INTUITIVE EATING IN ADOLESCENTS: TESTING A PSYCHOSOCIAL MODEL
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Intuitive eating is defined as an adaptive eating process that involves focusing on internal hunger and satiety to guide eating behavior, using those physiological cues rather than emotions to determine when to eat, and choosing what to eat based upon preference and not external rules and expectations. The purpose of this study was to examine intuitive eating within the context of contemporary sociocultural models of eating in 701 early adolescent boys and 769 early adolescent girls. Support was found for the model and suggested that pressures to lose weight or gain muscle, restrictive messages about food from caregivers, and internalization of the thin ideal were related to the early adolescents’ intuitive eating behaviors, suggesting that many of the sociocultural variables that have been found to impact disordered eating are salient for understanding healthy eating behaviors. However, the relations among many of the variables, as well as the model’s ability to explain intuitive eating overall, were stronger in girls than in boys. These findings can be used to help parents and schools begin to teach early adolescents about intuitive eating and how they can resist external pressures that may negatively influence their eating behaviors.
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CHAPTER 1
INTRODUCTION

Intuitive eating (Tribole & Resch, 2012) involves a reliance on internal cues, such as physiological feelings of hunger and fullness, rather than emotions or external cues, such as established meal times, to determine when and how much to eat. In samples of adult women and men, researchers (Tylka, 2006; Tylka & Kroon Van Diest, 2013) found that intuitive eating was represented by three separate, but interrelated, adaptive behaviors: 1) unconditional permission to eat (readiness to eat in response to physiological cues and to eat whatever food may be desired at the time); 2) eating for physical rather than emotional reasons (using food to satisfy physiological hunger rather than as a coping mechanism for emotional distress); and 3) reliance on physiological cues of hunger and satiety (awareness of physiological hunger and satiety cues and a trust in these cues to manage eating). In a recent study, Tylka and Kroon Van Diest (2013) validated a fourth dimension of intuitive eating, which they labeled body-food choice congruence. This dimension measures how often individuals make food choices based upon their bodies’ nutritional needs, and considers how individuals choose foods that contribute to their health and overall functioning, as well as their taste preferences (Tribole & Resch, 2012).

Across multiple studies with adult women and men (Tylka, 2006; Tylka & Kroon Van Diest, 2013), higher levels of overall intuitive eating have been related to lower body mass index (BMI), greater psychological well-being and self-esteem, better proactive coping skills, less internalization of the thin ideal, perceiving fewer societal pressures to be thin, greater body satisfaction, and lower depression and eating pathology. Together, these findings suggest that adaptive, healthy eating coincides with myriad positive psychological outcomes in adults.
To date, though, few studies have examined intuitive eating in children and adolescents. Dockendorff, Petrie, Greenleaf and Martin (2012) found that boys and girls who reported eating intuitively had leaner bodies, experienced fewer societal, peer and familial pressures to diet, lose weight and have a thin body, were more satisfied with their bodies, were less likely to have internalized societal values about body, weight and appearance, and experienced fewer negative emotions (e.g., sad, ashamed, worthless). In a related study, regardless of gender, middle school students who dieted to manage their weight were more likely to restrict their food choices and to eat in response to emotions than those who were not dieting (Moy, Petrie, Dockendorff, Greenleaf, & Martin, 2013). In addition, male and female students who exercised to lose weight were more likely to respond to physical hunger cues (as opposed to eating in response to emotions) than those who were not exercising, but also often had more rules about what they chose to eat. Regarding gender, boys were less aware and trusting of their internal hunger and satiety cues than the girls. These studies indicate that intuitive eating is a viable concept for young adolescents as well, that boys and girls may differ in their intuitive eating, and that psychosocial variables may be related to its development.

Intuitive Eating in Adolescents: A Sociocultural Perspective

The acceptance model of intuitive eating (Augustus-Horvath & Tylka, 2011; Avalos & Tylka, 2006) provided a framework for understanding how body acceptance and appreciation, as well as BMI, may be related to women’s intuitive eating from young to middle adulthood, and served as a starting point for examining how intuitive eating may be influenced by environmental and contextual factors over time. This model suggested that when women perceived their bodies as being accepted by others, they were more likely to appreciate their bodies and resist pressures from others to change their appearance and physique, thus contributing positively to their ability
to eat intuitively. Although an important first step, these studies were limited in terms of sample (i.e., examining adult women) and constructs studied (i.e., focusing on only certain psychosocial factors).

According to the sociocultural approaches to eating disorders (Stice, 1994), adolescents in modern societies are exposed repeatedly to messages about thinness, muscularity, dieting, and weight from peers, parents, and the media that, over time, lead to increases in dissatisfaction with body size, shape, and appearance. Some adolescents will internalize the societal ideals about thinness and muscularity that are being communicated to them and come to believe that reaching the ideal will result in many social benefits (e.g., achievement, social acceptance). As they compare their actual bodies to the internalized ideal, they may become even more discouraged and dissatisfied with their physique, and engage in drastic measures to control their body weight (e.g., restricting, purging, excessive exercise), which only exacerbates their negative feelings about themselves and their body.

Societal pressures about body and weight, internalization of those pressures, and body dissatisfaction contribute not only to the development of eating disorders (Stice, 2002), but they may disrupt adolescents’ natural, adaptive approaches to food and interrupt their ability to eat intuitively. How these psychosocial variables and sociocultural processes may affect children’s and adolescents’ adaptive, self-regulatory eating processes are discussed in the following sections.

Pressure to lose weight. Parents, peers, and the media often communicate messages about the importance of being thin and muscular that can lead children and adolescents to feel dissatisfied with their physical appearance and engage in unhealthy eating behaviors (Striegel-Moore & Bulik, 2007). These messages may be direct, such as encouragement from a parent to
diet or exercise, or more indirect, such as a peer making a negative comment about someone who is obese (Stice & Whitenton, 2002). Over time and prolonged exposure, such messages from parents, peers and the media can lead to adolescents internalizing societal ideals about appearance, body size/shape, and dieting (e.g., Halliwell & Harvey, 2006; Knauss, Paxton, & Alsaker, 2007), and becoming more dissatisfied with their bodies (e.g., McCabe, Ricciardelli, & Holt, 2010; Stice & Whitenton, 2002). Adolescents who perceive greater pressures to lose weight or gain muscle report decreases in their ability to monitor and respond to their hunger and engage in adaptive eating behaviors (Dockendorff et al., 2012), suggesting a disruption in natural intuitive eating processes.

Caregiver messages. Parents (and adult caregivers) have a strong and enduring influence on adolescents’ thoughts, feelings, and behaviors. When children experience messages from caregivers that there is something wrong with their body or their weight, and that they need to eat differently because of that, they may internalize these messages and believe that they are discrepant from the body and eating ideals advocated by their parents (e.g., Wertheim, Martin, Prior, Sanson & Smart, 2002). Generally, these messages are either restrictive (e.g., “You need to eat less food because you are getting fat”) or controlling (e.g., “You need to eat all the food on your plate”), both of which may interfere with children’s ability to regulate their eating behaviors, affecting their awareness of their internal cues and the use of these cues to guide their food intake (e.g., Webber, Hill, Saxton, Van Jaarsveld, & Wardle, 2009). Parental messages, though, may have differential effects based on the child’s gender. Galloway, Farrow, and Martz (2010) found that parents who relied on more restrictive feeding practices while their children were growing up had daughters who reported engaging in emotional eating; for sons, such
restrictive practices were unrelated to any dimension of intuitive eating, though did predict higher BMIs.

Internalization of the thin-ideal. Adolescents who internalize societal messages regarding thinness and attractiveness, that is, have incorporated these ideals about body, weight, eating and appearance into their self-concept, engage in a continual process of self- and other-comparisons. Because these ideals generally are impossible for the average boy or girl to attain, this comparison process can lead to increased body dissatisfaction. Over time, this dissatisfaction may lead adolescents to use weight-control strategies (e.g., dietary restraint) that can disrupt their awareness of (and trust in) physical cues of hunger, thus reducing their ability to eat in a healthy, adaptive, self-regulatory manner. Previous studies (Dockendorff et al., 2012; Tylka, 2006; Tylka & Kroon Van Diest, 2013) have shown that stronger internalization of the thin ideal is related to decreases in intuitive eating in adolescents and adults.

The effects of internalization on body dissatisfaction, though, may vary by gender. Knauss et al. (2007) found that adolescent girls, in comparison to boys, reported higher levels of internalization and demonstrated a stronger internalization to body dissatisfaction connection, though this association was significant in both genders. Cognitively and physically, girls tend to develop earlier and faster than boys (Choudhury, Blakemore, & Charman, 2006), which may explain why they internalize societal norms more deeply and are more affected by them.

Body satisfaction. Children and adolescents report body image concerns (Ricciardelli, McCabe, Holt & Finemore, 2003), which encompass body dissatisfaction, body shame, and preoccupation with body size and shape. For example, 34.5% of adolescent girls and 24.2% of boys reported being dissatisfied with their bodies, and 60.3% of girls and 30.4% of boys said they were trying to lose weight (Centers for Disease Control and Prevention [CDC], 2008). Such
concerns predict disordered eating behaviors in the form of increased self-reported dietary intent and bulimic symptomatology (Fredrickson & Roberts, 1997; Stice, 2002). Body image concerns also have been associated with lower levels of intuitive eating in both adolescents and adults (Avalos & Tylka, 2006; Dockendorff et al., 2012; Tylka, 2006), suggesting that perceiving one’s body in a negative way can have deleterious effects on eating behaviors across the lifespan.

Body dissatisfied children and adolescents may resort to extreme, maladaptive weight-loss strategies (e.g., not eating certain foods, ignoring hunger cues) to reduce their body size, minimize the real-ideal body discrepancy, and thus decrease their dissatisfaction. Yet, when adolescents are unable to lose the weight they want and reduce their dissatisfaction, they may experience a range of negative emotions (e.g., shame, anxiety) that they try to alleviate through eating, often sweets and other high-calorie foods (Nguyen-Michel, Unger & Spruijt-Metz, 2007). Although this approach may provide some immediate, short-term emotional relief, over time it may lead to weight gain (because the “emotional” eating often comprises a binge; e.g., Czaja, Rief & Hilbert, 2009) and/or the experience of additional negative emotions (e.g., guilt, anger at self) that further disrupt natural eating processes. In both instances, children move further away from adaptive, self-regulatory eating, experiencing disruptions in their abilities to recognize internal signals of hunger and fullness and eating to satisfy emotional, as opposed to physical, needs.

