Body image insatisfaction in students from the sixth grade of public schools in Caxias do Sul, Southern Brazil

Insatisfação com a imagem corporal em escolares do sexto ano da rede municipal de Caxias do Sul, no Rio Grande do Sul

Insatisfacción con la imagen corporal en escolares del sexto año de la red municipal de Caxias do Sul (Rio Grande do Sul, Brasil)

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ABSTRACT

Objective: To estimate the prevalence of body image insatisfaction among schoolchildren aged 11 to 14 years from the municipality of Caxias do Sul, Southern Brazil, and to determine the possible associations with nutritional status, socioeconomic status, gender, and maternal education.

Methods: A cross-sectional study was conducted and 1,417 children were evaluated regarding total body weight, height, and waist circumference. Obesity was defined based on the body mass index according to sex and age. Body image was evaluated using a nine-silhouette scale. A descriptive and bivariate analysis was carried out between the independent variables and the outcome.

Results: The prevalence of body image insatisfaction was 71.5%. Gender (PR 0.77, 95%CI 0.60–0.98) and nutritional status (PR 3.84, 95%CI 2.72–5.41) were significantly associated with body image insatisfaction. Maternal education, socioeconomic level, and age did not present any association with body image insatisfaction.

Conclusions: The prevalence of body image insatisfaction in this population was high and should be a matter of concern to health professionals.

Key words: body image; child, preschool; nutritional status.

RESUMO

Objetivo: Estimar a prevalência de insatisfação com a imagem corporal em escolares de 11 a 14 anos (meninos e meninas) de Caxias do Sul, no Rio Grande do Sul, e verificar as possíveis associações com estado nutricional, classe socioeconômica, sexo e escolaridade da mãe.

Métodos: Estudo transversal com 1.417 escolares. As variáveis antropométricas estudadas foram massa corporal total, estatura e circunferência da cintura. A obesidade foi definida pelo índice de massa corpórea, segundo sexo e idade. A imagem corporal foi avaliada por meio da escala de nove silhuetas. Foi realizada uma análise descritiva e bivariada entre as variáveis independentes e o desfecho.

Resultados: A prevalência de insatisfação com a imagem corporal foi de 71,5%. As variáveis sexo (RP 0,77, IC95% 0,60–0,98) e estado nutricional (RP 3,84, IC95% 2,72–5,41) apresentaram associação estatística com insatisfação da imagem corporal. A escolaridade da mãe, o nível socioeconômico e a idade não apresentaram associação significante em relação à insatisfação com a imagem corporal.

Conclusões: As prevalências de insatisfação com a imagem corporal da população estudada encontram-se elevadas e devem ser motivo de preocupação dos profissionais de saúde.

Palavras-chave: imagem corporal; escolares; estado nutricional.

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RESUMEN

Objetivo: Estimar la prevalencia de insatisfacción con la imagen corporal entre escolares de 11 a 14 años (muchachos y muchachas) de Caxias do Sul, Rio Grande do Sul, y verificar las posibles asociaciones con estado nutricional, clase socioeconómica, sexo y escolaridad de la madre.

Métodos: Estudio transversal con 1.417 escolares. Las variables antropométricas estudiadas fueron masa corporal total, estatura y circunferencia de la cintura. La obesidad se definió por el índice de masa corporal, según sexo y edad. La imagen corporal fue evaluada mediante escala de nueve siluetas. Se realizó un análisis descriptivo y bivariado entre las variables independientes y el desfecho.

Resultados: La prevalencia de insatisfacción con la imagen corporal fue de 71,5%. Las variables sexo (RP 0,77, IC95% 0,60-0,98) y estado nutricional (RP 3,84, IC95% 2,72-5,41) presentaron asociación estadística con insatisfacción de la imagen corporal. La escolaridad de la madre, el nivel socioeconómico y la edad no presentaron asociación significante respecto a la insatisfacción con la imagen corporal.

Conclusiones: Las prevalencias de insatisfacción con la imagen corporal de la población estudiada están elevadas y deben ser motivo de preocupación de los profesionales de salud.

Palabras clave: imagen corporal; escolares; estado nutricional.

Introduction

The image of the human body is understood as the figuration of a body formed in the person's mind, i.e., the way the body is represented to oneself[1]. Body image is a multidimensional construct that is built along with the individual, and social, physiological, psychological and environmental factors can change the view of one's own body[2]. Body image is our wholeness as human beings[3], it is the transcendence of looking internally and externally and realizing that the human being is the result of his own actions (physical, mental and emotional), and consequently, the body image if thereby formed.

