



Body image dissatisfaction, nutritional status, and eating attitudes in adolescents

Maria Fernanda Laus^{1*}, Michele Ghidini Souza², Rita de Cássia Margarido Moreira² and Telma Maria Braga-Costa²

¹Laboratório de Nutrição e Comportamento, Departamento de Psicologia, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Av. Bandeirantes, 3900, 14040-901, Ribeirão Preto, São Paulo, Brazil. ²Curso de Nutrição, Universidade de Ribeirão Preto, Ribeirão Preto, São Paulo, Brazil. *Author for correspondence. E-mail: ferlaus@gmail.com

ABSTRACT. The study investigated the relationship between body image dissatisfaction, nutritional status, and eating attitudes in adolescents from a small town of the interior of São Paulo State. A total of 278 adolescents (106 boys and 172 girls) aged between 15 and 18 years had completed measures of body image dissatisfaction through the Figure Rating Scale and eating attitudes by the Eating Attitudes Test (EAT-26) and had their weight and height measured. Girls related more dissatisfaction and abnormal eating behavior than boys and, in both genders the abnormal eating attitudes tend to increase with increasing dissatisfaction. Moreover, dissatisfaction was higher between those individuals classified as overweight and obesity. These results demonstrated that body image dissatisfaction and inappropriate eating behaviors afflict boys and girls even from small cities in developing countries, highlighting the need to undertake epidemiological studies to early recognition of populations at risk of developing eating disorders.

Keywords: body image, eating attitudes, nutritional status, adolescent, small cities.

Insatisfação corporal, estado nutricional e atitudes alimentares em adolescentes

RESUMO. O estudo investigou a relação entre insatisfação com a imagem corporal, estado nutricional e atitudes alimentares em adolescentes de uma pequena cidade do interior do Estado de São Paulo. Um total de 278 adolescentes (106 meninos e 172 meninas) entre 15 e 18 anos tiveram respondidas medidas de insatisfação com a imagem corporal, por meio de uma Escala de Figuras de Silhuetas, e de atitudes alimentares, pelo Eating Attitudes Test (EAT-26), além de terem seu peso e altura aferidos. Meninas relataram maiores índices de insatisfação e atitudes alimentares inadequadas quando comparadas aos meninos e, em ambos os sexos, os comportamentos alimentares inadequados tendem a aumentar conforme aumenta a insatisfação com a imagem. Além disso, a insatisfação foi maior entre os adolescentes com sobrepeso e obesidade. Estes resultados demonstram que a insatisfação com a imagem corporal e os comportamentos alimentares inadequados afetam adolescentes até mesmo de pequenas cidades de países em desenvolvimento, demonstrando a necessidade de mais estudos epidemiológicos para o reconhecimento precoce de populações em risco de desenvolver transtornos alimentares.

Palavras-chave: imagem corporal, atitudes alimentares, estado nutricional, adolescente, cidades pequenas.

Introduction

Adolescence is a period marked by pronounced physical, psychological, emotional, and social changes. The physical changes that characterize this stage have been implicated as a trigger for body image problems in both male and female (RICCIARDELLI, 2012; WERTHEIM; PAXTON, 2012). During this phase, beyond physical changes, body image is also influenced by several psychological and sociocultural factors. The media may play a central role in the phenomenon of body dissatisfaction on this particular population (TIGGEMANN, 2006) by creating beauty ideals. In

Brazil, as in most Western societies, the male ideal is a V-shaped figure with emphasis placed on large biceps, chest, and shoulders; whereas the female ideal is to be extremely thin, with emphasis placed on slim hips, bottom, and thighs (GROGAN, 2010; FORBES et al., 2012). These ideals determine values and norms that influence attitudes and behaviors related to body size, appearance and weight (DOHNT; TIGGEMANN, 2006). The frequent discrepancy between the actual and the ideal weight can lead to symptoms of inappropriate practices of weight control and eating disorders as a result of dissatisfaction with the appearance (DUNKER et al., 2009).

The few descriptive studies on body satisfaction and eating attitudes that have been conducted with Brazilian adolescents led the researchers to perform epidemiological studies on the subject (DUNKER et al., 2009). Moreover, the vast majority of national studies that have investigated these relationships were conducted in large urban centers. Considering the importance of investigating the relationship of these variables for the early recognition of populations at risk of developing eating disorders, to provide more appropriate interventions from health professionals, this study aimed to evaluate the relationship between body image dissatisfaction, nutritional status, and eating attitudes in adolescents from a small city in the interior of São Paulo State, verifying the possible existence of differences related to gender.

