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Intuitive eating among adolescent girls: differences in body satisfaction and disordered eating attitudes by weight status

Comer intuitivo em adolescentes meninas: diferenças na satisfação corporal e atitudes alimentares por status de peso

Abstract

Introduction: Although international studies link intuitive eating (IE) to health benefits, Brazilian research addressing IE, eating attitudes, and body satisfaction in adolescents remains limited. *Objective*: To examine differences in IE, body image, and disordered eating behaviours according to body mass index (BMI). *Methods*: Cross-sectional study with 150 adolescent girls aged 13-19yo. Participants completed the Intuitive Eating Scale-2, which evaluates tendency to follow their physical hunger and satiety signs. Body (dis)satisfaction was assessed with a figure rating scale. Disordered eating was evaluated via the Disordered Eating Attitudes Scale (DEAS) with five subscales, including "normal eating concept" and "relationship with food". Weight and height were measured for BMI, and z-scores for age/sex to classify girls weight status. Girls were classified as intuitive or non-intuitive eaters. Differences between BMI categories and outcomes were analysed using chi-square and Student's t-tests. *Results*: Among non-intuitive eaters, 52% were overweight, none reported body satisfaction, all desired weight reduction. In girls without excess weight, the "normal eating concept" score was lower compared to overweight intuitive eaters ($p<0.01$). Overweight intuitive eaters scored lower on "relationship with food" compared to those without excess weight ($p<0.01$). The total DEAS score was higher in non-intuitive girls without excess weight than intuitive eaters ($p<0.05$). Overweight intuitive eaters also scored lower on the DEAS total scale compared to non-intuitive peers without excess weight ($p<0.05$). *Conclusion*: Girls with higher IE scores (≥3) were more satisfied with their bodies and exhibited fewer disordered eating attitudes, regardless of BMI.

Keywords: Intuitive eating. Body satisfaction. Disordered eating attitudes. Girls.

Resumo

Introdução: Embora estudos internacionais relacionem o comer intuitivo (CI) a benefícios para a saúde, pesquisas brasileiras abordando CI, atitudes alimentares e satisfação corporal em adolescentes permanecem limitadas. *Objetivo*: Examinar diferenças em CI, imagem corporal e comportamentos

alimentares desordenados de acordo com o índice de massa corporal (IMC). *Métodos*: Estudo transversal com 150 meninas adolescentes de 13 a 19 anos. As participantes completaram a Escala do Comer Intuitivo-2, que avalia a tendência de seguir seus sinais físicos de fome e saciedade. A (in)satisfação corporal foi avaliada com uma escala de classificação de figuras. O comer transtornado foi avaliado por meio da Escala de Atitudes Alimentares transtornadas (EAAT) com cinco subescalas, incluindo "conceito de alimentação normal" e "relação com o alimento". Peso e altura foram medidos para o cálculo do IMC, e escores z para idade/sexo para classificar o estado ponderal das meninas. Estas foram classificadas como comedoras intuitivas ou não intuitivas. As diferenças entre as categorias de IMC e os resultados foram analisadas usando os testes qui-quadrado e *t* de Student. *Resultados*: Entre as comedoras não intuitivas, 52% estavam acima do peso, nenhuma relatou satisfação corporal, todas desejavam redução de peso. Em meninas sem excesso de peso, a pontuação do "conceito de alimentação normal" foi menor em comparação com as comedoras intuitivas com sobrepeso ($p<0,01$). As comedoras intuitivas com sobrepeso pontuaram mais baixo em "relação com o alimento" em comparação com aquelas sem excesso de peso ($p<0,01$). A pontuação total do EAAT foi maior em meninas não intuitivas sem excesso de peso do que em comedoras intuitivas ($p<0,05$). As comedoras intuitivas com sobrepeso também pontuaram mais baixo na escala total do EAAT em comparação com seus pares não intuitivos sem excesso de peso ($p<0,05$). *Conclusão*: Meninas com pontuações mais altas de IE (≥ 3) estavam mais satisfeitas com seus corpos e exibiram menos atitudes alimentares transtornadas, independentemente do IMC.

