Journal of Counseling Psychology
2006, Vol. 53, No. 2, 226–240

0022-0167/06/$12.00 DOI: 10.1037/0022-0167.53.2.226

Development and Psychometric Evaluation of a Measure of Intuitive Eating

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Intuitive eating is characterized by eating based on physiological hunger and satiety cues rather than situational and emotional cues and is associated with psychological well-being. This study reports on the development and initial psychometric evaluation of the Intuitive Eating Scale (IES) with data collected in 4 studies from 1,260 college women. Exploratory factor analysis uncovered 3 factors: unconditional permission to eat, eating for physical rather than emotional reasons, and reliance on internal hunger/satiety cues; confirmatory factor analysis suggested that this 3-factor model adequately fit the data after 4 items with factor loadings below .45 were deleted. IES scores were internally consistent and stable over a 3-week period. Supporting its construct validity, IES scores were (a) negatively related to eating disorder symptomatology, body dissatisfaction, poor interoceptive awareness, pressure for thinness, internalization of the thin ideal, and body mass; (b) positively related to several indexes of well-being; and (c) unrelated to impression management.

Keywords: intuitive eating, eating behaviors, college women, assessment, psychometrics

In the field of psychology, the study of eating behaviors largely has been a pathology-focused endeavor because it has explored and identified correlates and predictors of disordered rather than adaptive eating. It has been argued that psychologists also need to consider adaptive behaviors that contribute to and maintain overall psychological health (Seligman & Csikszentmihalyi, 2000). Some psychologists have addressed adaptive eating behaviors when exploring unrestrained eating (e.g., Kahan, Polivy, & Herman, 2003; Polivy & Herman, 1999) and the eating disorder continuum (e.g., Mintz & Betz, 1988; Tylka & Subich, 1999, 2004); however, they have defined these behaviors as the absence of eating disorder symptoms. Professionals within other disciplines (e.g., dietetics) have discussed adaptive eating, but it usually is presented in the form of behavioral guidelines for the intake of certain food groups rather than an exploration of its correlates and predictors, and it is often kept separate from the literature on clinical eating disorders (Ogden, 2003). As a result, the study of eating behaviors is disjointed, and much remains unknown about positive eating behaviors.

Instruments assessing eating behaviors have mirrored this focus on pathology. It is true that low levels and asymptomatic rank on such measures as the Eating Attitudes Test–26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982), the Eating Disorder Inventory–3 (Garner, 2004), and the Questionnaire for Eating Disorder Diagnoses (Mintz, O'Halloran, Mulholland, & Schneider, 1997) are indicators of adaptive eating because they reflect the absence of characteristics associated with clinical eating disorders (e.g., preoccupation with food, binge eating, dietary restriction). Yet, some scholars (e.g., Tribole & Resch, 1995) have argued that adaptive eating is more than just the absence of these characteristics because different internal cues are used to determine when, what, and how much to eat. Individuals who eat adaptively often use physiological hunger and satiety cues to guide their eating behaviors, whereas individuals with clinical eating disorders often use emotional cues to guide their eating behaviors. Also, individuals may not display eating disorder symptomatology per se but may not eat adaptively (e.g., by habitually eating in the absence of hunger but not an amount large enough to be considered a binge or by eating everything on the plate with no regard to satiety level). Thus, adaptive eating may be negatively related to but not solely defined by the absence of eating disorder symptoms. In order to understand this construct more comprehensively, measures of adaptive eating need to be developed. Use of these measures can raise awareness about potential variables that can serve as buffers to developing disordered eating behaviors. The purpose of the present study, then, was to develop and assess the psychometric properties of such a measure.

Although there could be several facets of adaptive eating, the current study focuses on describing and measuring intuitive eating (i.e., eating based on physiological hunger and satiety cues rather than external and emotional cues; Tribole & Resch, 1995). Several psychologists (e.g., Carper, Fisher, & Birch, 2000; Fedoroff, Polivy, & Herman, 1997; Polivy & Herman, 1987, 1992) and nutritionists (e.g., Tribole & Resch, 1995) have argued that this style of eating is adaptive because it is associated with a strong connection with, understanding of, and response to internal physiological needs pertaining to hunger and satiety as well as low preoccupation with food. These scholars have identified three central features of intuitive eating: (a) unconditional permission to eat when hungry and what food is desired, (b) eating for physical rather than emotional reasons, and (c) reliance on internal hunger and satiety cues to determine when and how much to eat. These components

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are interrelated, and the presence of each is necessary to reflect intuitive eating (Tribole & Resch, 1995). A detailed discussion of each feature, including why it is considered adaptive, is presented next.

Unconditional Permission to Eat (When Hungry and What Food Is Desired)

Unconditional permission to eat reflects a readiness to eat in response to internal physiological hunger signals and the food that is desired at the moment (Tribole & Resch, 1995). Individuals who engage in this eating strategy do not try to ignore their hunger signals, nor do they classify food into acceptable and nonacceptable categories and attempt to avoid food in the latter category. Laboratory experiments have revealed that these individuals eat more food after a period of not eating or after eating a small amount of food rather than after eating a large amount of food (Herman & Polivy, 1988; Woody, Costanzo, Leifer, & Conger, 1981). Therefore, their eating is controlled by their hunger and satiety signals, unlike those who allow themselves to eat but have no control over their eating (e.g., individuals who engage in binge eating).

People who place conditions on when, how much, and what foods they can eat (i.e., by restricting the timing, amount, and type of food eaten according to some external standard) increase their likelihood of feeling deprived and preoccupied with food (Polivy & Herman, 1999; Tribole & Resch, 1995). When men who had no prior preoccupation with food were placed on a greatly reduced calorie diet for 6 months, many became extremely preoccupied with food and engaged in binge eating that persisted even after the diet was terminated (Keys, Brozek, Henschel, Mickelsen, & Taylor, 1950). Children whose parents restricted their food intake were more likely to eat in the absence of hunger and had higher body mass than children whose parents did not substantially restrict their food intake (Faith, Scanlon, Birch, Francis, & Sherry, 2004). Laboratory experiments have revealed that restrained eaters overindulge in food as a result of perceiving that dietary rules have been broken or that they have eaten a forbidden food (Herman & Polivy, 1988; Woody et al., 1981). In addition, people engaging in dietary restraint are more likely to allow visual and olfactory cues of foods to guide their food intake than are people who do not restrict their eating (Fedoroff et al., 1997). Because dietary restraint further increases food preoccupation (Keys et al., 1950; Polivy & Herman, 1999), people who restrict their food intake actually may eat more than people who give themselves unconditional permission to eat.

Eating for Physical Rather Than Emotional Reasons

People who eat intuitively use food to satisfy a physical hunger drive and not to cope with their emotional fluctuations and/or distress (Tribole & Resch, 1995). A boundary model has been proposed that explores the connection between eating behavior and emotions (Herman & Polivy, 1983). Individuals who do not diet have two boundaries corresponding to hunger and satiety. When hungry, they will eat so as to escape the hunger zone and will stop eating when indifferent or slightly sated. Research has shown that individuals who do not diet often eat less when they are anxious or stressed than when they are calm, perhaps because of the appetite-suppressing sympathomimetic effects of these emotions (Herman, Polivy, Lank, & Heatherton, 1987). However, the behavior of individuals who restrict their eating is largely under the control of a third and unnatural diet boundary (Herman & Polivy, 1983). When the diet boundary is breached, eating often becomes disinhibited and in defiance of the hunger and satiety boundaries. Emotional agitation frequently disrupts the diet boundary because people who restrain their eating increase their food intake when they experience negative affect (Costanzo, Reichmann, Friedman, & Musante, 2001; Herman et al., 1987).