We hypothesized that (1) girls experience higher levels of dissatisfaction with their own image when compared to boys; (2) inappropriate eating attitudes may also be more frequent among girls; (3) overweight individuals are more dissatisfied with their own image; and (4) individuals with abnormal eating and weight related concerns have higher levels of body dissatisfaction, and this associations are more pronounced between girls. Our hypotheses were based on previous studies conducted in large Brazilian cities (CHIODINI; OLIVEIRA, 2003; BRANCO et al., 2006; ADAMI et al., 2008; DUMITH et al., 2012; SOUZA-KANESHIMA et al., 2006). In addition, it is known that concerns about food and body image dissatisfaction are a widespread phenomenon commonly observed in Western cultures, we therefore expect to find similar results, showing that those disturbances affect adolescents even in small cities of developing countries.

Material and methods

Participants

This study was conducted in São Simão, a small town of the interior of São Paulo State. The city has 90% of the population living in urban areas and a total of 14,329 inhabitants (BRASIL, 2009). Of the 1,391 adolescents between 15 and 19 years living in the city, 637 are enrolled in high school (BRASIL, 2008). There are a total of five high schools in the city and to ensure the inclusion of adolescents from all socioeconomic strata, participants were recruited from two private and two public schools. The final sample was composed by 106 boys and 172 girls (15.9 ± 1.18 years), which voluntarily participated in the study.

Measures

Body Mass Index (BMI)

The Body Mass Index is defined as the ratio of weight (kg) to height (m) squared. Weight was measured using a calibrated electronic scale (Kratos-Cas, Brazil) and subjects were weighed wearing light clothes, barefooted and carrying no heavy objects. Height was measured using a portable anthropometer (Kratos-Cas, Brazil) set against the wall, ensuring accurate subject posture before reading the fixed marker. Nutritional status was defined by the age- and sex-specific percentile of BMI based on Ministry of Health (BRASIL, 2007) parameters. Weight and height data were processed with the EpiInfo® software, which classified each individual according to the percentile limits as follows: underweight $p < 3$; normal weight $p 3 - p < 85$; overweight $\geq p 85 - p < 97$, and obesity $p > 97$.

Body Image Dissatisfaction

Dissatisfaction was assessed by the Figure Rating Scale which was developed and validated for the Brazilian adult population by Kakeshita et al. (2009) and showed a satisfactory internal consistency ($\alpha = 0.93$). In adolescents, the scale was tested by our group (data available with the authors) and results have demonstrated that the instrument is suitable for assessing body image in this age group. This scale assesses satisfaction with appearance, considered one of the components that form the attitudinal dimension of body image (MENZEL et al., 2011). The instrument comprises a set of fifteen silhouettes of each gender presented on separate cards showing escalating measures, from leaner to wider drawings, and mean BMI ranging from 12.5 to 47.5 kg m⁻² with constant difference of 2.5 kg m⁻². The method applied consisted of asking subjects to pick one card from a set of cards displayed in ascending order which best represents his/her current body ('Current' BMI) and the figure representing the body that he/she would like to have ('Desired' BMI) and dissatisfaction was evaluated by the discrepancy between these two measures.

Eating attitudes

The Eating Attitudes Test (EAT-26) was used to assess adolescent's eating attitudes. This test was originally developed by Garner and Garfinkel (1979) for diagnosing anorexia nervosa and quickly became the most applied test to identify eating disorders in general. Although the instrument has not shown effectiveness in diagnosing the disease, it has shown efficacy in the detection of clinical cases of at-risk populations and in the identification of individuals with

abnormal eating and weight related concerns. It consists of 26 items and responses are made on a 6-point Likert scale. The Brazilian version was translated and validated by Bighetti et al. (2004) and presented a good internal consistency ($\alpha = 0.82$). The cutoff of the test is set at 21, and scores equal or above this total indicate abnormal eating practices and preoccupations regarding weight.

Procedure

This project was approved by the Institutional Ethics Committee (Process UNAERP No. 148/08) and since all participants were minors, the written informed consent was properly obtained from all parents or guardians. Data collection was carried out in rooms provided by the schools, comprising the application of the Figure Rating Scale, weight and height measures and self-administration of the Eating Attitudes Test.