Purpose

The purpose of this study was to examine intuitive eating within the context of contemporary sociocultural models of eating (Stice, Nemeroff & Shaw, 1996). Specifically, to determine the relative influence of sociocultural pressures to be thin, caregiver messages about eating, internalization, and body satisfaction on the intuitive eating of adolescent boys and girls,
I hypothesized that: (a) pressures would be correlated with caregiver messages about food and eating, and associated directly with higher levels of internalization, and lower levels of body satisfaction and of intuitive eating; (b) caregiver messages would be related directly to more internalization and less intuitive eating; (c) internalization would be associated directly with less body satisfaction and lower levels of intuitive eating; and (d) body satisfaction would be related positively to intuitive eating. Because of differences that have been found in the strengths of the relations among these variables between boys and girls (e.g., Knauss et al., 2007; McCabe et al., 2010), the proposed model was examined separately by gender.
CHAPTER 2

METHOD

Participants

Middle school boys \((n = 701)\) and girls \((n = 769)\) from six different schools in a suburban district located in the South Central part of the U.S. participated. For the entire school district, the overall racial/ethnic breakdown was: 73.1% White/NonHispanic, 22.8% Hispanic, 8.5% Black/NonHispanic, 1.8% Asian American, and 0.6% American Indian/Native Alaskan, 11.9% other, and 3.7% multiple races (“District Directory Information,” 2012). Further, within the district as a whole, 39.7% of the students qualified for subsidized meals based on federal and state guidelines.

I separated participants by sex and then divided each randomly into two samples: Sample A (boys, \(n = 359\); girls, \(n = 395\)) and Sample B (boys, \(n = 342\); girls, \(n = 374\)). Using separate MANOVAs, I then compared each set of boy and girl samples (A vs. B) on all sets of measured variables, as well as key demographics (e.g., age, race), and no significant between sample differences were found for either gender across all measures \((ps > .05)\). Demographic information can be found in Table 1.

Measures

Demographics. Participants provided information on age, grade, and race/ethnicity. The school district provided information on whether the students qualified for free or reduced cost meals based on federal guidelines; these data served as a proxy for the students’ socioeconomic status (SES) level.

Sociocultural pressures. A 6-item Perceived Sociocultural Pressures Scale, adapted from Anderson, Petrie, and Neumann (2011), assesses perceived pressures to lose weight (“I have felt
pressure to lose weight”) or be stronger and more muscular ("I have felt pressure to get stronger and have bigger muscles"). On a scale ranging from 1, *none*, to 5, *a lot*, the students separately rated the pressure they experienced in each area from family, from friends, and from the media (e.g., TV, magazines). A total score for each type of pressure (e.g., lose weight) was the mean of the three sources; higher scores indicate greater pressure. Among middle school boys and girls, Petrie, Greenleaf and Martin (2010) reported Cronbach’s alphas that ranged from .78 to .79; alphas for the current study were - lose weight (boys - .75 and .85; girls - .71 and .72) and be more muscular (boys - .75 and .76; girls - .68 and .71). Pressures to lose weight and to be more muscular were related significantly to depression (r’s = .43 and .27) and internalization (r’s = .49 and .25), supporting their validity (Petrie et al., 2010).

Perceived caregiver eating messages. The 10-item Caregiver Eating Messages Scale (CEMS; Kroon Van Diest & Tylka, 2010) assesses perceptions of the messages received from caregivers along two dimensions: pressure to eat messages (PEM; 5 items; perceptions of caregivers’ tendency to impose pressure to eat; “Tells you to eat all the food on your plate”) and restrictive and critical messages (RCM; 5 items; perceptions of caregivers’ tendency to restrict food intake or make critical comments about eating; “Looks at you in a way that makes you feel that you are eating too much”). The boys and girls responded to each item from 1, *never*, to 6, *always*. Total score for each dimension is the mean; higher scores reflect greater perceived pressure to eat or restriction/criticism of food intake. Cronbach alphas have ranged from .79 to .86 (PEM) and .70 to .86 (RCM) for samples of men and women (Kroon Van Diest & Tylka, 2010); alphas for the current study were: PEM (boys - .83 and .85; girls - .85 and .86) and RCM (boys - .77 and .82; girls - .74 and .78). Among college age men and women, Kroon Van Diest and Tylka found the RCM to be related to BMI (rs = .46), perceived pressure to be thin (r = .45
to .61), body dissatisfaction ($r = .29$ to .43), and intuitive eating ($r = -.42$ to -.52); the PEM subscale was related significantly only to BMI ($r = .15$) for women only.

Sociocultural internalization. The 5-item Internalization subscale and the 4-item Comparison subscale from the Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) assess levels of internalization of societal values, images, and messages regarding attractiveness, beauty, and appearance and the extent to which individuals compare themselves to societal images of attractiveness, beauty and appearance. Students responded to each item from 1, definitely disagree, to 5, definitely agree. Total score for each subscale is the mean; higher scores reflect more internalization or social comparison. Petrie et al. (2010) reported a Cronbach’s alpha of .95 for middle school boys and girls; alphas in the current study were - Internalization (boys - .92 and .94; girls - .92 and .93) and Comparison (boys - .94 and .95; girls - .95 and .96). Internalization was correlated significantly with body satisfaction ($r = -.36$), physical appearance comparisons ($r = .45$) and pressures to lose weight ($r = .49$; Petrie et al., 2010), and with all three intuitive eating subscales ($r’s = -.17$ to -.29; Dockendorff et al., 2012), supporting its validity.

Body satisfaction. The 7-item Body Factor from the Body Parts Satisfaction Scale-Revised (BPSS-R; Petrie, Tripp & Harvey, 2002) assesses satisfaction through various body parts and features, such as weight, stomach and hips. Girls responded to each item from 1, extremely dissatisfied, to 6, extremely satisfied. Total score is the mean; higher scores indicate more satisfaction. Petrie et al. (2010) reported a Cronbach’s alpha of .90 for middle school adolescents; alphas for the current study were .90 and .91. Petrie et al. (2010) reported significant correlations between the BPSS-R and BMI ($r = -.44$), internalization ($r = -.36$), perceived pressure to lose weight ($r = -.48$) and depression ($r = -.38$), supporting its validity.
The 17-item Body factor and the 4-item Leg factor from the Body Parts Satisfaction Scale for Men (BPSS-M; McFarland & Petrie, 2012) assess satisfaction with the muscularity and leanness of one’s upper body (e.g., arms, stomach) and legs (e.g., upper, lower). The boys rated the leanness or muscularity of each respective body part or with aspects of their overall body (e.g., Overall Leanness of Body, Overall Level of Body’s Muscularity) from 1, extremely dissatisfied, to 6, extremely satisfied. Total score for each factor is the mean; higher scores indicate more satisfaction. Among college men, McFarland and Petrie (2012) reported Cronbach’s alphas of .97 (body) and .94 (legs); alphas for the current study were .97 and .98 (Body) and .93 and .94 (Leg). The BPSS-M body and leg factors, respectively, correlated significantly with depression ($r = -.35$ and -.28), bulimic symptomatology ($r = -.34$ and -.33), and satisfaction with life ($r = .39$ and .35; McFarland & Petrie, 2012).

The 13-item Body Appreciation Scale (BAS; Avalos, Tylka, & Wood-Barcalow, 2005) measures level of appreciation for and positive views of one’s body. On items such as, “I appreciate my body,” students responded from 1, never, to 5, always. Total score is the mean; higher scores indicate greater body appreciation. Avalos et al. (2005) reported a Cronbach alpha of .94 for college women; alphas in the current study were .95 and .96 (girls) and .96 and .97 (boys). In addition, they found that the BAS was related significantly to body dissatisfaction ($r = -.73$) and disordered eating ($r = -.60$), providing support for its validity.

Intuitive eating. The 16-item Intuitive Eating Scale for Adolescents-Revised (IES-A-R; Dockendorff et al., 2013), which is an updated version of the IES-A (Dockendorff et al., 2012; Tylka, 2006), assesses the degree to which adolescents eat based on physiological, rather than emotional or situational, cues. The IES-A-R consists of three subscales: Unconditional Permission to Eat (UPE; 5 items; readiness to eat in response to physiological hunger cues and to
eat whatever food may be desired at the time, e.g. “I try not to eat foods like cookies, potato chips, ice cream, and candy”); Eating for Physical Reasons (EPR; 5 items; eating in reaction to physical hunger cues, rather than when experiencing emotions, e.g., “I eat when I am feeling sad or stressed, even when I am not physically hungry”); and Reliance on Internal Hunger/Satiety Cues (RIC; 6 items; awareness of and trust in internal cues regarding hunger and satiety that guide healthy eating behavior, e.g., “I trust my body to let me know when I am hungry and it’s time to eat”). For each item, students responded from 1, strongly disagree, to 5, strongly agree. Each factor’s score is the mean; higher scores represent higher levels on that dimension of intuitive eating. Cronbach’s alphas in the current study were: Unconditional Permission (boys = .79 and .81; girls = .76 and .78), Eating for Physical Reasons (boys = .86 and .87; girls = .87 and .88), and Reliance on Internal Cues (boys = .88 and .89; girls = .84 and .87). The IES-A factors – UPE, EPR, and RIC, respectively – have been related significantly to BMI ($r = -.30$, -.15, and -.17); internalization ($r = -.29$, -.29, and -.17), perceived pressures to lose weight ($r = -.41$, -.24, and -.25), and body satisfaction ($r = .27$, .33, and .32), providing support for their validity (Dockendorff et al., 2012).

