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Body dissatisfaction in Brazilian schoolchildren: prevalence and associated factors

Insatisfação corporal em escolares no Brasil: prevalência e fatores associados

ABSTRACT

OBJECTIVE: To examine the prevalence of body dissatisfaction and associated factors in 8- to 11-year-old schoolchildren.

METHODS: A cross-sectional study including children aged 8- to 11-years enrolled in public and private schools in Porto Alegre, Southern Brazil, was carried out from August to December, 2001. A total of 901 subjects were selected through cluster sampling. Participants answered a questionnaire aimed at measuring body dissatisfaction and self-esteem and questions about family and social pressures on weight change. Height and weight were measured. The relationship between body dissatisfaction and the variables studied was measured by logistic regression.

RESULTS: The prevalence of body dissatisfaction was 82%. Fifty-five percent of the girls wanted a thinner body size, and 28% desired a larger one; the estimates for the boys were 43% and 38%, respectively. Children with the lowest self-esteem (OR=1.80; 95% CI: 1.13-2.89) and who thought their parents (OR=6.10; 95% CI: 2.95-12.60) and friends (OR=1.81; 95% CI: 1.02-3.20) expected them to be thinner showed a higher chance of presenting body dissatisfaction.

CONCLUSIONS: Body dissatisfaction was highly prevalent among the evaluated schoolchildren, especially in those with lower self-esteem and who thought their parents and friends expected them to be thinner.

KEYWORDS: Child. Body image. Self-concept. Cross-sectional studies.

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RESUMO

OBJETIVO: Examinar a prevalência de insatisfação corporal e fatores associados em escolares entre oito e 11 anos.

MÉTODOS: Estudo transversal realizado com escolares entre oito e 11 anos da rede pública e privada de Porto Alegre, Rio Grande do Sul, entre agosto e dezembro de 2001. Um total de 901 crianças, selecionadas por conglomerados, responderam verbalmente a questionário sobre insatisfação corporal e a auto-estima, pressão familiar e social relacionadas à mudança de peso. Altura e peso foram aferidos. A associação entre insatisfação corporal e as variáveis estudadas foi medida por meio de regressão logística.

RESULTADOS: A prevalência de insatisfação corporal foi 82%. Entre as meninas, 55% delas desejavam ter um corpo mais magro e 28% desejavam um corpo maior; as estimativas para os meninos foram de 43% e 38%, respectivamente. A análise multivariada revelou que auto-estima mais baixa (OR=1,80; IC 95%: 1,13-2,89) e percepção da expectativa dos pais (OR=6,10; IC 95%: 2,95-12,60) e dos amigos (OR=1,81; IC 95%: 1,02-3,20) para ser mais magra por parte da criança foram as variáveis significativamente associadas à insatisfação com o corpo.

CONCLUSÕES: Insatisfação corporal foi altamente prevalente nos escolares avaliados, especialmente naqueles com auto-estima mais baixa e que pensavam que seus pais e amigos esperavam que eles fossem mais magros.

DESCRITORES: Criança. Imagem corporal. Auto-imagem. Estudos transversais.

INTRODUCTION

The concept of body image is multidimensional, encompassing behavioral, sensorial, perceptive, cognitive and affective aspects that characterize one's body as unique and different from any other.

Current publications highlight the following components of body image: body esteem and body dissatisfaction. Body esteem refers to liking or disliking one's body as a whole, including other factors aside from weight and body shape, such as, for example, hair and face. As for body dissatisfaction and the instruments developed to assess this construct, they focus on concerns with weight, body shape and body fat.¹⁹

Puberty has been cited in the literature as being the temporal hallmark that triggers eating disorders in teenagers. However, studies on preteens indicate that body image and eating behavior are set prior to this phase.¹⁷ Children can accurately estimate their body sizes by the age of six.⁵ Body dissatisfaction and dieting motivation, as well as the relationship between body satisfaction and self-esteem, may particularly be present before puberty.¹⁵ These findings indicate that research on eating disorders should not assume such issues as problematic solely for teenagers.

Body image disturbances and body dissatisfaction are clearly related to eating disorders – anorexia nervosa, bulimia nervosa, and binge eating disorder. These disorders, even when subclinical, are quite rare in prepubertal children, but prospective studies have shown that weight concerns, body dissatisfaction and a dieting history in young adolescent girls are associated with eating disorder symptoms in the following three to four years.⁸

Clinicians and researchers state that body image dis-

turbance among children may constitute a risk factor for the later development of eating disorders, possibly being also related to low self-esteem and limited psychosocial performance, thus contributing to the development of depressive disorders in adolescence.^{8,9,21}

Moreover, it is important to be aware of the prevalence of such concerns and attitudes in children, since inadequate eating behavior and insufficient intake of nutritional requirements may also have short-term effects and damage physical and cognitive development.¹⁷

The objective of present study was to assess the prevalence of body dissatisfaction and to examine some of the associated factors, such as self-esteem and weight concerns in a sample of Brazilian schoolchildren.

