Does self-esteem affect body dissatisfaction levels in female adolescents?

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Received 6 January 2014; accepted 27 February 2014

Abstract
Objective: To evaluate the influence of self-esteem on levels of body dissatisfaction among adolescent females.
Methods: A group of 397 adolescents aged 12 to 17 years were enrolled in the study. The Body Shape Questionnaire (BSQ) was applied to assess body dissatisfaction. The Rosenberg Self-Esteem Scale was used to assess self-esteem. Weight, height, and skinfold thickness were also measured. These anthropometric data were controlled in the statistical analyses.
Results: The multiple regression model indicated influence of “positive self-esteem” ($R^2=0.16; p=0.001$) and “negative self-esteem” ($R^2=0.23; p=0.001$) subscales on the BSQ scores. Univariate analysis of covariance demonstrated differences in BSQ scores ($p=0.001$) according to groups of self-esteem.
Conclusion: It was concluded that self-esteem influenced body dissatisfaction in adolescent girls from Juiz de Fora, MG.

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Introduction

Adolescence is a period comprising the age range of 10 to 19 years old, during which several psychological, social, and morphological changes occur. Evidence indicates increased responsibility, demands, and changes in friendship among adolescents. Scientific investigations also indicate the increased percentage of body fat in females during adolescence. These and other modifications may influence body image.

Body image refers to a multifaceted construct, encompassing perception, emotion, feelings, and thoughts directed to one’s own body. Body dissatisfaction, classified as a component of body image, concerns the dissatisfaction with one’s weight, appearance, and physical shape. Studies have shown a prevalence of body dissatisfaction ranging from 10% to 40% among adolescents. More specifically, it appears that this prevalence may be even higher among female adolescents. Body dissatisfaction may be associated with self-esteem.

Self-esteem is related to the set of feelings and thoughts of the individual regarding his/her own worth, competence, and suitability, which results in a positive or negative attitude towards oneself. Self-esteem is subdivided into negative and positive. The first refers to feelings of worthlessness and failure and the second is related to the feelings of satisfaction and appreciation of oneself. Flament et al. indicate that the main point of self-esteem is the evaluative aspect, which influences how the individual sets his goals, accepts himself, values others, and projects his expectations for the future.

Self-esteem is considered one of the main predictors of favorable outcomes in adolescence, with implications in areas such as interpersonal relationships and academic performance. In contrast, the influence of this characteristic has also been observed in adverse problems such as aggression, antisocial behavior, delinquency in youth, and negative changes in body image.

Evidence has shown a positive association between negative self-esteem and body dissatisfaction. Similarly, previous studies showed an inversely proportional association between positive self-esteem and body dissatisfaction. However, these investigations were developed with populations from Chile, the United States, and Canada. A search was performed with some descriptors (body image, self-esteem and adolescents) in the main scientific databases (SciELO, PubMed, and Scopus), and no research was found that attempted to analyze the influence of self-esteem on body dissatisfaction in Brazilian adolescents. The findings of such a study could assist professionals who work directly with adolescents in the organization of meetings, lectures, and discussions that have body in adolescence as the central focus. Given the above, the aim of the study was to evaluate the association between self-esteem and body dissatisfaction in female Brazilian adolescents.

Methods

This was a cross-sectional, school-based study conducted during 2012 and 2013 in the city of Juiz de Fora, state of Minas Gerais, Brazil, with female adolescents aged between 12 and 17 years. According to information from the Education Secretariat of Juiz de Fora, the population of female adolescents aged 12 to 17 years enrolled in municipal schools in 2012 was approximately 41,000. Thus, sample size calculation was performed using the following criteria, following the recommendations of Alves et al.: 30% prevalence of body dissatisfaction, according to the findings of Fortes et al., 95% confidence, 5% sampling error, and the total value was increased by 20% due to possible losses, totaling 387 students necessary for a representative sample. Sample size calculation was performed using EpiInfo software (release 3.5) (Centers for Disease Control and Prevention, Georgia - USA).

The proportional sample was stratified according to the location of schools in the sociogeographic regions of Juiz de Fora (North, Central, and South) and the type of school (public or private), and then distributed into primary and secondary education. The selection was performed randomly through simple drawing, in two stages. First the drawing of the schools was performed in each region, and then the drawing of adolescents in these units. The schools were selected from the list provided by the statistics section of the Education Secretariat of the State of Minas Gerais. The final study sample was divided into six different sampling sites (schools) and consisted of randomly selected female adolescents that were present in the schools on the collection days.

Only adolescents whose parents or guardians signed the informed consent and who were regularly enrolled in an elementary or high school in the city of Juiz de Fora/MG during 2012 or 2013 were included. A total of 439 girls were chosen to participate, of whom 42 were excluded for not appropriately completing the questionnaire or not participating in anthropometric assessments; thus a final sample of 397 adolescents was assessed.

**Conclusão:** Concluiu-se que a autoestima influenciou a insatisfação corporal em meninas adolescentes de Juiz de Fora/MG.

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Body dissatisfaction was assessed by the Body Shape Questionnaire (BSQ). The BSQ is a self-reporting tool consisting of 34 questions on the Likert point scale, ranging from 1 = never to 6 = always, which aims to assess the frequency of concern or dissatisfaction that the young individual has with weight and physical appearance i.e., body dissatisfaction. The higher the score, the higher the dissatisfaction with body appearance. This questionnaire has been validated for the Brazilian adolescent population and has good psychometric properties. Internal consistency was calculated by Cronbach’s alpha for the present sample, yielding a satisfactory value of 0.96. It is also possible to differentiate the assessed adolescents by the cutoffs that classify four levels of body dissatisfaction: less than 80 points, free of body dissatisfaction; between 80 and 110, slight dissatisfaction; between 110 and 140, moderate dissatisfaction; and scores above 140, severe dissatisfaction.