Procedure

Approval was obtained from the university’s Institutional Review Board, the central administration of the school district, and the principals at each of the six middle schools. At each school, during the fall registration period and then again in the weeks preceding fitness testing at each school, parental consents and child assents were obtained to participate in a larger study on the physical and psychological health and well-being of middle school students; the data for this study were drawn from this project, which was implemented in conjunction with a state-mandated requirement that all students complete annual physical fitness testing. During the week
when fitness testing occurred, the consented boys and girls anonymously and voluntarily completed the larger survey during their physical education classes. Due to its length the larger survey was administered during two different days to minimize participant fatigue; students took 20-30 minutes to complete each part. The questionnaires were coded only by student ID number so data provided by the school district could be linked to the students’ responses. Upon completion, students were entered into a drawing to win $10.00 cash prizes.

Data Analysis

Prior to conducting any analyses, missing data were examined and found to be missing either completely at random or at random. Missing data, which ranged from 0.4% to 3.3% across the measures, was replaced using expectation maximization (Schlomer, Bauman, & Card, 2010). Skewness and kurtosis of the variables then were examined and found to be within acceptable limits (Tabachnick & Fidell, 2007).

Structural equation modeling was used to test the proposed model in the two samples of boys and girls (Kline, 2005); I used the maximum likelihood procedure within EQS Structural Equations Program 6.2 (Bentler, 1995). The overall fit was evaluated using Hu and Bentler’s (1999) two-index strategy (comparative fit index [CFI] and standardized root mean residual [SRMR]). Within each gender, the model was tested first using Sample A and then confirmed within the independent Sample B.

Specifically, I tested the following relationships among the LVs (See Figures 1 and 2): (a) Pressures would be correlated with caregiver messages about food and eating, but associated directly with higher levels of internalization of the thin-ideal (internalization), and lower levels of body satisfaction and of intuitive eating; (b) caregiver messages would be related directly to more internalization and less intuitive eating; (c) internalization would be associated directly
with less body satisfaction and lower levels of intuitive eating; and (d) body satisfaction would be related positively to intuitive eating (See Figures 1 and 2). Because middle school represents a time of rapid physical growth and development, and because such changes may be related to body satisfaction and intuitive eating (Petrie et al., 2010), I controlled for body mass index (BMI) and pubertal development. BMI was represented by percentiles determined through the students’ age and gender, and pubertal development represented by scores on the Pubertal Development Scale (PDS; Peterson et al. 1988).

Both direct and indirect effects were obtained for the pathways in the model. An indirect effect implies a causal relation in which an independent variable (A) generates a mediating variable (B), which in turn generates a dependent variable (C) (Sobel, 1990). In modeling research, the indirect effect is the product of regression estimates ([A x B] + [B x C]) within this sequence of variable effects (Hanushek & Jackson, 1977).
CHAPTER 3

RESULTS

Pearson product-moment correlations as well as means and standard deviations are presented in Table 2 (boys) and Table 3 (girls).

Boys

Measurement model – Sample A. With three exceptions, the measured variables loaded on the latent variables (LVs) as expected (see Table 4 for the factor loadings and standard errors associated with each measured variable). First, due to poor fit, the Body Appreciation Scale (BAS) was dropped from the model, and the body satisfaction LV represented solely by the two factors from the Body Parts Satisfaction Scale for Men (BPSS-M). Second, also due to poor fit, the pressures to eat subscale from the Caregiver Eating Messages Scale (CEMS) was dropped. As a result, the five items from the restrictive caregiver messages (RCM) subscale from the CEMS were considered as independent indicators, though only three items loaded significantly. Third, for intuitive eating the reliance on internal cues subscale did not load significantly, so it was dropped. The LVs were allowed to correlate; coefficients ranged from .30 to .57 and -.27 to -.67 and all were significant (p < .05). The overall fit of the final measurement model was excellent (CFI = .996; SRMR = .042; $\chi^2 = 121.94$, \(df = 83\)).

Structural model – Sample A. The overall fit of the model was very good (CFI = .995; SRMR = .051; $\chi^2 = 134.25$, \(df = 57\)). As hypothesized, after controlling for BMI and pubertal development, pressures were correlated with restrictive caregiver messages (\(r = .56\)) and related directly (\(\beta = .52\)) to internalization (\(R^2 = .29\)); unexpectedly, restrictive caregiver messages (\(\beta = .03\)) was not a significant predictor of internalization. Pressures (\(\beta = -.29\)) but not internalization (\(\beta = -.13\)), was associated significantly with body satisfaction, explaining 18% of the variance.
Intuitive Eating ($R^2 = .60$), ultimately, was determined through the direct effects of pressures ($\beta = -.31$), restrictive caregiver messages ($\beta = -.25$), and internalization ($\beta = -.36$); body satisfaction was not a significant predictor ($\beta = .09$). See Figure 1.

Measurement model – Sample B. The final measurement model from Sample A was tested again and all variables loaded as expected (see Table 4). Correlations among the LVs were significant and ranged from .20 to .44 and -.20 to -.45. The overall fit of the measurement model was excellent (CFI = .996; SRMR = .045; $\chi^2 = 106.24$, $df = 49$).

Structural model – Sample B. The overall fit of the model was excellent (CFI = .996; SRMR = .048; $\chi^2 = 111.10$, $df = 54$). Similar to what I found with Sample A, after controlling for BMI and pubertal development, pressures were correlated with restrictive caregiver messages ($r = .47$) and related directly ($\beta = .27$) to internalization ($R^2 = .13$); again, restrictive caregiver messages ($\beta = -.08$) was not a significant predictor. Pressures ($\beta = -.23$), but not internalization ($\beta = -.13$), was related significantly to body satisfaction ($R^2 = .17$). Intuitive eating ($R^2 = .36$), ultimately, was determined through the direct effects of pressures ($\beta = -.30$), restrictive caregiver messages ($\beta = -.22$), and internalization ($\beta = -.31$); body satisfaction ($\beta = -.10$) did not contribute significantly. See Figure 1.

Indirect Effects – Samples A and B. Across the two samples, only one indirect effect was significant. In Sample A only, pressures ($\beta$’s = -.23 [95\% CI = -.27 to -.19]) was related indirectly to intuitive eating through its effects on internalization.

Girls

Measurement model – Sample A. With two exceptions, the measured variables loaded on the LVs as expected (see Table 4). First, due to poor fit, the pressures to eat messages (PEM) subscale was dropped. Again, the same three items (as with the boys) from the RCM subscale
loaded significantly. Second, the RIC subscale did not load significantly on the intuitive eating LV. The LVs were allowed to correlate; all coefficients were significant and ranged from .21 to .84 and -.31 to -.82. The overall fit of the final measurement model was excellent (CFI = .982; SRMR = .044; \( \chi^2 = 119.40, df = 47 \)).

Structural model – Sample A. The overall fit of the model was very good (CFI = .980; SRMR = .059; \( \chi^2 = 140.64, df = 54 \)). Pressures were correlated with restrictive caregiver messages (\( r = .42 \)) and related directly (\( \beta = .70 \)) to internalization (\( R^2 = .47 \)); again, restrictive caregiver messages (\( \beta = -.07 \)) did not contribute significantly. Pressures (\( \beta = -.25 \)) and internalization (\( \beta = -.42 \)) were related significantly to body satisfaction (\( R^2 = .51 \)). Pressures (\( \beta = -.41 \)), restrictive caregiver messages (\( \beta = -.18 \)), internalization (\( \beta = -.55 \)), and body satisfaction (\( \beta = .36 \)) explained 99% of the variance in intuitive eating.

Measurement model – Sample B. The final measurement model from Sample A was tested and all variables loaded similarly (see Table 4). The LVs were allowed to correlate, and coefficients (all \( p \)'s < .05) ranged from .19 to .61 and -.17 to -.85. The final measurement model fit the data well (CFI = .978; SRMR = .048; \( \chi^2 = 126.52, df = 47 \)).

Structural model – Sample B. The overall fit of the model was very good (CFI = .970; SRMR = .062; \( \chi^2 = 140.75, df = 56 \)). Pressures were correlated with restrictive caregiver messages (\( r = .53 \)) and related directly (\( \beta = .74 \)) to internalization (\( R^2 = .46 \)); again, restrictive caregiver messages (\( \beta = -.14 \)) was not related significantly to internalization. Pressures (\( \beta = -.52 \)), and internalization (\( \beta = -.25 \)) were related significantly to body satisfaction (\( R^2 = .52 \)). Intuitive eating (\( R^2 = .89 \)), ultimately, was determined through the direct effects of pressures (\( \beta = -.35 \)), restrictive caregiver messages (\( \beta = -.30 \)), and internalization (\( \beta = -.50 \)); body satisfaction was unrelated (\( \beta = .01 \)). See Figure 2.
Indirect Effects – Samples A and B. Across Samples A and B, respectively, similar indirect effects emerged. Pressures were indirectly related to body satisfaction ($\beta$’s = $-0.28$ [95% CI = $-0.36$ to $-0.19$] and $-0.22$ [95% CI = $-0.29$ to $-0.15$]) and intuitive eating ($\beta$’s = $-0.42$ [95% CI = $-0.47$ to $-0.37$] and $-0.38$ [95% CI = $-0.44$ to $-0.33$]). In Sample A only, internalization was indirectly related intuitive eating ($\beta = -0.13$ [95% CI = $-0.16$ to $-0.10$]).
After controlling for body mass index (BMI) and pubertal development, pressures from parents, peers, and the media to lose weight and be more muscular were related to greater internalization in both boys and girls, explaining 17% to 42% of the variance. As adolescents perceive more pressure in these areas, they are more likely to create internalized schemas about appearance, weight, body, and eating that are consistent with specific male and female gender role ideals (Halliwell & Harvey, 2006; Knauss et al., 2007). However, this relationship was stronger for girls than boys, suggesting that girls, more than boys during early adolescence, may be exposed to a variety of media (e.g., commercials, magazines, television shows) that convey blatant and extreme messages about body, weight, and eating. Such messages add a significant amount of pressure for girls to change their bodies, and subsequently, increase the likelihood that they will internalize these ideals. Media messages directed toward men are more often related to being muscular, which may not have the same impact on boys, particularly when they have not completed puberty and their bodies lack the size and shape of a masculine physique. In fact, research has demonstrated that muscular-ideal television commercials have little impact on adolescent boys’ body image (Hargreaves & Tiggeman, 2004).