Reliance on Internal Hunger and Satiety Cues to Determine When and How Much to Eat

People who engage in intuitive eating are both aware of their internal hunger and satiety signals and trust these signals to guide their eating behavior (Carper et al., 2000; Tribole & Resch, 1995). Awareness of inner experiences is a central aspect to well-being (Rogers, 1964). This awareness is inborn; with development, however, some people substitute external rules (e.g., proscribing when, what, and how much to eat) for inner experience as they internalize societal messages that dieting will lead to favorable outcomes. Laboratory experiments have revealed that young children have an internal mechanism that helps them fairly accurately regulate food intake; even though their intake at each meal was highly variable, their total daily energy intake was relatively constant (e.g., a high-calorie meal was followed by a low-calorie meal; Birch, Johnson, Andresen, Petersen, & Schulte, 1991).

Many caregivers observe children's variable eating behaviors, conclude that children cannot adequately regulate food intake, and adopt coercive strategies to exert control over children's eating behaviors (Birch et al., 1991). These strategies are counterproductive because they replace innate internal hunger and satiety signals with external rules and lead to a disconnection from internal experience and innate ability to regulate food intake. In fact, this type of pressure in child feeding is associated with the emergence of dietary restraint, weight gain, eating in the absence of hunger, and eating in response to emotions (e.g., sadness or boredom) and situational factors (e.g., the mere presence of food) among young girls (Birch & Fisher, 2000; Birch, Fisher, & Davison, 2003; Carper et al., 2000).

To date, an instrument has not been developed that assesses these key components of intuitive eating. In four studies, the current investigation reports the development of such a measure, the Intuitive Eating Scale (IES), and its preliminary psychometric examination with college women.

Study 1: Exploratory Factor Analysis and Construct Validity

In Study 1, the IES items were developed. Once a scale is developed, it is imperative to explore its factor structure and determine whether it yields reliable and valid scores (Walsh & Betz, 2001). Also, it is essential to determine whether the scale's items are internally consistent and whether the scale is strongly related to other scales that measure similar and related constructs in order to establish its integrity (Walsh & Betz, 2001). Several hypotheses were generated. First, a three-factor structure corre-

sponding to the central aspects of intuitive eating was expected to emerge in the exploratory factor analysis. Second, scores on the total IES and the emergent factor subscales were expected to demonstrate evidence of internal consistency reliability. Third, because intuitive eating is conceptualized as adaptive eating (Tribole & Resch, 1995) and eating disorder symptomatology is conceptualized as maladaptive eating (Garner, 1991), the IES was expected to be related in a negative direction to eating disorder symptomatology. Fourth, it has been asserted (e.g., Tribole & Resch, 1995) that significant others can foster intuitive eating in women by accepting their body size and by not pressuring them to become thinner; as a result, women are more likely to refrain from internalizing the thin-ideal prototype advocated by society, accept their bodies, be aware of and attend to their internal hunger and satiety signals, and eat in response to these signals. Indeed, it has been found that women who do not restrict their food intake report lower pressure for thinness, body dissatisfaction, and internalization of the thin-ideal image than do women who restrict their food intake (Mills, Polivy, Herman, & Tiggemann, 2002). Given the above theory and research, the IES was hypothesized to be negatively related to body dissatisfaction, poor interoceptive awareness, pressure for thinness, and internalization of the thin-ideal stereotype.

Method

Participants and procedure. Women enrolled in introductory psychology courses volunteered to participate though the psychology department's organized research program. The study was described as an investigation of the relation between eating habits, body attitudes, and personality characteristics. After women were guaranteed anonymity and their informed consent was obtained, they completed the questionnaires in a classroom used as a research lab. The measures were counterbalanced to control for order effects. Participants received credit that was applied toward their class grade.

Responses from 5 women who did not complete at least 90% of any given measure were not entered into the data set. The final data set included responses from 391 women from a large Midwestern university who ranged in age from 17 to 61 years (M = 20.85, SD = 6.21). Women identified as Caucasian American (87.7%), Asian American (3.8%), multiracial (3.4%), African American (3.1%), Native American (2.8%), and Latina (0.5%). One woman (0.3%) did not indicate her ethnicity. Over half of the women were freshmen (64.7%); of the remaining women, 15.3% were sophomores, 8.2% were juniors, 9.0% were seniors, 0.8% were postbaccalaureate students, 0.5% were graduate students, and 1.3% did not specify their college rank. Participants described themselves as middle class (50.6%), upper middle class (30.7%), working class (15.3%), and upper class (2.3%). One percent did not report a socioeconomic identification.

Measures. Twenty-eight items were designed to assess the following key aspects of intuitive eating: (a) unconditional permission to eat when hungry and what food is desired at the moment (12 items), (b) eating for physical rather than emotional reasons (9 items), and (c) reliance on internal hunger and satiety cues to determine when and how much to eat (7 items). Items were written until it was determined that the group of items comprehensively and adequately reflected the central characteristics of each of the three aspects of intuitive eating. To formulate the items, I used information gathered from extant theoretical and empirical literature discussing intuitive eating, unrestrained eating, and how to promote adaptive eating (e.g., Carper et al., 2000; Mills et al., 2002; Polivy & Herman, 1992; Tribole & Resch, 1995). The response format for the IES is a 5-point Likert-type scale (i.e., 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, 5 = *strongly agree*). Higher scores indicate higher levels of intuitive eating.

Following initial item generation, several steps were taken to ensure the integrity of each item. One doctoral student in an American Psychological Association-accredited counseling psychology program and two undergraduate senior honors students provided feedback regarding the content, clarity, and parsimony of each item. A counseling psychologist and a nutrition consultant also were consulted to ensure that the items accurately reflected the content domain. A majority of these evaluators agreed that all items should be retained; however, three items were reworded for clarification. No new items were proposed.

In addition to the IES, the following measures were given to the participants. These scales typically have been used in research to assess their respective constructs (Tylka & Subich, 2004).

The EAT-26 (Garner et al., 1982) was used to assess eating disorder symptomatology. Each of its 26 items (e.g., "I am terrified about being overweight") is rated on a scale ranging from 1 (*never*) to 6 (*always*). Although Garner et al. recommended that the responses never, rarely, and sometimes receive a score of 0 and that the responses often, very often, and always receive scores of 1, 2, and 3, respectively, participants' total scores were equal to the average of the coded responses to prevent range restriction. Other researchers (e.g., Mazzeo, 1999; Tylka & Subich, 2004) also have used this continuous scoring method with nonclinical samples of college women. Items were averaged to obtain a total score; higher scores indicate greater eating disorder symptomatology. Among college women, a coefficient alpha of .91 and a 3-week test–retest reliability estimate of .80 for its scores have been reported (Mazzeo, 1999). For the present study, alpha was .91 for its scores. The EAT-26 has been shown to be related to the Drive for Thinness subscale (r = .84) and to the Bulimia subscale (r = .55) of the Eating Disorder Inventory–2 (EDI-2; Garner, 1991) among college women, supporting its convergent validity (Brookings & Wilson, 1994).

The Body Dissatisfaction (BD) and Interoceptive Awareness (IA) subscales of the EDI-2 (Garner, 1991) were used to measure their respective constructs. For the purposes of this study, only these two subscales of the EDI-2 were administered. The BD subscale contains 9 items that measure dissatisfaction with overall body size and the belief that parts of the body are too large, whereas the IA subscale contains 10 items that assess poor awareness of internal body states, such as emotions, hunger, and satiety. Items are rated on a scale ranging from 1 (*never true of me*) to 6 (*always true of me*). Although Garner (1991) recommended that the item responses *never true of me, seldom true of me,* and *sometimes true of me* receive a score of 0 and the responses *often true of me, very often true of me,* and *always true of me* receive scores of 1, 2, and 3, respectively, the coded responses were averaged to prevent range restriction. Other researchers (e.g., Tylka & Subich, 2004) also have used this scoring method with college women. Higher subscale scores are indicative of greater body dissatisfaction and poorer interoceptive awareness, respectively. Among college women, alphas of .91 for BD subscale scores and .78 for IA subscale scores have been reported (Brookings & Wilson, 1994). For the present study, alphas were .93 for BD and .86 for IA subscale scores. Over a 3-week period, test–retest reliability estimates have been found to be .97 for BD and .85 for IA subscale scores among college women (Wear & Pratz, 1987). Also, BD scores were related to body preoccupation (r = .83), and IA scores were related to difficulty identifying feelings (r = .78) among college women, supporting the convergent validity for these two subscales (Tylka & Subich, 2004).

