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J Health Psychol published online 18 April 2012
DOI: 10.1177/1359105311434755

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What is This?
Geographic location, sex and nutritional status play an important role in body image concerns among Brazilian adolescents

Maria Fernanda Laus¹, Valter Paulo Neves Miranda², Sebastião Sousa Almeida¹, Telma Maria Braga Costa³ and Maria Elisa Caputo Ferreira²

Abstract
This study compared body image concerns among adolescents from different geographic locations in Brazil, and the influence of sex and nutritional status. Seven hundred eighty-eight adolescents completed the Body Shape Questionnaire (BSQ) and had their weight and height measured. There were significant cross-regional differences in BSQ scores. Also, body image concerns were more prevalent among girls and among overweight adolescents. It is suggested that sex and nutritional status may play an important role in body image concerns, which is more common between adolescents from urban areas. Furthermore, our findings contribute to the literature by examining patterns of body image concerns within subgroups of adolescents who have received little research attention on these issues.

Keywords
adolescents, body image, geographic location, nutritional status, sex

Introduction
Theorists have identified several biological and environmental factors that may be associated with body image during adolescence. It is suggested that biological variables include race/ethnicity (Banitt et al., 2008; Ceballos and Czyzewksa, 2010), sex (Knauss et al., 2008; Martin et al., 2010) and body mass index (BMI) (Lawler and Nixon, 2011; Presnell et al., 2004). Similarly, environmental factors include family and peer pressures (McCabe and Ricciardelli, 2005; Rodgers and Chabrol, 2009), culture and exposure to media images (Wiseman et al., 2005), socioeconomic status (SES) (Van Den Berg et al., 2004).

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In Brazil, it has been highlighted the high value assigned to the corporeal self by the population as well as the identification of the body itself as a status symbol (Edmonds, 2007). Indeed, Edmonds goes further in seeing physical appearance as an essential element in the construction of a national Brazilian identity, regardless the age. Although some of the factors listed have been widely investigated around the country, others have received little or even no attention from researchers.

Studies related to body image are extensively steered to girls, especially from urban areas. The small number of studies that have investigated the theme in both boys and girls were also mainly conducted in urban areas and demonstrated a prevalence of body dissatisfaction around 70–75% (Adami et al., 2008; Branco et al., 2006). However, little is known about body image concerns and their relationship with geographic location among Brazilian adolescents. Few researchers have conducted such studies (Fidelix et al., 2011; Petroski et al., 2009) and their results demonstrated that the prevalence of body image dissatisfaction was similar among rural and urban adolescents. Despite their attempt to increase the knowledge in the field, it is important to notice that, in both studies, dissatisfaction was evaluated through a Figure Rating Scale, which is not validated to the Brazilian population.

As a result, if body image-related problems do exist in adolescents from rural areas of Brazil, they have not been explored and this population may be overlooked in terms of body image interventions. Hence, the aim of this study was to compare body image concerns among adolescents from different geographic locations and indirectly examine the relationship between sex and nutritional status and these concerns.

Methods

Participants

A sample of 788 adolescents (369 boys and 419 girls), between the ages of 14 and 19 years, was drawn from 14 secondary schools from five Brazilian cities, one classified as urban and the others as rural ones. The urban city, Ribeirão Preto, which is located in São Paulo state, has over 600,000 inhabitants, with a population density of approximately 928 inhabitants per km². The rural cities, Pequeri, Goianá, Tabuleiro and Belmiro Braga, which are located in Minas Gerais state, have below 4,000 inhabitants each, with a population density varying from 8 to 34 inhabitants per km².

In Ribeirão Preto, the schools were selected by dividing the city in five quadrants and randomly choosing two schools from each one, with a total of 10. The other four schools were from the rural cities and were selected using a multistage cluster design. At each school, adolescents were randomly selected, and all (100%) eligible students agreed to participate in the study. At the end, the study population represented more than 1% of all the secondary students of their respective school districts.

Adolescents were informed that study participation was completely voluntary and that all information would remain confidential. Informed consent was obtained from both the students and the parents or guardians. The study was approved by the Academic and Ethics Committee of the Faculty of Philosophy, Sciences and Letters of Ribeirão Preto – University of São Paulo – University of São Paulo (protocol number 2005.1.1869.59.7), and the Human Research Ethics Committee of the Federal University of Juiz de Fora (protocol number 1612.302.2008).