METHODS

In this cross-sectional study, all 8- to 11-year-old children enrolled in public and private schools (both in the urban and rural zones of Porto Alegre, Southern Brazil) for the 2001 school year, beginning in March, were considered eligible to participate in the study.

According to data from the Brazilian 2000 Census 96.5% of the children aged 7-14 years who live in Porto Alegre were attending school. Thus, this study may be considered a population-based one.

Sample size was calculated (clusters) according to the following parameters: 40% expected prevalence of body dissatisfaction,⁶ 95% confidence interval, 4% margin of error, 30% effect of design, and 10% losses. The minimum sample size of 946 subjects, proportional to the size of the school network, was determined. Initially, 43 schools (25 from state public system, 10 private, and eight from the municipal

public system) and then 20 children from each school were selected by systematic sampling. Enrollment records were provided by each school. Data collection was carried out from August to December 2001. There was a 5% loss, all due to refusals to participate in the study.

The questionnaire was applied individually as interviews by a trained team, accounting for the possibility that some children were not fully literate. Anthropometric measurements were also obtained during class-time.

The date of birth of every child was obtained from school enrollment records. The variable public/private school was used as a measurement of social stratification.

The questionnaire contained a body image scale (Children's Figure Rating Scale),¹ a self-esteem scale (Culture-Free Self-Esteem Inventory for Children),²⁴ and additional questions about family and social pressures on weight change.

The body image scale consists of nine numbered body contours, with extremes of thinness and fatness at stable height. The child should select the picture considered to be compatible with his/her current size (which picture do you look like most?) and ideal size (which picture would you like to look like?). The degree of body dissatisfaction is measured/estimated by the difference between the current and the ideal figures, with values ranging from -8 to 8. Positive values indicate the child wished to be thinner. In the present study, body dissatisfaction variable was categorized as satisfied (score 0) or dissatisfied (score different from 0).

The self-esteem scale is composed of 20 items and four subscales – general self-esteem, parental, academic and social. The children answered yes/no questions. After being divided into quartiles, the sample was divided into two categories: lower self-esteem range (children with scores equal or under the 25th percentile) and upper self-esteem range (children with scores above the 25th percentile).

The additional questions about family and social pressures for change in weight were written for the present research. These yes/no questions considered the following variables: perceived parents' expectations regarding the child's weight; perceived friends' expectations regarding the child's weight; family and friends' dieting habit.

Weight and height were measured with no shoes and

layered clothing. Portable scales and anthropometers collated by a national public institution were used.

Body Mass Index (BMI in kg/m²) was used as a measure of adiposity. The schoolchildren were stratified in three categories of nutritional status: BMI <25th percentile, BMI 25th-75th percentiles, and BMI >75th percentile.

For data analysis, the statistical packages Epi Info 6.0 and Stata for Windows 6.0 were used. Each analysis accounted for the design effect (cluster sampling) in the comparison of satisfied and dissatisfied children, irrespective of intensity, by logistic regression. The relationship between body dissatisfaction and the variables studied was first measured by means of simple logistic regression and subsequently by means of adjusted logistic regression, where a $p < 0.05$ was considered significant (two-tailed). Interactions among the independent variables were also tested.

The study project was approved by the Ethics Committee of Hospital de Clínicas de Porto Alegre, State and City Boards of Education, and the schools' principals. Parents and legal guardians of the participating children signed informed consent forms authorizing participation. The children also signed their consent to participate in the study.

RESULTS

All schools accepted to participate in the study. A total of 901 children were interviewed.

Table 1 summarizes the sociodemographic characteristics of the sample.

Regarding the nutritional status, 44.7% (n=404) of the children had a BMI between the 25th-75th percentile; 35.2% (n=317) had a BMI above the 75th percent-

Table 1 - Body dissatisfaction in 8- to 11-year-old schoolchildren: sociodemographic characteristics of the sample (N=901). Porto Alegre, Brazil, 2001.

| Characteristic | n | % |
|----------------|-----|------|
| Gender | | |
| Male | 461 | 51.2 |
| Female | 440 | 48.8 |
| Age | | |
| 8 years | 212 | 23.5 |
| 9 years | 236 | 26.2 |
| 10 years | 247 | 27.4 |
| 11 years | 206 | 22.9 |
| School | | |
| Public | 716 | 79.5 |
| Private | 185 | 20.5 |
| School area | | |
| Urban | 806 | 89.5 |
| Rural | 95 | 10.5 |