The Perceived Sociocultural Pressures Scale (Stice, Ziemba, Margolis, & Flick, 1996) was used to determine the women's reported pressure for thinness from significant others (i.e., family, friends, and partners) and the media. It contains eight items (e.g., "I've felt pressure from my family to lose weight") that are each rated along a scale ranging from 1 (*strongly*

disagree) to 5 (*strongly agree*) and are averaged to obtain a total score. Higher scores reflect greater perceived pressure to be thin. Among high school and college women, alpha for the Perceived Sociocultural Pressures Scale scores was .87, its stability of its scores over a 2-week period was .93, and it was related ($r = .51$) to retrospective reports of pressure to lose weight during childhood (Stice et al., 1996). For the present study, alpha was .88 for its scores.

The Internalization subscale of the Sociocultural Attitudes Toward Appearance Questionnaire (Heinberg, Thompson, & Stormer, 1995) was used to assess the extent to which the women believed that the thin-ideal societal stereotype is the ideal body type. It contains eight items (e.g., "Photographs of thin women make me wish that I were thin") that are each rated along a scale ranging from 1 (*completely disagree*) to 5 (*completely agree*) and are averaged to obtain a total subscale score. Higher subscale scores indicate greater internalization of the thin-ideal stereotype. Among college women, alpha was .88 for its scores, and its unidimensionality was upheld (Heinberg et al., 1995). This subscale was related ($r = .64$) to college women's perceptions of ideal body type (Tylka & Subich, 2004). For the present study, alpha was .90 for its scores.

Results and Discussion

Data first were examined to ensure that the variables' distributions would not violate statistical assumptions of the planned analyses; no substantial violations were uncovered. Further, the sample size exceeded the number of cases needed for a participants-to-parameter ratio of 5–10:1, which is required to accurately estimate the factor structure of a scale (Bentler, 1990). Means, standard deviations, and intercorrelations of the measures are included in Table 1.

Exploratory factor analysis. SPSS Version 13.0 was used to conduct the exploratory factor analysis and all other statistical analyses reported in this article, except for the confirmatory factor analysis reported in Study 2. The significance of Bartlett's test of sphericity, $\chi^2(300, N = 391) = 4{,}329.63$, $p < .001$, and the size of the Kaiser–Meyer–Olkin measure of sampling adequacy (.89) revealed that the set of IES items had adequate common variance for factor analysis (Tabachnick & Fidell, 1996). To evaluate the structure of the IES, I used a common factor analysis with principal axis factoring and direct oblimin rotation. I chose this type of rotation because I expected the factors to be correlated. The delta weight was specified to be zero; this value permits a moderate correlation between the factors. The number of factors was determined by factor eigenvalues above 1.0 and a noticeable change in the slopes within the scree plot (Tabachnick & Fidell, 1996). The rotated factor matrix was examined to pinpoint items that loaded on these factors. Criteria for factor loadings included item values greater than or equal to .40 on the primary factor and values less than or equal to .30 on other factors. Although a common guideline is to interpret loadings of .32 or higher (Tabachnick & Fidell, 1996), the minimum loading cutoff was set at .40 in order to maximize confidence in the factors derived from the solution.

Six factors had eigenvalues greater than 1.0. Initial eigenvalues and percentage of variance accounted for by each of these factors were 7.14 and 27.45% for Factor 1, 3.64 and 14.00% for Factor 2, 1.83 and 7.04% for Factor 3, 1.40 and 4.98% for Factor 4, 1.27 and 4.54% for Factor 5, and 1.05 and 3.76% for Factor 6. Together, they accounted for 61.77% of the variance. After inspecting the scree plot, I observed a notable difference in the slopes of the first three factors from those of subsequent factors. Therefore, the factor solution of only these three factors was examined.

Three items that had either factor loadings less than .40 or cross-loadings greater than or equal to .30 were eliminated. This procedure resulted in 25 items, with Factor 1 containing 11 items, Factor 2 containing 8 items and Factor 3 containing 6 items. Next, these 25 items were factor analyzed with a principal-axis factor analysis, three factors, and a direct oblimin rotation ($\delta = 0$). All items loaded greater than .40 on their respective factor and less than .30 on any other factor. This three-factor solution accounted for 49.84% of the variance of the data. As expected, all items loaded on the intuitive eating factor for which they were written. Table 2 demonstrates these factor loadings.

The first factor (eigenvalue = 7.02) accounted for 28.08% of the variance; its factor loadings ranged from .45 to .81. This factor and subscale was labeled Unconditional Permission to Eat. The second factor (eigenvalue = 3.61) accounted for 14.44% of the variance; its factor loadings ranged from .41 to .79. This factor and subscale was labeled Eating for Physical

Table 1
Means, Standard Deviations, and Correlations Among the Measures of Study 1 (N = 391)

Measure	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. IES: Total	3.36	0.56	—	.84**	.70**	.62**	−.66**	−.53**	−.46**	−.52**	−.47**
2. IES: Unconditional Permission	3.41	0.82	.84**	—	.27**	.29**	−.72**	−.44**	−.31**	−.41**	−.41**
3. IES: Eating for Physical Reasons	3.13	0.78	.72**	.29**	—	.41**	−.23**	−.31**	−.41**	−.37**	−.29**
4. IES: Reliance on Hunger/Satiety Cues	3.59	0.53	.62**	.32**	.43**	—					
5. Eating Attitudes Test-26	2.41	0.68	−.69**	−.76**	−.24**	−.27**	—				
6. EDI-2: Body Dissatisfaction	3.88	1.24	−.56**	−.48**	−.33**	−.35**	.54**	—			
7. EDI-2: Interoceptive Awareness	2.56	0.73	−.49**	−.36**	−.39**	−.28**	.53**	.38**	—		
8. PSPS: Pressure for Thinness	2.30	0.90	−.55**	−.46**	−.37**	−.28**	.53**	.59**	.45**	—	
9. SATAQ: Internalization	3.39	0.95	−.50**	−.44**	−.31**	−.23**	.58**	.57**	.36**	.47**	—

Note. Values below the diagonal are for the 25-item Intuitive Eating Scale (IES) ($M = 3.36$, $SD = 0.56$), the 11-item Unconditional Permission to Eat subscale ($M = 3.41$, $SD = 0.82$), and the 8-item Eating for Physical Reasons subscale ($M = 3.13$, $SD = 0.78$); values above the diagonal are for the revised 21-item IES ($\alpha = .88$; $M = 3.31$, $SD = 0.58$), the 9-item Unconditional Permission to Eat subscale ($\alpha = .89$; $M = 3.36$, $SD = 0.87$), and the 6-item Eating for Physical Reasons subscale ($\alpha = .86$; $M = 2.96$, $SD = 0.85$). EDI-2 = Eating Disorder Inventory—2; PSPS = Perceived Sociocultural Pressures Scale; SATAQ = Sociocultural Attitudes Toward Appearance Questionnaire.
** $p < .001$.