Body Shape Questionnaire (BSQ)

The Body Shape Questionnaire was used to measure, over the preceding four weeks, the
extent of psychopathology of body shape concerns and, in particular, the phenomenological experience of ‘feeling fat’. This is one measure of the cognitive–attitudinal aspect of body image proposed by Cooper et al. (1987). The Brazilian version was validated for adolescents by Conti et al. (2009) and displayed a good internal consistency (α=0.96). It consists of 34 self-scored questions using the Likert scale, with answers varying from 1 (never) to 6 (always). The score is the sum of the items, which classifies levels of concern about the body. A score of less than 80 points is taken as evidence of no concerns, 80 to 110 represents mild concerns, 111 to 140 moderate concerns and above 140 indicates severe concerns.

**Nutritional status**

Anthropometric measurements were made with participants lightly dressed and barefoot. Weight was measured to the nearest 0.1 kg, using a calibrated electronic scale (Kratos-Cas®, Brazil). Height was measured to the nearest 0.5 cm using a portable anthropometer (Kratos-Cas®, Brazil) set against the wall, ensuring accurate subject posture before reading the fixed marker. The Body Mass Index (BMI) was calculated by the ratio of weight (kg) to the square of height (m²), and the nutritional status was defined by the age-and sex-specific BMI percentile proposed by the World Health Organization (World Health Organization, 2007).

**Analyses**

Statistical analysis was performed using SPSS version 17.0. Comparisons between mean age and BMI were performed with the t-test. Categorical variables were summarized using frequencies and percentages and analyzed through the χ² test. Mann-Whitney test was used to evaluate whether there were differences in body image scores between sex and location. Kruskal-Wallis test, followed by the Bonferroni post hoc analysis, was used to compare differences in BSQ scores between nutritional status categories. A 5 percent confidence interval was considered statistically significant.

**Results**

The sample consisted of 788 adolescents, with approximately 52 percent from rural areas. Girls represented a little over half (53%) of the subjects. Table 1 displays additional background information on the sample. There was a slight, but significant, difference in mean age between location groups (t = 5.07, d.f. = 786, p = 0.00), but no differences in BMI (t = 0.26, d.f. = 786, p = 0.79). Subjects with normal weight were prevalent in both urban and rural areas (78.9% and 72.9%, respectively), followed by overweight subjects (13.1% and 14.3%) (χ² = 5.52, d.f. = 3, p = 0.13). It was also observed that body image concerns were reported by 33.3 % of adolescents from urban areas and 27.6 % from rural ones (χ² = 7.03, d.f. = 3, p = 0.07), and, in both groups, mild forms were more common than moderate and serious concerns.

When examining location and sex differences in BSQ scores, the Mann-Whitney test revealed an effect of both. Adolescents living in urban areas scored significantly higher (M = 72.86, SD = 33.19) than those from rural ones (M = 67.33, SD = 29.82, p < .05), and girls displayed higher means (M = 80.23, SD = 34.03) than boys (M = 58.29, SD = 23.65, p < .001). As for nutritional status, the Kruskal-Wallis test also demonstrated a significant effect, with the Bonferroni post hoc test showing that body image concerns are more common between overweight (M = 91.29, SD = 38.52) and obese adolescents (M = 83.90, SD = 33.98, p < .05), when compared to underweight (M = 61.40, SD = 22.30) and normal weight ones (M = 64.99, SD = 28.03).

**Discussion**

This study is one of a few that have compared body image concerns among a representative sample of urban and rural adolescents in
Brazil, and the influence of sex and nutritional status. Most participants showed no body image concerns (69.7%) and similar results have been reported among adolescents in Brazil (Conti et al., 2009) and other Latin American countries (Rodriguez and Cruz, 2008). To our knowledge, these studies are two of the few that have used the Body Shape Questionnaire to assess body image concerns among adolescents, even though the validity of this instrument has already been established for this population (Bunnell et al., 1992; Conti et al., 2009).

Adolescents from rural areas appear to be less concerned about their body image than adolescents from urban areas, a result that is different from what has been reported by other authors (Austin et al., 2009; Welch et al., 2004). We hypothesized that there may be differences in cultural ideals between different locations, or perhaps body-related pressure may be higher among urban adolescents, due to their exaggerated exposure to media imagery.

Girls scored significantly higher than boys in the BSQ, as was also found by Conti et al. (2009) and Mancilla-Díaz et al. (2009). Although body image concerns have been increasing in males in the last decades (McCabe and Ricciardelli, 2004), females, especially at this age, still are thought to be more worried about their physical appearance (Penelo et al., 2011). Girls are more affected by media messages about the ideal body than boys and demonstrate acute awareness of how thinness is idealized within their society (Ahern et al., 2011; Hall et al., 2011); therefore, they may suffer more pressure to have a slim body.

