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Turkish version of the Intuitive Eating Scale-2: Validity and reliability among university students

Murat Bas*, Kezban Esen Karaca [1], Duygu Saglam [2], Gozde Arıtıcı [3], Ecem Cengiz [4], Selen Köksal [5], Aylin Hasbay Buyukkaragoz [6]

Acıbadem University, Health Sciences Faculty, Department of Nutrition and Dietetics, Istanbul, Turkey

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ABSTRACT

Intuitive Eating is defined as "the dynamic process-integrating attunement of mind, body, and food". The purpose of this study was, therefore, adapt the IES-2 to the Turkish language and reliability and validity of IES-2 among Turkish populations. We also examined the instrument's internal consistency and test-retest reliability and analysed the relationships between the IES-2 and several variables so as to evaluate the convergent and discriminant validity. Three hundred seventy-seven undergraduate and post-graduate women and men between the ages of 19–31 years (mean 22.3, SD = 3.53) attending two large private universities in Istanbul, Turkey. The best solution from the principal factors analysis of the 23 items of the IES-2 revealed four factors corresponding to the four subscales (F1: Eating for physical rather than emotional reasons; F2: Unconditional permission to eat; F3: Reliance on hunger and satiety cues; F4: Body-food choice congruence), as reported by the authors of the questionnaire. Bartlett's test of sphericity gave $X^2 = 9043.49$ ($p < 0.001$), while the Kaiser-Meyer-Olkin index was 0.87 (KMO were 0.89 for women and 0.83 for men). The test-retest reliability of the IES-2 was 0.88 for the IES-2 total score. The IES-2 had a = 0.82. These findings support the notion that intuitive eating is a viable concept for university students and the IES can be used to examine adaptive eating behaviors in this population.

1. Introduction

Current approaches to eating behaviors have emphasized pathology, and research has begun to focus on exploring the causes, prevalence, and factors associated with the occurrence of disordered eating rather than on determining what contributes to the development of healthy, adaptive eating (Burrows & Cooper, 2002; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011; Wilksch & Wade, 2010). When healthy eating is argued, healthy eating generally has been described simply as the lack of eating disorder symptoms (Tylka & Subich, 1999), rather than as an adaptive, independent behavioral process. Tylka (2006) examined these adaptive eating processes through the development of the Intuitive Eating Scale (IES) in college women, which was the first scale to provide clinicians and researchers with a way to adequately measure this concept.

Intuitive eating is a type of non-diet approach to health that was first popularized in 1995 by Evelyn Tribole and Elyse Resch, both of whom are registered dietitians. Tribole and Resch founded this method as a bridge between a traditional non-diet approach and the typical health community approach, which includes dieting to achieve ideal body weight. The traditional non-diet approach requires full body acceptance regardless of size or shape but often does not address health risks. On the other hand, the health community's approach stresses the importance of minimizing health risks, including BMI, without mentioning the acceptance of the personal weight and shape differences. Tribole and Resch attempt to mesh these two polar ideas into a single program in intuitive eating (Tribole & Resch, 2003).

Intuitive eating, which is a restrictive eating or diet alternative, encourages individuals to consume calories only when they are physically hungry (Gast & Hawks, 1998). This paradigm also focuses

* Corresponding author. Acıbadem University, Health Sciences Faculty, Department of Nutrition and Dietetics, İçerenköy Mahallesi Kayışdağı Caddesi No:32, Istanbul, Turkey. Tel.: +90 216 500 42 30; Fax: +90 216 577 51 35.
E-mail address: murat.bas@acibadem.edu.tr (M. Bas).
[1] Tel.: +90 216 500 42 39; Fax: +90 216 577 51 35.
[2] Tel.: +90 216 500 42 33; Fax: +90 216 577 51 35.
[3] Tel.: +90 216 500 42 38; Fax: +90 216 577 51 35.
[4] Tel.: +90 216 500 42 34; Fax: +90 216 577 51 35.
[5] Tel.: +90 216 500 41 79; Fax: +90 216 577 51 35.
[6] Tel.: +90 216 500 4231; Fax: +90 216 577 51 35.

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on an individual's eating whatever is desired, theorizing that it is the body's natural way of telling it what it needs, avoiding food consumption for emotional, social, or environmental cues, being mindful of the body's satiety level, and supports the notion that acceptance of body size is just as important as the food we consume (Gast & Hawks, 2000). Many diets fail because of restrictive food intake and the ensuing disruption of homeostasis (Van Dyke & Drinkwater, 2014). Many professional organizations endorse calorie restricted diets as the best method for weight loss and weight maintenance (Academy of Nutrition and Dietetics, 2009; Jensen et al., 2014). However, previous study has shown that dieting is not a successful long-term tool for weight loss in all individuals; one study estimated that less than 20% of individuals who attempt to lose weight with dieting are successful and only 10% of people who are initially successful are able to maintain that weight loss for more than one year (Kraschnewski et al., 2010).