Table 2
Item Factor Loadings and Corrected Item-Total Correlations for Each Intuitive Eating Scale Factor Obtained From Analyzing the Data of Study 1 (N = 391)

Factor and item	Factor 1	Factor 2	Factor 3	Item-total: *r*
Factor 1: Unconditional Permission to Eat (α = .89)				
1. I try to avoid certain foods . . .	.70	−.11	−.05	.61
4. If I am craving a certain food . . .	.45	−.21	.07	.37
5. I follow eating rules . . .	.65	−.08	.06	.62
13. I try to ignore . . .	.51	−.06	.18	.53
14. I get mad at myself . . .	.79	.13	−.04	.77
19. I have forbidden foods . . .	.65	−.02	.05	.63
23. I feel guilty . . .	.81	.15	−.02	.79
25. I think of a certain food . . .	.75	.01	−.12	.67
26. I don't trust myself . . .	.55	.28	.02	.59
27. I don't keep certain foods . . .	.71	.28	−.03	.72
28. I use caffeine . . .	.45	.11	.09	.48
Factor 2: Eating for Physical Rather Than Emotional Reasons (α = .86)				
2. I stop eating . . .	−.13	.58	.09	.54
3. I find myself eating when I'm emotional . . .	.17	.66	−.03	.62
8. I find myself eating when I am bored . . .	−.11	.68	−.03	.60
9. I eat everything on my plate . . .	.05	.41	.14	.42
15. I find myself eating when I am lonely . . .	.11	.67	.07	.68
21. I use food to help me soothe . . .	.07	.79	−.05	.72
22. I find myself eating when I am stressed . . .	.13	.78	−.02	.73
24. I find myself still eating . . .	.05	.57	.09	.58
Factor 3: Reliance on Internal Hunger/Satiety Cues (α = .72)				
11. I can tell when I'm slightly full.	.02	−.07	.55	.37
12. I can tell when I'm slightly hungry.	.01	−.11	.57	.36
16. I trust my body to tell me when . . .	.01	.22	.51	.57
17. I trust my body to tell me what . . .	.01	.14	.41	.41
18. I trust my body to tell me how much . . .	.09	.28	.49	.58
20. When I'm eating . . .	.02	.04	.58	.43

Rather Than Emotional Reasons. The third factor (eigenvalue = 1.83) accounted for 7.32% of the variance; its factor loadings ranged from .41 to .58. This factor and subscale was labeled Reliance on Internal Hunger/Satiety Cues.

Internal consistency reliability evidence for the IES. The internal consistency reliabilities (alphas) for scores on the total IES and subscales were .89 for the total 25-item IES, .89 for the Unconditional Permission to Eat subscale, .86 for the Eating for Physical Rather Than Emotional Reasons subscale, and .72 for the Reliance on Internal Hunger/Satiety Cues subscale. For each subscale, corrected item-total correlations were all above .30.

Validity evidence for the IES. Correlations between the IES and the other study measures are presented in Table 1 below the diagonal. Correlations around .10 were considered small or negligible, correlations around .30 were considered moderate, and correlations at or above .50 were considered large (Cohen, 1992; Walsh & Betz, 2001). However, it should be noted that correlation coefficients do not reflect the practical significance of a relationship (Rosenthal, 1990); thus, it is important to consider this fact when interpreting the strengths of these coefficients. First, the hypothesis that the IES was related in a negative direction to eating disorder symptomatology was explored. As expected, the total IES and the Unconditional Permission to Eat subscale were strongly related in a negative direction to eating disorder symptomatology; the Eating for Physical Rather Than Emotional Reasons and the Reliance on Internal Hunger/Satiety Cues subscales were slightly to moderately related in a negative direction to eating disorder symptomatology.

Second, the hypothesis that the IES would be negatively related to body dissatisfaction, poor interoceptive awareness, pressure for thinness, and internalization of the thin-ideal stereotype was investigated. As predicted, the total IES was strongly related in a negative direction to these variables. For the IES subscales, Unconditional Permission to Eat was moderately to strongly related in a negative direction to these variables, Eating for Physical Rather Than Emotional Reasons was moderately related in a negative direction to these variables, and Reliance on Internal Hunger/Satiety Cues was slightly to moderately related in a negative direction to these variables. Collectively, these findings provide initial support for the IES's construct validity.

Study 2: Confirmatory Factor Analysis and Additional Construct Validity

It is recommended that a scale's factor structure be analyzed with confirmatory factor analysis in order to determine the overall fit of the data to the scale model and whether items load on their hypothesized latent factor(s) (Tabachnick & Fidell, 1996). Furthermore, when latent factors are expected to be related and connected to a higher order factor, as in the IES's structure, confirmatory factor analysis allows for the estimation of the relationships between the latent factors and the determination of whether the latent factors load on a higher order factor. Therefore, via a second-order confirmatory factor analysis, it was hypothesized that the IES's items would load on their respective latent factors, that the latent factors would be related, that the latent factors would load on a higher order intuitive eating factor, and that the overall model would provide an acceptable fit to the data.

Determining whether the IES would yield additional construct validity evidence was also an aim of this study. It has been asserted that intuitive eating is associated with psychological well-being (Tribole & Resch, 1995). Specifically, dieting is associated with (a) decreased self-esteem among women because it encourages them to equate their self-worth with their body size (Fredrickson & Roberts, 1997) and (b) feelings of deprivation and negative affect that can decrease satisfaction with life and optimism (Polivy & Herman, 1999). It has been proposed that because they are not experiencing dieting-instigated negative affect, people with intuitive eating have higher self-esteem, satisfaction with life, optimism, and use of adaptive coping strategies (Tribole & Resch, 1995). Given the above theory and research, it is hypothesized that IES scores would be related in a positive direction to self-esteem, optimism, proactive coping (i.e., efforts to develop resources that lead to challenging goals and personal growth; Greenglass, Schwarzer, & Taubert, 1999), and satisfaction with life. Last, IES scores should not be related to response style. Therefore, it was hypothesized that the IES would yield nonsignificant relations to impression management, a biased form of responding that reflects the tendency to give inflated self-descriptions to an audience.

Method

Participants and procedure. Participants read a description of the study and enrolled via the psychology department Web site. The study was described as an investigation of the relationships between eating habits, personality characteristics, and response styles. After participants signed the informed consent form and were guaranteed anonymity, they completed the measures, which were counterbalanced, in a classroom used as a research laboratory. They received course credit for their involvement.

Responses from 7 women who did not answer 90% or more of any given measure were not included in the data set. The final data set included responses from 476 women from general psychology classes at a large Midwestern university. Participants ranged in age from 17 to 50 (M = 19.70, SD = 4.50), and most (86.2%) identified as Caucasian American, followed in frequency by Asian American (5.3%), African American (3.9%), Latina (2.1%), and multiracial (2.4%). A large majority of the participants were freshmen (72.6%); of the remaining participants, 14.6% were sophomores, 4.6% were juniors, 7.7% were seniors, and 2 participants (0.4%) did not indicate their college rank. Many women described themselves as upper middle class (47.9%) and middle class (41.6%), whereas fewer women endorsed working-class (7.6%) and upper class (1.9%) labels.

Measures. The 25-item IES, discussed in Study 1, was used in Study 2. Internal reliability (coefficient alpha) for the total IES was .87, internal reliability for the Unconditional Permission to Eat subscale was .88, internal reliability for the Eating for Physical Rather Than Emotional Reasons subscale was .86, and internal reliability for the Reliance on Internal Hunger/Satiety Cues subscale was .76.

In addition to the IES, the following scales were given to participants. These scales frequently have been used to assess their respective constructs (e.g., Lopez & Snyder, 2003; Paulhus, 1994).

Self-esteem was assessed by the Rosenberg Self-Esteem Scale (Rosenberg, 1965). It contains 10 items (e.g., "I feel that I have a number of good qualities") rated on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Items are averaged, and higher scores reflect greater self-esteem. Among college women, an alpha of .93 has been reported for its scores (Tylka & Subich, 2004). For college students, the stability of its scores over a 2-week period was .85, and it was related (r = .59) to another measure of self-esteem (Robinson & Shaver, 1973). For the present study, alpha was .90 for its scores.

The Life Orientation Test—Revised (Scheier, Carver, & Bridges, 1994) contains six items (e.g., "In uncertain times, I usually expect the best") that assess generalized optimism and four filler items that are rated on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). In order to obtain a total score, the six nonfiller items are averaged; higher scores indicate a greater optimistic life orientation. Among a sample of college students, the internal consistency reliability for its scores was .82, and it was related to self-esteem (r = .54), self-mastery (r = .55), trait anxiety (r = −.59), and neuroticism (r = −.50), supporting its construct validity (Scheier et al., 1994). For the present study, alpha was .86 for its scores.