Currently, we live in a time of great dissatisfaction with the body, since we can see people constantly trying to change their appearance. Body satisfaction is "the perceptive component of body image, which is the individual's judgment of his size, shape and weight related to his current proportions." Therefore, body image dissatisfaction is a negative evaluation that the individual makes of his body from an image formed in his mind[2]. Caused by several factors, dissatisfaction often triggers emotional and eating disorders, which can worsen throughout life. Several reasons can affect self-image, and dissatisfaction with body image is related to factors such as body self-perception[4] and nutritional status[5], which can cause problems like low self-esteem and eating disorders, such as obesity, anorexia and bulimia.

Self-esteem, self-concept and self-efficacy can influence behaviors related to obesity. Perception of body image and levels of body satisfaction positively or negatively affect self-esteem, self-concept and self-efficacy[6]. Overweight or obesity can be both causes and consequences of body dissatisfaction. Conditions are highly stigmatized in society, at any age of life[7]. Subjects with eating disorders have losses on quality of life, especially emotional ones[8]. Instead of changing attitude, changing his self-image, the individual seeks to change his appearance, making huge efforts and becoming unhappy due to the difficulty of accepting himself as a person.

Dissatisfaction with body image has a strong connection with disturbances of body perception. In the state of Paraná, 187 students from state public schools in the municipality of Maringá between 15 and 19 years were evaluated, and a greater body image disorder was found in girls: 23.9% had mild disorder, 31.6% moderate, and 10.3% severe. In males, these percentages were 11.4% for mild disorder and 7.2% for moderate[9]. Social, cultural and economic risk factors and the ethnic and racial diversity of groups play an important role in the development of these concerns[10].

In this context, the aim of this study was to identify the prevalence of body image dissatisfaction and the possible associations of this outcome with socioeconomic status, maternal education, nutritional status, sex, and age in schoolchildren from 11 to 14 years in municipal schools located in Caxias do Sul, Rio Grande do Sul, Brazil.

Method

This is an epidemiological study of school-based children. The evaluations were conducted from August to September 2011. The target population was students in the sixth grade (from 11 to 14 years) enrolled in day shift schools in Caxias do Sul in 2011. This study is part of a larger project called "Obesity, body image dissatisfaction and eating disorders symptoms in a cohort of schoolchildren in Serra Gaúcha".

The population of students enrolled in the sixth year in 2011, according to data from the Department of Education, was 4,300 (aged 11-14 years). To calculate the sample size it

was used a prevalence of 50%, confidence interval of 95%, and 3% error. Thus, it would be necessary to evaluate a minimum of 855 children. Anticipating the possible losses and refusals and for better control of confounding factors, we used a design effect of 1.4 and, therefore, a minimum of 1,197 schoolchildren should be evaluated. To calculate the sample size the statistical software Epi Info version 6.0. was used.

The sampling criterion used was by clusters, in which each school was considered as one of them. Only entered the draw for the final sample schools offering the sixth year, so all those who met this criterion were in the draw and had the same chances to participate in the study, according to the number of students in the sixth year that the school had on the date of choice. School students who met the inclusion criteria were invited to participate in the study. 22 institutions were randomly selected to complete the minimum number of students to be evaluated. The total number of students in the sixth year among the 22 schools was equal to 1,417.

The study used the following inclusion criteria: children age between 11 and 14 years, not disabled, not carrying any complication that impeded physical activity, who voluntarily agreed to participate in the study, and submitted the consent form signed by parents or legal guardians.

We used a self-report questionnaire with the subjects to evaluate the following variables: identification data, socioeconomic class, gender, age and body image dissatisfaction. Information related to socioeconomic class were classified as proposed by Barros and Victora[11], who consider the use of 13 variables to produce the national economic indicator (NEI). This was based on the 2000 census and has questions such as: education of household head, number of bedrooms, bathrooms, and consumer goods. The students were classified into three categories: low, intermediate and high socioeconomic classes.