In contrast, intuitive eating offers a non diet approach to weight management by eating according to physiological hunger and satiety cues (Augustus-Horvath & Tylka, 2011; Gast, Madanat, & Nielson, 2012; Hawks, Merrill, & Madanat, 2004; Tylka & Kroon Van Diest, 2013; Wirtz & Madanat, 2013). Intuitive eating posits that the body can self-regulate caloric need by sending signals to eat the types and quantities of food to maintain health and weight; these physiological cues are commonly referred to as eat when you are hungry and stop when you are full (Van Dyke & Drinkwater, 2014). Intuitive eating shifts attention away from the negative processes of dieting, restrictive eating, energy monitoring, increased physical activity for the purpose of calorie deficit, and weight loss towards the positive processes of increased body signal awareness, improved emotional wellbeing, improved self-worth, reduced negative self-talk, and reduced preoccupation with food choice (Cole & Horacek, 2010). Intuitive Eating is defined as “the dynamic process-integrating attunement of mind, body and food” (Tribole & Resch, 2003). It refers to an adaptive form of eating essentially based on hunger and satiety cues to regulate food intake. Thus, a strong connection with internal body signals, known as interoceptive awareness, is fundamental to this process (Cadena-Schlam & López-Guimerà, 2015). Intuitive eating relies upon 10 principles to teach body wisdom. Included in these principles are, “reject the diet mentality,” “respect your fullness,” “Challenge the Food Police“,”Discover the Satisfaction Factor”, “Honor Your Health “and, “honor your feelings without using food”. It should be emphasized that the purpose of intuitive eating is not to facilitate weight loss (Tribole & Resch, 2003).

A large popular literature has accumulated that supports individuals in developing intuitive eating skills (Hirschmann & Munter, 1995; Matz & Frankel, 2006; Tribole & Resch, 2003). There is considerable evidence that intuitive eating skills can be learned (Bacon, Stern, Van Loan & Keim, 2005; Mensinger, Close & Ku, 2009), and that intuitive eating is associated with improved nutrient intake (Smith & Hawks, 2006), reduced eating disorder symptomatology (Kristeller & Hallett, 1999; Tylka, 2006) and not with weight gain (Provencher et al., 2009; Rapoport, Clark, & Wardle, 2000). Also, several studies have found intuitive eating to be associated with lower body mass (Hawks, Madanat, Hawks, & Harris, 2005; Weigensberg, Shoar, Lane, & Spruijt-Metz, 2009).

In order to be able to measure the above-mentioned features, self-report questionnaires had to be developed. In the literature, there are only two validated questionnaires that measure intuitive eating. Both of the questionnaires are referred to as Intuitive Eating Scale (IES). The first of these was developed by Steven Hawks et al., in 2004 (Hawks et al., 2004). And the latest scale was developed by Tracy Tylka in 2006 (Tylka, 2006). Despite the fact that both seem to measure intuitive eating features, (but) they do not share the same factor structure.

While Hawk's IES encompasses a four-factor structure (intrinsic eating, extrinsic eating, antidieting, self-care), Tylka's IES embraces a three-factor model (unconditional permission to eat, eating for physical rather than emotional reason, and reliance on internal hunger and satiety cues to determine when and how much to eat) (Cadena-Schlam & López-Guimerà, 2015). Nevertheless, most researchers preferred Tylka's IES to better assess intuitive eating style, and have been using it widely in subsequent studies (Denny, Loth, Eisenberg, & Neumark-Sztainer, 2013; Dockendorff, Petrie, Greenleaf, & Martin, 2012; Tylka & Kroon Van Diest, 2013). Moreover, building on Tylka's work, new scales have emerged. In 2012, Dockendorff et al. developed Intuitive Eating Scale-Adolescents (IES-A) to assess intuitive eating in the adolescent population (Dockendorff et al., 2012).