Restrictive messages from caregivers about food were unrelated to the extent to which the boys and girls internalized societal messages about body size and shape. Parents’ ideas about eating and food affect the development of children’s eating behaviors (e.g. Birch & Fisher, 1998), but it does not appear that these food-specific messages translate into increased internalization about general appearance.
Consistent with previous research (Halliwell, & Harvey, 2006; Stice & Whitenton, 2002), pressures from parents, peers, and media were related negatively to body satisfaction. Knauss et al. (2007) found that pressures to lose weight or gain muscularity were a stronger predictor of body dissatisfaction in boys than in girls. Further, in a sample of middle schoolers, pressures were the most significant predictor of body dissatisfaction, although the influence of the types of pressure differed by gender (Petrie et al., 2010); pressure to lose weight was more salient for girls, compared to the pressure to be more muscular for boys. As boys move into later adolescence, and they exit puberty, they experience greater pressure to comply with the ideal male body type (i.e., be more muscular), and as a result, may become even more dissatisfied with the size and shape of their bodies (Ricciardelli, McCabe, Lillis, & Thomas, 2006).

Internalization was related negatively to body part satisfaction scores, but only for the girls, suggesting that it is a salient factor in determining their body satisfaction (e.g., Petrie et al., 2010). Girls not only mature physically before boys, but they also develop social cognitive abilities (e.g., attunement to societal norms and expectations; Choudhury et al., 2006) sooner. Further, adolescence is a time when children begin to develop their social self-schema and become more self-conscious about how others perceive them and their appearance (Choudhury et al., 2006). Because, on average, early adolescent girls’ bodies are more likely to be developed than boys, and because they demonstrate higher levels of cognitive and social maturity, they will be more likely to understand and internalize societal body ideals and then engage in comparison processes that can lead to body dissatisfaction. For boys, internalization may not become salient in determining their body image until they begin to mature physically (i.e., developing muscle and a more masculine appearance) and cognitively in later adolescence (e.g., McCabe & Ricciardelli, 2004). In their literature review of body dissatisfaction in men across the lifespan,
McCabe & Ricciardelli (2004) suggested that adolescent girls experience greater body satisfaction than boys, but once adolescents reach adulthood, men experience body dissatisfaction at close to the same rates as women.

Pressures, restrictive caregiver messages, and internalization and, for girls only, body satisfaction explained significant variance in their intuitive eating scores (36% to 57% for boys; 92% to 94% for girls). Pressures have been associated with lower levels of intuitive eating in both adolescents and adults (Dockendorff et al., 2012; Tylka, 2006). As adolescents become aware of societal pressures, they experience a need to conform and begin the internalization process (Jones, Vigfusdottir & Lee, 2004). As they compare themselves against the societal body ideals they have internalized and experience dissatisfaction with their current body size and shape, some will engage in behaviors, such as restricting how much (and what) they eat in an attempt to change their physique and appearance to more closely approximate what is represented in society (Halliwell & Harvey, 2006). This approach is likely to disrupt their adaptive eating processes (Salafi & Gondoli, 2010) as they adopt rules about what they can and cannot eat, lose touch with their bodies’ natural signals to start and stop eating, and eat in response to negative emotions, such as sadness or guilt.

Messages from caregivers about restricting food may impact an adolescent’s ability to regulate their own hunger and make them more attuned to external, rather than internal, cues (e.g., Galloway et al., 2010). In a home environment where restrictive messages exist and are expressed regularly, boys and girls may begin to experience negative emotions (e.g., anger, shame, guilt) about their current eating and engage in behaviors, such as dietary restraint or emotional eating, to reduce the discomfort caused by the messages from their parents. Gallowey et al. (2010) found that adult women whose parents used more restrictive feeding practices (i.e.,
restricting how much the child was allowed to eat) tended to engage more emotional eating than those whose parents were less restrictive. Our findings suggest that restrictive messages may be more salient at this developmental timeframe than messages about needing to eat more food.

Overall, the model was particularly applicable for the girls’ eating behaviors, which is consistent with other socioculturally-based studies (Knauss et al., 2007; Petrie et al., 2010). For example, Petrie et al. (2010) found, when they used the same set of variables (e.g., pressures, internalization, appearance comparisons, self-esteem), that 2.5 times more variance was explained in the girls’ body satisfaction than the boys’ (49% vs. 20%). In early adolescence, girls are more vulnerable to the pathogenic effects of these socialization processes (Moradi, 2010). Further, higher self-esteem may buffer the negative impact of societal messages to change boys’ bodies (Ricciardelli & McCabe, 2004). Girls tend to report lower self-esteem than boys, especially during adolescence, and this discrepancy has been found to be directly related to increases in body dissatisfaction (Clay, Vignoles, & Dittmar, 2005). Thus, as boys move into later adolescence and early adulthood and mature physically and cognitively, the effects of socialization, gender roles, and societal ideals likely increase their risk of experiencing body image concerns, dietary restraint, the pursuit of muscularity, and a loss of connection with adaptive eating processes.

Limitations and Directions for Future Research

There are several limitations to the current study. First, all measures were self-reported, which lends itself to response bias. In middle school, impression management is extremely important (e.g., Huon, Lim, Walton, Hayne, & Gunewardene, 2000) because adolescents are attuned to what their peers think about them. To minimize this likelihood, participants did not put their names on the surveys and completed them without peer interaction. Second, the data
collected were correlational, thus no determination about the temporal relations among the variables could be made. Even so, the significant pathways were consistent with theory and confirmed across independent samples. Still, research is needed to ascertain the long-term impacts of sociocultural variables, such as pressures to lose weight and internalization of the thin-ideal, on body satisfaction and intuitive eating from adolescence through adulthood. Third, although the sample was diverse in terms of school grades and race/ethnicity, generalizability is limited to comparable groups of students from similar middle-class, suburban school districts. In areas that have higher levels of poverty and the potential limited availability of food within those families, an adolescent’s ability to eat intuitively may be compromised further.

Clinical Implications

Adolescent boys and girls experience pressures from parents, peers, and media to attain a thin or muscular body that is often extremely unrealistic and can lead to body dissatisfaction and unhealthy eating behaviors. Thus, intervention programs that target messages about weight, dieting and physical appearance may reduce adolescents’ risk for developing dietary restraint and promote healthy body image. Stice, Shaw, and Marti (2007) concluded that the most effective intervention programs are targeted, interactive, contain multiple sessions, and delivered to girls over the age of 15. The authors argued that intervening after age 15 is more productive because adolescent girls are at the highest risk for developing eating disorders and that younger children may not be cognitively capable of understanding the content of these intervention programs. However, our study suggests that the variables that have been found to impact the development of eating disorders (Stice, 1994) are present in younger adolescent boys and girls, particularly as they relate to adaptive eating processes. Thus, interventions appear warranted but need to be tailored to address the developmental realities of children this age. Further, such interventions
may incorporate information regarding intuitive eating to promote adaptive eating behaviors (Tribole & Resch, 2012).

The current study and previous studies in the area of intuitive eating, and eating behaviors broadly, have found that parents are significant contributors to the development of healthy and unhealthy eating behaviors. Thus, clinicians should educate parents how to promote and model intuitive eating to their children. Tribole and Resch (2012) recommended that parents provide a wide array of healthy food options, demonstrate trust in their child’s ability to intuitively eat (e.g., allowing them to choose what and how much they want to eat), avoid labeling foods as “good” or “bad”, eat together as a family, and engage in an active healthy life together. Such ideas might be incorporated into parental programming that is offered through the schools or into health classes where students themselves can learn more about intuitive eating and how to remain aware of and trusting in their bodily cues.

Conclusion

The current study provided support for a socioculturally-based model of intuitive eating in adolescent girls and boys. Pressures to lose weight or gain muscle, restrictive messages about food from caregivers, and internalization of the thin ideal were related to the adolescents’ intuitive eating behaviors, even after controlling for BMI and pubertal development, suggesting that many of the sociocultural variables that have been found to impact disordered eating are salient for understanding healthy eating behaviors. However, the relations among many of the variables, as well as the model’s ability to explain intuitive eating overall, were stronger in girls than in boys. Future research will need to examine this model using other psychosocial variables (e.g., self-esteem, weight-related teasing), and determine if it applies to older adolescents and young adults.
Table 1

Demographics of Boys Sample A (n = 359) and Sample B (n = 342) and Girls Sample A (n = 395) and Girls Sample B (n = 374)

<table>
<thead>
<tr>
<th></th>
<th>Boys Sample A</th>
<th>Boys Sample B</th>
<th>Girls Sample A</th>
<th>Girls Sample B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (M, SD in years)</td>
<td>12.40 (0.98)</td>
<td>12.19 (0.97)</td>
<td>12.26 (0.93)</td>
<td>11.91 (0.90)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Non-Hispanic</td>
<td>61%</td>
<td>65%</td>
<td>55%</td>
<td>71%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>30%</td>
<td>19%</td>
<td>31%</td>
<td>12%</td>
</tr>
<tr>
<td>Black/Non-Hispanic</td>
<td>6%</td>
<td>10%</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td>Asian American</td>
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<td>5%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Native American/Pacific Islander</td>
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<td>1%</td>
<td>1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Multiple Races</td>
<td>0.4%</td>
<td>1.2%</td>
<td>0.3%</td>
<td>0.9%</td>
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<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sixth</td>
<td>36.5%</td>
<td>43.6%</td>
<td>47.3%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Seventh</td>
<td>33.4%</td>
<td>30.4%</td>
<td>30.4%</td>
<td>32%</td>
</tr>
<tr>
<td>Eighth</td>
<td>29.5%</td>
<td>26.0%</td>
<td>22.3%</td>
<td>18.5%</td>
</tr>
<tr>
<td>BMI (M, SD in kg/m²)</td>
<td>21.10 (5.03)</td>
<td>20.60 (4.50)</td>
<td>20.99 (4.63)</td>
<td>20.27 (4.70)</td>
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<tr>
<td>Meal Assistance</td>
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<td></td>
<td></td>
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<tr>
<td>No Meal Assistance</td>
<td>68.8%</td>
<td>80.4%</td>
<td>64.3%</td>
<td>79.5%</td>
</tr>
<tr>
<td>Reduced Lunch</td>
<td>5.6%</td>
<td>3.8%</td>
<td>7.6%</td>
<td>4.2%</td>
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<tr>
<td>Free Lunch</td>
<td>25.6%</td>
<td>15.2%</td>
<td>28.1%</td>
<td>16.3%</td>
</tr>
</tbody>
</table>
Table 2

