, even after accounting for race and BMI percentile ($OR = 1.86$, 95% CI [1.02, 3.38], $p < .05$). Public assistance was not associated with any other trajectory groups for total eating disorder symptom scores.

Predictors of Within-Class Variability

We also explored whether race was associated with within-class variability in dieting, bulimia food/preoccupation, and (Ch)EAT total scores. Race significantly predicted the intercept ($b = 0.41$, $p < .001$) and linear slope ($b = -0.71$, $p < .001$) for dieting classes and the intercept ($bs = 0.63$ – 0.64 , $p < .001$), linear slope ($b = -0.86$, $p < .001$), and quadratic slope ($b = 0.65$, $p < .001$) for total eating disorder symptom classes. Black girls were more likely to have higher initial levels of symptoms and greater changes in symptom levels over time in both decreasing and increasing classes. Race was not associated with within-class variability for bulimia/food preoccupation scores (linear slope $b = 0.02$, $p = .73$).

Discussion

To our knowledge, this study is the first to examine disordered eating symptom trajectories in Black and White girls and to examine these trajectories from middle childhood (age 9) through young adulthood (up to age 21). In general, we found that eating disorder symptoms tended to decrease from childhood to mid-adolescence and increase from mid-adolescence to young adulthood. Furthermore, findings suggest that racial background influences the overall growth in eating disorder symptoms, with Black girls being more likely to have higher levels of eating disorder symptoms at age 9 and greater decreases in symptoms over time. Findings from trajectory analyses are consistent with this overall finding and are in line with prior studies suggesting that eating disorder symptoms do not increase uniformly across adolescent girls (Aime et al., 2008; Fairweather-Schmidt & Wade, 2016; Fay & Lerner, 2013; Pearson & Smith, 2015; Smith et al., 2007).

For dieting behavior, six trajectory classes emerged including low, decreasing, delayed-decreasing, increasing, delayed-increasing, and increasing-decreasing classes. Although two previous studies have examined latent classes of dietary restriction or drive for thinness, the current study is the first, to our knowledge, to examine dieting trajectories starting in childhood. Although not directly comparable given differences in the developmental time frame, results from the current study seem consistent with the 6-class model of drive for thinness trajectories identified by Fay and Lerner (2013) (i.e., high-stable, increasing-decreasing, increasing, decreasing, very low stable, low). However, the current finding that several decreasing trajectory groups emerged is somewhat surprising, given the early age at baseline in the current sample. The fact that several distinct classes emerged for dieting, including decreasing classes, highlights the heterogeneity in the pattern of symptom presentations as well as the early onset of dieting in a subgroup of young girls.

Indeed, one previous study examining binge-eating trajectories identified a high-stable class (Pearson & Smith, 2015) in children as young as 10.8 years, which is consistent with the decreasing class that emerged for bulimia/food preoccupation scores in the current study. Given the racially diverse sample and evidence for higher binge eating in Black youth, we expected to see a high-stable class of bulimia/food preoccupation symptoms. However, the lack of a high-stable class may reflect the fact that our measure of bulimic symptoms included items related not only to binge eating and cognitions about food but also to vomiting, which may not be as stable across this developmental time frame (Pearson & Smith, 2015; Smith et al., 2007). Similar to bulimia/food preoccupation trajectory findings, the trajectories for total eating disorder symptom scores map onto classes found in prior studies of composite symptoms with the majority of adolescents exhibiting stable low levels of symptoms over time. Taken together, findings suggest that eating disorder symptoms do not develop uniformly across adolescents and that symptom trajectory patterns persist with longer follow-up.