Recently, Tylka and Kroon Van Diest (2013) developed and validated the Intuitive Eating Scale-2 (IES-2) in order to address some limitations of the IES (Tylka & Kroon Van Diest, 2013). Two main changes have been presented that make the second version of the intuitive eating scale, by Tylka and Kroon Van Diest (2013), more representative of adaptive eating behaviour. First, the construct has now been validated in both women and men university/college population. Second, is the addition of the body food choice congruence subscale. The addition of the body-food choice congruence subscale is important because the subscale provides insight into the decisions that individuals make regarding their nutrition focused food choices. The IES-2 re-phrases the four major sub-scales that relate to intuitive eating from the original IES to: (1) eating for physical rather than emotional reasons (2) unconditional permission to eat, which assesses restraint in eating (3) reliance on hunger and satiety cues, and (4) body-food choice congruence. The tool contains 23 items and is scored on a five point Likert scale with higher scores representing greater adherence to intuitive eating behaviors. The possible range for total IES score is 1–5, where a higher total score corresponds to more intuitive eating. The IES-2 provides to be valid and reliable in both male and female college students in U.S.

The IES-2 validity and realiability are not known among the Turkish population. The purpose of this study was, therefore, to adapt the IES-2 into the Turkish language and the reliability and validity of IES-2 among Turkish population. We also examined the instrument's internal consistency and test-retest reliability. In addition, and in order to determine the construct validity, we analysed the relationship between the IES-2 and several variables (Body Mass Index, Eating AttitudesTest, Eating Disorder Examination Questionnaire, Body Appreciation Scale) so as to evaluate the convergent and discriminant validity.

2. Methods

2.1. Participants and procedures

Three hundred seventy-seven undergraduate and postgraduate women and men between the ages of 19–31 years attending two large private universities in Istanbul, Turkey.

This study utilized a cross-sectional design with participants assessed at the one-time point. Questionnaires were completed during a normal class time in groups under the supervision of teachers and the authors. The questionnaires were applied during the elective couses of the students. Among the participants, nobody showed any comprehension and/or language difficulties. Participants responded to typical socio-demographic questions regarding their age, gender, current health status, dieting behaviours, and height and weight, which were then used to calculate BMI using the following formula: weight (kg.)/[height (m)]^2 (Centers for Disease Control, 2015). The initial number of 425 participants was

subsequently reduced to 377 after some incomplete protocols were rejected. Regarding the IES-2, total in 48 cases (11.29%) the questionnaires were incomplete and they were rejected. After rejecting the incomplete protocols 215 women (57,03%) and 162 men (42,97%) remained. The participants' mean age was 21.1 (SD ± 3.2) years. Women's mean BMI was 22.5 (SD ± 3.6; range: 17.1–29.4) and men's average BMI was 23.9 (SD ± 3,5; range: 17.2–31.5). In all, 16 subjects (4.2%) were obese, 260 (69.0%) normal-weight, 70 (18.6%) overweight and 30 (8.2%) underweight. Current dieters are not included in this study.

2.2. Turkish adaptation protocol

The IES-2 is a 23-item, 5-point Likert scaled instrument that addresses the four major components of intuitive eating: unconditional permission to eat (UPE; 6 items; e.g., "If I'm craving a certain food, I allow myself to have it"), eating for physical reasons (EPR; 8 items; e.g., "I mostly eat foods that make my body perform efficiently (well)"), reliance on hunger and satiety cues (RHSC; 6 items; e.g., "I rely on my hunger signals to tell me when to eat"), and body-food choice congruence (B-FCC; 3 items) (e.g., "I mostly eat foods that give my body energy and stamina" (Tylka & Kroon Van Diest, 2013). Responses range from 1 (strongly disagree) to 5 (strongly agree). To score the IES-2 negative items are reverse coded and then added together to a composite score, which is then divided by the number of items to produce a mean score. A 5-point Likert scale was used in the IES-2 scoring as it was on the original IES-2 scale. In addition, the inverse and negative questions in the measure were used as in the original scale. Both cases were tested in the pilot study.

Permission to use the IES-2 was obtained from the scale developer in June 2016. The back translation techniques were employed to develop language-specific versions of the IES-2. The translation techniques followed a standardized procedure suggested by Brislin (1986) in which the inventory items and scale were translated from English to the target language by a bilingual researcher. Thereafter, the translated inventory was back-translated by a jury of independent and proficient bilingual academics at the institutions of the authors. The back-translated versions were then compared with the original English version and any inconsistencies, errors, biases and incongruences highlighted. These inconsistencies were removed in a further translation and the back-translation comparison process was repeated until the versions were identical, as recommended by Bracken and Barona (1991). The final versions exhibited no discrepancies with the original English version of the IES-2 when back-translated. As an additional check, the translated instruments were independently reviewed by the jurors to confirm whether each item served the purpose of the instrument (Brislin, 1993). The reviewers affirmed that the items from the translated instrument were satisfactory in representing the items from the original English version. The present study was approved by the Human Research Ethics Committee at the University of Acıbadem.