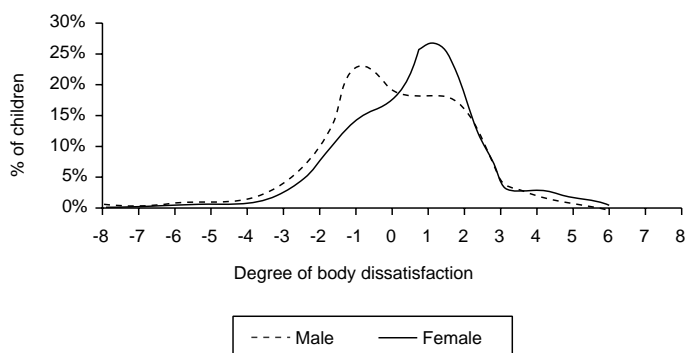


Figure 1 - Degree of body dissatisfaction in 8- to 11-year-old schoolchildren by gender (n=901). Porto Alegre, Brazil, 2001.

tile and 20.1% (n=181) had a BMI below the 25th percentile.

The prevalence of body dissatisfaction was 82%. Figure 1 illustrates the different degrees of body dissatisfaction for boys and girls. Among girls, 55% wished to have a thinner body, while 28% wished to have a larger body; as for the boys, the same desires accounted for 43% and 38%, respectively (p<0.001). Figure 2 shows the degree of body dissatisfaction according to different categories of nutritional status (p<0.001). The children placed between the 25th and the 75th percentiles also showed high prevalence of body dissatisfaction (76%), 43% wishing to have a thinner figure and 33% wishing to have a larger figure.

Simple logistic regression revealed that the following variables were significantly associated with body dissatisfaction (p<0.05) (Table 2): attending public school (OR=1.52; 95% CI: 1.03-2.25), BMI >75th

percentile (OR=2.62; 95% CI:1.83-3.72), scores ≤25 in the self-esteem scale (OR=2.10; 95% CI:1.34-3.26), perceived parents' expectations on being thinner or fatter (OR=9.10, 95% CI: 4.48-18.41; OR=1.52, 95% CI: 1.06-2.18 respectively), and perceived friends' expectations on being thinner or fatter (OR=4.34, 95% CI: 2.42-7.79; OR=1.55, 95% CI: 1.02-2.35, respectively). The interactions among these variables were all nonsignificant. Although in the present study gender was not significantly associated with body dissatisfaction in the bivariate analysis, the interaction of

this variable with all others was also tested based on previous research findings that consistently point to gender differences in regard to body dissatisfaction.^{16,24} These analyses all yielded nonsignificant findings.

Table 2 also shows the results obtained with the adjusted logistic regression analysis. Thus, in the fi-

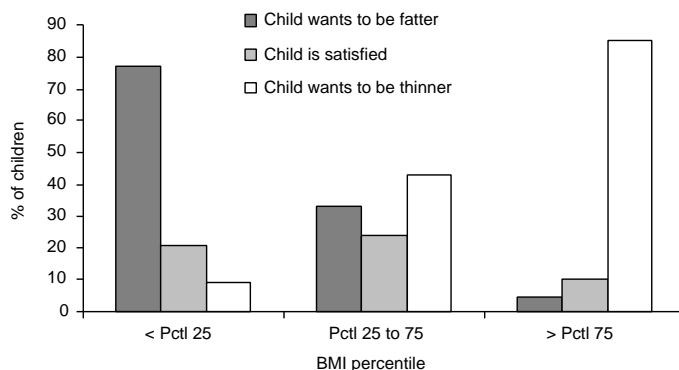


Figure 2 - Body dissatisfaction in 8- to 11-year-old schoolchildren by nutritional status (BMI percentile) (n=901). Porto Alegre, Brazil, 2001.

Table 2 - Univariate and multivariate logistic regression of the association between body dissatisfaction and selected variables in 8- to 11 year-old schoolchildren (N=901). Porto Alegre, Brazil, 2001.