Statistical analysis

Data were analyzed using evaluation scales of each test and the calculation of BMI. The data met the assumptions for parametric data, therefore, the hypotheses were analyzed using descriptive statistics (percentages and mean; \pm standard error of mean), the Student's t-test, the Pearson correlation test and a two-way Analysis of Variance (ANOVA), followed by post-hoc Newman-Keuls test when applicable. The level of statistical significance was set at $p < 0.05$.

Results

Table 1 presents the frequencies for nutritional status, body image dissatisfaction and eating attitudes by gender. The anthropometric results showed in boys and girls, respectively, a prevalence of normal weight (73.6% and 77.9%) and mean BMI was not different between gender classification ($p > 0.05$). Besides that, according to the Figure Rating Scale, only 23.3% of the girls and one third of the boys reported to be satisfied with their own image. While almost 50% of the girls desired to be leaner, boys were equally divided between those who wanted to be larger and those who wanted to weigh less. Still on Table 1, it can be seen that, as expected, dissatisfaction differed significantly between boys and girls ($p < 0.05$). The discrepancy between the silhouettes pointed as current and desired was -0.6 kg m^{-2} (0.6) for boys and -2.1 kg m^{-2} (0.5) for girls.

The results of the EAT-26 showed that 3% of the boys and 11.6% of the girls scored above 21 points and were classified as EAT+. The mean score on the test was $4.7 (\pm 0.5)$ for boys, and $9.3 (\pm 0.7)$ for girls and this difference was also considered statistically significant ($p < 0.001$) (Table 1).

Table 1. Percentages, means, and standard error of mean (SEM) for nutritional status, body image variables and eating attitudes (EAT), by gender.

	Boys (n = 106)	Girls (n = 172)
Nutritional Status		
Underweight (%)	2.8	5.8
Normal Weight (%)	73.6	77.9
Overweight (%)	17.9	11.6
Obesity (%)	5.7	4.7
Body Mass Index		
Mean	22.1	21.6
SEM	0.4	0.3
Body Dissatisfaction		
Larger (%)	31.1	27.3
Same (%)	34.9	23.3
Thinner (%)	34.0	49.4
Current – Desired (kg m^{-2})		
Mean	-0.6	-2.1*
SEM	0.6	0.5
EAT-26		
Positive (%)	2.8	11.6
Negative (%)	97.2	88.4
Mean	4.7	9.3**
SEM	0.5	0.7

* $p < 0.05$; ** $p < 0.001$.

In order to test the relationship between body dissatisfaction and eating attitudes, measured by the EAT-26, in boys and girls, a two-way ANOVA was performed (Figure 1). The ANOVA revealed no gender effect or interaction between factors ($p > 0.05$) but, not surprisingly, showed an effect of eating attitudes [$F_{(1,274)} = 7.20$, $p < 0.01$], with the group classified as EAT+ reporting more dissatisfaction (-5.9 kg m^{-2} ; 1.4) compared to the group classified as EAT- (-1.0 kg m^{-2} ; ± 0.4).

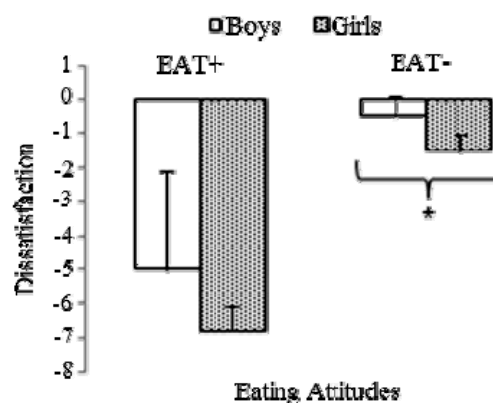


Figure 1. Mean (SEM) of body dissatisfaction, in kg m^{-2} , according to eating attitudes (EAT). * $p = 0.007$ compared to the group EAT+ (Newman-Keuls).