2.3. Cultural adaptation

The IES-2 was pilot tested on 40 participants. The participants found the questionnaire easy to understand and applicable to their conditions. Subsequent review and discussion found most of the questionnaire translated without difficulty, but some discrepancies were present due to linguistic and cultural differences. Changes were made through finer adjustments to wording that enabled a final consensus agreed format from all translators with changes compared to the English version. The final IES-2 consensus version was brought into use for the validity and reliability study.

2.4. Test-retest

The test–retest was conducted 2–4 weeks after the initial survey to establish reliability. The randomly selected 100 participants completed the Intuitive Eating Questionnaire - 2 at baseline and after 4 weeks to provide evidence of test–retest reliability and the Pearson Correlation Analysis was performed for this.

3. Measures

3.1. Eating Disorder Examination-Questionnaire (EDE-Q)

The Eating Disorder Examination Questionnaire (EDE-Q) was used as an indicator of the participants' eating psychopathology. The EDE-Q (Fairburn & Beglin, 1994) is a widely used 28-item measure of disordered eating attitudes and behaviors. It was translated into Turkish by Yücel et al. (2011). Items are rated on a 7-point Likert scale with higher scores indicating greater disordered eating. The questionnaire contains four subscales Restraint (present Cronbach's $\alpha = 0.85$), Eating Concern (present Cronbach's $\alpha = 0.80$), Shape Concern (present Cronbach's $\alpha = 0.88$), and Weight Concern (present Cronbach's $\alpha = 0.83$), as well as a Global Score (present Cronbach's $\alpha = 0.93$) representing an average of scores on the four subscales.

3.2. The Eating Attitudes Test (EAT-26)

The Eating Attitudes Test (EAT-26) is a widely used self-report measure for eating disorders. It was developed by Garner and Garfinkel (1979) to measure symptoms of anorexia nervosa. The EAT-26 is based on an original Eating Attitudes Test (EAT-40). Total scores on the EAT-26 are derived as a sum of the composite items, ranging from 0 to 53, with the score of 20 on the EAT-26 was used as the cut-off (Garner, Olmstead, Bohr & Garfinkel, 1982). The EAT-26 consist of three-factor scores: (F1) dieting-the degree of avoidance of fattening foods and preoccupation with being thinner; (F2) bulimia and preoccupation with food; and (F3) oral control the degree of self-control around food and the perception of pressure from others to gain weight. The Turkish version of EAT-40 (Savaşır & Erol, 1989) measures disturbance in eating attitudes and behaviors. The reliability of EAT-26 was also determined by Bas, Asci, Karabudak, and Kiziltan (2004).

3.3. Body Appreciation Scale-2

Participants completed the Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015), a 10-item measure of positive body image (sample item: "I respect my body"). Items on the BAS-2 are rated on a 5-pointscale, ranging from 1 (Never) to 5 (Always). Items were averaged, with higher scores reflecting greater body appreciation. The reliability and validity evidence of BAS-2 for Turkish adults was determined by Anlı, Akın, Eker, and Özçelik (2015). The internal consistency reliability coefficients of the scale were found as 0.88. (Cronbach's alpha). Also, The reliability and validity evidence of BAS-2 for Turkish university student was determined by Bakalım and Taşdelen-Karçkay (2016). The Turkish version of the BAS demonstrated adequate internal consistency and composite reliability. In that study, BAS-2 was concluded to be one-dimensional as in Western societies.

3.4. Data analysis

The factorial structure of IES-2 was examined by exploratory factor analysis. The Principal Component Factor Analysis with Varimax Rotation was conducted. The reliability was tested using

Cronbach's alpha. Confirmatory factor analysis (CFA) with a diagonally weighted least squares estimation method was used to assess the construct validity of the Turkish version of the food choice questionnaire (FCQ). Model fit of the 9-factor structure was examined using χ 2/df, root mean square error of approximation (RMSEA), and two goodness of fit indices such as comparative fit index (CFI) and non-normed fit index (NNFI). The criteria for an acceptable model fit was identified as χ2/df (degrees of freedom) $\leq$ 5, CFI $\geq$ 0.90, NNFI $\geq$ 0.90, and RMSEA $\leq$0.06, and also the good model fit was identified as χ2/df $\leq$ 2, CFI $\geq$ 0.95 and NNFI $\geq$ 0.95. RMSEA 0.80 indicates excellent test-retest agreement. Internal consistency of the scale was evaluated using Cronbach's alpha. A criteria for Cronbach's alpha was selected as 0.70 (Field, 2009). Test-retest reliability was examined by intraclass correlation coefficient (ICC). ICC>0.80 indicates excellent test-retest agreement. Pearson correlation coefficients were used to investigate associations between intuitive eating, body appreciation, disordered eating, and BMI. All statistical analyses were performed using SPSS software.