Correlation Matrix of Measured Variables in Boys Sample A (n = 59) and Sample B (n = 342)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PSPS-LW</td>
<td>1</td>
<td>.49**</td>
<td>.34**</td>
<td>.39**</td>
<td>.40**</td>
<td>.40**</td>
<td>.46**</td>
<td>-.29**</td>
<td>-.22**</td>
<td>-.36**</td>
<td>-.41**</td>
<td>.51**</td>
<td>.08</td>
<td>1.43</td>
<td>0.71</td>
</tr>
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<td>2. PSPS-M</td>
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<td>1</td>
<td>.22**</td>
<td>.17**</td>
<td>.23**</td>
<td>.38**</td>
<td>.42**</td>
<td>-.15*</td>
<td>-.11</td>
<td>-.13</td>
<td>-.27**</td>
<td>.11</td>
<td>.08</td>
<td>2.00</td>
<td>0.96</td>
</tr>
<tr>
<td>3. CEMS-5</td>
<td>.36**</td>
<td>.30**</td>
<td>1</td>
<td>.63**</td>
<td>.56**</td>
<td>.22**</td>
<td>.24**</td>
<td>-.23**</td>
<td>-.22**</td>
<td>-.16*</td>
<td>-.33**</td>
<td>.17**</td>
<td>-.02</td>
<td>2.01</td>
<td>1.44</td>
</tr>
<tr>
<td>4. CEMS-6</td>
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<td>.27**</td>
<td>.78**</td>
<td>1</td>
<td>.58**</td>
<td>.20**</td>
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<td>-.22**</td>
<td>-.35**</td>
<td>.28**</td>
<td>.06</td>
<td>1.95</td>
<td>1.40</td>
</tr>
<tr>
<td>5. CEMS-7</td>
<td>.26**</td>
<td>.25**</td>
<td>.58**</td>
<td>.53**</td>
<td>1</td>
<td>.24**</td>
<td>.28**</td>
<td>-.14*</td>
<td>-.19**</td>
<td>-.14*</td>
<td>-.37**</td>
<td>.19**</td>
<td>.03</td>
<td>1.49</td>
<td>1.05</td>
</tr>
<tr>
<td>6. SATAQ-IN</td>
<td>.24**</td>
<td>.32**</td>
<td>.12*</td>
<td>.14*</td>
<td>.18**</td>
<td>1</td>
<td>.88**</td>
<td>-.24**</td>
<td>-.18**</td>
<td>-.30**</td>
<td>-.37**</td>
<td>.20**</td>
<td>.07</td>
<td>2.05</td>
<td>1.05</td>
</tr>
<tr>
<td>7. SATAQ-CO</td>
<td>.24**</td>
<td>.32**</td>
<td>.17**</td>
<td>.18**</td>
<td>.19**</td>
<td>.84**</td>
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<td>-.36**</td>
<td>-.45**</td>
<td>.19**</td>
<td>.04</td>
<td>1.91</td>
<td>1.05</td>
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<tr>
<td>8. BPSS-Body</td>
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<td>-.28**</td>
<td>-.18**</td>
<td>-.18**</td>
<td>-.17**</td>
<td>-.19**</td>
<td>1</td>
<td>.85**</td>
<td>.16*</td>
<td>.27**</td>
<td>-.16*</td>
<td>.15*</td>
<td>4.38</td>
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<td></td>
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<tr>
<td>9. BPSS-Leg</td>
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<td>-.20**</td>
<td>-.21**</td>
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<td>.12</td>
<td>4.55</td>
<td>1.28</td>
<td></td>
</tr>
<tr>
<td>10. IES-UCP</td>
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<td>-.08</td>
<td>-.12</td>
<td>-.06</td>
<td>-.09</td>
<td>-.24**</td>
<td>-.23**</td>
<td>.10*</td>
<td>.08</td>
<td>1</td>
<td>.40**</td>
<td>-.34**</td>
<td>-.03</td>
<td>2.96</td>
<td>0.70</td>
</tr>
<tr>
<td>11. IES-EPR</td>
<td>-.28*</td>
<td>-.30**</td>
<td>-.30**</td>
<td>-.28**</td>
<td>-.25**</td>
<td>-.22**</td>
<td>-.28**</td>
<td>.08</td>
<td>.03</td>
<td>.40**</td>
<td>1</td>
<td>-.18**</td>
<td>-.12</td>
<td>4.25</td>
<td>0.81</td>
</tr>
<tr>
<td>12. BMI</td>
<td>.30**</td>
<td>-.01</td>
<td>.16*</td>
<td>.20**</td>
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<td>.11</td>
<td>.07</td>
<td>-.21**</td>
<td>-.20**</td>
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<td>1</td>
<td>.18**</td>
<td>21.11</td>
<td>4.55</td>
</tr>
<tr>
<td>13. PDS</td>
<td>.06</td>
<td>.02</td>
<td>.03</td>
<td>.01</td>
<td>.02</td>
<td>.12</td>
<td>.17*</td>
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<tr>
<td>Mean</td>
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<td>1.91</td>
<td>1.81</td>
<td>1.85</td>
<td>1.42</td>
<td>2.02</td>
<td>1.85</td>
<td>4.56</td>
<td>4.76</td>
<td>2.89</td>
<td>4.22</td>
<td>20.61</td>
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<tr>
<td>SD</td>
<td>0.77</td>
<td>0.98</td>
<td>1.28</td>
<td>1.35</td>
<td>1.07</td>
<td>1.03</td>
<td>1.01</td>
<td>1.15</td>
<td>1.22</td>
<td>0.72</td>
<td>0.88</td>
<td>4.37</td>
<td>0.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note. Sample A correlations, means, and standard deviations are shown above the diagonal and Sample B below the diagonal. PSPS-LW or M = Perceived Sociocultural Pressures Scale – Lose Weight or Muscularity; CEMS-5 = Caregiver Eating Messages Scale Item 5: “Looks at you like you are eating too much”; CEMS-6 = Caregiver Eating Messages Scale Item 6: “Tells you that you are eating too much”; CEMS-7 = Caregiver Eating Messages Scale Item 7: “Makes fun or gets mad at you for eating too much”; SATAQ-IN or CO = Sociocultural Attitudes Toward Appearance Questionnaire – Internalization or Comparison subscale; BPSS-Body or Leg = Body Parts Satisfaction Scale – Body or Leg factor; IES-UCP = Intuitive Eating Scale – Unconditional Permission to Eat subscale; IES-EPR = Intuitive Eating Scale – Eating for Physical Rather than Emotional Reasons subscale; BMI = Body Mass Index; PDS = Pubertal Development Scale.

* p < .01, ** p < .001
## Table 3

*Correlation Matrix of Measured Variables in Girls Sample A (n = 395) and Sample B (n = 374)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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Mean: 1.37 1.48 1.60 1.63 1.31 2.26 2.12 4.63 4.03 2.88 4.17 20.28

SD: 0.67 0.70 1.09 1.12 0.91 1.13 1.20 1.13 0.91 0.72 0.91 4.70
Note. Sample A correlations, means, and standard deviations are shown above the diagonal and Sample B below the diagonal. PSPS-LW or M = Perceived Sociocultural Pressures Scale – Lose Weight or Muscularity; CEMS-5 = Caregiver Eating Messages Scale Item 5: “Looks at you like you are eating too much”; CEMS-6 = Caregiver Eating Messages Scale Item 6: “ Tells you that you are eating too much”; CEMS-7 = Caregiver Eating Messages Scale Item 7: “Makes fun or gets mad at you for eating too much”; SATAQ-IN or CO = Sociocultural Attitudes Toward Appearance Questionnaire – Internalization or Comparison subscale; BPSS-Body = Body Parts Satisfaction Scale – Body factor; BAS = Body Appreciation Scale; IES-UCP = Intuitive Eating Scale – Unconditional Permission to Eat subscale; IES-EPR = Intuitive Eating Scale – Eating for Physical Rather than Emotional Reasons subscale; BMI = Body Mass Index; PDS = Pubertal Development Scale.

* p < .01, ** p < .001
Table 4

**Standardized Parameter Estimates for the Measurement Model**

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*Note: (S.E.) = Standard Error; PSPS-LW = Perceived Sociocultural Pressures Scale – Lose Weight subscale; PSPS-M = Perceived Sociocultural Pressures Scale-Muscularity; CEMS-5 = Caregiver Eating Messages Scale Item 5: “Looks at you like you are eating too*
much”; CEMS-6 = Caregiver Eating Messages Scale Item 6: “Tells you that you are eating too much”; CEMS-7 = Caregiver Eating Messages Scale Item 7: “Makes fun or gets mad at you for eating too much”; SATAQ-IN = Sociocultural Attitudes Toward Appearance Questionnaire – Internalization subscale; SATAQ-CO = Sociocultural Attitudes Toward Appearance Questionnaire – Comparison subscale; BPSS-Body = Body Parts Satisfaction Scale – Body factor; BPSS-Leg = Body Parts Satisfaction Scale – Leg factor; BAS = Body Appreciation Scale; IES-UCP = Intuitive Eating Scale – Unconditional Permission to Eat subscale; IES-EPR = Intuitive Eating Scale – Eating for Physical Reasons subscale; BMI = Body Mass Index; PDS = Pubertal Development Scale.
Figure 1. Boys structural model for explaining intuitive eating.

