

The effects of intuitive eating on body appreciation, body mass index, and nutritional behaviors in adults: a sample of Türkiye

Os efeitos da alimentação intuitiva na apreciação do corpo, índice de massa corporal e comportamentos nutricionais em adultos: uma amostra da Türkiye

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ABSTRACT

Objective

Intuitive eating is an adaptive eating style that makes a strong connection with internal physiological manifestations of hunger and satiety. This study was conducted to evaluate the effects of intuitive eating on body appreciation, body mass index, and nutritional behaviors in adults.

Methods

Sample consisted of 497 individuals. Data were collected online. The questionnaire form included a general information and physical activity evaluation form, anthropometric measurements, Intuitive Eating Scale-2, Body Appreciation Scale-2, and food frequency questionnaire.

Results

A statistically significant relationship was found between body mass index and eating for physical rather than emotional reasons, reliance on internal hunger and satiety cues, body-food choice congruence subscale scores, and total scale score. There was a correlation between body appreciation and unconditional permission to eat, reliance on internal hunger and satiety cues, body-food choice congruence subscale scores, and total scale score. The number of physically active intuitive eaters was significantly higher than non-intuitive eaters. A significant correlation was found between intuitive eating scores and frequency of consumption of fish, cake, biscuit, chocolate, granulated sugar, honey, jam, molasses, pastries and dairy-based desserts, sunflower oil, margarine, and sugary, carbonated drinks.

Conclusion

Intuitive eating can be an effective tool in sustaining and controlling weight loss, and with more studies, it may be possible to further spread this practice

Keywords: Body dissatisfaction. Body mass index. Feeding behavior. Intuitive eating.

RESUMO

Objetivo

A alimentação intuitiva é um estilo alimentar adaptativo que faz uma forte conexão com as manifestações fisiológicas internas de fome e saciedade. Este estudo foi realizado para avaliar o efeito da alimentação intuitiva na apreciação corporal, índice de massa corporal e comportamentos nutricionais em adultos.

Métodos

A amostra foi composta por 497 indivíduos. Os dados foram coletados online. O formulário do questionário incluiu um formulário de informações gerais e avaliação de atividade física, medidas antropométricas, Intuitive Eating Scale-2, Body Appreciation Scale-2 e questionário de frequência alimentar.

Resultados

Uma relação estatisticamente significativa foi encontrada entre o índice de massa corporal e a alimentação com base em razões fisiológicas em vez de razões emocionais, dependência de sinais de saciedade, pontuação da subescala de adequação da escolha do alimento corporal e pontuação total da escala. Houve uma correlação entre a apreciação do corpo e o consentimento incondicional para comer, confiança nos sinais de saciedade, pontuação da subescala de adequação da escolha do alimento corporal e pontuação total da escala. A quantidade de comedores intuitivos fisicamente ativos foi significativamente maior do que a dos comedores não intuitivos. Foi encontrada correlação significativa entre o escore de alimentação intuitiva e a frequência de consumo de peixe, bolo, biscoito, chocolate, açúcar granulado, mel, geleia, melado, doces e sobremesas lácteas, óleo de girassol, margarina e refrigerantes açucarados.

Conclusão

A alimentação intuitiva pode ser uma ferramenta eficaz na sustentação e controle da perda de peso e, com mais estudos, pode ser possível disseminar mais essa prática.

Palavras-chave: Insatisfação corporal. Índice de massa corporal. Comportamento alimentar. Comer intuitivo.

INTRODUCTION

Intuitive eating is defined as an adaptive eating style that makes a strong connection with internal physiological manifestations of hunger and satiety [1,2]. The purpose of intuitive eating is to guide individuals in such a way that they can trust their ability to recognize and differentiate their physical and emotional feelings. The basic premise behind intuitive eating is that the body, when rested, intrinsically knows the amount and type of food it will eat in order to both maintain a healthy diet and maintain appropriate body weight [1]. Its basic principle is to respond to innate hunger and satiety signals [2]. This concept is called body wisdom [3]. Examples of social cues that invalidate this innate body wisdom are: diets, having a hard time finishing the plate as a child, eating because it's time to eat, advertisements that encourage people to eat regardless of hunger. The basic principle of intuitive eating is to regain body wisdom so that a person may eat when they are hungry and stops when they are full [2-5]. Unless forced due to certain health problems (diabetes, food allergies, etc.), there is no restriction on the types of food a person can eat. Because it is thought that the body will instinctively choose various foods that provide nutritional balance [6].