4. Results

4.1. Confirmatory factor analysis

For the confirmatory construct validity of the IES-2 scale, a 4-factorial structure was tested based on the original in the study. The desired model fit of the collected data was analysed with the AMOS Structural Equation Model. Different indexes can be used in evaluating model fit. Chi-square statistic is affected very quickly by sample size, and the normed chi-square (NC) was used. In this model, the NC value was 4.237 (949.148/224), indicating a reasonable fit to the data. In addition, Adjusted Goodness Of Fit Index-AGFI was found to be 0.96. If this value is over 0.90, it shows that the model is well compatible. Same way, if the Root Mean Square Residual-RMR is below 0.05 (RMR = 0.045) and the Root Mean Square Error of Approximation-RMSEA is less than 0.08 (RMSEA = 0.078), the model shows good fit. The values set at this scale show the acceptability and applicability of the Turkish version of the IES-2 scale.

4.2. Internal consistency reliability

The internal consistency of the IES-2 and its subscales was determined by calculating Cronbach's alpha coefficient. The unconditional permission to eat factor gavea = 0.97, the eating for physical rather than emotional reasons factor gave a = 0.95, the reliance on hunger and satiety cues factor gave a = 0.92, while the body-food choice congruence factor yielded a = 0.86. Overall, the IES-2 had a = 0.82. Eventually, the total and subscales scores of IES-2 are internally reliable (Table 2).

Table 1 shows the rotated factor loadings. A factor analysis was conducted using principal components extraction with varimax rotation. Various indicators of the high degree of interrelationship between the variables confirmed the suitability of the analysis: Bartlett's test of sphericity gave $X^2 = 9043.49$ ($p < 0.001$), while the Kaiser-Meyer-Olkin index was 0.87 (KMO were 0.89 for women and

Table 1
Factor structure and standardized loadings for the original IES-2.

	Factor 1: Eating for Physical Rather Than Emotional Reasons		Factor 2: Unconditional Permission to Eat		Factor 3: Reliance on Hunger and Satiety Cues		Factor 4: Body-Food Choice Congruence	
	Women	Men	Women	Men	Women	Men	Women	Men
2. I find myself eating when I'm feeling emotional (e.g., anxious, depressed, sad), even when I'm not physically hungry.	0.81	0.77						
5. I find myself eating when I am lonely, even when I'm not physically hungry.	0.65	0.64						
10. I use food to help me soothe my negative emotions.	0.85	0.89						
11. I find myself eating when I am stressed put, even when I'm not physically hungry.	0.92	0.83						
12. I am able to cope with my negative emotions (e.g., anxiety, sadness) without turning to food for comfort.	0.94	0.71						
13. When I am bored, I do NOT eat just for something to do.	0.92	0.69						
14. When I am lonely, I do NOT turn to food for comfort.	0.93	0.83						
15. I find other ways to cope with stress and anxiety than by eating	0.93	0.91						
1. I try to avoid certain foods high in fat, carbohydrates, or calories.			0.96	0.95				
3. I find myself eating when I'm feeling emotional (e.g., anxious,depressed, sad), even when I'm not physically hungry.			0.87	0.82				
4. If I am craving a certain food, I allow myself to have it.			0.94	0.94				
9. I get mad at myself for eating something unhealthy.			0.95	0.94				
16. I use food to help me soothe my negative emotions.			0.95	0.94				
17. I find myself eating when I am stressed out, even when I'm not physically hungry.			0.91	0.89				
6. I trust my body to tell me when to eat.					0.96	0.93		
7. I trust my body to tell me what to eat.					0.74	0.76		
8. I trust my body to tell me how much to eat.					0.80	0.82		
21. I rely on my hunger signals to tell me when to eat.					0.96	0.69		
22. I rely on my fullness (satiety) signals to tell me when to stop eating.					0.86	0.86		
23. I trust my body to tell me when to stop eating.					0.78	0.75		
18. Most of the time, I desire to eat nutritious foods.							0.92	0.93
19. I mostly eat foods that make my body perform efficiently (well).							0.88	0.75
20. I mostly eat foods that give my body energy and stamina.							0.76	0.88

Table 2
Descriptive statistics, internal consistency estimates of IES-2 subscales and correlation between total and subscales of IES-2 scores, and BMI, EAT-26 and BAS-2.