Palavras-chave: Comer intuitivo. Imagem corporal. Atitudes alimentares transtornadas. Meninas.

INTRODUCTION

In 1995, two dietitians, Evelyn Tribole & Elise Resch,[1] defined intuitive eating as a self-care eating framework, which integrates instinct, emotion, and rational thought. It is a weight-inclusive, evidence-based model comprising10 principles: (i) reject the diet culture, (ii) honor your hunger, (iii) make peace with food, (iv) challenge the food policy, (v) discover the satisfaction factor, (vi) feel your fullness, (vii) cope with your emotions with kindness, (viii) respect your body, (ix) movement – feel the difference, and (x) honor your health– gentle nutrition.

This term appeared in peer-reviewed articles in 1998[2] because public health providers called attention for this novel approach to combat the obesity "epidemic". Therefore, IE is a strong connection with physiological hunger and satiety cues, and eating in response of these signs. In the IE approach, individuals do not consider dieting, do not dichotomize foods into "bad" or "good" categories and do not ignore the hunger cues. Rather, foods are selected based on preferences while optimizing the body function, relying on hunger cues to drive when and how much to eat, and respecting satiety cues by recognizing when they feel comfortably full after eating.[3]

IE confers many benefits that goes beyond eating. International studies showed that higher scores of IE are associated with positive body image[4] (i.e., multidimensional construct encompassing thoughts, feelings, and behaviours of an individual related to their own appearance),[5] lower disordered eating[6] (i.e. maladaptive attitudes, behaviours and cogitations related to eating and weight),[7] and increased intake of fruit and vegetables.[8] There is a paucity of evidence from low-and-middle income countries, such as Brazil, and those few studies[9,10] have been conducted with young adults and adults (≥18 years of age), limiting the general is ability of findings.

Furthermore, IE is an approach that promotes principles of respecting body and making food choices to honor health and bring satisfaction.[11] IE may also reflect the presence of positive attributes and can be an important behavioural-change strategy considering that it is modifiable.[12] More national data, i.e., from Brazil, is necessary to advance our understanding of how IE may relate in a culturally diverse population to aspects that goes beyond eating. Therefore, this study will be descriptive in nature and will add to the growing body of evidence on IE to provide insights into these relationships. The aim was to verify the differences between intuitive eating and body image and disordered eating behaviours in adolescent girls with or without overweight.

METHODS

The sample consisted of 150 adolescent girls (13-19yo) from five public schools of the city of São Paulo, Brazil. Socio-demographic (age and race/ethnicity) sample characteristics were assessed based on population-based studies.[13] Exclusion criteria were< 13yo, since evidence has showed an increased risk for disordered eating behaviours and body dissatisfaction in adolescent girls ≥13.[14-17] Indeed, the additional exclusion criteria were: previous diagnosis of eating disorders, chronic diseases or conditions that directly affect eating or weight (e.g., type 1 diabetes, celiac disease, severe gastrointestinal diseases, metabolic diseases), pregnancy or lactation, and cognitive or language difficulties. In this cross-sectional study, girls answered self-reported scales and had their weight and height measured in May 2018.

The scales to evaluate intuitive eating, body image and disordered eating were all validated and were as follows. The Intuitive Eating Scale – 2 (IES-2)[18] validated to the Brazilian population showed good psychometric properties (α = 0.79 to 0.89)[19] and included 23-items and four subscales: unconditional

permission to eat (UPE), eating for physical rather for emotional reasons (EPR), reliance on hunger and satiety cues (RHSC) and body-food choice congruence (BFCC). Each item included a 5-point response scale (1= strongly disagree to 5 = strongly agree) with higher scores indicating more intuitive eating behaviours (from 0 to 5).

The Brazilian Rating Scale Figures,[20] consisting of eight figures of different females and males body size and three dimensions as follows: (i) Current BMI – participant chose a figure that best represents their current body; (ii) Desired BMI – participant chose a figure of their desire body size; and (iii) Real BMI –participant actual BMI was calculated and compared to the eight figures. Therefore, body size estimation was calculated as the difference between "desired" and "current" BMI.

