



## Females and post-pubescent adolescents: groups with high exposure to the development of body image dissatisfaction in São Bonifácio, Santa Catarina State, Brazil

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**ABSTRACT.** To determine the prevalence of body image dissatisfaction in adolescents and analyse associated factors. The sample under analysis comprised 278 adolescents, 10- to 17-year-old students from government schools in a small town in southern Brazil. Sociodemographic information was collected (age, sex, area of residence and educational level of family head), coupled to self-assessment of sexual maturation and body image perception (scale of body silhouettes). Frequency distribution was employed for statistical analysis; Student's *t* test was applied for independent samples; chi-square and Fisher's exact test and Poisson regression with robust variance adjustment were used. The prevalence of body image dissatisfaction was 59.3%, or rather, higher among females (65.6%) than among males (53%). An association between body image and sexual maturation existed which revealed that post-pubescent adolescents were more likely to show body image dissatisfaction when compared to their pre-pubescent peers. Females and post-pubescent adolescents were more likely to feel body image dissatisfaction. Intervention programs may be proposed as strategies for the construction of a positive body image.

**Keywords:** cross-section, young people, puberty, schooling.

## Sexo feminino e adolescentes pós-púberes: grupos de maior exposição ao desenvolvimento da insatisfação corporal em São Bonifácio, no Estado de Santa Catarina, Brasil

**RESUMO.** Verificar a prevalência de insatisfação com a imagem corporal de adolescentes e analisar quais fatores a ela estão associados. Amostra composta por 278 adolescentes, de 10 a 17 anos, estudantes da rede pública de ensino de um município de pequeno porte do Sul do Brasil. Foram coletadas informações sociodemográficas (sexo, idade, área de domicílio e escolaridade do chefe da família), autoavaliação da maturação sexual e percepção da imagem corporal (escala de silhuetas corporais). Para a análise estatística, foram utilizados a distribuição de frequência, o teste "t" de Student para amostras independentes, o qui-quadrado e exato de Fisher, e a regressão de Poisson com ajuste robusto para variância. A prevalência de insatisfação com a imagem corporal foi de 59,3%, sendo maior no sexo feminino (65,6%), quando comparada ao sexo masculino (53%). Verificou-se associação entre percepção da imagem corporal e maturação sexual, mostrando que os adolescentes pós-púberes apresentam maior probabilidade de insatisfação quando comparados aos seus pares pré-púberes. O sexo feminino, assim como os adolescentes pós-púberes, foram os grupos que apresentaram maior chance de insatisfação corporal. Sugere-se que programas de intervenção proponham estratégias visando a construção de uma imagem corporal positiva.

**Palavras-chave:** transversal, jovens, puberdade, escolaridade.

### Introduction

Body beauty is established and standardized by different criteria which vary according to the way men and women see it and also to a specific and peculiar moment in history lived by society. Currently, there is an 'fever' for the perfect body, causing people to manifest changes in the representation of their body image (FERREIRA et al., 2005).

Since the social media constantly expose beautiful bodies and encourage people to become

compulsive in the search for ideal anatomy, there is concomitantly an increase in the dissatisfaction of overall body image (FROIS et al., 2011). This phenomenon has particularly affected adolescents. Studies on this section of the population have revealed a high prevalence of body image dissatisfaction (CORSEUIL et al., 2009; VILELA et al., 2004).

Until a few years ago, females were prevalent in body dissatisfaction. However, recent studies

(FIDELIX et al., 2011; PELEGRINI; PETROSKI, 2010) showed that males have shown even greater body dissatisfaction than females. There is a consensus in literature on the theory that women usually want to decrease body silhouette (PELEGRINI; PETROSKI, 2010; PINHEIRO; GIUGLIANI, 2006) while males want to exhibit strength (PEREIRA et al., 2009; VILELA et al., 2004).