	Mean ± S.D.	Range	Internal consistency	Correlation coefficients							
				BMI	EAT-26	EDEQ-Restraint	EDEQ-Eating Concern	EDEQ-Shape Concern	EDEQ-Weight Concern	EDE-Q Global Score	BAS
IES-2	3.08 ± 0.49	1–5	0.817[a]	−0.277**	−0.482**	−0.362**	−0.384**	−0.508**	−0.467**	−0.393**	−0.263**
UPE	2.98 ± 1.12	1–5	0.965[a]	−0.103*	−0.313**	−0.130*	−0.095	−0.248**	−0.258**	−0.165**	−0.020
EPR	2.93 ± 0.99	1–5	0.946[a]	−0.274**	−0.303**	−0.364**	−0.357**	−0.379**	−0.333**	−0.298**	−0.252**
RHSC	3.54 ± 0.67	1–5	0.915[a]	−0.089	0.007	−0.326**	−0.327**	−0.344**	−0.290**	−0.260**	0.033
B-FCC	2.72 ± 1.03	1–5	0.864[a]	−0.092	−0.292**	−0.240**	−0.291**	−0.401**	−0.347**	−0.304**	−0.318**

BMI = body mass index; EAT-26 = Eating Attitudes Test; BAS-2 = Body Appreciation Scale-2.
UPE: Unconditional permission to eat; EPR: Eating for physical rather than emotional reasons; RHSC: Reliance on hunger and satiety cues; B-FCC: Body-food choice congruence; EDE-Q: Eating Disorder Examination-Questionnaire.
**$p < 0.01$; *$p < 0.05$.
[a] Standardized Cronbach's alpha.

0.83 for men). The best solution from the principal factors analysis of the 23 items of the IES-2 revealed four factors corresponding to the four subscales (UPE: Unconditional permission to eat; EPR: Eating for physical rather than emotional reasons; RHSC: Reliance on hunger and satiety cues; B-FCC: Body-food choice congruence), as reported by the authors of the questionnaire.

The first factor, which explains 30.89% of the total variance, groups together the 6 items of the unconditional permission to eat sub-scale of the IES-2. The second factor explains 22.48% of the total variance and groups together the remaining 8 items, those from the eating for physical rather than emotional reasons sub-scale. The third factor explains 15.96% of the total variance and groups together the remaining 6 items, those from the reliance on hunger and satiety cues sub-scale. The fourth factor explains 9.19% of the total variance and groups together the remaining 3 items, those from the body-food choice congruence sub-scale. The analysis of data revealed seven factors that in total explain 77.53% of the variance among the scale items.

4.3. Construct validity

Criterion-related validity is shown in Table 2. For testing criterion reliability, the Pearson product-moment correlation coefficients were computed among the IES-2 scores, BMI, EAT-26, EDE-Q and subscales of EDE-Q and BAS-2 scores for participants. Also, the results of the correlation analyses showed significant correlation of the IES-2 score of participants with BMI($r = -0.277$; $p < 0.01$), EAT-26 ($r = -0.482$; $p < 0.01$) and BAS-2($r = -0.263$; $p < 0.01$). IES-2 score were significant inversely correlated with eating-disorder related behaviours and cognitions in participants. The results of the correlation analyses were the significant correlation with IES-2 total scores and restraint eating ($r = -0.362$; $p < 0.01$), eating concern ($r = -0.384$; $p < 0.01$), shape concern ($r = -0.508$; $p < 0.01$) and weight concern ($r = -0.165$; $p < 0.01$). Results from the Turkish samples indicated that the IES-2 subscales have a high internal consistency and test-retest reliability coefficient. The test-retest reliability of the IES-2 was 0.80 for the unconditional permission to eat subscale score, 0.87 for eating for physical rather than emotional reasons subscale score, 0.84 for reliance on hunger and satiety cues subscale score, 0.90 for body-food choice congruence subscale score and 0.88 for the IES-2 total score.

5. Discussion

The current study first translated and then validated the Turkish version of the IES-2 instrument in the Turkish sample. Factor analysis results for determining the validity of the IES-2 indicated four main factors. These four factors were the same as the four-factor structure of Tylka and Kroon Van Diest (2013). In other words, these Turkish data indicated strong support for the dominant four-factor structure originally proposed by Tylka and Kroon Van Diest (2013), with the resultant four factors explaining 77.53% of the variance.