Results were given based on mean (± standard deviation) and the closer to zero, the better the estimation and the lower the dissatisfaction. Negative results indicate underestimation of real body size and desire for smaller body size (reduce weight), whereas positive indicate overestimation and desire for bigger body size (increased weight).

The 25-item Disordered Eating Attitudes Scale (DEAS)[21-23] has five subscales: (i) relationship with food, (ii) concerns about eating and body weight gain, (iii) restrictive and compensatory practices, (iv) feelings toward eating and (v) ideal of normal eating. The Scale has five Likert-type responses ranging from always to rarely/never and was summarized to create a score ranging from 37 to 190. The higher the score, the worst the attitude. The scale showed adequate psychometric properties for adolescents ($\alpha = 0.81$, $\alpha = 0.71$, $\alpha=0.79$ for female, male and overall adolescents, respectively).[21]To ease interpretation of data, the total IE score was dichotomized into intuitive eater (≥ 3) and non-intuitive eater (< 3).[8]

Weight status has been associated with IE;[3] thus, weight and height were included in the study to assess possible differences between intuitive eating and the other outcomes of interest. Weight (kg) and height (m) were measured in triplicated by a trained person to calculate the BMI and z-scores according to girls' age (years, months) following the World Health Organisation guidelines.[24] The participants z-scores were classified as follows: underweight, normal weight, overweight and obese. Due to the low prevalence of underweight (n=1) and obesity (n=11), these variables were dichotomized into non-overweight (underweight + normal weight) and overweight (overweight + obese).[25] The hypothesis is that non-overweight girls would have higher prevalence for eating intuitively, less disordered eating attitudes, and are more satisfied with their bodies.

RStudio version 2023 was used for the statistical analyses and a p-value <0.05 for all tests was considered significant. Skewness and kurtosis distributions were used to evaluate the normality. Mean ±standard deviation and frequency (%) were calculated for continuous and categorical variables, respectively. Dichotomized IE scores into intuitive vs. non-intuitive eaters was used to aid interpretation of factors, differentiating weight status by calculating the median of total IE scores.[26] Chi-square test was used to verify differences between intuitive (non-intuitive) eaters with weight status categories. Separate groups for non-overweight vs. overweight girls were carried on and t-Student test assessed differences between intuitive (non-intuitive) eating and body satisfaction and disordered eating scales. Bonferroni adjustments were included in the multiple comparisons, and significant chi-square tests were followed with pair wise comparisons to evaluate the nature of differences.