Black race predicted higher initial levels of all eating disorder symptoms in the overall growth models and greater decline of symptoms over time. These findings are consistent with results from analyses examining race as a predictor of latent class trajectories. Indeed, Black race consistently was associated with a decreasing trajectory across all disordered

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eating symptoms. These findings suggest that eating disorder symptoms may develop earlier in Black girls, which is in line with some prior data suggesting Black girls may experience earlier onset of eating disorders (Taylor, Caldwell, Baser, Faison, & Jackson, 2007) than has been reported in primarily White samples (Hudson et al., 2007). Earlier onset of symptoms in Black girls may reflect earlier pubertal timing in this population. Puberty is an important developmental milestone for the emergence of eating disorders (Klump, 2013), and several studies have documented earlier pubertal onset in Black compared to White girls (e.g., Biro et al., 1994; Morrison et al., 1994; Striegel-Moore et al., 2001). Overall, these findings highlight that racial differences (or lack of differences) in eating disorder symptoms are likely influenced by the timing and age of the assessments and that prevention programs may need to be delivered earlier in Black girls.

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Furthermore, compared to White girls, Black girls had significantly decreased likelihood of being in the increasing dieting and total eating disorder symptom score trajectories. This finding is consistent with some research showing higher prevalence of dieting and anorexia nervosa in White compared to Black women (Wildes & Forbush, 2015) and is in line with sociocultural theories related to restricting-type eating behavior and drive for thinness. Cultural messages regarding thinness may be most salient to young White girls, given noted cultural differences in ideals of beauty. Internalization of this “thin-ideal” is a known robust risk factor for eating disorders and disordered eating and may underlie racial differences in dieting trajectories found in the current study. Notably, however, greater internalization of thin body ideals in White compared to women of other racial/ethnic backgrounds has not been supported across all studies (Hermes & Keel, 2003).

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The current study has several notable strengths, including the large, community-based sample of Black and White girls, long duration of follow-up (average of 10 years), and high retention rate. It also includes a large proportion of individuals from low-income households, which are often underrepresented in studies on eating disorders; however, this sampling strategy may reduce generalizability of findings to middle- and higher-income Black and White girls. Although the length of the study is an important strength, we did not have EAT or BMI data at every age for every individual due to data collection procedures. The (Ch)EAT has been validated in younger samples, but its validity in lower income and minority samples is less clear. Our focus on an underserved racial group adds to the current literature; however, exclusion of racial/ethnic groups other than Black and White limits understanding of the influence of race on eating disorder symptom trajectories. We used a single-item measure of financial strain (i.e., receipt of public assistance), and future studies examining associations between race, income, and eating disorder symptoms would benefit from a more fine-grained analysis of sociodemographic factors and their impact on symptoms. Finally, although we utilized model fit statistics, the nature of the trajectories, and theory to guide our selection of the optimal models, some models did not converge across these various indices. As such, there are inherent limitations related to model selection, which may decrease the ability to compare findings across studies.

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Overall, the current study sheds light on the complex interplay between race and eating disorder psychopathology and suggests that race may be a risk factor for distinct symptom trajectories. Findings provide novel information on the need for prevention programs to

account for racial disparities in symptom onset and presentation. For example, interventions that specifically target bulimic symptoms in younger children may be more relevant to Black youth. Future studies examining a broader range of predictors of trajectories across a wider range of racial and ethnic groups may elucidate mechanisms underlying these associations and further inform development of more culturally sensitive interventions.

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Figure 1.

Trajectory groups for dieting, bulimia/food preoccupation, and (Ch)EAT total scores

2A.

2B.

2C.

Figure 2.
Mean overall growth curves for Black and White girls. Lines represent estimated sample means

Table 1.