| Variable | Non adjusted OR (95% CI) | Adjusted OR (95% CI) |
|---|--------------------------|----------------------|
| School | | |
| Public | 1.52 (1.03-2.25) | 1.37 (0.88-2.14) |
| Private | 1.00 | 1.00 |
| BMI percentile | | |
| <25 th | 0.78 (0.55-1.11) | 1.08 (0.67-1.74) |
| 25 th -75 th | 1.00 | 1.00 |
| >75 th | 2.62 (1.83-3.72) | 1.45 (0.93-2.25) |
| Percentile of self-esteem scale score | | |
| ≤25 th | 2.10 (1.34-3.26) | 1.80 (1.13-2.89) |
| >25 th | 1.00 | 1.00 |
| Parents' expectations about child's weight* | | |
| Thinner | 9.10 (4.48-18.41) | 6.10 (2.95-12.60) |
| Maintain | 1.00 | 1.00 |
| Fatter | 1.52 (1.06-2.18) | 1.45 (0.95-2.22) |
| Friends' expectations about child's weight* | | |
| Thinner | 4.34 (2.42-7.79) | 1.81 (1.02-3.20) |
| Maintain | 1.00 | 1.00 |
| Fatter | 1.55 (1.02-2.35) | 1.39 (0.85-2.25) |

BMI: Body mass index
*Child's perception

nal model, the variables that maintained association with body dissatisfaction were: lower range of self-esteem score (OR=1.80; 95% CI: 1.13-2.89), perceived parents' expectations on being thinner (OR=6.10; 95% CI: 2.95-12.60), and perceived friends' expectations on being thinner (OR=1.81; 95% CI: 1.02-3.20).

DISCUSSION

This study showed a high prevalence of body dissatisfaction among the schoolchildren assessed (82%), even among those with adequate weight for their age (76% in children with BMI between the 25th and 75th percentiles). Studies from other countries also show high prevalence at different levels.¹⁴ The data obtained in the present study is quite similar to those from other studies in what concerns girls. However, when boys are considered, the percentage of boys who wish to be thinner showed to be higher than data found in the literature.

These differences in prevalence may be related to the difficulties the children might have experienced in understanding the instruments that assess body image,¹⁴ to the use of other instruments and/or cultural differences, which limits the possibility of comparisons. In addition, the interpretation of drawings of larger figures may be controversial. In the present study, the nature of the larger figure was explained to each child as being of a fatter child, in order to prevent different interpretations of the question from influencing the answers obtained.

Gender and age were not significantly associated with body dissatisfaction in the present study. Tiggemann & Pennington,²³ in Australia, did not find gender differences for body dissatisfaction in children aged nine and 10 years either. However, other studies have shown gender differences regarding body image in children, with girls showing greater body dissatisfaction.^{2,9,22}

Some investigators point out that the disparity within gender appears between six and 12 years of age.⁵ In the present study, most boys and girls were dissatisfied, which may reflect a culture concerned with the idealization of the body. Melin (2003)^{*} also reported no gender differences on body dissatisfaction among adolescents from Rio de Janeiro (Brazil). It is noteworthy the significant difference between boys and girls regarding the direction of

body dissatisfaction: most girls wanted to have a thinner body, while boys desired a larger figure. Another Brazilian study carried out in São Paulo** with 138 boys and 178 girls aged 10- to 19-year-old also found that boys considered themselves too thin and girls, too fat. The concept of normative discontent that Rodin et al¹⁶ (1985) refer is suitable to the children in this sample.

Some studies show that body dissatisfaction, particularly among girls, increases with age.^{5,9} In the present study, there was no difference in body dissatisfaction between older children and younger children. Given that the oldest children in this sample are 11-year-old, it is possible that they are too young and the real age-related increase in body dissatisfaction may occur later. On the other hand, a tendency of early onset of puberty, caused by various factors, including an increased prevalence of overweight and obesity in children⁷ may help explain this finding. Moreover, premature exposure to images of sexual nature advertised in the media may lead to premature erotization, which possibly contributes to the fact that younger children already mention body image and weight concerns (an adolescent issue).

In Porto Alegre, parents of private school students have significantly more years of education than parents of public school students.¹⁸ It was inferred a higher social class to children who went to private schools. Significant differences in body dissatisfaction between public vs. private school students were not observed. Results from studies aimed at investigating the association between socioeconomic status and body dissatisfaction in children and adolescents are not consistent.^{12,15} The discrepancies observed in these studies may result from the use of different instruments and/or methods of evaluating the socioeconomic status of the group. It was observed that children from different social classes seem to be exposed to the same messages on body image from the family, friends, and media.