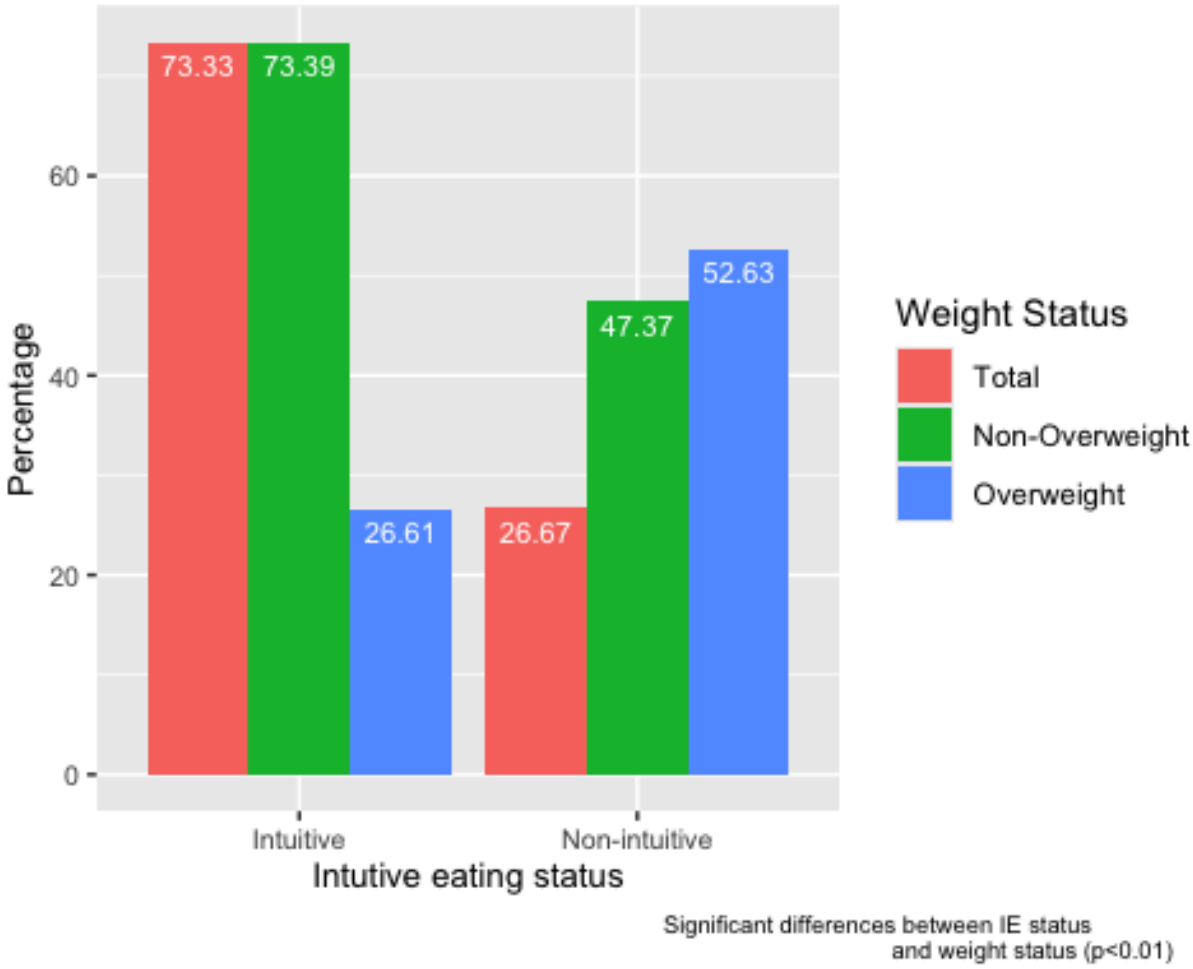
This study was approved by the Review Ethics Board of the Federal University of São Paulo (nº 68379617.3.0000.5505). All participants were informed about the objective of study and confidentiality of the data and parents/caregivers and girls signed the consent and assent forms, respectively, to participate in the study.

RESULTS

Sample characteristics and prevalence of intuitive eating

The girls had a mean age of 13.89 (±SD 0.98) years, and 33.33% were classified as overweight/obese (66,67% non-overweight); 73% of the girls were intuitive eaters. Among non-overweight girls, 73.39% and 47.37% were eating intuitively and not intuitively, respectively. Alternatively, among those classified as overweight, 26.61% were intuitive and 52.63% were non-intuitive eaters (Figure 1).

Figure 1. Percentage of intuitive eaters vs. non-intuitive eaters by weight status. São Paulo-SP, 2018 (n = 150).



Differences between intuitive eating and weight status categories

Regardless of girls' weight status, 25 (65.79%) of non-intuitive eaters vs. 41 (37.61%) of intuitive eaters wanted to reduce their weight status; and none of the non-intuitive eaters were satisfied with their body weight (p<0.01).

Differences in body dissatisfaction scores and disordered eating attitudes

Regardless the disordered eating scale (DEAS), non-overweight girls who were non-intuitive vs. intuitive eaters scored higher for ideal of normal eating (mean± standard deviation) (M=31.67±13.11 vs .M=24.7±6.16; p<0.01) and total disordered eating score (M=115.9±30.34 vs. M=97.83±28.34, p<0.05). Overweight girls who were non-intuitive eater vs. intuitive eaters scored higher for their relationship with foods (M=33.15±9.35 vs. M=25.00±8.01, p<0.01) and for total disordered eating score (M=133.05±33.78 vs. M=112.62±27.05, p<0.05). Overall non-intuitive eating girls, regardless of their weight status, showed significant increase in all DEAS subscales and total score. The only non-significant finding was for feelings towards food, which showed a decrease in the score (M=4.05±2.22 vs. M=4.10±2.49, p=0.916) (Table 1).