Note: BMI and Pubertal Development were included in the model to control for the effects of those variables.
Figure 2. Girls structural model for explaining intuitive eating.

a = Sample A; b = Sample B; * = p < .01

Note: BMI and Pubertal Development were included in the model to control for the effects of those variables
APPENDIX

LITERATURE REVIEW
Intuitive Eating in Adolescents: Testing a Psychosocial Model

Adaptive eating involves a reliance on internal cues, such as physiological feelings of hunger and fullness, to determine when and how much to eat rather than basing it on emotions or external cues, such as portion size or established meal times (e.g., eating lunch at noon). Tribole and Resch (1995) labeled this approach to eating “intuitive” because it encompasses an understanding of and response to physiological cues of hunger and satiety as well as less preoccupation with food. More specifically, researchers (Tylka, 2006; Tribole & Resch, 1995) have defined intuitive eating as representing three separate, but interrelated, adaptive behaviors: 1) unconditional permission to eat (readiness to eat in response to physiological hunger cues and to eat whatever food may be desired at the time); 2) eating for physical rather than emotional reasons (using food to satisfy physiological drives rather than as a coping mechanism for emotional distress); and 3) relying on physiological cues of hunger and satiety (awareness of physiological hunger and satiety cues and reliance on these cues to manage eating).

To provide researchers with a tool to measure this more adaptive, and healthy, approach to eating, Tylka (2006) developed the Intuitive Eating Scale (IES). Prior to this development, there was no reliable nor valid way to determine individuals’ perceptions about how they approached eating. Thus, researchers focused on eating pathology, which was limited in that it focused on just the extent to which individuals did not engage in disordered eating behaviors. In her study, Tylka used a large sample of female undergraduates, and conducted both exploratory and confirmatory factor analyses to validate the three dimensions of intuitive eating previously described. Further, she examined the factors in relation to a variety of demographic and psychological variables, and found that higher levels of overall intuitive eating were related to
lower BMI, higher psychological well-being and self-esteem, better proactive coping skills, and lower depression and eating pathology.

More specifically, Tylka found that unconditional permission to eat was related inversely to measures of eating disorder symptomatology, specifically the body dissatisfaction (BD) and interoceptive awareness (IA) subscales on the Eating Disorder Inventory (EDI-2) and the Eating Attitudes Test (EAT); the strength of these associations was small to moderate. The eating for physical reasons and the reliance on internal cues factors had similar negative relationships with the BD and IA subscales, as well as with the EAT, though the strength of the associations was less than found for the unconditional permission factor. For internalization of the thin ideal, negative relationships again were found with all three factors, though the associations were strongest with unconditional permission to eat. Unconditional permission had positive, but small, relationships with self-esteem ($r = .26$), satisfaction with life ($r = .28$), and optimism ($r = .14$); it was not significantly related to proactive coping. Eating for physical reasons had a moderate ($r = .36$) association with self-esteem, and small correlations ($r's = .24$ to .27) with optimism, proactive coping, and satisfaction with life. Finally, reliance on internal cues was found to have small to moderate (i.e., $r's = .31$ to .38) associations with satisfaction with life, self-esteem, optimism, and proactive coping.

These findings suggest that women with high levels of intuitive eating are likely to reject the societal thin-ideal, be satisfied with their bodies, and perceive minimal pressure to be thin. Because these women are not likely to base their self-worth on being thin, but rather on what their bodies can do, they will have greater psychological well-being, including high life satisfaction, self-esteem, and optimism. Furthermore, women scoring high on the eating for physical reasons subscale may use more constructive strategies to deal with emotional distress,
such as seeking support and using proactive coping, rather than relying on food to cope with their emotions. Together, these findings suggest that adaptive, healthy eating coincides with myriad positive psychological outcomes.

Subsequent research (Tylka & Wilcox, 2006) with college women has shown that two of the intuitive eating factors (i.e., eating for physical rather than emotional reasons and relying on physiological cues) were not related significantly to different measures of eating disorder symptoms (i.e., the dieting and bulimia/food preoccupation subscales of the Eating Attitudes Test), suggesting that these IE factors may measure something other than disordered eating. Unconditional permission to eat, however, was related to these eating disorder measures, suggesting that women who eat unconditionally report fewer problems with dieting or feeling out of control when eating. The findings from these studies (Tylka, 2006; Tylka & Wilcox, 2006) suggest that the IES is a valid and reliable measure of intuitive eating that is defined by three specific adaptive eating processes that are not simply representations of the absence of disordered eating.

In another sample of college women, Avalos and Tylka (2006) developed an “acceptance” model of intuitive eating that included contextual and interpersonal variables, such as unconditional acceptance by friends and family, body acceptance by others, an emphasis on body functionality, and body appreciation. They found that feeling unconditionally accepted by friends and family was related to feelings of body acceptance by others which, in turn, were associated with both an emphasis on the functionality of and an appreciation for their bodies. Finally, body appreciation contributed directly to intuitive eating, ultimately explaining 42.5% of its variance. The relationships supported in this model suggest that women who value the functionality of their body over how it appears, who appreciate their body for how it currently is,
and who are more resistant to others’ evaluations of their body tend to be responsive to internal
cues of hunger and satiety. Because these women eat more intuitively, they tend to have a lower
body weight and better overall psychological well-being (Augustus-Horvath & Tylka, 2011;
Avalos & Tylka, 2006; Tylka, 2006).

Augustus-Hovarth and Tylka (2011) expanded this acceptance model of intuitive eating
by including body mass index (BMI) and examining it in three different age groups of women:
emerging adulthood (18-25 years old), early adulthood (26-39 years old), and middle adulthood
(40-65 years old). They wondered if the relationships amongst the variables in this model would
differ as a result of age-related developmental changes, such as in appearance and in roles and
responsibilities. Avalos and Tylka found that their model fit all age groups and the paths from
the previous study were supported, which increased the generalization of this model to early and
middle adulthood. Overall, the model explained 40.0% to 50.8% of the variance in intuitive
eating across these three groups of women. Regarding BMI, though, some differences emerged
across the three age groups. In early and middle adulthood women, BMI was related negatively
to body acceptance by others, meaning that women in these age groups who were heavier were
more likely to perceive that others did not accept their bodies. Again, only for these two age
groups of women, BMI had a direct association with intuitive eating, which suggests that early
and middle adulthood women’s likelihood of trusting their bodily cues related to food is
inversely proportional to their weight.

The acceptance model of intuitive eating has been shown to be an effective framework
for understanding how body acceptance and appreciation may be related to women’s intuitive
eating, and serves as a starting point for understanding how intuitive eating may develop over
time and be influenced by environmental and contextual factors. However, as Tylka and her
colleagues (Augustus-Horvarth & Tylka, 2011; Avalos & Tylka, 2006; Tylka, 2006; Tylka & Wilcox, 2006) have noted, this model, as well as previous intuitive eating research, has been limited in two important ways. First, intuitive eating research, to date, has been conducted solely with adult women. So, little is known about the applicability of this construct with men or, more importantly, with children and adolescents, which is a timeframe when eating patterns and processes are strongly influenced. Second, the acceptance model is based on only certain factors and, as a result, does not sufficiently explain the variance in intuitive eating. Thus, researchers may want to consider other psychosocial variables to better understand how context and/or personality may influence adaptive, self-regulatory eating processes. For example, researchers could examine how external influences beyond body appreciation, such as caregiver messages, pressures to lose weight, and internalization of the thin-ideal, could account for differences in adolescents’ development of intuitive eating. Addressing these two limitations would be an important next step in this line of research.

Intuitive Eating in Adolescents

Although initial studies on the IES have supported the scale’s psychometric properties (Tylka, 2006), they have been limited by including only adult women and not considering whether intuitive eating was a viable construct for children and adolescents. Thus, examining this measure in this age group is important because adaptive eating often goes awry during late childhood and early adolescence and problematic eating behaviors, such as dieting and fasting, begin (de Castro & Goldstein, 1995; Edmunds & Hill, 1999). So, determining if intuitive eating, as conceptualized by Tylka (2006), exists for adolescents would allow researchers to examine when, and how, adaptive eating processes may be thwarted as children develop.
In a sample of middle school boys and girls, Dockendorff, Petrie, Greenleaf and Martin (2012) examined the psychometric structure of the IES to determine if the 3-factor solution that emerged from samples of college-aged women fit with this population. Because the IES initially was developed for adult women, six items on the scale were rewritten after consulting with experts in eating disorders, adolescents, and body image to make them more appropriate for this age group. These changes involved adding more details to increase comprehension (e.g., “I use food to help me soothe my negative emotions” was changed to “I use food to help me soothe my negative emotions, such as feeling sad or angry”); one item was modified to reflect the fact that the children were not likely to buy their own food (i.e., “I don’t keep certain foods in my house/apartment because I think that I may lose control and eat them” was changed to “In my house, my family does not keep certain foods because they think that I may lose control and eat them”).

Results from this study suggested that a 4-factor model best fit the data (Dockendorff et al., 2012). The first two factors on the IES for adolescents (IES-A) – unconditional permission to eat, and eating for physical rather than emotional reasons – represented the core constructs described by Tylka (2006), but with fewer items for each one. The original third factor, reliance on internal hunger/satiety cues, was represented by two separate factors: awareness of internal hunger/satiety cues (3 items; degree of awareness of internal cues) and trust in internal hunger/satiety cues (3 items; belief in those cues to guide eating behavior). All four factors were correlated, internally consistent, and generally unrelated to students’ age, sex, and race/ethnicity.

The adolescents in the study reported a greater level of awareness of their hunger and satiety than they had trust in these internal cues. Thus, not only do early adolescents experience awareness and trust as separate dimensions in understanding and relying on their internal hunger
and satiety cues, but at this age, they are more aware than they are trusting. This distinction may be because adolescents have limited influence with regard to their food intake, such as not having control over the foods that are available to them and/or parents determining when (and often what) they will eat. So even though they report being aware of the physical sensations of hunger and fullness, they may receive messages (e.g., “you can’t be hungry, you just ate” or “you need to finish what’s on your plate before you leave the table”) from parents or other authority figures that undermine their trust in these internal cues. It may not be until late adolescence or early adulthood, when individuals have more control over their access to food (and how much they actually eat), that these two concepts become integrated and equally important as an adaptive eating process.