The Proactive Coping subscale from the Proactive Coping Inventory (Greenglass et al., 1999) was used to assess women's tendency to engage in proactive coping. It contains 14 items (e.g., "I always try to find a way to work around obstacles; nothing really stops me") rated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items are averaged; higher scores reflect greater use of proactive coping. Among Canadian college students, an alpha of .85 for its scores has been reported, and evidence for its construct validity was garnered because it was related to proactive attitudes (r = .70) and generalized self-efficacy (r = .70) (Greenglass et al., 1999). For the present study, alpha was .89 for its scores.

The Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) was used to assess women's global life satisfaction. Its five items (e.g., "In most ways my life is close to ideal") are rated along a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Items are averaged to obtain a total score; higher scores indicate greater satisfaction with life. Among college students, alpha was .87 for its scores, the stability of its scores over a 2-month period was .82, and it was related to positive affect (r = .50) and self-esteem (r = .54), supporting its construct validity (Diener et al., 1985). For the present study, alpha was .91 for its scores.

The Impression Management subscale of the Balanced Inventory of Desirable Responding Version 6 (Paulhus, 1994) assesses the tendency to present inflated self-descriptions to others. Its 20 items (e.g., "I never swear") are rated on a 5-point scale ranging from 1 (*not at all true of me*) to 5 (*very true of me*) and averaged. Higher scores indicate greater impression management. Among college students, alpha was .86 for its scores, and the stability of its scores over a 5-week period was .77 (Paulhus, 1994). For the present study, alpha was .77 for its scores.

Results and Discussion

The sample was large enough to perform confirmatory factor analysis on the IES items (Bentler, 1990) in that 59 parameters

were estimated. First, data were examined to ensure that the IES items' distributions were in accordance with the statistical assumptions of confirmatory factor analysis. No substantial violation was indicated within the data; therefore, no items were transformed.

Mplus Version 2.12 (Muthén & Muthén, 2001) with maximum likelihood estimation was used to perform the confirmatory factor analysis. The 25 IES items served as indicators of their respective first-order latent factor (i.e., Unconditional Permission to Eat, Eating for Physical Rather Than Emotional Reasons, Reliance on Internal Hunger/Satiety Cues). Relations between the three hypothesized latent factors were estimated, and a second-order (i.e., Intuitive Eating) latent factor was estimated from the first-order factors. The adequacy of fit was determined by the four indices calculated by Mplus and recommended by Hu and Bentler (1999): the comparative fit index (CFI), the Tucker–Lewis Index (TLI)—also known as the nonnormed fit index—the standardized root-mean-square residual (SRMR), and the root-mean-square error of approximation (RMSEA). The fit statistics ranged from poor (i.e., CFI = .83, TLI = .81) to fair (RMSEA = .09, SRMR = .09) as determined by criteria for model fit adequacy (Browne & Cudeck, 1993; Hu & Bentler, 1999). Contrary to hypotheses, this model did not provide a good overall fit to the data.

Consequently, factor loadings for this model were evaluated to determine whether certain items did not load strongly on their hypothesized latent factor and whether the deletion of such items would enhance the fit of the model to the data. Other researchers (e.g., Phillips, Szymanski, Ozegovic, & Briggs-Phillips, 2004) have discarded items that load below .45 on their hypothesized factor; thus, I decided to delete four items (Items 9, 13, 24, and 28) that loaded at .37, .44, .44, and .42, respectively, on their hypothesized latent factor. A second confirmatory factor analysis then was conducted with the remaining 21 items as indicators of their respective first-order latent factor. Similar to the first model, relations between the first-order factors were estimated, and a second-order intuitive eating latent factor was estimated from the first-order factors. This revised model provided an adequate fit to the data (Browne & Cudeck, 1993; Hu & Bentler, 1999) because all fit statistics were acceptable (i.e., CFI = .91, TLI = .90, RMSEA = .08, SRMR = .07). Figure 1 displays the item and factor loadings from this analysis. All items loaded significantly on their respective first-order latent factors, and each first-order factor loaded significantly on the second-order intuitive eating factor; thus, the hypothesized latent factors are internally consistent and exist empirically. The first-order factors were moderately related to one another. Consequently, the remaining analyses were conducted by using this 21-item version of the IES, which is presented in Appendix A.

Validity evidence for the IES. First, the hypothesis that the IES would be related in a positive direction to self-esteem, optimism, proactive coping, and satisfaction with life was explored. As predicted, IES total scores were moderately to strongly related to self-esteem and satisfaction with life and moderately related to optimism and proactive coping. The Unconditional Permission to Eat subscale was moderately related to self-esteem and satisfaction with life; however, it was only negligibly related to optimism and unrelated to proactive coping. The Eating for Physical Rather Than Emotional Reasons subscale was moderately to strongly related to self-esteem and moderately related to optimism, proactive coping, and satisfaction with life. Last, the Reliance on Internal Hunger/Satiety Cues was moderately to strongly related to satisfaction with life and was moderately related to self-esteem, optimism, and proactive coping. As demonstrated in Table 3, all relationships were in a positive direction, indicating that higher IES scores are associated with higher levels of psychological health. Collectively, these findings lend additional support for the IES's construct validity.

Last, the hypothesis that intuitive eating would be either unrelated or negligibly related to impression management was explored. As expected, this hypothesis was supported because impression management was not related to the total IES, the Unconditional Permission to Eat subscale, or the Eating for Physical Rather Than Emotional Reasons subscale. It was only negligibly related to the Reliance on Internal Hunger/Satiety Cues subscale. Table 3 presents these relationships.

Internal consistency reliability evidence for the revised IES scores. Alphas were recalculated for the total IES and the first two subscales, which were affected by the deletion of the four IES items. Alphas were .85 for the total IES scores, .87 for the Unconditional Permission to Eat subscale scores, and .85 for the Eating for Physical Rather Than Emotional Reasons subscale scores.

Reanalyzing the data of Study 1 by using the revised 21-item IES. For Study 1, the IES's means, standard deviations, alpha levels, and intercorrelations with the other Study 1 measures were recalculated by using the 21-item version. This information is presented in Table 1. As indicated, similar values were obtained for the 21-item version.

Study 3: The Relation of the IES to Body Mass: Additional Construct Validity

Because intuitive eaters allow their internal hunger cues to guide their food intake and follow their internal satiety cues to determine when to stop eating, they are more likely to weigh an amount that is ideal for their body type (Polivy & Herman, 1992; Tribole & Resch, 1995). Conversely, approximately 95% of those who diet and lose weight will regain the weight within a few years, and many of these individuals will gain more weight than they originally lost (Heatherton, Mahamedi, Striepe, Field, & Keel, 1997). Dieting also has been associated with increased food preoccupation, binge eating, and eating in the absence of hunger (Birch et al., 2003; Keys et al., 1950; Polivy & Herman, 1999). Indeed, individuals who do not diet were found to be less likely to eat in response to emotional fluctuations and situational factors (e.g., visual and olfactory food cues) than those who diet (Carper et al., 2000; Fedoroff et al., 1997; Kahan et al., 2003). Overall, these findings indicate that individuals who eat intuitively are less likely to engage in behaviors that may lead to weight gain (e.g., eating in the absence of hunger, eating in response to emotional fluctuations and situational factors, binge eating) than people who diet. Even though some average and below average weight women may practice restrained eating without engaging in these behaviors, women who eat intuitively should have, on average, lower body mass than those who restrain their eating, because dieting is an ineffective means of weight loss for most individuals (Heatherton