Table 1. Body satisfactionamong intuitive eaters by weight status. São Paulo-SP, 2018.

	Total		Non-overweight		Overweight	
	Intuitive eater	Non-intuitive eater	Intuitive eater	Non-intuitive eater	Intuitive eater	Non-intuitive eater
Body Satisfaction						
n (%)						
Satisfied	19 (17.43)	0 (0.00)	18 (22.50)	0 (0.00)	1 (3.45)	0 (0.00)
Reduce weight	41 (37.61)	25 (65.79)	18 (22.50)	5 (27.78)	23 (79.31)	20 (100.00)
Increase weight	49 (44.95)	38 (34.21)	44 (55.00)	13 (72.22)	5 (17.24)	0 (0.00)
P-values	<0.01		0.08		0.09	

Note: M: Mean, SD: Standard deviation.

Table 2. Disordered eating behaviours among intuitive eaters by weight status. São Paulo, 2018

	Total		Non-overweight		Overweight	
	Intuitive eater	Non-intuitive eater	Intuitive eater	Non-intuitive eater	Intuitive eater	Non-intuitive eater
Disordered eating†						
M (±SD)						
Idea of normal eating (14-70)	25.29±5.90	28.05±10.38*	24.73±6.16	31.67±13.11**	26.83±4.91	24.63±5.25
Relationship with food (12-60)	23.02±8.35	29.84±8.72***	22.30±8.40	26.17±6.39	25.00±8.01	33.15±9.35**
Concern about food and weight (4-20)	6.89±3.24	8.39±4.52*	6.50±2.94	7.17±3.03	7.97±3.81	9.50±5.38
Feeling towards eating (3-15)	4.10±2.49	4.05±2.22	4.805±2.52	3.89±2.19	4.24±2.42	4.20±2.28
Restrictive and compensatory behaviours (4-20)	6.12±3.36	7.95±4.22**	5.78±2.78	6.33±3.58	7.10±4.52	9.40±4.31
DEAS score (37-185)	101.76±29.08	124.92±32.93**	97.83±28.94	115.89±30.34*	112.62±27.05	133.05±33.78*

Note: DEAS: Disordered Eating Attitudes Scale; M: mean, SD: standard deviation.
†For each DEAS construct and total DEAS score is shown that maximum and minimum score as outlined in the parenthesis ( ).
Pairwise t-tests with Bonferroni adjustments: *p<0.05; **p<0.01, ***p<0.001

DISCUSSION

This study aimed to describe differences in IE, body satisfaction, and disordered eating attitudes according to weight status that can affect the adoption of health-promoting attitudes and behaviours of girls.

More than 50% of non-intuitive eaters were overweight, which could indicate self-esteem and acceptance differences, as demonstrated in a longitudinal study from adolescence (n=1477; M_{age} = 14.5y) to young adults (M_{age} = 22.0y). At baseline (OR=0.52, 95%CI 0.40, 0.68) and follow-up (OR=0.56; 95%CI 0.46, 0.69), lower self-esteem were associated with lower odds for eating intuitively.[27]

Adolescence is known to be a period of heightened appearance concerns, and females are more prone to be dissatisfied with their body and have more disordered eating behaviours (e.g., dieting and binge eating).[27] Longitudinal studies with US adolescents and young adults[27,28] evaluated IE via IES-2 scale and body dissatisfaction through self-reported questionnaire validated to the study sample. They show associations between lower scores for IE and body dissatisfaction and preoccupation and fear of weight gain.[28] All of these can lead to overweight, and adolescent girls are less likely to trust and honor their hunger and satiety cues than non-overweight girls.