Further, age may also be related to body image dissatisfaction. Although several investigations have shown that dissatisfaction increases with age (McNAMARA et al., 2008; MOUSA et al., 2010), this fact is not so well established in literature, since cross-sectional (FIDELIX et al., 2011; TRICHES; GIUGLIANI, 2007) and longitudinal studies (JONES, 2004; STICE; WHITENTON, 2002) do not confirm this association and further investigation is required.

The influence of sexual maturation on body satisfaction is a very important issue and scantily explored in the literature. Some studies have shown that girls who have had early sexual maturation are more dissatisfied than those who had a rather late one (McCABE; RICCIARDELLI, 2004; PETROSKI et al., 1999). However, as in the case of age, such association is not confirmed by other researchers (STICE; WHITENTON, 2002). In the case of boys, the literature has all sorts of gaps in this area. Investigating the maturation in adolescents becomes important, since early maturation may trigger other factors that contribute towards the development of body dissatisfaction in adulthood, such as anxiety symptoms and erratic eating (ZEHR et al., 2007).

One still unclear issue in specialized literature refers to the area of residence and size of the town or city in which the adolescent lives. Most studies underpinned that body image was restricted to adolescents living in large city centers (PELEGRINI; PETROSKI, 2010; PEREIRA et al., 2009), but it seems that body image dissatisfaction, albeit much reported in large urban centers, has also affected adolescents living in small towns, even those in rural areas (FIDELIX et al., 2011; MIRANDA et al., 2011; TRICHES; GIUGLIANI, 2007).

Although schooling may be an indicator of socioeconomic status which may be linked to body dissatisfaction, there are still no studies on Brazilian adolescents reporting on the educational level of the family head associated with the body image. Even though the topic of body image perception arouses the interest of researchers and

professionals from various health areas, some points are not well established and others are even missing in literature. With the advancement of statistical analyses, indispensable tool for data analysis, more accurate results may be observed and projected to individuals with similar characteristics as the population studied. Current study determines the prevalence of body image dissatisfaction in adolescents and analyses associated factors.

## Material and methods

The study on body image perception and associated factors in a small town has been a development of the project "Physical activity and lifestyle: a study of three generations in São Bonifácio, Santa Catarina State, Brazil" approved by the Ethics Committee in Human Research - Federal University of Santa Catarina (UFSC) (Process no. 973/2010).

The town of São Bonifácio, originally settled by Germans and lying 70 km from Florianópolis, Santa Catarina State, southern Brazil, has 3,008 inhabitants, of which 77.23% live in rural areas. The town's economy is based on agriculture, especially the planting of tobacco, horticulture and dairy production, featuring an intermediate Human Development Index of 0.785.

The population under analysis was composed of adolescents, aged 10 to 17 years, enrolled in public schools in São Bonifácio, Santa Catarina State, Brazil, in 2010 (N = 291). A school census was conducted and all adolescents within this age bracket were invited to participate.

The team of evaluators was composed of teachers and Physical Education students. Prior to data collection, a previous training was performed for the standardization and application of questionnaires. After this training, a pilot study was carried out in a sample composed of adolescents with characteristics similar to those of the present study to test the measurement instruments and the time required for the application of the questionnaire.

Data collection was carried out in September 2010 on the school premises during the class period. In the classroom and guided by two evaluators, the adolescents were first asked to fill the questionnaire containing information regarding body image and sociodemographic factors. Then, they were taken to the gymnasium where sexual maturation was self-assessed, individually guided by an evaluator of the same sex as the adolescent.

Body image perception was investigated by a body silhouette scale, initially proposed by Stunkard et al. (1983). The instrument consists of nine silhouettes for both sexes, and figures vary progressively in the scale of measures, from the leanest to the most obese. The set of silhouettes was shown to adolescents, who responded to two questions: What is the silhouette that best represents your current body appearance (real)? What is the body silhouette you would like to have (ideal)? When the variation between real and ideal silhouette was zero, adolescents were classified as satisfied; if variation was other than zero, they were classified as dissatisfied.