Figure 2 displays the results from the two-way ANOVA performed between gender, nutritional status, and body dissatisfaction. No gender effect or interaction between factors was detected ($p > 0.05$) but rather a nutritional status effect [$F_{(3,270)} = 17.02$, $p < 0.001$]. The post-hoc test evidenced that dissatisfaction was higher between those individuals classified as overweight (-6.1 kg m^{-2} ; 0.9) and obesity (-6.2 kg m^{-2} ; 1.9) compared to underweight ($+1.2 \text{ kg m}^{-2}$; 1.9).

m⁻²; 1.2) and normal weight (-0.3 kg m⁻²; 0.4) individuals.

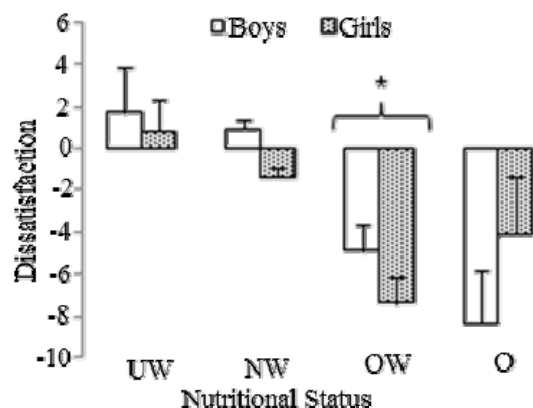


Figure 2. Mean (SEM) of body dissatisfaction, in kg m⁻², according to nutritional status. *p = 0.000 compared to the groups 'underweight' and 'normal weight', but not with the group 'obesity' (Newman-Keuls). Note: UW = underweight; NW = normal weight; OW = overweight; O = obesity.

To examine the relationship between these variables, a Pearson correlation test was also performed. As expected, the results showed a weak, but significant, negative correlation between eating attitudes and body dissatisfaction, for the whole sample ($r = -0.25$, $p < 0.05$) and for boys ($r = -0.26$, $p < 0.05$) and girls ($r = -0.23$, $p < 0.05$), indicating that abnormal eating behaviors tend to increase with increasing dissatisfaction in both sexes. Similarly, the results from the test performed between BMI and body dissatisfaction showed a significant negative correlation for the whole sample ($r = -0.47$, $p < 0.05$) and for boys ($r = -0.61$, $p < 0.05$) and girls ($r = -0.40$, $p < 0.05$), singly, indicating that body dissatisfaction proportionally increases with increasing BMI in both sexes.

Discussion

The results corroborate the first three hypotheses as well as other national surveys that also found that girls are more dissatisfied with appearance (BRANCO et al., 2006; ADAMI et al., 2008) and more concerned about food than boys (CHIODINI; OLIVEIRA, 2003; SOUZA-KANESHIMA et al., 2006) and that overweight and obese individuals are more dissatisfied, regardless the gender (BRANCO et al., 2006; GONÇALVES et al., 2008). More importantly, the majority of investigations that use the EAT-26 are dedicated to the study of risk behaviors for female, justifying the inclusion of the gender variable in this study.

The relationship between eating behavior and body dissatisfaction, observed in this study, although it has not been found by other national authors

(GONÇALVES et al., 2008), corroborated our fourth hypothesis. It suggests that adolescents dissatisfied with their own image have abnormal concerns related with food and weight, regardless of gender. Moreover this fact becomes worrisome since effects on physical and cognitive development can be evidenced in adolescents that share inappropriate eating behaviors because of their body dissatisfaction (TRICHES; GIUGLIANI, 2007).

One possible explanation for the high incidence of these behaviors in this specific sample is in the environment. Although from a small city, subjects are from an environment whereby there is a chronic exposure to Western media imagery; and the current understanding of how cultural context promotes risk for abnormal eating attitudes links the body dissatisfaction to internalization of a cultural valuation of appearance, thus predisposing towards these behaviors (BECKER et al., 2002).

Conclusion

Therefore, it can be seen that inappropriate eating behaviors and body image dissatisfaction afflict boys and girls even from small cities in developing countries, like Brazil. Girls related more dissatisfaction and abnormal eating behavior than boys and, in both genders the abnormal eating attitudes tend to increase with increasing dissatisfaction. Moreover, dissatisfaction was higher between those individuals classified as overweight and obesity.

Our results pointed out that studies of this nature are essential, because they highlight the need for direct individual and collective assistance actions, which often do not occur in these small towns due to the ignorance of the problem and the unpreparedness of public and health institutions to detect and treat eating disorders and body image disturbances.

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