Mean Levels of Eating Disorder Symptoms across Race and Public Assistance Status

	Age 9		Age 10		Age 12		Age 14		Age 16		Age 18–21	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Dieting Subscale												
Full Sample	26.9	9.7	25.1	9.2	24.6	8.7	25.4	9.5	24.6	9.2	25.4	9.5
Black	28.1	10.0	26.2	9.7	24.7	8.8	24.5	8.7	23.6	8.8	24.3	8.7
White	25.5	9.1	23.7	8.4	24.5	8.5	26.7	10.2	25.9	9.7	26.9	10.3
Public Assistance	28.3	10.2	26.1	9.9	24.4	8.6	24.5	9.4	24.1	9.0	24.3	9.1
No Public Assistance	26.3	9.4	24.6	8.8	24.6	8.6	25.9	9.5	24.8	9.4	25.9	9.6
Bulimia/Food Preoccupation Subscale												
Full Sample	10.1	4.5	8.8	3.8	8.4	3.0	8.9	3.4	8.3	3.2	8.6	3.5
Black	10.7	4.8	9.2	4.1	8.6	3.2	9.0	3.2	8.4	3.3	8.6	3.4
White	9.2	3.8	8.3	3.3	8.1	2.7	8.7	3.5	8.2	3.0	8.5	3.7
Public Assistance	11.0	5.0	9.2	4.2	8.7	3.3	9.1	3.8	8.6	3.4	8.6	3.5
No Public Assistance	9.6	4.1	8.5	3.6	8.2	2.8	8.8	3.1	8.2	3.0	8.5	3.5
(Ch)EAT Total Score												
Full Sample	53.9	15.6	49.7	14.5	47.9	13.0	49.1	14.3	46.5	14.0	47.3	14.4
Black	56.1	16.3	51.4	15.5	48.1	13.5	48.0	13.3	45.4	13.9	46.0	13.3
White	50.9	14.1	47.5	12.9	47.7	12.3	50.7	15.5	48.0	14.1	49.1	15.6
Public Assistance	56.6	16.9	51.5	16.0	47.8	13.5	48.2	15.5	46.5	14.5	46.1	14.4
No Public Assistance	52.5	14.7	48.8	13.6	47.9	12.6	49.6	13.7	46.5	13.8	47.8	14.3

Table 2.

Fit Statistics for Unconditional Latent Growth Curve Models

Fit Statistics	Dieting Subscale		Bulimia/Food Preoccupation Subscale		(Ch)EAT Total Score	
	Linear Model	Quadratic Model	Linear Model	Quadratic Model	Linear Model	Quadratic Model
AIC	85921.05	85763.79	64077.97	63974.16	98838.16	98678.92
BIC	85983.91	85849.50	64140.84	64059.89	98901.04	98764.66
BIC-Adjusted	85948.96	85801.85	64105.89	64012.23	98866.09	98717.01
Chi-square	285.39**	120.13**	323.91**	212.10**	338.30**	171.06**
SRMR	0.08	0.04	0.07	0.05	0.09	0.04
RMSEA (90% CI)	0.087 (0.08–0.10)	0.063 (0.05–0.07)	0.093 (0.08–0.10)	0.086 (0.08–0.10)	0.095 (0.09–0.10)	0.077 (0.07–0.09)
CFI	0.92	0.97	0.80	0.87	0.87	0.94
TLI	0.92	0.96	0.81	0.84	0.88	0.92
Intercept						
Mean	25.63**	26.33**	9.11**	9.55**	51.15**	52.55**
Variance	48.57**	51.61**	5.77**	7.45**	101.22**	114.03**
Linear Slope (Time)						
Mean	–0.09*	–0.66**	–0.09**	–0.40**	–0.54**	–1.66**
Variance	0.90**	5.03**	0.10**	0.48**	2.03**	11.66**
Quadratic Slope (Time ²)						
Mean	---	0.06**	---	0.03**	---	0.12**
Variance	---	0.05**	---	0.004*	---	0.12**

Notes: AIC = Akaike information criterion; BIC = Bayesian information criterion; BIC-Adjusted = sample size adjusted Bayesian information criterion; CFI = comparative fit index; (Ch)EAT= (Children's Eating Attitude Test; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; TLI = Tucker-Lewis index

* $p < .01$

** $p < .001$

Table 3.
Fit Statistics for Unconditional Growth Mixture Models for Dieting, Bulimia/Food Preoccupation, and (Ch)EAT Total Scores