The results of the current study corroborate previous international cross-sectional and longitudinal studies that have found positive associations between IE and psychological health and reduced use of unhealthy weight control behaviours[27,29] by providing evidence that IE is associated with these outcomes. In addition, it is well documented as BMI increases, lower are the scores for IE (0-5), suggesting that IE can be a strategy for weight management.[12] Furthermore, lower scores of IE in girls categorized as overweight or obesity are risk factors for weight-stigma, socio-cultural and income aspects.[30]

Regarding weight satisfaction, adolescents who perceived their weight as "overweight" might internalize a notion that they cannot rely on hunger and satiety cues to guide eating[27,31,32] (i.e., principles intuitive eating)[3] and rather follow chronic diet (pattern of repeatedly engaging in restrictive eating plans of fad diets in an effort to lose weight)[33] and/or other unhealthy eating behaviours (fasting, meal replacements, use of medications and eat little).[30,34] Nevertheless, chronic dieting is linked to weight cycling and increase the chances of loss of control, which often is associated to eating disorders and binge eating.[30]

However, IE is associated with several psychosocial benefits, e.g., increase self-esteem and improvement in mental health problems (depression and anxiety), weight stability, and reduced loss of control,[29] thus, IE would be more feasible and viable approach over disordered eating behaviours and body satisfaction, breaking the cycle of dissatisfaction, disordered eating behaviours and weight-problems, such as weight gain.

Girls with overweight, even scoring ≥ 3 for intuitive eating, showed higherscores for disordered eating attitudes for all constructs of the DEAS with exception for ideal normal of eating. Alternatively, those that scored < 3 for IE, showed higher scores "ideal normal of eating", "relationship with foods", and "restricted diet".

Our results suggested that weight and eating stigma is often propagated and tolerated in society because of beliefs that stigma and shame will motivate people to lose weight and judge what is healthy eating.[35] The use of social media is one factor that might influence body image, weight control behaviours and weight status of adolescents. Social media user tends to compare themselves and idealize appearances and lives presented on social media, which likely lead to detrimental effects on body satisfaction, well-being and not eating intuitively.[36] International evidence hypothesize that idealistic body shape and size for girls are impractical to realize fully, and girls who completely internalize these, connect the achievement of idealistic body with their identity.[37] Consequently, there is a feeling of shame when they do not conquer what they desire,[38] resulting in lowered self-esteem. This decreases the odds for eating intuitively, i.e., eating in response of hunger past satiety, and they choose more hyper-palatable, caloric foods, stigmatizing these as "unhealthy" foods. After consuming these foods, feelings of guilt arrive and they start to control their diet with foods

stigmatized as "good", for example, low in fat and in sugar sources, disrupting intuitive eating approaches, which might lead to unhealthy weight gain.[39-42] These findings suggest a two-way connection joining perceived body shape and intuitive eating.

Finally, health care professionals, teachers, parents/caregivers, researchers, and other stakeholders must play an important role in addressing the stigmatization of people with obesity, increasing the awareness that stigmatizing obese people does not reduce obesity or improve healthy behaviours.[35] Mindful eating (i.e., being aware of the present moment when one is eating, paying attention to the effect of the food on the senses, and observing the physical and emotional sensations in response to eating)[43] might be an approach to promote intuitive eating by reducing weight dissatisfaction and unhealthy weight control behaviours in adolescents with obesity.[44] Thus, strategies that can help reduce bias are modelling sensitive communication and behaviour for children and families with obesity. Taking steps to address weight stigma with their staff, in their clinic environments, and in the broader communities, pediatric health care professionals can make important shifts in the culture of care for adolescents with obesity.[35] With these concerned efforts to reduce stigma, behavioural-change interventions can be more effective, helping and empowering adolescents to improve their weight-related health.

The study strength is the use of validated tools with good psychometric properties to evaluate intuitive eating, disordered eating behaviours and body satisfaction. Limitations should be noticed: the small sample size, the cross-sectional data that was descriptive in nature and cannot confirm causality and mental health disorders were not assessed, which can be associated with intuitive eating, body weight (dis)satisfaction and eating behaviours.[45,46] Further Brazilian studies would benefit from a larger sample size to support generalizability.

CONCLUSION

The results showed differences between overweight and eating non-intuitively with body dissatisfaction and disordered eating attitudes. These findings reinforce that intuitive eating can be a protective factor to promote healthy eating behaviors and more positive relationship with the body during adolescence, a phase marked by greater vulnerability to aesthetic concerns and sociocultural pressures.

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