Body satisfaction is defined as accepting and respecting one's own body, having a positive view of the body, and rejecting unrealistic bodily ideals [7]. There is a bidirectional relationship between intuitive eating and appreciating the body. More conscious individuals, who eat according to hunger and satiety cues, are more likely to value, respect, and appreciate their body image. This appreciation further promotes respect and dignity towards one's physiological signals [8]. Strong and consistent correlations between intuitive eating and body appreciation have been reported in several cross-sectional studies [9-12]. Data from a systematic review determined that intuitive

eating is associated with less disordered eating, a more positive body image, greater emotional functioning, and a range of other psychosocial conditions that have been less extensively studied [13].

Given the impact of intuitive eating on body recognition, it is expected to be associated with more positive dietary habits and a preference for foods with higher nutritional value [6]. A study conducted in France reports that individuals with a high score of eating for physiological reasons have a lower daily energy intake, and these individuals consume less sweet and fatty foods. It has been determined that individuals with high confidence in hunger signals consume more fish, meat, eggs, and dairy products and less whole-grain products [14]. In a study conducted with university students by Smith and Hawks (2006), the relationship between intuitive eating and diet composition was examined, and high intuitive eating was found to be associated with greater enjoyment of food and diet variety [15]. In a study examining the relationship between intuitive eating and diet quality, a program called “Health at Every Size”, which emerged against restrictive diet approaches, it was stated that the intuitive eating scores of the intervention group increased and an improvement in diet quality was observed compared to the control group [16]. A study by Madden et al. (2012) with middle-aged female individuals shows that intuitive eating is associated with higher vegetable intake [17]. On the other hand, as a result of a study by Carbonneau et al. (2017), no relationship was found between intuitive eating and junk food intake. This indicates that intuitive eating without intervention in the general population is not associated with diet quality but does not increase consumption of low-nutrient foods either [16].

This study was planned and conducted to evaluate the effects of intuitive eating on body image and nutritional behaviors in adults aged 19-64 years from Turkey, as currently there are no studies in literature addressing this population.

METHODS

The research is a descriptive cross-sectional study. The sample of the study consists of 497 individuals between the ages of 19-64 years. In determining the number of people to be included in the study, the study of Tylka and Kroon Van Diest (2013) was taken as reference [10]. As a result of the power analysis, it was determined that at least 216 individuals were required to participate in the study in order to have a Type I error (α)=0.05, effect size 0.5, and power 95%.

Attention was paid to the fact that the participants in the sample were between the ages of 19-64 years and were literate, and those who volunteered to participate were also included. An application was made to the Ankara University Rectorate Ethics Committee for the study and Ethics Committee Approval n^o. 43315 was obtained.

The research data were collected via a questionnaire form online between January and May of 2021. The questionnaire was distributed randomly on social media platforms (Facebook, Instagram, Whatsapp, Telegram). The intelligibility of the questions was tested with 15 participants and the questionnaire was finalized after the necessary corrections were made. With the first question of the questionnaire, it was ensured that individuals were in the targeted age range and voluntarily participated in the research. In the questionnaire form, there is general information about individuals, nutritional habits, anthropometric measurements, Body Appreciation Scale-2, Intuitive Eating Scale-2, physical activity evaluation form, and food consumption frequency questions.

Body Appreciation Scale-2

The Turkish validity and reliability study of the Body Appreciation Scale-2 developed by Tylka and Wood-Barcalow (2015) was conducted by Anlı et al. [18]. The scale consists of 10 items in a five-point Likert type. The score range in the scale without reverse coded items ranges from 10 to 50. High scores obtained from the scale indicate that the individual's body appreciation level is high. In this study, the Cronbach α coefficient was found to be 0.951.