To assess dissatisfaction with body image, the scale of nine silhouettes was used, which is called Children's Figure Rating Scale[12], and assesses dissatisfaction with body image in children and adolescents. It has nine numbered silhouettes, with extremes of thinness, fat and stable height, and is presented separately by gender. The child selects a picture consistent with its size ("with which of the figures do you mostly look like?") and ideal size ("which of the figures you would most like to look like?"). The degree of body dissatisfaction has been given by the difference between the real and ideal figures, and that might vary between -8 and 8. Positive degrees indicate that the child wants a smaller body. They considered themselves satisfied participants that showed zero as a result of the difference between the real and ideal figures on the scale of body image, whereas those with degree different than zero were considered dissatisfied with their body image.

Besides the self-administered questionnaire, the following measures were also taken: total body mass, height, and waist circumference. For the measurement of total body mass, a Plenna portable digital scale was used, with accuracy of 100g. For stature, a stadiometer fixed on the wall and a square were used. From measurements of total body mass and height, the body mass index – BMI was calculated: BMI=total body mass/height^2. The nutritional status of children was defined by the cutoff points of BMI for age and sex[13]. Children were classified as underweight, normal weight, overweight and obese.

The evaluation team was composed of researchers and 15 evaluators, including teachers and students of Physical Education. The team had training to standardize assessments with the distribution of a handbook for evaluation. The training included the presentation of the proposed study, reading the questionnaire, the practice of measurements (anthropometry), and a pilot study with 15 children from a school that did not participate in the final sample of this study. Logistics issues were verified, such as language assessment of the questionnaire, evaluation sequence and standardization of anthropometric measures taken by the evaluators. No problems regarding logistics predefined in the study were detected in the pilot study.

Regarding data collection, it was double entered into a database formatted in EPIDATA - Odense - Denmark, checked for consistency and exported to the Statistical Package for the Social Sciences (SPSS) version 19, in which it was analyzed. Initially, descriptive analysis was performed and then, bivariate analysis (chi-square test) between the independent variables and the outcome.

Regarding ethical aspects, terms of consent were distributed for children who were part of the sample. The study was also previously approved by the Municipal Secretariat of Education and the directors of each school. The children were evaluated only after the return of the consent forms with the signature of a parent or guardian. In addition to parental consent, students who were part of the sample agreed to participate voluntarily in the study. The research project was approved by the Research Ethics Committee of Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA).

Results

Among the 1,417 children selected for the study (between 11 and 14 years), 1,230 comprised the final sample. One child

was excluded from the final sample because it did not meet the inclusion criteria (wheelchair), 16 refused to participate in the study (even with the term of consent signed by parents) and 170 did not return the signed parental term (refusals).

The sample obtained a similar distribution by sex with 606 girls (49.3%) and 624 boys (50.7%). The prevalence of body image dissatisfaction was 71.5%. For the nutritional status of children assessed, 30.1% were overweight and obese (overweight). The means weight, height, and age were, respectively, 44.89kg, 1.50m and 11.85 years. Regarding to socioeconomic level, 4.3% of students belonged to the low level, 42.9% intermediate, and 52.8% belonged to the top. As for maternal education, 62% of mothers had studied until elementary school, and 38% up to high school or higher.

Table 1 shows the results obtained with the scale of nine silhouettes. Table 2 shows the bivariate analysis between body image dissatisfaction and independent variables. For the analysis, the variables were grouped into dichotomous. Boys were 23% less likely (PR 0.77, 95%CI 0.60–0.98) of being dissatisfied with their body image compared to girls. The overweight students were almost four times more likely (PR 3.84, 95%CI 2.72–5.41) of being dissatisfied compared to students with normal weight or underweight. Maternal education, socioeconomic status, and age showed no statistically significant differences in relation to body image dissatisfaction.

Table 1 - Answers obtained in the scale of nine silhouettes

Scale of nine silhouettes	n	%
Silhouette that appears		
1	12	1.0
2	53	4.3
3	115	9.4
4	259	21.1
5	367	29.9
6	261	21.3
7	125	10.2
8	30	2.4
9	6	5
Silhouette that would like to have		
1	13	1.1
2	42	3.4
3	137	11.2
4	308	25.1
5	511	41.6
6	199	16.2
7	17	1.4
8	0	0
9	1	0.1
Difference between silhouettes		
-5	2	0.2
-4	4	0.3
-3	21	1.7
-2	73	5.9
-1	214	17.4
0	350	28.5
1	319	26.0
2	168	13.7
3	61	5.0
4	12	1.0
5	1	0.1
6	2	0.2
7	1	0.1