Regarding the unconditional permission to eat factor, Dockendorff et al. (2012) found that the boys and girls who did not restrict their eating choices tended to have a leaner body, and reported experiencing fewer societal and familial messages, pressures, and behaviors that promote dieting and the need to have a thin body, which was consistent with Tylka’s (2006) findings. Among children and adolescents, dietary restraint, which is in many ways the opposite of feeling free to eat what one wants, is related to experiencing more perceived pressures about body, weight, and appearance, and higher BMIs (Ricciardelli, McCabe, Holt, & Finemore, 2003; Sim & Zeman, 2006; Tremblay & Lariviere, 2009). When adolescents are subjected to fewer pressures and do not internalize societal ideals about body, appearance, and eating, they are more aware of their emotions and feel more freedom to eat what they want (when they want). This adaptive self-regulatory process is likely associated with intake of healthier foods, which in turn may lead to a leaner, healthier body.
On the second factor, eating for physical rather than emotional reasons, Dockendorff et al. (2012) found that the girls were more likely than the boys to use food to cope with their emotions. In addition, regardless of sex, the adolescents who scored higher on this factor had a lower BMI, and reported less internalization of societal ideals about appearance, fewer pressures to lose weight, diet and have a thin body, and fewer negative (e.g., sadness, anxiety) and more positive (e.g., happiness, confidence) emotions. This factor was related positively to body satisfaction and satisfaction with life, which is consistent with Tylka’s (2006) findings with female undergraduates.

On the trust in internal hunger/satiety cues factor, they found that Caucasians reported higher levels than did the minority adolescents. Tylka and her colleagues (Augustus-Horvarth & Tylka, 2011; Avalos & Tylka, 2006; Tylka, 2006; Tylka & Wilcox, 2006) have not examined racial/ethnic differences in previous studies, so there are no data for direct comparison. The minority students in the Dockendorff et al. (2012) study were mainly African Americans and Hispanics, both of which represent cultures that are more collectivistic in nature, with a focus on the importance and influence of family, particularly parents and elders (Kumanyika, 2008). As such, the parents in these cultures may have more influence and control over eating behaviors and food availability, which may impact these adolescents’ ability to learn to trust that their internal cues are accurate. If minority adolescents have less trust in their bodies’ internal hunger and satiety mechanisms, they may be prone to overeat and thus, be at a greater risk of becoming overweight (CDC, 2011; Kumanyika, 2008; Spruijt-Metz, 2011).

The adolescents who scored higher on the trust factor, regardless of racial/ethnic status, were leaner in terms of body composition, were less likely to internalize societal ideals about appearance and weight, reported fewer pressures to lose weight, diet and have a thin body, and
experienced fewer negative (e.g., worthlessness, sadness, shame) and more positive (e.g., happiness, confidence) emotions. This factor also was related positively to greater satisfaction with body size and shape and with life in general, which suggests that when adolescents feel better about themselves and their bodies, they may be more capable of trusting their bodies to determine when they are hungry and when they are full.

On the fourth factor (awareness of hunger/satiety), Dockendorff et al. (2012) found that the adolescent girls had a greater awareness of their internal hunger and satiety cues than did the boys. Contrary to the other three factors, this factor was unrelated to most of the physical and psychosocial constructs examined in that study.

The Dockendorff et al. (2012) study provided support for two of the original factors of the IES – unconditional permission to eat and eating for physical rather than emotional reasons – and demonstrated that the third original factor, at least for middle school boys and girls, might be more accurately defined as two – trust of hunger/satiety cues and awareness of hunger/satiety cues. All four factors were internally consistent, and initial analyses provided support for their validity in relation to body composition, body satisfaction, life satisfaction, internalization of the societal ideals, pressures for thinness, and positive and negative emotions. These findings indicate intuitive eating is a viable concept for young adolescents and the IES can be used to examine adaptive eating behaviors in this age group. Thus, the next steps in this line of research on adolescents and intuitive eating would be to add more items to the scale to better represent the underlying constructs of intuitive eating, examine the factor structure in new samples of adolescents, further establish the scale’s validity, and test a model on the development of intuitive eating by considering psychosocial variables other than those proposed in the acceptance model (Augustus-Horvarth & Tylka, 2011; Avalos & Tylka, 2006).
Intuitive Eating in Adolescents: A Sociocultural Perspective

In the U.S., messages and values, which are communicated through the media, family members and friends, about controlling food intake, appearance, losing weight through dietary restraint, and attaining a thin body ideal are ubiquitous; sadly these messages are an integral part of boys’ and girls’ socialization. In many ways, these pressures shape the relationship that boys and girls (and ultimately men and women) have with their bodies. Adolescents are particularly vulnerable to these messages, because peers are highly influential and their bodies are growing and changing, and in some cases moving farther away from the societal ideal as they go through puberty (Dohnt & Tiggemann, 2006; Streigel-Moore & Bulik, 2007). When these messages are internalized, body dissatisfaction often results as does the tendency to increase dietary and exercise behaviors.

In addition to these general societal pressures about appearance and body size/shape, children and adolescent receive specific messages, primarily from parents, about food and eating. Throughout childhood, parents (and other adults) have the most control over what and when children eat, and even what they think about food (e.g., is it “good” or “bad”). When parents’ control is too rigid or restrictive or when parents encourage their children to pay attention to external cues (e.g., “meal time” schedules) over their own internal mechanisms, there is an increased risk of overeating and/or eating in the absence of hunger. In such instances, children begin to pay less attention to their physiological hunger and satiety cues and instead begin to eat based on external cues, such as flavor, portion size, time of day, and emotions. As they reach adolescence and undergo extreme physical changes in their bodies (e.g., increase muscle, fat, weight), they may develop more body image concerns and experience increased pressure from parents, peers, and the media to change their bodies. Such changes, pressures and concerns may
lead them to severely alter their relationship with food by either restricting to lose weight (often seen with girls) or increasing caloric intake and engaging in muscle-building behaviors to gain weight (often done by boys). Thus, exploring how these broad psychosocial variables (e.g., pressures to lose weight, internalization of thin-ideal, body image concerns) may combine with specific parental messages about food to determine levels of intuitive eating is an important next step. In the sections that follow, I introduce each construct in the model, define it, and then describe its relationship to others and how it may contribute to the development of intuitive eating.

Pressure to lose weight. Researchers (e.g., Stice, Nemeroff, & Shaw, 1996; Stice, 2002) have suggested that pressures from family and peers about losing weight, and messages from the media that emphasize thinness and equate it with success and well-being, lead to greater internalization the societal thin-ideal. These pressures and messages are ubiquitous and, through repeating exposure during the socialization process, children and adolescents begin to take them on as their own; they become part of their self-schema (i.e., they are internalized). The emphasis on and pressure to attain the societal body ideal accentuates the importance of appearance and highlights discrepancies between the individual and the ideal. Further, such weight pressures are a central component of contemporary psychosocial models of disordered eating and women’s health behaviors (e.g., Frederickson & Roberts, 1997; Stice, Nemeroff, & Shaw, 1996).

Adolescents are influenced strongly by their parents because parents occupy a central position in their lives. When parents comment negatively about their children’s bodies or encourage them to lose weight, the children often will experience psychological distress and other negative outcomes (Anschutz, Kanters, Van Strien, Vermulst, & Engels, 2009; Birch & Fisher, 1998; Carper, Fisher, & Birch, 2000; Wertheim, Martin, Prior, Sanson & Smart, 2002).
For example, Wertheim et al. (2002) found that parental encouragement to diet and lose weight was related to increases in children’s drive for thinness, body dissatisfaction, and BMI regardless of whether the children were normal weight or overweight.

When parents diet and use other weight control techniques, such as restricting their own intake and access to certain foods, it is not uncommon for them to expect similar behaviors from their children (Birch & Fisher, 2007; Francis, Hofer, & Birch, 2001; Tremblay & Lariviere, 2009; Wertheim, et al., 2002). For example, mothers who restrain their own eating tend to exert more control over their daughter’s intake than mothers who do not restrict their own eating (Tiggemann & Lowes, 2002). This same effect was not observed with sons, which may be because mothers do not as strongly identify with their sons regarding weight and body image concerns as they do with their daughters. This control does not always need to be communicated overtly either; it may be enough if children perceive the control over their eating and weight. This perception of maternal weight concern can lead to higher levels of dietary restraint in children (Anschutz, et al., 2009), suggesting that when children perceive their mothers as emphasizing appearance and engaging in weight control behaviors, they may adopt these same beliefs and behaviors.

Further, this perceived pressure has been shown to lead to higher levels of eating restraint and body dissatisfaction in both boys and girls and its effects appear to be stronger for older children (Anschutz, et al., 2009). Although younger children (ages 7 to 8 years) may perceive a pressure to be thin, their perception is not likely to result in behavioral changes. As children age, however, and are exposed to consistent pressures about dieting and weight loss, they are likely to internalize this ideal (that it is important to be thin and dieting is a way to achieve that ideal) and,
as a result, become disengaged from their bodies’ natural, adaptive regulatory process with respect to eating and develop unhealthy body attitudes and eating behaviors.

Whether healthy or unhealthy, parental weight-control behaviors can influence the development of similar behaviors in adolescents. In a sample of overweight adolescents, Cromly, Neumark-Sztainer, Story and Boutelle (2010) found that parents’ use of healthy weight-control behaviors, such as eating fewer calories, eating more fruits and vegetables and increasing exercise, predicted an increased emphasis on thinness within their adolescent children. Parents’ use of unhealthy weight-control behaviors (e.g., fasting, skipping meals, or taking laxatives), however, predicted their adolescent children’s body dissatisfaction. Thus, although weight control behaviors, in general, can have a negative impact on adolescents’ eating behaviors, the use of unhealthy, and often more extreme, weight control behaviors by parents may increase the severity of that impact.

Taken together, these findings suggest that both obvious and perceived pressures to lose weight from parents, peers and the media can lead directly to adolescents internalizing societal messages about appearance, body size/shape, and dieting. Such pressures also appear to be associated with myriad other negative psychological outcomes (i.e., body image concerns, dietary restraint, higher BMI), though the effects may be mediated through the extent to which adolescents have internalized the ideal.

Internalization of the thin-ideal. Adolescents who internalize societal messages regarding thinness and attractiveness, that is, have made it a part of their self-concept, often spend a great deal of time and energy comparing their appearance to these societal ideals. Given that these ideals are generally impossible to attain for the average male or female adolescent or young man or woman, this comparison process can lead many to feel negatively toward their bodies, which
they may view as the reason for the discrepancy and blame for not being the right size and shape. When an individual feels pressured to attain these ideals by friends and family, it can further illuminate this discrepancy and increase the risk of engaging in disordered eating.