Model	LL (parameters)	BIC	BIC-Adjusted	Entropy	Adj-LMR-LRT	BLRT	APP	% Smallest Group (n)
Dieting Subscale								
2 Class	-42685.71 (19)	85517.99	85457.62	.82	351.00***	326.38***	.86-.96	10.9% (244)
3 Class	-42564.66 (23)	85306.74	85233.66	.81	234.50*	242.10***	.82-.94	9.6% (215)
4 Class ^a	-42519.96 (24)	85225.06	85148.81	.81	163.64	168.94***	.78-.93	5.7% (127)
5 Class ^a	-42453.25 (28)	85122.50	85033.54	.83	129.23*	133.42***	.75-.93	4.0% (90)
6 Class ^a	-42407.24 (32)	85061.34	84959.67	.82	89.12*	92.01***	.73-.92	3.5% (79)
Bulimia/Food Preoccupation Subscale^b								
2 Class	-31672.01 (16)	63467.47	63416.64	.89	1094.08***	1129.53***	.90-.98	12.1% (272)
3 Class ^a	-31445.33 (18)	63029.54	62972.35	.91	471.06	486.32***	.88-.97	3.9% (87)
4 Class ^a	-31267.32 (22)	62704.39	62634.49	.91	344.84*	356.02***	.87-.97	3.6% (81)
5 Class ^a	-31171.15 (26)	62542.91	62460.30	.88	345.44*	356.63***	.84-.94	1.7% (38)
(Ch)EAT Total Score								
2 Class	-49165.98 (19)	98478.56	98418.20	.88	307.02	316.97***	.86-.98	5.6% (130)
3 Class	-49065.38 (23)	98308.23	98235.15	.85	194.88	201.20***	.81-.95	5.0% (113)
4 Class	-49011.11 (27)	98230.56	98144.77	.84	105.13*	108.54***	.77-.94	3.9% (87)
5 Class	-48964.61 (31)	98168.42	98069.93	.84	90.08	93.00***	.74-.93	1.4% (32)
6 Class ^a	-48930.62 (32)	98108.14	98006.48	.85	70.11*	72.39***	.73-.93	1.5% (33)

Notes: Adj-LMR-LRT = sample-size adjusted Lo-Mendell-Rubin likelihood ratio test; APP = average posterior probabilities; BIC = Bayesian information criterion; BIC-Adjusted = sample size adjusted Bayesian information criterion; BLRT = bootstrapped likelihood ratio test; LL = log-likelihood

^a variance for the quadratic term constrained to zero in order to achieve model convergence

^b variance for the intercept term constrained to zero in order to achieve model convergence

* $p < .05$

** $p < .01$

100 > *d'*

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Table 4.