The first factor, Eating for Physical rather than Emotional Reasons, consisted of 8 items that reflect the ability to use food to satisfy hunger rather than as a way to cope with emotional distress. The second factor, Unconditional Permission to Eat, which reflects a willingness to eat in response to internal hunger cues and the food that may be desired, consisted of 6 items in the original study. The third factor, Reliance on Internal Hunger/Satiety Cues, consisted of 6 items and reflected an awareness of internal hunger and satiety cues and a trust in those cues to guide eating behaviors. The original fourth factor, Body-food Choice Congruence consists in using gentle nutrition to guide food choices that meet both physical and sensory needs, consisted of 3 items in the original study (Tylka & Kroon Van Diest, 2013). The Turkish data supported that all factors of IES-2 were same factor structure originally proposed by Tylka and Kroon Van Diest (2013). In contrast, in the French study, Camilleri et all. (2015) adapted the IES-2 to the French language and population. In their study, the scale of IES-2 included three dimensions: Eating for Physical Rather than Emotional Reasons, Reliance on Hunger and Satiety Cues and Unconditional Permission to Eat.

The acceptable minimum point was 0.40 for factor loading (Polit & Beck, 2004). Factor analysis yielded that all of the factor loadings were above 0.40 and factor loading of the items in the scale ranged from 0.69 to 0.96 in our study. Factor loadings were reported to range from 0.50 to 0.98 on the original scale Tylka and Kroon Van Diest (2013). Similarly, Carbonneau et al. (2016) found that the 23 items had loadings ranging from 0.51 to 0.93 onto their respective factor, indicating that each item has a satisfactory association with the score of its subscale and, the results of the CFA showed that the fourfactorstructure of the French-Canadian version of the IES-2 fitsthe data well.

In a recent review by Bruce and Ricciardelli (2016), they showed that the Unconditional Permission to Eat subscale demonstrated the highest correlation with disordered eating, the Eating for Physical Reasons subscale and the Reliance on Hunger/Satiety Cues subscale demonstrated small to medium correlations with disordered eating, while the Body-Food Choice Congruence subscale was unrelated with disordered eating, thus suggesting that these three aspects of intuitive eating are more conceptually distinct from disordered eating. In our study, EDE-Q global score was inversely correlated with all of IES-2 subscales. Also, the IES-2 total score showed strong inverse correlations with restraint eating, eating concern, shape concern and weight concern of subscales of EDE-Q in our study. The French study indicated that IES-2 total score and

subscales were negatively related to cognitive restraint, emotional eating, uncontrolled eating and depressive symptoms (Camilleri et al., 2015). Also, Carbonneau et al. (2016) showed that all four IES-2 subscales showed moderate to strong negative associations with the four EDI-2 subscales. Results indicated that highly disordered eating of participants was related to lower intuitive eating behaviour in our study. Similarly, Tylka and Kroon Van Diest (2013) and Camilleri et al. (2015) reported that the correlations were negative and significant between disordered eating and intuitive eating behaviour.

A fundamental premise of intuitive eating is accurately interpreting and adhering to instinctive feedback regarding the required content and volume of food consumption. Therefore, regardless of whether intuitive eating explicitly includes the goal of normalising weight, eating intuitively should correlate with a lower weight/BMI (Tribole & Resch, 2003). Intuitive eating has been associated with lower body mass index (BMI) in numerous cross-sectional surveys. Cross-sectional evidence from non-clinical populations also suggests that increased intuitive eating relates to lower body mass index (Denny et al., 2013; Hawks et al., 2005). Similarly, our study supports that high intuitive eating was correlated with lower BMI. Van Dyke and Drinkwater published a review about intuitive eating and health indicators on 2014. They indicated that the intuitive eating is negatively associated with BMI, positively associated with various psychological health indicators, and possibly positively associated with improved dietary intake and/or eating behaviours, but not associated with higher levels of physical activity. In addition, the New Zealand survey study supports the idea that intuitive eating promotes a healthy BMI. The study's subjects who had higher intuitive eating scores on the IES also had lower BMI. The majority of mid-aged women had stable IES scores over three years in their study. They found that intuitive eating was inversely related to BMI with an increase in IES score over three years associated with lower BMI at three years. The New Zealand study suggests that learning IE skills may be most beneficial for those who are binge eaters, and for those who are trying to lose weight. These findings highlight the fact that IE has clinical relevance and may be beneficial to improving eating behaviours and promoting weight loss in overweight individuals. In contrast, Anglin (2012), Alberts, Thewissen, and Raes (2012), Bacon, Stern, Loan, and Keim (2005) and Gravel et al. (2014) studies indicate that BMI is not affected by the introduction of intuitive eating type approaches.