Discussion

The prevalence of body image dissatisfaction (71.5%) of the present study is close to the result of 63.9% found in the municipalities of Dois Irmãos and Morro Reuter, in Rio Grande do Sul[14]. When compared to studies in other regions of Brazil, the prevalence of body image dissatisfaction is higher than that observed in studies conducted in Florianópolis, state of Santa Catarina - SC (18.8%)[15], Belo Horizonte, state of Minas Gerais - MG (62.6%)[2], São Paulo city (41.0% girls and 9.7% boys)[4] and Caruaru, state of Pernambuco - PE (61.3%)[16]. However, when compared to the results of the ABC Paulista- SP (97.3% boys and 76.8% girls)[17], the prevalence of body image dissatisfaction in this

Table 2 - Bivariate analysis between body image dissatisfaction and independent variables

Variables	PR	95%CI
Maternal education		
Elementary school	1.00	
High school or higher	0.81	0.62–1.06
National economic indicator		
Low and intermediate	1.00	
High	0.77	0.59–1.00
Nutritional status		
Not overweight	1.00	
Overweight	3.84	2.72–5.41
Sex		
Female	1.00	
Male	0.77	0.60–0.98
Age		
10 and 11 years	1.00	
12 to 14 years	0.79	0.61–1.02

CI: confidence interval; PR: prevalence ratio

study is lower. These differences in prevalence with other studies conducted in the country may be due to the difference in age groups, evaluation tools, and cultural diversity of each region. There is a tendency for studies using the scale of nine silhouettes[4,14,16] to have a higher prevalence compared to studies using the Body Shape Questionnaire[15].

A statistically significant difference was found between the prevalence of body dissatisfaction for boys and girls, and men were 23% less likely to be dissatisfied with their body image in relation to females. In Juiz de Fora, MG[18], on the ABC Paulista, state of São Paulo[17], in São Paulo city[4], in Maringá, state of Paraná[9] and in Utrecht, in the Netherlands, the researchers also found a significant difference in relation to sex. Conflicting data were found in Florianópolis, state of Santa Catarina[19], where the level of body dissatisfaction was similar between the sexes (67.51% in males and 67.61% in females) and Belo Horizonte, MG[2], where the level of dissatisfaction was higher among males (64.1% in males and 61.4% for females). This information suggests that dissatisfaction with body image is affecting boys and girls differently depending on the region evaluated, however, it can be observed that girls tend to have higher prevalence.

When the variables body image dissatisfaction and overweight were confronted, the present study, like other national[4,5,14,18,19] and international[6,20-25] surveys, found a statistically significant relationship between excess weight and body image dissatisfaction, and the overweight students were almost four times more likely (PR 3.84, 95%CI 2.72 to 5.41) of being dissatisfied in relation to students with appropriate weight or underweight. This result suggests that excess weight is a factor associated with dissatisfaction with body image.

However, when confronting body image dissatisfaction and the variables maternal education, socioeconomic status, and age, this study showed no association. In Dois Irmãos and Morro Reuter, in the state of Rio Grande do Sul[14], the authors identified no association between body image dissatisfaction with age and maternal education. In Belo Horizonte, state of Minas Gerais[2], no association was found with the variable age, however, the study showed association between body image dissatisfaction and socioeconomic status and education level of head of the family. In Caruaru, state of Pernambuco[16], the researchers found an association of the outcome with the variable socioeconomic status, but not with age. In the North of Mexico City[22] and in Taiwan, Japan[23], the authors identified no association of the outcome with the age of the child or adolescent. As it can be noted, the literature differs in some respect regarding the variables maternal education and socioeconomic status, suggesting that perhaps better life conditions do not protect children and adolescents from dissatisfaction with body image[2,16,22,23].

Because a representative sample of the target population has been studied and due to the fact that there were few losses, it can be affirmed that the data obtained can be extrapolated to the target population in the age group studied. The present study showed excess weight as a factor strongly associated with dissatisfaction with body image, and the girls were more dissatisfied than boys. As limitations of the study, it can be pointed out that once it is a cross-sectional study, it does not establish a cause and effect relationship between variables.

Considering the limitations of the study, it is possible to state that the prevalence of body image dissatisfaction of the studied population is high and should be a concern to health care systems within the municipalities and to society. It is suggested that further studies, with other variables, are performed to increase knowledge about the topic.

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