Demographic information on sex, age, area of residence and educational level of family head was also collected. For data analysis, age was grouped into 10-13-year bracket and 14-17-year bracket. Sex (male/female) and area of residence (rural/urban) were reported by adolescents. To maximize data reliability on the educational level of the family head, adolescents took the questionnaire home to be filled by parents with regard to the latter's last complete year at school. These data were categorized into primary education (1<sup>st</sup> to 8<sup>th</sup> grade), high school (1<sup>st</sup> to 3<sup>rd</sup> year) and higher education.

Sexual maturation was obtained by using stages of pubic hair development for boys and breast development for girls, proposed by Tanner (1962) and developed by the Nutrition Department of the Federal University of Santa Catarina (ADAMI; VASCONCELOS, 2008). Adolescents in Stage 1 were considered pre-pubescent; pubescent in Stages 2, 3 and 4; post-pubescent adolescents in Stage 5.

To check the prevalence of body image dissatisfaction, frequency distribution was used. The difference between means and proportions of each variable was assessed by Student's *t* test for independent samples and chi-square and Fisher's exact test, respectively. Since high prevalence of the outcome (body dissatisfaction) occurred, Poisson regression with robust variance adjustment was used to examine associations between the outcome and the factors investigated (sex, age, area of residence, educational level of family head and sexual maturation), estimating prevalence ratios and confidence intervals. All independent variables were entered into the adjusted regression model. Data were entered in Excel® software and analyzed with the Statistical Package for Social Sciences (SPSS) 20.0. The level of significance was set at 5% ( $p \leq 0.05$ ).

## Results and discussion

The study sample was composed of 278 adolescents (representing 95.5% of total students enrolled), 147 boys and 131 girls, with mean age 13 years for both sexes. According to the sexual maturation stage, average age was 10.69 for pre-pubescent, 12.75 for pubescent and 15.74 for post-pubescent adolescents.

Higher proportions of pubescent and post-pubescent adolescents for both sexes have been observed (Table 1), which was expected due to the fact that the population age under analysis included mostly older adolescents.

**Table 1.** Frequency and percentage of adolescents, according to sex, distributed for each sexual maturation stage.

	Male		Female	
	n	%	N	%
Pre-pubescent	7	4.6	11	7.7
Pubescent	121	79.6	112	78.9
Post-pubescent	24	15.8	19	13.4

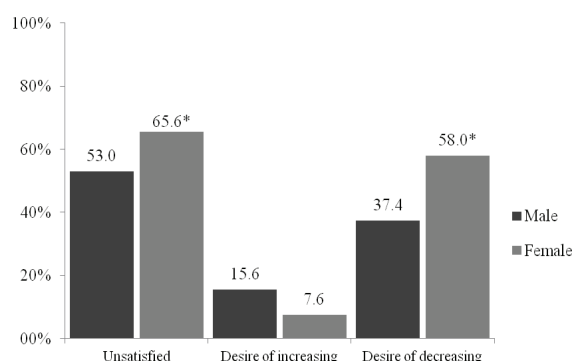
The prevalence of body image dissatisfaction was 59.3%. The distribution of adolescents according to the variables investigated and body image perception is shown in Table 2. Survey showed that 65.6% of girls and 53.0% of boys were dissatisfied with their body image (desire of increasing + desire of reducing), significantly higher in females than in males.

**Table 2.** Body image perception according to independent variables. São Bonifácio, Santa Catarina State, Brazil, 2010.

Variables	Satisfied		Desire of increasing		Desire of decreasing		p-value
	n	%	n	%	N	%	
Sex*							0.002
M	69	46.9	23	15.6	55	37.4	
F	45	34.4	10	7.6	76	58.0	
Age (years)							0.533
10-13	67	42.1	16	10.1	76	47.8	
14-17	46	39.0	17	14.4	55	46.6	
Area of residence							0.673
Urban	37	40.7	13	14.3	41	45.1	
Rural	77	41.2	20	10.7	90	48.1	
Educational level of family head							0.833
Primary education	80	42.1	24	12.6	86	45.3	
High school	15	41.7	03	8.3	18	50.0	
Higher education	09	52.9	02	11.8	06	35.3	
Sexual maturation							0.042
Pre-pubescent	10	76.9	00	0	03	23.1	
Pubescent	78	37.3	27	12.9	104	49.8	
Post-pubescent	18	47.4	06	15.8	14	36.8	

M: male, F: female; Chi-square and Fisher's exact test, \* $p < 0.05$ .