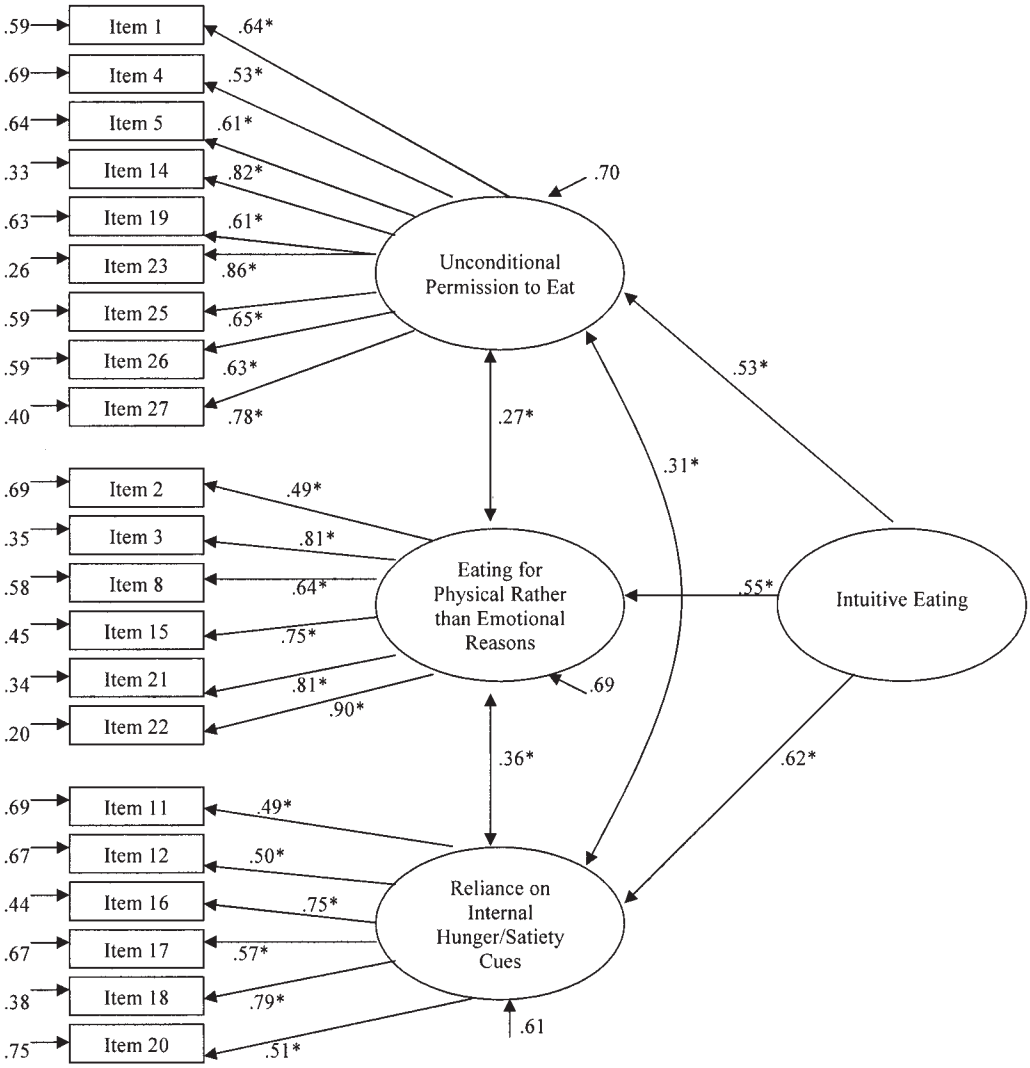

Figure 1. Factor loadings of the Intuitive Eating Scale (IES) garnered via second-order confirmatory factor analysis of the revised 21-item IES data of Study 2 ($N = 476$). *$p < .01$.

et al., 1997). Therefore, it was hypothesized that IES scores would be related in a negative direction to women's body mass; body mass index (BMI) was examined in lieu of weight because it controls for height.

Method

Participants and procedure. Participants were enrolled in introductory psychology courses and learned about the study through the psychology department's organized research program. They were informed that the study was an investigation of their eating habits. Participants were informed that their responses would remain anonymous. After providing their consent, participants completed the survey in a classroom used as a research lab. They received credit that was applied toward their class grade.

Responses from 3 women who did not answer at least 90% of the IES or did not report their weight or height were not included in the data set. Responses from 199 women (M age = 18.92 years, $SD = 3.25$, range = 17–55) from a large Midwestern university were entered into the data set. Women identified as Caucasian American (75.4%), African American (13.1%), Asian American (4.0%), Latina (2.0%), international (3.5%), multiracial (1.5%), and Native American (0.5%). Most participants were freshmen (77.4%), whereas 16.6% were sophomores, 3.5% were juniors, 1.0% were seniors, and 1.5% did not report their college rank. Most women described themselves as middle class (43.7%) and upper middle class (33.2%); fewer women described themselves as working class (8.0%) and upper class (4.0%).

Measures. The 21-item IES was used. Participants also were asked to report their current weight and height; this information was garnered to estimate participants' BMI. Because college women's actual BMI has been found to be highly correlated with the BMI calculated from their self-ratings of weight and height ($r = .98$, $p < .001$; Tylka & Subich, 1999), I decided to assess only self-ratings of these variables. The average BMI for the current sample was 23.50 ($SD = 3.90$; range = 17.47–34.94); this average score is within the normal range (i.e., 22–25) recommended for women (Kuczmarski & Flegal, 2000). Average IES scores were 3.09 ($SD = 0.57$) for the total IES, 3.08 ($SD = 0.88$) for the Unconditional

Table 3
Means, Standard Deviations, and Correlations Among the Measures of Study 2 (N = 476)

Measures	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. IES	3.24	0.54	—								
2. IES: Unconditional Permission	3.19	0.83	.81**	—							
3. IES: Eating for Physical Reasons	2.91	0.82	.66**	.18**	—						
4. IES: Reliance on Hunger/Satiety Cues	2.72	0.41	.60**	.24**	.33**	—					
5. Rosenberg Self-Esteem Scale	3.21	0.50	.44**	.28**	.36**	.35**	—				
6. LOT–R (Optimism)	2.90	0.50	.29**	.14*	.24**	.31**	.73**	—			
7. PCI: Proactive Coping	3.77	0.52	.29**	.10	.27**	.34**	.63**	.67**	—		
8. Satisfaction With Life Scale	5.08	1.14	.41**	.26**	.26**	.38**	.68**	.61**	.54**	—	
9. BIDR-6: Impression Management	2.82	0.51	.12	.07	.06	.16**	.21**	.15**	.18**	.10	—

Note. The IES is based on the 21-item scale, Unconditional Permission to Eat is based on the 9-item subscale, and Eating for Physical Reasons is based on the 6-item subscale. IES = Intuitive Eating Scale; LOT–R = Life Orientation Test—Revised; PCI = Proactive Coping Inventory; BIDR-6 = Balanced Inventory of Desirable Responding—6.
* $p < .01$. ** $p < .001$.

Permission to Eat subscale, 2.65 ($SD = 0.88$) for the Eating for Physical Rather Than Emotional Reasons subscale, and 3.56 ($SD = 0.63$) for the Reliance on Internal Hunger/Satiety Cues subscale. Alphas were .85 for the total IES scores, .87 for the Unconditional Permission to Eat subscale scores, .85 for the Eating for Physical Rather Than Emotional Reasons subscale scores, and .78 for the Reliance on Internal Hunger/Satiety Cues subscale scores.

Results and Discussion

As hypothesized, IES scores were negatively related to BMI. The relationships between BMI and IES scores were –.28 ($p < .001$) for the total IES, –.21 for the Unconditional Permission to Eat subscale ($p < .01$), –.17 for the Eating for Physical Rather Than Emotional Reasons subscale ($p < .05$), and –.20 for the Reliance on Internal Hunger/Satiety Cues subscale ($p < .01$). These relationships are slight to moderate in size and are consistent with theory and research (e.g., Kahan et al., 2003; Tribole & Resch, 1995) suggesting that listening to body signals in determining what, when, and how much to eat is associated with lower body mass. These findings support the construct validity of the IES because they are consistent with the tenets of intuitive eating.

Study 4: Test–Retest Reliability Estimates

When investigating the psychometric properties of a scale that claims to measure a stable construct, it is important to examine whether the scale yields consistent scores over a given time period (Walsh & Betz, 2001). Because intuitive eating has been proposed to be fairly consistent over time (Tribole & Resch, 1995), it was hypothesized that the total IES and subscale scores would be stable over a 3-week period, which would support the test–retest reliability of its scores.