Intuitive Eating Scale-2

The Intuitive Eating Scale was developed by Hawks et al. (2004) and revised by Tylka and Kroon Van Diest (2013) [4,10]. The Turkish validity and reliability study was conducted by Bas et al. [19]. Intuitive Eating Scale-2 consists of 23 questions of a five-point Likert type (1=Strongly Disagree, 5=Strongly Agree). The scale addresses four main subscales of intuitive eating. Specifically, unconditional permission to eat (6 items), eating for physical rather than emotional reasons (8 items), reliance on internal hunger and satiety cues (6 items), and body-food choice congruence (3 items). Higher scores indicate a higher tendency to eat intuitively. In addition, the scores of the questions belonging to the four subgroups are added together and the final score is divided by the number of items in each subscale. In this way, the score in each subgroup is calculated [14]. In addition, to classify the participants as intuitive eaters and non-intuitive eaters, the median of the participants' total score on intuitive eating was taken as the basis, those with values above the median and at the median were evaluated as intuitive eaters, and those with values below the median were considered as individuals who did not eat intuitively [4]. In this study, the Cronbach α coefficient was found to be 0.867, the median of the study was found to be 3.39.

Evaluation of Physical Activity

The physical activity level of the individuals was assessed with a three-question questionnaire. As a result of scoring the answers to the questionnaire, individuals are divided into two groups: those who score 4 points or more (sufficiently active) and individuals with 0-3 points (insufficiently active) [20].

Assessment of Nutritional Behavior

Nutritional behavior was evaluated by eating main and snack meals, the frequency of eating these meals, water consumption, and food frequency questionnaire. Food frequency questionnaire included seven sections and 56 foods consisting of meat/eggs/legumes, dairy, fresh vegetables and fruits, bread/cereals, sugar and sugary products, oils, and beverages.

Anthropometric Measurements

The body weight and height of the individuals were obtained through the internet form based on the participants' statement. Body mass index, which is a good indicator of body fat amount, obtained by height and body weight measurements, and frequently employed for the evaluation of obesity, was calculated according to the equation [body weight (kg)/height (m²)]. Body mass index results were categorized according to the classification of the World Health Organization. Specifically: below 18.5 kg/m², "underweight"; between 18.5-24.9 kg/m², "normal body weight"; 25.0-29.9 kg/m², "overweight"; and 30.0 kg/m² and above, "obese" [21].

Research data were evaluated using the SPSS®/IBM® program. The mean (\bar{X}), standard deviation, median, lower and upper values were calculated for the data obtained from the measurements of the individuals participating in the study. The distribution of qualitative data is given with number and percentage tables. The t-test was used to evaluate the means between two groups with normal distribution, and the Mann-Whitney U test was used to evaluate the medians between two groups that did not show normal distribution. Kruskal-Wallis Analysis of Variance was used to evaluate the median between three groups that did not show normal distribution, and the Mann-Whitney U test was used for post-hoc evaluation. The Pearson Correlation test was used to determine the strength and direction of the linear relationship between two normally distributed continuous variables and the Spearman Correlation test between not normally distributed continuous variables. In all statistical tests, the confidence interval was accepted as 95.0% and $p < 0.05$ was considered significant.

RESULTS

Three hundred eighty women (76.5%) and 117 men (23.5%) between the ages of 19-64 participated in the study. The average age of women was 29.9 ± 9.14 years, and the average age of men was 33.2 ± 13.09 years. 0.4% of individuals were literate and primary school graduates, 1.8% were secondary school graduates, 8.5% were high school or equivalent graduates, 66.4% were college/university graduates, 22.5% had a postgraduate degree. 42.7% of the individuals participating in the study were married and 57.3% were single. 65.8% of the individuals stated that they were working (Table 1).