Growth Parameters across the Optimal Models

Class Description (n)		Intercept		Linear Slope		Quadratic Slope	
		Mean (SE)	Variance	Mean (SE)	Variance	Mean (SE)	Variance
Dieting Subscale							
Class 1	Low (1696)	23.63 (0.29) ***	17.12 (2.24) ***	-0.69 (0.11) ***	0.31 (0.06) ***	0.07 (0.01) ***	
Class 2	Increasing-decreasing (86)	23.65 (1.41) ***	17.12 (2.24) ***	6.98 (0.73) ***	0.31 (0.06) ***	-0.79 (0.07) ***	
Class 3	Decreasing (136)	42.12 (1.43) ***	17.12 (2.24) ***	-6.10 (0.81) ***	0.31 (0.06) ***	0.46 (0.09) ***	
Class 4	Delayed decrease (97)	41.98 (1.66) ***	17.12 (2.24) ***	-0.01 (0.52) ***	0.31 (0.06) ***	-0.16 (0.05) **	
Class 5	Delayed increase (79)	29.56 (2.55) ***	17.12 (2.24) ***	-4.18 (1.12) ***	0.31 (0.06) ***	0.68 (0.13) ***	
Class 6	Increasing (146)	26.47 (1.87) ***	17.12 (2.24) ***	2.71 (0.92) **	0.31 (0.06) ***	-0.12 (0.09)	
Bulimia/Food Preoccupation Subscale							
Class 1	Low (1856)	8.37 (0.08) ***		-0.20 (0.03) ***	0.03 (0.004) ***	0.02 (0.004) ***	
Class 2	Decreasing (217)	17.48 (0.44) ***		-2.48 (0.18) ***	0.03 (0.004) ***	0.17 (0.02) ***	
Class 3	Increasing-decreasing (89)	10.89 (1.18) ***		2.35 (0.36) ***	0.03 (0.004) ***	-0.27 (0.03) ***	
Class 4	Increasing (81)	10.76 (0.71) ***		-1.24 (0.50) *	0.03 (0.004) ***	0.25 (0.06) ***	
(Ch)EAT Total Score							
Class 1	Low (1932)	49.24 (0.53) ***	48.17 (10.30) ***	-1.32 (0.28) ***	5.69 (1.59) ***	0.09 (0.03) ***	0.05 (.02) *
Class 2	Increasing-decreasing (87)	66.50 (5.86) ***	48.17 (10.30) ***	5.30 (2.20) *	5.69 (1.59) ***	-0.78 (0.18) ***	0.05 (.02) *
Class 3	Increasing (113)	57.45 (2.60) ***	48.17 (10.30) ***	-2.75 (1.44)	5.69 (1.59) ***	0.62 (0.17) ***	0.05 (.02) *
Class 4	Decreasing (112)	78.69 (2.84) ***	48.17 (10.30) ***	-9.20 (1.73) ***	5.69 (1.59) ***	0.61 (0.19) ***	0.05 (.02) *

Note: (Ch)EAT= (Children's) Eating Attitude Test; ED= eating disorder

* $p < .05$ ** $p < .01$

$p < .001$; variance for the quadratic term for dieting trajectories was constrained to zero in order to achieve model convergence; variances for the intercept and quadratic term for the bulimia/food preoccupation trajectories were constrained to zero in order to achieve model convergence

Table 5. Odds Ratios and 95% Confidence Intervals for Independent Logistic Regression Analyses Predicting Latent Class Membership

Dieting Trajectories										
Predictors	Increasing-decreasing		Decreasing		Delayed Decrease		Delayed Increase		Increasing	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Black Race (vs. White)	0.50	0.27–0.91	5.20	2.19–12.36	1.47	0.82–2.63	0.67	0.38–1.17	0.34	0.20–0.58
Public Assistance (vs. None)	0.67	0.34–1.35	1.98	1.20–3.26	1.19	0.67–2.08	0.92	0.50–1.68	0.54	0.29–1.03
BMI Percentile	1.04	1.01–1.06	1.06	1.03–1.10	1.23	1.03–1.48	1.01	0.99–1.01	1.04	1.02–1.05
Bulimia/Food Preoccupation Trajectories										
Predictors	Decreasing		Increasing-decreasing		Increasing					
	OR	95% CI	OR	95% CI	OR	95% CI				
Black Race (vs. White)	3.05	2.04–4.55	2.19	1.28–3.75	1.01	0.61–1.68				
Public Assistance (vs. None)	2.19	1.57–3.06	2.21	1.35–3.64	1.07	0.61–1.87				
BMI Percentile	1.00	0.99–1.01	1.01	1.00–1.02	1.00	0.99–1.01				
(Ch)EAT Total Score Trajectories										
Predictors	Increasing-decreasing		Increasing		Decreasing					
	OR	95% CI	OR	95% CI	OR	95% CI				
Black Race (vs. White)	1.41	0.80–2.47	0.59	0.37–0.95	6.61	2.43–17.99				
Public Assistance (vs. None)	1.73	0.99–3.02	0.92	0.54–1.56	2.82	1.66–4.79				
BMI Percentile	1.19	1.01–1.39	1.02	1.00–1.03	1.00	0.99–1.01				

Note: Low pathology group is the reference class; BMI = Body Mass Index percentile at age 10; Race coded as 0 = Caucasian, 1 = African-American; Public Assistance coded as 0 = not receiving public assistance at baseline, 1 = receiving public assistance at baseline