Method

Women at the regional campus were recruited via verbal announcements of the experiment given in their psychology classes, and women at the main campus learned of the study through the psychology department's organized research program. They were informed that the study was an investigation of their eating habits. For each administration, participants were instructed to write a code consisting of the first two letters of their mother's maiden name and the last two digits of their house or apartment number on their questionnaire. This code permitted the matching of their initial and follow-up responses. After participants were assured of the anonymity of their responses and provided their consent, they completed the IES in a classroom used as a research lab. They completed the IES for the second time exactly 3 weeks later and received extra credit that was applied toward their grade.

Responses from 17 women who did not complete at least 90% of the IES during the first and second administration (16 of these women did not complete the IES at the second administration) were not entered into the data set. The final data set included responses from 194 women (mean age = 22.07 years, $SD = 7.38$, range = 17–55) enrolled in general and upper level psychology classes at a regional campus ($n = 67$) and the main campus ($n = 127$) of a large Midwestern university. Women identified as Caucasian American (94.3%), multiracial (2.6%), African American (2.1%), Latina (0.5%), and Native American (0.5%). Most participants were freshmen (54.1%), whereas 15.5% were sophomores, 9.8% were juniors, 19.1% were seniors, and 3 participants (1.5%) did not report their college rank. Many women described themselves as middle class (60.8%); fewer women endorsed upper middle class (21.1%), working-class (17.5%), and upper class (0.5%) labels.

For the first and second administration, respectively, mean scores and alphas were 3.41 ($SD = .53$; $\alpha = .86$) and 3.43 ($SD = .54$; $\alpha = .89$) for the total IES, 3.50 ($SD = .82$; $\alpha = .89$) and 3.49 ($SD = .80$; $\alpha = .91$) for the Unconditional Permission to Eat subscale, 3.03 ($SD = .85$; $\alpha = .87$) and 3.01 ($SD = .84$; $\alpha = .89$) for the Eating for Physical Rather Than Emotional Reasons subscale, and 3.67 ($SD = .53$; $\alpha = .72$) and 3.74 ($SD = .51$; $\alpha = .78$) for the Reliance on Internal Hunger/Satiety Cues subscale. Mean IES total and subscale scores did not differ between the regional and main campus settings, nor did they differ between general psychology and upper level psychology students (all $ps > .05$).

Results and Discussion

As hypothesized, the stability of the IES over a 3-week period was supported. The relationship between the first and second administration was .90 for the total IES, .88 for the Unconditional Permission to Eat subscale, .88 for the Eating for Physical Rather Than Emotional Reasons subscale, and .74 for the Reliance on Internal Hunger/Satiety Cues subscale (all $ps < .001$).

General Discussion

Intuitive eating is characterized by eating according to internal hunger and satiety signals; it is not akin to binge eating, where individuals allow themselves to eat but cannot control their eating. In four studies, the development of a measure of intuitive eating (the IES) was discussed, its factor structure was investigated, and reliability and validity evidence for its scores was garnered among college women. An exploration of the IES's factor structure in Study 1 revealed that its 25 items formed three conceptually meaningful factors, which accounted for approximately 50% of its variance. However, findings from a second-order confirmatory factor analysis conducted in Study 2 suggested that 4 of these original IES items did not load strongly on their respective latent factors and were subsequently deleted from the scale. The resultant 21-item scale provided a good fit to the data and consequently was used to obtain the findings presented in this discussion. The first factor–subscale, Unconditional Permission to Eat, consisted of 9 items that assessed the willingness to eat when physiologically hungry and what food is desired at the moment. The second factor–subscale, Eating for Physical Rather Than Emotional Reasons, consisted of 6 items that reflected the tendency to eat to satisfy an internal hunger drive rather than to cope with emotional fluctuations and/or distress. The third factor–subscale, Reliance on Internal Hunger/Satiety Cues, contained 6 items that reflected the degree of awareness of internal hunger and satiety signals and the ability of these signals to guide eating behavior.

The second-order confirmatory factor analysis further revealed that the hypothesized latent factors (formed from the subscale items) were moderately related to one another and loaded on a higher order latent factor. These findings provide empirical support for the assertion that IES factors are theoretically distinct albeit related components of the broader intuitive eating construct. Moreover, the total IES and its subscale scores were found to be internally consistent in all studies and stable over a 3-week period in Study 4.

This study also obtained construct validity evidence for the total IES and its subscales. Claims made by scholars (e.g., Costanzo et al., 2001; Mills et al., 2002; Polivy & Herman, 1999; Tribole & Resch, 1995) that intuitive eating should be negatively related to eating disorder symptomatology, body dissatisfaction, poor interoceptive awareness, pressure for thinness, and internalization of the thin-ideal stereotype were supported in the present study because Study 1 demonstrated that the total IES and the IES subscales were negatively related to these variables. Consistent with theory and research on intuitive eating behaviors (e.g., Costanzo et al., 2001; Polivy & Herman, 1999; Tribole & Resch, 1995), Study 2 revealed that IES total and subscale scores were positively related to measures of self-esteem, optimism, proactive coping, and satisfaction with life (with the exception of the nonsignificant relation between Unconditional Permission to Eat and proactive coping), further supporting the IES's connection to psychological well-being. Study 3 found that IES total and subscale scores were negatively related to BMI, which upholds the connection documented between dieting and elevated weight (Birch et al., 2003; Carper et al., 2000; Heatherton et al., 1997). In addition, the IES total and subscale scores were either not related or negligibly related to an impression management response style, which supports the discriminant validity of the IES.

The findings that women with higher levels of intuitive eating are more satisfied with their bodies and perceive less pressure to be thin may be explained, at least in part, by the negative association between IES scores and body mass (i.e., they more closely resemble the societal thin-ideal body type). Yet, these women were more likely to reject the societal stereotype that thinness is their ideal body type, indicating that they are less likely to base their self-worth on being thin.

Furthermore, women scoring higher on the Eating for Physical Rather Than Emotional Reasons subscale may not use food to cope with their emotional distress because they experience less of this distress, whereas women who score lower on this subscale may experience more emotional distress and eat as a coping, albeit maladaptive, strategy. However, women scoring higher on this subscale also scored higher on proactive coping, indicating that they reported using more constructive strategies to deal with their emotional distress.

Collectively, these findings support the IES and the adaptive properties of intuitive eating. Given that the IES is relatively brief and easy to administer and score, it would be useful for both researchers and clinicians who work with women in a variety of venues. The total IES and subscale mean values, standard deviations, and skewness and kurtosis values were calculated for the total sample of women ($N = 1{,}260$) and for the various ethnic groups, with the data collapsed across all four studies. These values are presented in Appendix B.

Limitations and Future Research

Most of the participants in the present study were young-adult, Caucasian, middle- to upper middle-class first-year psychology students. It is important to determine whether the IES yields reliable and valid scores with other samples of women (e.g., community women or women of color). Also, future research endeavors could be aimed at demonstrating whether its psychometric properties are upheld with men. Scores on the IES may be similar for women and men because both women and men are socialized to adopt an external orientation to food intake: whereas women are socialized to lose weight, men are socialized to gain muscle mass (Vartanian, Giant, & Passino, 2001). Men may internalize the cultural pressure to restrict their eating to high-protein foods and eat these foods when they are not hungry in order to gain weight, which will negatively impact their IES scores.

Another limitation is that many of the first and second subscale items were worded in the direction of maladaptive eating (e.g., "I find myself eating when I am stressed out, even when I'm not physically hungry") and then reverse scored. Reverse scoring these negative items may not yield the most valid possible measure of the converse construct. Amending many of these items in the direction of adaptive eating (e.g., "I am able to cope with my stress without turning to food for comfort") and determining the psychometric properties of this revised scale is recommended.

The present study's exclusive use of self-report methodology also is somewhat limiting because it relies on participants' accurate reporting of their current level of functioning. In

particular, participants in Study 3 could have either distorted their weight and height or not known and estimated this information. Furthermore, women's perceptions of their eating habits may or may not be an accurate portrayal of reality. Thus, another avenue for research could be to determine whether self-reported eating practices on the IES are strongly correlated with actual eating behaviors.