Table 1 – General characteristics of individuals.

| General Characteristics | n | % |
|-------------------------------------|-----|------|
| Education status | | |
| Literate | 2 | 0.4 |
| Primary school graduate | 2 | 0.4 |
| Secondary school graduate | 9 | 1.8 |
| High school graduate and equivalent | 42 | 8.5 |
| College/University graduate | 330 | 66.4 |
| Post-graduate degree | 112 | 22.5 |
| Marital Status | | |
| Married | 212 | 42.7 |
| Single | 285 | 57.3 |
| Working Status | | |
| Working | 327 | 65.8 |
| Unemployed | 170 | 34.2 |

The correlation between the BMI of participants and the Intuitive Eating Scale-2 total and subscale scores was examined. A statistically significant relationship was found between body mass index and eating for physical rather than emotional reasons, reliance on internal hunger and satiety cues, body-food choice congruence subscale scores, and total scale score ($p < 0.05$). Compared to underweight individuals, the unconditional permission to eat subscale score increased in individuals with normal weight ($p < 0.05$). Compared to the underweight participants, as BMI increased, the eating for physical rather than emotional reasons subscale score increased. The subscale score of reliance on internal hunger and satiety cues was higher in underweight and normal-weight individuals than in obese individuals ($p < 0.05$). The subscale score of reliance on internal hunger and satiety cues of

the participants with normal weight was higher than the participants with overweight ($p<0.05$). Body-food choice congruence subscale score and a total scale score of individuals with normal weight and overweight were higher than those of obese individuals ($p<0.05$) (Table 2).

Intuitive eaters constituted 46.9% of the general sample, 47.1% of females, and 46.2% of men were intuitive eaters. When the physical activity levels of the individuals were evaluated according to the intuitive eating status, it was determined that 29.6% of the intuitive eaters and 18.9% of the individuals who did not eat intuitively were active enough. In other words, there was a significantly higher statistical number of intuitive eaters that were active enough than those who did not eat intuitively ($p<0.05$) (Table 3).

The correlation between the total score and subcategory scores of the Body Appreciation Scale-2 and the Intuitive Eating Scale was evaluated. There was a positive, weak, statistically significant correlation between body appreciation and unconditional permission to eat ($p<0.05$). A positive, moderately strong, statistically significant correlation was found between body appreciation and intuitive eating total score, the score of relying on hunger and satiety cues to determine when to eat and how much to eat, and body-food choice congruence subscale scores ($p<0.05$). The relationship between body appreciation and eating for physical rather than emotional reasons subscale score was not statistically significant ($p>0.05$) (Table 4).

The correlation between the intuitive eating score of the individuals participating in the study and the frequency of consumption of various foods was evaluated. An inverse, weak, statistically significant correlation was found between intuitive eating score and frequency of consumption of fish, cake, biscuit, chocolate, granulated sugar, honey, jam, molasses, pastries and dairy-based desserts, sunflower oil, margarine, and sugary, carbonated drinks ($p<0.05$) (Table 5). No significant correlation was found between other foods and intuitive eating score ($p>0.05$; data not shown).

Table 2 – Differences between Intuitive Eating Scale-2 and subscale scores according to body mass indexes of individuals.

| Intuitive Eating Scale-2 Subscale Scores | Body Mass Index (kg/m ²) | | | | | | | | p |
|---|--------------------------------------|---------|------------------|---------|--------------------|---------|--------------------|---------|--|
| | Underweight | | Normal Weight | | Overweight | | Obese | | |
| | Mdn | Min-Max | Mdn | Min-Max | Mdn | Min-Max | Mdn | Min-Max | |
| Unconditional permission to eat | 3.1 ^a | 1.0-4.2 | 3.5 ^b | 1.2-5.0 | 3.3 ^{a,b} | 1.0-5.0 | 3.3 ^{a,b} | 1.0-4.2 | df=6.33 $p=0.096$ |
| Eating for physical rather than emotional reasons | 3.0 ^a | 1.1-3.9 | 3.0 ^b | 1.0-5.0 | 3.1 ^b | 1.0-5.0 | 3.3 ^b | 1.0-5.0 | df=10.12 $p=0.018$ |
| Reliance on internal hunger and satiety cues | 4.0 ^a | 1.0-5.0 | 3.8 ^a | 1.0-5.0 | 3.2 ^{a,b} | 1.0-5.0 | 3.0 ^b | 1.0-5.0 | df=25.66 $p<0.001$ |
| Body-food choice congruence | 3.7 ^{a,b} | 1.0-5.0 | 4.0 ^a | 1.0-5.0 | 3.7 ^a | 1.0-5.0 | 3.0 ^b | 1.0-5.0 | df=16.80 $p=0.001$ |
| Intuitive Eating Scale-2 total score | 3.5 ^{a,b} | 1.0-4.0 | 3.4 ^a | 1.1-5.0 | 3.3 ^b | 1.0-5.0 | 3.2 ^b | 1.0-4.4 | df=13.76 $p=0.003$ |

Note: Kruskal-Wallis test. The differences between medians shown with different letters on the same line are statistically significant. Statistically significant p -values are in bold. Mdn: Median.