Concepts of the body appreciation is not the same for every culture in respect to conceptual and factorial. There are similar cultural structures to be seen in Turkey, despite the impact of globalization, modernization and social media. Turkey starts to import the social habits of Western societies but the traditional family structure still maintains (Bakalım & Taşdelen-Karçkay, 2016).

Previous studies were supported that there was a correlation between intuitive eating and body appreciation. (Augustus-Horvath & Tylka, 2011; Oh, Wiseman, Hendrickson, Phillips, & Hayden, 2012; Tylka & Kroon Van Diest, 2013). The body dissatisfaction (EDE-Q-shape concern) and BAS-2 scores was strongly correlated with IES-2 scores in our study. The strong inverse correlation between body dissatisfaction and intuitive eating is in agreement with the findings of Tylka, who reported a correlation of −0.53, significant at the $p < 0.001$ level. Also, in the current study which showed us that intuitive eating correlated with aspects of positive body image such as body appreciation. The Bruce and Ricciardelli's (2016) studies indicated that intuitive eating correlated with body appreciation in a positive direction, and was consistent for total scores and subscale scores of intuitive eating.

For women and men, respectively, Cronbach's coefficient alphas were 0.85 and 0.74 for the total 23-item IES-2 in our study. The internal consistency values that were obtained in this study were lower than the results of Tylka and Kroon Van Diest (2013). In addition, the obtained internal consistency was lower than the one obtained in the French version (Camilleri et al., 2015). Alpha coefficients are affected by many factors and therefore may be unsatisfactory in some study groups. According to some authors, the values of Cronbach's alpha $\geq$0.90 should be considered as optimal, $\geq$0.80 as good, $\geq$0.70 as acceptable, $\geq$0.60 as questionable, $\geq$0.50 as poor, and <0.50 as unacceptable (Beaton, Bombardier, Guillemin, & Ferraz, 2007). In our study, the obtained Cronbach's alpha coefficient was above the cut-off values for an adequate consistency of 0.80 for each subscale. These results suggest that no major problems were caused by translating the original IES-2 into Turkish. In other words, all individual items contributed to the functioning of their subscale and language differences appeared not to compromise the effectiveness of items. The test-retest reliability coefficients with one month were acceptable ranges. According to Bloxom and Knapp, the acceptable test-retest reliability correlation was within the range 0.55–0.85 (as cited in Waite, Gansneder, & Rotella, 1990). The obtained test-retest reliability values for the IES-2 in this study fell within that range. If the items in the Turkish scale were compared with the original scale, the scale was found to be the same as the original scale. This result also questions the procedure of the KMO, which was 0.87 in this study. These results indicated that the sample was average enough for performing a satisfactory factor analysis and that further validation (factor solution) could proceed with a similar sample size in the current study. The sample size in this study was adequate for factor analysis.

This study has some limitations. The validity study requires a representative sample but in this study Turkish sample is not representative and did not represent distribution in Turkey for sex, ethnicity, religion, social class and region. The present study was only conducted with relatively well educated, middle class participants from urban area and convenience sample of university students. Thus, the results cannot necessarily be generalized to other groups. That's why this study provides preliminary evidence about the validity and reliability of IES-2 for Turkish sample.

As a conclusion, The Turkish version of the IES-2 has shown statistically acceptable levels of reliability and validity and the original research that validated the IES-2, the present study obtained four factors corresponding to the *unconditional permission to eat*, *eating for physical rather than emotional reason, reliance on hunger and satiety cues* and *body-food choice congruence* subscales, with 6, 8, 6 and 3 items, respectively. The reliability analysis showed that both the total IES-2 and its four subscales have adequate internal consistency. However, it should be noted that the Turkish version of IES-2 indicates a same reliability coefficient when it is compared to its original English version. Also, in terms of construct validity, there is equivalence between the English and Turkish versions of IES-2, both versions indicate a near identical factor loadings on items and factor structure. Initial analyses provided support for their validity in relation to body mass index, body appreciation and disordered eating behaviours. These findings support the notion that intuitive eating is a viable concept for young adults and the IES can be used to examine adaptive eating behaviors in this population. Future studies are needed to examine the Turkish version of IES-2 in a representative sample of adults.

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