Figure 1 shows the proportion of adolescents, stratified by sex and classified according to body image perception. Girls were more unsatisfied and dissatisfaction was reflected in their desire to reduce their silhouette.



**Figure 1.** Distribution of adolescents according to body image perception and sex; \* $p < 0.05$ .

Table 3 shows that sexual maturation was the only association found between perceived body image and variables analyzed. Post-pubescent adolescents were more likely to be dissatisfied when compared to their pre-pubescent peers.

**Table 3.** Crude and adjusted prevalence ratios of body image perception considering the demographic, educational level of family head and sexual maturation indicators in adolescents from São Bonifácio, Santa Catarina State, Brazil, 2010.

Variables	Crude PR (CI95%)	Adjusted PR (CI95%)
Sex		
M	1	1
F	1.13 (1.01 – 1.27)*	1.12 (0.98 – 1.28)
Age (years)		
10-13	1	1
14-17	1.03 (0.92 – 1.16)	1.05 (0.91 – 1.21)
Area of residence		
Urban	1	1
Rural	1.00 (0.88 – 1.13)	0.97 (0.84 – 1.12)
Educational level of family head		
Primary education	1	1
High school	1.00 (0.84 – 1.20)	0.85 (0.66 – 1.09)
Higher education	0.90 (0.70 – 1.15)	0.99 (0.82 – 1.19)
Sexual maturation*		
Pre-pubescent	1	1
Pubescent	1.49 (1.17 – 1.89)*	1.28 (0.94 – 1.75)
Post-pubescent	1.34 (1.02 – 1.78)*	1.46 (1.13 – 1.88)*

M: male, F: female; PR = prevalence ratio, \* $p < 0.05$ .

The understanding of the causes that trigger body dissatisfaction becomes important because several results have demonstrated that negative body image perception is associated with various health problems such as eating disorders, low self-esteem and depression, which encourage people to lose weight through unhealthy practices (NEUMARK-SZTAINER et al., 2006).

The prevalence of body image dissatisfaction in current study agrees with specialized literature in Brazil, since several Brazilian studies have shown that body image dissatisfaction varies between 59 and 85% in adolescents (CORSEUIL et al., 2009; VILELA et al., 2004). When compared to other countries, different prevalences according to the study area may be observed. For instance, 70% of adolescents

in Germany are dissatisfied with their body image (MOHNKE; WARSCHBURGER, 2011) while prevalence reached 76% for girls and 61% for boys among Latino adolescents (AYALA et al., 2007). In the United States, the California Health Interview Survey, the largest health survey, found a dissatisfaction prevalence of 23% (WILKOSZ et al., 2011). It should be underpinned that differences between prevalence percentages may also be due to different methods used in different studies.

Dissatisfaction was higher among females (65.6%) than in males (53%) in current study, which corroborates reports from other studies (PETROSKI et al., 2012; WILKOSZ et al., 2011). However, certain investigations suggested that male students reported greater dissatisfaction than female students (FIDELIX et al., 2011; PELEGRINI; PETROSKI, 2010). Ferreira et al. (2005) reported that in Brazil, especially in the southern and southeastern regions, there is a growing and compulsive obsession of males to become stronger while females desire smaller and more linear silhouettes (PINHEIRO; GIUGLIANI, 2006). This fact may be explained by cultural factors, where the male body is perceived as an active organism, while the female body as seen as the object of the male gaze (SMOLAK, 2004).