Table 3 – Physical activity levels of individuals according to intuitive eating status.

| Physical Activity Level | Intuitive Eaters | | Non-intuitive Eaters | | Total | | p |
|-------------------------|------------------|-------|----------------------|-------|-------|-------|-----------------------------|
| | n | % | n | % | n | % | |
| Sufficiently active | 69 | 29.6 | 50 | 18.9 | 119 | 23.9 | $\chi^2=7.74$ |
| Insufficiently active | 164 | 70.4 | 214 | 81.1 | 378 | 76.1 | $p=0.006$ |
| Total | 233 | 100.0 | 264 | 100.0 | 497 | 100.0 | |

Note: Chi-square test. Statistically significant p -values are in bold.

Table 4 – Correlation of Body Appreciation Scale-2 and Intuitive Eating Scale-2 variables.

| Intuitive Eating Scale | Body Appreciation Scale | |
|---|-------------------------|------------------|
| | r | p |
| Intuitive Eating Scale-2 total score | 0.381 | <0.001 |
| Unconditional permission to eat | 0.157 | <0.001 |
| Eating for physical rather than emotional reasons | 0.074 | 0.10 |
| Reliance on internal hunger and satiety cues | 0.423 | <0.001 |
| Body-food choice congruence | 0.361 | <0.001 |

Note: Spearman correlation test. Statistically significant *p*-values are in bold.

Table 5 – Correlation between individuals' intuitive eating score and frequency of consumption of some foods.

| Foods | Intuitive Eating | |
|---------------------------|------------------|------------------|
| | r | p |
| Fish | -0.129 | 0.004 |
| Cake, biscuit | -0.163 | <0.001 |
| Chocolate | -0.189 | <0.001 |
| Granulated sugar | -0.168 | <0.001 |
| Honey, jam, molasses | -0.108 | <0.001 |
| Pastries | -0.199 | <0.001 |
| Dairy-based desserts | -0.179 | <0.001 |
| Sunflower oil | -0.096 | 0.032 |
| Margarine | -0.135 | 0.003 |
| Sugary, carbonated drinks | -0.232 | <0.001 |

Note: Pearson correlation test. Statistically significant *p*-values are in bold.

DISCUSSION

The sample of this study, which was conducted to evaluate the effect of individuals' intuitive eating situations on body appreciation and nutritional behaviors, consisted of 497 individuals aged between 19-64 years. The general characteristics, nutritional habits, physical activity levels, anthropometric measurements, and body appreciation of the individuals were determined and the relationship between the results obtained from these data and their intuitive eating status was evaluated.

In a study conducted with university students to examine the relationship between intuitive eating and physical activity, it was reported that participants with high intuitive eating scores were more likely to engage in physical activity regularly for their own pleasure [22]. A positive relationship between intuitive eating and physical activity in a two-year follow-up study was reported [23]. In a review that aimed to examine the relationship between intuitive eating and health markers, it was argued that there is no strong relationship between intuitive eating and physical activity unless an intuitive eating intervention to improve health focuses on physical activity [6]. In this study, while 29.6% of intuitive eaters were active enough, this rate was found to be 18.9% in non-intuitive eaters ($p < 0.05$). The result of this study is in agreement with the literature.

In a study conducted in Germany, it was determined that individuals with underweight and normal body weight had higher intuitive eating scores than overweight and obese individuals [24]. In a study evaluating the relationship between intuitive eating and BMI, it was determined that as BMI increased, the intuitive eating score decreased [25]. A high intuitive eating score has been associated with low BMI in some cross-sectional studies [2,26]. In a review in which 11 cross-sectional studies were evaluated in order to examine the relationship between intuitive eating

and BMI; it has been stated that individuals with a high level of intuitive eating have a lower BMI [6]. In the NutriNet-Sante study examining the relationship between intuitive eating and body weight, a negative relationship was found between intuitive eating and body weight. In the same study, it was reported that there was a negative relationship between BMI and unconditional permission to eat, eating for physical rather than emotional reasons, and reliance on internal hunger and satiety cues [27]. In this study, it was determined that individuals with normal body weight had higher intuitive eating scores than overweight and obese individuals ($p < 0.05$). The result of this study is in agreement with the literature.