This relationship between internalization of the thin-ideal and body image disturbances has been a central component in many different psychosocial models of disordered eating (e.g., Frederickson & Roberts, 1997; Stice, et al., 1996; Thompson, Coovert, Richards, Johnson, & Cattarin, 1995). For example, Burrows and Cooper (2002) found that amongst middle schoolers, the girls that were overweight, compared with their average-weight peers, exhibited more concerns about shape, weight, and eating and were engaged in dietary restraint more often, suggesting that as adolescents move further away from the thin-ideal, they experience increased pressures to reshape their bodies and become more likely to engage in extreme weight loss behaviors to do so. Further, in his meta-analysis of longitudinal and experiment research studies, Stice (2002) stated that internalization was a risk factor in the development of women’s dissatisfaction with the size and shape of their bodies. These findings provide strong support for a direct relationship between internalization and body dissatisfaction.

Body dissatisfaction. Given society’s emphasis on the thin-ideal and dieting, it is not surprising to find that children and adolescents report body image concerns (Burrows & Cooper, 2002; Ricciardelli, et al., 2003), which encompass body dissatisfaction, body shame, and preoccupation with body size and shape. For example, in a sample of 5 to 8-year-old girls, Dohnt and Tiggemann (2006) found that about half the girls older than 6 years expressed a desire to be thinner. In addition, Edmunds and Hill (1999) found that in a sample of 12-year-old boys and girls, 25% of the boys reported a desire to lose weight and 15% had dieted previously. In a 2-year longitudinal study of middle school boys and girls, Bearman, Presnell, Martinez and Stice
(2006) found that both boys and girls experienced body dissatisfaction, although girls tended to report greater dissatisfaction, which increased with age. Thus, body image concerns, although previously associated mainly with girls and women, are present for boys and men.

Such body image concerns have been found to predict disordered eating behaviors in the form of increased self-reported dietary intent and bulimic symptomatology (Fredrickson & Roberts, 1997; Stice, 2002). For example, in a sample of 8 to 11-year-old boys and girls, Ricciardelli et al. (2003) found that body dissatisfaction was associated with pressure to lose weight as well as engaging in weight loss strategies. Body dissatisfaction also associated with frequent thoughts and behaviors related to losing weight. Further, Stice (2002) found that body dissatisfaction was a risk factor for self-reported dietary restraint and bulimic symptomatology.

As girls go through puberty, their bodies change very rapidly, such as with increases in body fat and hip and breast development. These changes can be confusing to them and lead to their experiencing a range of negative emotions and outcomes. For example, when compared to prepubertal girls, postpubertal girls ate less food, had greater eating restraint, and had a more negative body image and greater dissatisfaction with their bodies (de Castro & Goldstein, 1995). Girls have a much higher risk of engaging in unhealthy weight control behaviors during and after the onset of puberty. Edmonds and Hill (1999) found that girls who were dieting were more likely to skip meals and fast than those who were not dieting. As children become aware of dieting and societal ideals about appearance and dieting through the socialization process, the stage is set for them to experience body dissatisfaction and potentially engage in unhealthy eating behaviors when they reach puberty.

It may be that when body dissatisfaction is experienced at a young age, children and/or preadolescents resort to extreme, maladaptive weight-loss strategies (e.g., dietary restraint,
ignoring hunger cues) to reduce their body size, minimize the real-ideal body discrepancy, and thus decrease their dissatisfaction. Yet, when adolescents are unable to lose the weight they want and reduce their dissatisfaction with their bodies, they may experience a range of negative emotions (e.g., shame, anxiety) that are coped with through eating. Although this approach may provide some immediate, short-term relief to their mood, in the long-term it may lead to weight gain or the experience of different (or more) negative emotions (e.g., guilt, anger at self) that further disrupt their natural eating processes and enhance their feelings of disgust with their bodies and appearance. Understanding how these body image concerns effect children’s eating behaviors, both their intent to diet and their natural, self-regulatory processes, is an important next step for researchers.

Caregiver messages. When parents encourage children to focus on external factors related to eating, such as finishing the food that is on their plate or making them eat because it’s “dinner time,” children develop a decreased responsiveness to the energy content of the food (i.e., ignoring satiety cues and eating in the absence of hunger), spend more time eating, and gain weight (Carper, Fisher & Birch, 2000; van Strien & Bazelier, 2007; Webber, Hill, Saxton, Van Jaarsveld, & Wardle, 2009). For example, when served a large portion of food and expected to finish their plate, children increased their overall caloric intake by up to 15% (Fisher, Rolls, & Birch, 2003). However, when children were allowed to self-select their own portions, they ate significantly smaller amounts of food, which suggests that giving children permission to serve themselves may have the positive effects of decreasing overall food intake (through smaller portions) and helping them stay attuned to internal hunger and satiety cues.

Fisher and Birch (2002) found that restrictive feeding practices (i.e., restricting access to certain foods, controlling when and how much a child can consume) predicted eating in the
absence of hunger. Specifically, girls who ate relatively more in the absence of hunger at age 5 were 4 times more likely to eat in the absence of hunger at age 7, significantly increasing their risk of being overweight. Similarly, Birch, Fisher and Davison (2003) found that for girls whose mothers reported using more restrictive feeding practices when their daughters were 5 years old and already overweight, these girls showed the largest increase in consumption levels by 9 years old. These findings, which are supported by other research (e.g., Francis & Birch, 2005), suggest that these restrictive feeding patterns have enduring effects on children’s ability to use internal cues to regulate their food intake, likely lasting into adolescence.

In a meta-analysis, Faith, Scanlon, Birch, Francis, and Sherry (2004) found that parental feeding restriction was the only feeding practice that was associated with increases in children’s eating and weight status. Birch and Fisher (2007) found that in 5-year-olds, the mothers’ use of self-restraint and food restraint for daughters was related significantly to the overweight status of their daughters, and led to less self-control of food intake and increased consumption of palatable snack foods. Parents’ use of restrictive feeding practices appears to be influenced, at least in part, by their perception that children may be at risk for developing an eating or weight problem and thus need their assistance. Unfortunately, such restriction may lead to a vicious cycle where children eat more and then gain weight, which is followed by parents using more stringent restrictive feeding practices, and subsequent increases in children’s weight and poor eating behaviors. Taken together, these findings suggest that when parents begin exposing their children to messages about controlling their food intake and pressuring them to lose weight, it moves children away from their natural, self-regulatory processes. As children further suppress or ignore these internal signals, they are more likely to engage in dietary restraint or overeating, which increasingly separates them from an awareness of their hunger and satiety cues.
In addition, when a child experiences messages from their parents that there is something wrong with their body or their weight, and that they need to eat differently because of that, they may be more likely to internalize these messages and believe that they are discrepant from the body ideal that their parents are advocating. When these messages become part of their self-schema, these children are likely to become dissatisfied with their body, as it never quite matches up with the societal ideal. These feelings of failure associated with the inability to attain the societal ideal can be exacerbated when parents communicate their concerns about their children’s weight and eating behaviors, which can be perceived by the child as pressures to lose weight. These messages can be either restrictive (e.g., “You need to eat less food because you are getting fat”) or controlling (e.g., “You need to eat all the food on your plate”), both of which may contribute to children internalizing societal ideals and becoming dissatisfied with their bodies, and interfering with their ability to regulate their eating behaviors, affecting their awareness of their internal cues and the use of these cues to guide their food intake.

Summary. As part of the socialization process, boys and girls receive messages from their parents, friends, and the media that emphasize appearance, attractiveness, and a body ideal. Children also receive specific messages about their eating behaviors from their parents that lead them away from their own internal regulatory processes. Because such pressures are ubiquitous, by adolescence, they will have taken the ideals on as their own, creating self-schemas about how they should look and how they should behave in relation to food. These self-schemas are likely to be discrepant with how their body actually looks, leading these individuals to experience body shame and dissatisfaction, which may be continuously reinforced in their comparisons to peers and other societal icons of beauty/handsomeness. As a means of trying to attain this impossible appearance ideal and alleviate the dissatisfaction they are experiencing with their body size and
shape, adolescents may rely on maladaptive weight control strategies, such as dietary restraint, which, in the end, may disrupt their natural, adaptive eating processes. In the end, the adolescents may experience a decreased ability to eat intuitively and regulate their food intake in a healthy manner.

Purpose

The purpose of the study is twofold. First, I intend to replicate and extend my previous research on the development of the Intuitive Eating Scale for Adolescents (IES-A). Based on past research (Dockendorff et al., 2012) that showed that some of the factors had low internal consistency reliabilities and some of the items may have been difficult for the adolescents to understand, I generated 5 additional items that were consistent conceptually with the four factors and reworded some of the original 21. In this study, I will test the 26-items to determine the scale’s factor structure across two different samples. Further, I will explore the scale’s validity, relating it to BMI, body satisfaction and appreciation, internalization of the thin-ideal, pressures to lose weight, caregiver messages, emotion regulation difficulties, depression and dietary restraint. Given previous research (Dockendorff, et al., 2012; Tylka, 2006), I hypothesize that higher scores on the IES and the confirmed factors will be (a) unrelated to age, gender, race/ethnicity, and grade in school, (b) positively related to body satisfaction and appreciation, and (c) related negatively to the adolescents’ BMI, caregiver messages, internalization of the societal thin ideal, and sociocultural pressures regarding losing weight, emotion regulation difficulties, depression and dietary restraint.

Second, I will test a model of intuitive eating in adolescents that is based on contemporary sociocultural approaches to understanding disordered eating (Augustus-Horvarth & Tylka, 2011; Avalos & Tylka, 2006; Frederickson & Roberts, 1997; Stice, Nemeroff, & Shaw,
1996; Tylka & Subich, 2004). Within this model, I predict that following relationships will be supported: (a) pressures will be related directly to internalization of the thin-ideal (internalization), body image concerns (body image), and intuitive eating; (b) internalization will be related directly to body image and intuitive eating; (c) body image will be inversely related to intuitive eating; and (d) caregiver messages about food and eating will be correlated with pressures and inversely to intuitive eating.