Research could focus on determining the best way to help individuals who have developed an external orientation to food intake (e.g., those who chronically diet) work toward eating according to their internal hunger and satiety signals. These individuals' internal signals have been weakened as a result of being ignored, numbed, and replaced with external cues as to when, what, and how much to eat; consequently, these individuals may be unable to tell when they are hungry or sated (Birch & Fisher, 2000; Garner, 1991). Because hunger and satiety signals are often ambiguous, these individuals may interpret their emotional distress as cues that they are physiologically hungry (Costanzo et al., 2001).

The IES was related to eating disorder symptomatology, yet the strength of this relation indicated that there was not a complete overlap among these constructs (i.e., they shared 43.6% of the variance). This finding provides preliminary support for the uniqueness of intuitive eating, suggesting that it is negatively related to, but more than the mere absence of, eating disorder symptomatology. Nevertheless, it remains to be determined whether intuitive eating predicts unique variance in psychological health variables (e.g., self-esteem, subjective well-being) above and beyond the variance accounted for by eating disorder symptomatology.

Future studies might also examine whether adaptive environmental influences (e.g., acceptance of body size from significant others or caregivers' use of noncoercive feeding strategies) predict positive body image, which then predicts intuitive eating. This model could provide insight as to how some women continue to follow their internal physiological signals within a social milieu that frequently pressures women to become thinner.

If future research confirms the validity and reliability of the IES in samples of clients who present with concerns about food or eating disorder symptoms, the IES may prove to be a valuable clinical tool. For instance, the IES could be used to assess whether clients increase adaptive eating behaviors and attitudes as a result of treatment. In fact, a comprehensive treatment approach for disordered eating should result in an increase in adaptive characteristics as well as a reduction of maladaptive symptoms. Furthermore, given its attention to adaptive eating, the IES may better predict relapse prevention than current eating disorder instruments, such as the EAT-26 or Eating Disorder Inventory–3.

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(*Appendixes follow*)

Appendix A

Intuitive Eating Scale (21 Items)

Directions for participants: For each item, please circle the answer that best characterizes your attitudes or behaviors.

1. **I try to avoid certain foods high in fat, carbohydrates, or calories.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. **I stop eating when I feel full (not overstuffed).**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. **I find myself eating when I'm feeling emotional (e.g., anxious, depressed, sad), even when I'm not physically hungry.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. **If I am craving a certain food, I allow myself to have it.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. **I follow eating rules or dieting plans that dictate what, when, and/or how much to eat.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. **I find myself eating when I am bored, even when I'm not physically hungry.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. **I can tell when I'm slightly full.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. **I can tell when I'm slightly hungry.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. **I get mad at myself for eating something unhealthy.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. **I find myself eating when I am lonely, even when I'm not physically hungry.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. **I trust my body to tell me <u>when</u> to eat.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. **I trust my body to tell me <u>what</u> to eat.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. **I trust my body to tell me <u>how much</u> to eat.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. **I have forbidden foods that I don't allow myself to eat.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. **When I'm eating, I can tell when I am getting full.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Appendix A (*continued*)

16. **I use food to help me soothe my negative emotions.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. **I find myself eating when I am stressed out, even when I'm not physically hungry.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. **I feel guilty if I eat a certain food that is high in calories, fat, or carbohydrates.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. **I think of a certain food as "good"or "bad" depending on its nutritional content.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. **I don't trust myself around fattening foods.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

21. **I don't keep certain foods in my house/apartment because I think that I may lose control and eat them.**

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Scoring Procedure

Total score. Reverse score Items 1, 3, 5, 6, 9, 10, 14, 16, 17, 18, 19, 20, and 21; add these reverse scored items with Items 2, 4, 7, 8, 11, 12, 13, and 15; divide this summed total by 21.

Unconditional Permission to Eat subscale. Reverse score Items 1, 5, 9, 14, 18, 19, 20, and 21; add these reverse scored items with Item 4; divide this summed total by 9.

Eating for Physical Rather Than Emotional Reasons subscale. Reverse score Items 3, 6, 10, 16, and 17; add these reverse scored items with Item 2; divide this summed total by 6.

Reliance on Internal Hunger/Satiety Cues subscale. Add together Items 7, 8, 11, 12, 13, and 15; divide this summed total by 6.

Note

Item 1 was Item 1 referenced in the article.
Item 2 was Item 2 referenced in the article.
Item 3 was Item 3 referenced in the article.
Item 4 was Item 4 referenced in the article.
Item 5 was Item 5 referenced in the article.
Item 6 was Item 8 referenced in the article.
Item 7 was Item 11 referenced in the article.
Item 8 was Item 12 referenced in the article.
Item 9 was Item 14 referenced in the article.
Item 10 was Item 15 referenced in the article.
Item 11 was Item 16 referenced in the article.
Item 12 was Item 17 referenced in the article.
Item 13 was Item 18 referenced in the article.
Item 14 was Item 19 referenced in the article.
Item 15 was Item 20 referenced in the article.
Item 16 was Item 21 referenced in the article.
Item 17 was Item 22 referenced in the article.
Item 18 was Item 23 referenced in the article.
Item 19 was Item 25 referenced in the article.
Item 20 was Item 26 referenced in the article.
Item 21 was Item 27 referenced in the article.

Permission to use this measure is not required. However, I do request that you notify me via e-mail if you use the Intuitive Eating Scale in your research.

(*Appendixes continue*)

Appendix B

Descriptive Information for the IES Collapsed Across All Four Samples

Sample	*M*	*SD*	Skewness	Kurtosis
All women (N = 1,259)[a]				
IES—Total	3.26	0.56	0.01	−0.11
IES—Unconditional Permission to Eat	3.27	0.86	−0.03	−0.63
IES—Eating for Physical Reasons	2.90	0.85	0.14	−0.55
IES—Reliance on Hunger/Satiety Cues	3.27	0.66	0.02	−0.30
Caucasian American women (n = 1,087)				
IES—Total	3.24	0.55	0.03	−0.13
IES—Unconditional Permission to Eat	3.25	0.85	−0.02	−0.57
IES—Eating for Physical Reasons	2.85	0.84	0.12	−0.53
IES—Reliance on Hunger/Satiety Cues	3.27	0.66	0.03	−0.27
African American women (n = 68)				
IES—Total	3.49	0.59	−0.38	0.38
IES—Unconditional Permission to Eat	3.60	0.91	−0.37	−0.63
IES—Eating for Physical Reasons	3.24	0.90	0.09	−0.88
IES—Reliance on Hunger/Satiety Cues	3.35	0.71	−0.39	−0.73
Asian American women (n = 41)				
IES—Total	3.33	0.66	−0.05	0.43
IES—Unconditional Permission to Eat	3.22	0.84	0.22	−0.81
IES—Eating for Physical Reasons	3.17	0.93	−0.12	−0.77
IES—Reliance on Hunger/Satiety Cues	3.07	0.60	−0.13	−0.45
Multiracial women (n = 38)				
IES—Total	3.41	0.50	−0.01	−0.94
IES—Unconditional Permission to Eat	3.38	0.82	−0.10	−1.08
IES—Eating for Physical Reasons	3.24	0.76	0.23	−1.01
IES—Reliance on Hunger/Satiety Cues	3.33	0.57	0.05	0.31
Latin American women (n = 17)				
IES—Total	3.36	0.68	−0.19	0.55
IES—Unconditional Permission to Eat	3.27	1.12	−0.18	−1.23
IES—Eating for Physical Reasons	3.19	1.03	0.51	−0.97
IES—Reliance on Hunger/Satiety Cues	3.15	0.76	1.25	1.54
Native American women (n = 8)				
IES—Total	3.40	0.64	0.41	−1.03
IES—Unconditional Permission to Eat	3.56	0.81	−0.24	−0.66
IES—Eating for Physical Reasons	3.17	0.82	0.03	−1.39
IES—Reliance on Hunger/Satiety Cues	3.40	0.64	−1.06	0.64

Note. IES = Intuitive Eating Scale.
[a] One woman (Study 1) did not indicate her ethnicity.

Received April 19, 2005
Revision received August 31, 2005
Accepted September 1, 2005 ■