Additionally, an alternative explanation to this difference between boys and girls remains in the instrument used. Although there have been studies that underscore the appropriateness of the Body Shape Questionnaire in males,

Table 1. Descriptive statistics for variables according to location groups (n=788)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>191</td>
<td>51.8</td>
<td>178</td>
</tr>
<tr>
<td>Girls</td>
<td>184</td>
<td>43.9</td>
<td>235</td>
</tr>
<tr>
<td>Total</td>
<td>375</td>
<td>47.6</td>
<td>413</td>
</tr>
<tr>
<td>Nutritional status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underweight</td>
<td>8</td>
<td>2.1</td>
<td>14</td>
</tr>
<tr>
<td>Normal weight</td>
<td>296</td>
<td>78.9</td>
<td>301</td>
</tr>
<tr>
<td>Overweight</td>
<td>49</td>
<td>13.1</td>
<td>59</td>
</tr>
<tr>
<td>Obesity</td>
<td>22</td>
<td>5.9</td>
<td>39</td>
</tr>
<tr>
<td>Body image status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No concerns</td>
<td>250</td>
<td>66.7</td>
<td>299</td>
</tr>
<tr>
<td>Mild concerns</td>
<td>69</td>
<td>18.4</td>
<td>76</td>
</tr>
<tr>
<td>Moderate concerns</td>
<td>40</td>
<td>10.7</td>
<td>24</td>
</tr>
<tr>
<td>Severe concerns</td>
<td>16</td>
<td>4.3</td>
<td>14</td>
</tr>
<tr>
<td>Mean ±SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>16.21 ± 1.02&lt;sup&gt;a&lt;/sup&gt;</td>
<td>16.60 ± 1.14&lt;sup&gt;b&lt;/sup&gt;</td>
<td>16.42 ± 1.10</td>
</tr>
<tr>
<td>BMI</td>
<td>22.09 ± 3.79</td>
<td></td>
<td>22.16 ± 3.80</td>
</tr>
</tbody>
</table>

Note: Means with different superscripts are significantly different
<sup>a,b</sup>p < .001
our practical experience shows us a different reality. Especially at this age, it is common to observe that a high number of boys do not identify themselves with several situations described by the instrument. This may be due to the fact that the items that constitute this instrument were derived by conducting semi-structured interviews with various groups of women (Cooper et al., 1987) and, consequently, they describe situations experienced by females, but that are not present in males’ daily experiences.

Besides sex and location differences, overweight and obese adolescents reported higher scores in the BSQ than their underweight and normal weight counterparts, as it was similarly described by Conti et al. (2009) and Rodriguez and Cruz (2008). In Brazil, as in most Western societies, the male ideal is a lean, but muscular, V-shaped figure with emphasis placed on biceps, shoulders, chest and abdomen; whereas the female ideal is to be extremely thin, with emphasis placed on slim hips, bottom and thighs. In agreement with our finds, a recent study conducted by Yanover and Thompson (2010) demonstrated that overweight is seen as less attractive by both men and women. If it is taken into account that slender images in the media have been increasing in the last decades, it is plausible to suppose that adolescents who are overweight or obese are extremely distant from these patterns and, therefore, may experience more body shape concerns (Ahern et al., 2011). It is important to notice, however, that these feelings are usually observed in individuals living in cultures where the beauty ideal is equal to thinness, since some ethnic groups prefer larger body sizes (Barroso et al., 2010; McCabe et al., 2011).

Our study has some limitations that should be considered. First, all the cities studied were situated in Southeastern Brazil, which is the wealthiest and most developed country region. Thus, our results can not be generalized to the Brazilian population as a whole, especially to those living in the Northern and Northeastern regions. Secondly, we did not take into account the SES of the sample; thus, it is possible that the differences found in body image concerns between urban and rural adolescents lie in household income features instead of the geographic location.

In sum, geographic location, sex and nutritional status seem to play an important role in body image concerns among adolescents. Furthermore, our findings contribute to the literature by examining patterns in body image concerns within subgroups of adolescents who have received little research attention on these issues. Once it is known that body image disorders may lead to symptoms of inappropriate practices of weight control and eating disorders, interventional programmes should be thought in order to protect these individuals who are at risk of develop health problems.

Notes
1. According to the criteria proposed by the Organization for Economic Co-operation and Development (OECD, 1994), which defines a commune as rural if the population density is below 150 inhabitants per km².

Funding
This article was funded by Fundação de Amparo à Pesquisa do Estado de São Paulo – FAPESP (Process 2006/01606-6).

References