Studies have shown that body dissatisfaction and the desire for a thinner body are more frequent in boys and girls with a higher BMI.^{5,9} In the present study, children with a BMI percentile over 75 had a 2.6-fold higher chance of showing body dissatisfaction when compared with children between the 25th and 75th percentile in the bivariate analysis. This finding, however, was not significant in the multi-

*Meninas se sentem mais culpadas ao comer do que meninos [artigo na internet, republicado de: Zine, A Gazeta/MT, p. 10, 5/10/03]. Disponível em <http://www.adolec.br/bvs/adolec/P/news/2003/10/0411/alimentacao/001.htm> [acesso em 15 dez 2005]

**Moraes DEB. O adolescente e a percepção de seu corpo: satisfação com a imagem corporal, estado nutricional e uso de dietas restritivas (dissertação de Mestrado). São Paulo: Escola Paulista de Medicina (Unifesp); 2001.

ivariate analysis (OR=1.45; 95% CI: 0.93-2.25). Nunes et al¹¹ (2001) reported a similar finding for 12- to 29-year-old women in Porto Alegre. Among these women, feeling fat played a more important role in the determination of abnormal eating behaviors than BMI. It is worth mentioning that thinner children (BMI percentile <25) did not display a higher prevalence of body dissatisfaction either in the bivariate or multivariate analysis. Therefore, it was inferred children in the lower weight quartile were more satisfied than those in the top quartile, which indirectly shows that the ideal of beauty corresponds to a thinner body. On the other hand, it's worth mentioning that almost 10% of children in the lower weight category wished they were thinner. This finding raises the issue of whether these children are at greater risk of developing eating disorders symptoms in the following years. Another Brazilian study⁴ reported that 24.3% of 15- to 17-year-old girls with normal weight were already trying to lose weight.

Body dissatisfaction and negative body image have been viewed as facets of low self-esteem and poor self image.⁹ In the present study, children with lower self-esteem had an 80% chance of displaying body dissatisfaction when compared to those with higher self-esteem. This observation, however, does not allow the establishment of a cause/effect relationship.

The variable most strongly associated with body dissatisfaction in the multivariate analysis was the perceived parents' expectations regarding the child's weight, indicating the importance of family in this age group. Children who thought their parents would prefer them to be thinner had a six-fold higher chance of being dissatisfied with their bodies. Until the first teenage years, parents are the main influence in a child's style and appearance. More specifically, parents may comment on the child's body shape or model weight concerns and disturbed eating. Smolak et al²⁰ (1999) reported that parental comments concerning the child's weight were moderately correlated with weight loss attempts and body esteem among boys and girls. To sum up, the present data suggest that parents contribute to children's body dissatisfaction. On the other hand, among the children in this sample, the perception of parents' expectations regarding weight may be distorted and amplified due to their own body dissatisfaction, which indicates the possibility of reverse causality.

Although not mentioned before, 62% of the children in this sample stated that a member of their

family had dieted before, revealing that families are imbued with an environment where thinness is valued. Some studies show that parents' weight concerns may be positively associated with body dissatisfaction in their children.³ Parent and family influences may not be related only to role model issues, but also to a pattern of interaction between the child and his/her parents who may facilitate or protect the children's concerns with body image and weight.

Perceived expectations from friends regarding a child's weight were also associated with body dissatisfaction, though in a lower degree when compared to parents.¹³ In the present study, children who thought their friends would prefer them to be thinner displayed a 2-fold higher chance of being dissatisfied with their bodies compared to children not under the influence of such expectations. Young children already have the notion of whether they have an adequate weight. Although friends are less influential than family before adolescence, peer involvement in dieting and weight loss may predict body image dissatisfaction, and peer teasing is likely associated with body image dissatisfaction in children as well as adolescents.^{13,25}

The few losses in the sample and the level of schooling in the age group studied allow generalization of the results for the child population aged 8- to 11-years in Porto Alegre. The high prevalence of body dissatisfaction observed requires consideration. It was used the most commonly applied instrument in this type of study, since visual communication is trustworthy for children and provide more accurate responses.⁵ The arrangement and the number of body contours in the body image scale might have constituted an assessment bias for younger children with lower cognitive capacity in scaling the drawings. However, the Brazilian cultural context values the thin figure, and the data from other studies with older age groups,^{4,10,11} allow to infer that a possible limitation of the instrument can not fully explain the high prevalence of body dissatisfaction observed. In Brazil, the concept of beauty is subject to differences in gender, regions (urban and rural), and social groups but the general and intense body erotization and early exposure strongly influence the idea of perfection as physical beauty.

Nunes et al¹⁰ (2003) reported a prevalence of 10.9% of abnormal eating behavior among young women in Porto Alegre, significantly higher in the age group 16 to 19 years (15.8%). These are sufficient data to motivate, in the Brazilian setting, health

professionals, teachers and parents to evaluate the burden of body shape and weight concerns in pre-pubescent children and formulate strategies to promote a higher level of body satisfaction among children and adolescents.

Future investigations should further examine the nature of concerns with body image, the strength of family and sociocultural influences, its relation with self-esteem, and also with the oncoming of eating disorders.

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