Low body appreciation is closely associated with low intuitive nutrition scores for both sexes [28]. A study conducted with undergraduate students shows that body appreciation and eating disorders account for 19.6% of the variance of intuitive eating and are important determinants of intuitive eating [29]. In the study of Cole and Horacek (2010) with adult women, after a ten-week intuitive eating intervention, it was determined that the intervention group had lower eating disorder behaviors and body dissatisfaction, higher body appreciation, and awareness compared to the control group [30]. In another study, a strong negative relationship was found between the total score of intuitive eating and body shame; a strong positive correlation was found with body appreciation [10]. After a 90-120 minute interactive nutrition intervention with university students, it was observed that intuitive eating increased and body dissatisfaction decreased [31]. In another study with adult individuals, a negative relationship was reported between body appreciation and rules-based nutrition [32]. In a study conducted with mostly female adults, it was determined that intuitive eating was associated with a low rate of body dissatisfaction [33]. In a cross-sectional study conducted with type 2 diabetes patients, it was stated that the body satisfaction rate of individuals who rely on hunger and satiety cues is twice as high [34]. In this study, the Body Appreciation Scale-2 scores of individuals who eat intuitively were found to be higher than those who do not. In addition, a positive correlation was found between the Body Appreciation Scale-2 and the intuitive eating total score, the unconditional permission to eat score, the score of relying on hunger and satiety cues to determine when and how much to eat, and the body-food congruence score. The result of this study is in agreement with the literature.

Considering that intuitive eating includes the concept of body wisdom, individuals with a high level of intuitive eating are expected to have a more adequate and balanced diet and more positive eating habits. Some studies indicate the existence of this relationship [30,35], while some studies state that this relationship does not exist [17,36]. In a study conducted with adults in Türkiye, a negative relationship was found between the frequency of consumption of foods with high energy density and the intuitive eating score [37]. In a study conducted to determine the changes that the Health at Every Size intervention made on dietary intake and eating habits in overweight females, it was reported that although participants had a reduced sense of hunger and overall energy intake, this had no effect on the rate of energy intake from breakfast, alcohol, or snacks [36]. After a ten-week intuitive eating intervention, individuals' nutrient intake, as measured by their diet quality score, has been reported to improve [35]. One study found no association between intuitive eating and fruit consumption and various types of foods that contain high levels of saturated/trans fats and/or refined carbohydrates [17]. In another study conducted with university students, it was determined that there was no statistically significant relationship between the level of intuitive eating and the consumption of foods with high sugar and fat content [15]. In this study, a negative correlation was found between the intuitive eating score and the frequency of consumption of fish, sunflower oil, margarine, sugar and sugary products, sugary and carbonated drinks. Differences between these studies may be due to cultural factors as well as demographic characteristics such as age.

This study has some limitations. The study is of the cross-sectional type and does not clearly reveal the effect of intuitive eating on body image and eating behaviors. The fact that the frequency of food consumption was taken, but the amount was not questioned, prevented the clear determination of the food intake of the individuals. Another limitation of the study is querying the data online.

CONCLUSION

The number of studies on intuitive eating in Türkiye is limited. In addition, we have not found any studies examining the effect of intuitive eating on weight control. It is thought that intuitive eating can be an effective tool in sustaining and controlling weight loss. In the future, it would be beneficial to conduct the study by taking more anthropometric measurements and food consumption records. More studies are needed on these issues. As a result of these studies, it may be possible to further spread the practice of intuitive eating.

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CONTRIBUTORS

AG KAYACAN and AÖ ÖZÇELİK designed the research and collected the data. AG KAYACAN analyzed the data. Both authors had contributions in preparing the manuscript. All authors read and approved the final manuscript.