Since the body image construction is a cyclical and gradual process, there may be controversial results in studies that assess age, since several investigations have shown that dissatisfaction increases over the years (McNAMARA et al., 2008; MOUSA et al., 2010), while others do not confirm this association (JONES, 2004; STICE; WHITENTON, 2002). Body image is constructed and reconstructed throughout life, making individuals live in constant body reorganizations (FROIS et al., 2011). In fact, the literature suggests that body image dissatisfaction is present throughout life, from childhood to old age. Although there is no significant relationship between body image dissatisfaction and age, Triches and Giugliani (2007) observed that, over the years, a changing trend is formed, mainly revealed by the desire to lose weight.

The desire to have a different silhouette, manifested by body dissatisfaction, has been reported a long time ago largely in urban centers but it seems to be affecting even adolescents living in rural areas and villages. The few studies that have investigated this issue have shown contradictory results, sometimes finding higher dissatisfaction prevalent in rural areas (PETROSKI et al., 2009) whereas sometimes such prevalence is higher among those living in urban areas (PETROSKI et al., 2012; TRICHES; GIUGLIANI, 2007). Miranda et al. (2011) studied adolescents aged 15 to 19 years living

in four villages with up to 5,000 inhabitants in the backlands of Minas Gerais State, Brazil, and also found that there is significant variation in the body dissatisfaction prevalence between town and city populations. The cult of the body varies according to the cultural specificities of each society and is influenced by habits, customs, beliefs and regional traditions (FERREIRA et al., 2005). The above justifies the fact that geographically close regions may have different dissatisfaction prevalences.

Current study found no association between body image and the family head's educational level. Result agrees with finding in an international study (STICE; WHITENTON, 2002) which seems to show that body image dissatisfaction is independent on the educational level of family head.

Studies on maturation are focused on investigating secondary sexual characteristics, i.e., those linked to the development of breasts, genitals, facial hair, pubic hair and voice changes (DUARTE, 1993). Maturation is a point that should be taken into account when body image is studied. In fact, a rapid accumulation of lean mass in boys and fat in girls occurs during puberty, caused by growth and sex hormones. Despite lack of studies in the area, specific literature has suggested that early maturation in both sexes increases the risk of developing overweight and obesity in adulthood (VAN LENTHE et al., 1996). Puberty is then associated with increased body dissatisfaction and studies show that early maturation in the case of girls leads them to be more dissatisfied with their body image due to excess weight (McCABE; RICCIARDELLI, 2004; PETROSKI et al., 1999).

Conti et al. (2005) reported the issue of body image dissatisfaction and the relationship with sexual maturation in both sexes, revealing that post-pubescent adolescents were more susceptible to the onset of body dissatisfaction compared to their peers. Another interesting finding was that post-pubescent girls expressed greater body dissatisfaction when compared to pre-pubescent ones, or rather, contrary to what occurs in boys. Schoolchildren from southern Brazil also showed similar behavior, with post-pubescent adolescents feeling more body image dissatisfaction when compared to pre-pubescent ones (AERTZ et al., 2010).

One of the main limitations of current research is the cross-sectional characteristic of this study by which it is not possible to establish a cause-effect relationship between variables. The method of body silhouettes, though widely used in literature, it is a black and white or a two-dimension figure, which may limit body image perception. Although

studies have shown high correlations between self-assessment of sexual maturation and evaluation by skilled professional, an under- or over-estimation of sexual maturation stages could have occurred, possibly influenced by cultural issues. However, coupled to statistical analyses, the use of little or not fully explored variables in literature should be emphasized.

## Conclusion

After detecting that females and post-pubescent adolescents are the most vulnerable groups in an analysis on the development of body dissatisfaction, intervention programs aimed at this population are suggested to make them aware of the stereotypes imposed by society and to guide them in the process of body image construction in this important phase of life. It is noteworthy that the sample used in this study is representative of the population of schoolchildren living in a small town and with rural characteristics. In fact, these results are only valid for adolescents with similar characteristics.

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