Self-esteem was assessed by the Rosenberg Self-Esteem Scale (RSES). This scale consists of 10 items, with three choices of answers on the Likert point scale (1 = completely agree; 2 = neither agree nor disagree; 3 = completely disagree). The tool has two factors. The first factor comprises six items related to positive self-esteem; the second factor, four items that refer to negative self-esteem. The higher the score on the scale, the higher the individual’s level of self-esteem. Due to the statistical analysis, the RSES was calculated, represented by the letter “d” to highlight the possible statistical differences. Finally, the effect size was calculated, represented by the letter “d” to highlight the importance of differences from a practical standpoint. BMI and body fat percentage were controlled in all analyses. All data were processed using SPSS 20.0 software (BM Corp. IBM SPSS Statistics for Windows, New York - USA), with a significance level of 5%.

### Results

The results indicated that 30.6% of the adolescents demonstrated body dissatisfaction, divided as follows: 16.1% with mild body dissatisfaction, 8.9% with moderate body dissatisfaction, and the remaining 5.6% with severe body dissatisfaction. Regarding self-esteem, the findings showed that 56% of the adolescents had low self-esteem (RSES < 26). The descriptive data for all variables in this study is described in Table 1.

The multiple regression model indicated a statistically significant association of the subscales “positive self-esteem” (F [1, 396] = 32.85, R²=0.16, p<0.001) and “negative self-esteem” (F [2, 395] = 25.63, R²=0.23, p=0.001) with BSQ scores (Table 2).

The univariate analysis of covariance showed differences in BSQ scores (F (1, 396) = 19.55, p=0.001, d=0.7) in rela-
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**Table 1** Descriptive values of the study variables. Juiz de Fora, 2013

| Variable  | Minimum | Maximum | Mean | SD  |
|-----------|---------|---------|------|-----|
| BSQ       | 34.0    | 192.0   | 70.9 | 36.9|
| RSES      | 12.0    | 30.0    | 24.9 | 4.1 |
| BMI (kg/m²)| 13.0    | 29.8    | 21.2 | 8.6 |
| BF%       | 5.8     | 43.1    | 22.6 | 6.7 |
| Age (years)| 12.0    | 17.0    | 13.8 | 1.7 |

SD, standard deviation; BSQ, Body Shape Questionnaire; RSES, Rosenberg self-esteem scale; BMI, body mass index; BF%, body fat percentage

**Table 2** Multiple linear regression using RSES subscales as the explanatory variables on BSQ variance in female adolescents. Juiz de Fora, 2013

| Variable       | Block | B      | R      | R²   | \( R^{2*} \) | p-value |
|----------------|-------|--------|--------|------|-------------|---------|
| RSES-positive  | 1     | 0.30   | 0.40   | 0.16 | 0.15        | ≤0.001  |
| RSES-negative  | 2     | 0.39   | 0.47   | 0.23 | 0.22        | ≤0.001  |

\( R^{2*} \), adjusted \( R^2 \); RSES, Rosenberg self-esteem scale.

The findings of this study indicated a prevalence of approximately 30% of body dissatisfaction among Brazilian female adolescents. Other studies have corroborated this result. Body dissatisfaction affects approximately one-third of the Brazilian female adolescent population, making it a public health problem. According to Flament et al., the media is mainly responsible for this fact, as it broadcasts images of skinny bodies associated with success, which tends to keep adolescents distant from reality and, in turn, generates feelings of dissatisfaction with weight, physical appearance, and body shape.

Regarding self-esteem, the results indicated a significant association between the “positive self-esteem” sub-scale and body dissatisfaction. Multiple regression analysis showed that 16% of body dissatisfaction was explained by feelings of satisfaction and self-appreciation. According to Caqueo-Urizar et al., girls with high positive self-esteem do not usually internalize the sociocultural ideal of thinness, causing reductions in body dissatisfaction. For instance, Flament et al. assessed the mediating effects of self-esteem between the internalization of the thinness ideal, body dissatisfaction, and risk behaviors for eating disorders. The authors demonstrated that positive self-esteem decreases female adolescents’ susceptibility to body dissatisfaction, which, in turn, reduces the likelihood of triggering risk behaviors for eating disorders. Similarly, Johnson et al. found that positive self-esteem accounted for the decrease in dissatisfaction with weight and physical appearance among American female university students. Thus, girls who value their personal qualities and feel able to perform tasks as well as other people appear to be less vulnerable to body dissatisfaction.

Regarding the negative self-esteem, this was also associated with body dissatisfaction. The results indicated that 8% of body dissatisfaction was explained by the negative self-esteem. Other scientific evidence supports these findings. The study of Flament et al. suggested that negative self-esteem is a major predictor of body dissatisfaction, second only to the internalization of the thinness ideal. Similarly, De Bruin et al. demonstrated that low self-esteem was closely related to body dissatisfaction in females. Considering what the scientific literature has found and the findings of this research, it can be assumed that feelings of worthlessness and failure can make adolescents more susceptible to dissatisfaction with their weight, physical appearance, and body shape.

Regarding the comparison of scores on the BSQ in relation to the self-esteem groups, the results suggested greater body dissatisfaction in adolescents with low self-esteem compared to those with high self-esteem. Corroborating these findings, Johnson et al. and Quispe et al. found greater body dissatisfaction in female university students and adolescents with low self-esteem than those with high self-esteem. Likewise, De Bruin et al. and Murray et al. observed greater body dissatisfaction in female adolescents with low self-esteem. It appears that low self-esteem plays an important role in increased concern with the body among female individuals.

As mentioned by Flament et al., perhaps the adolescents with low self-esteem more often internalize the sociocultural ideal of thinness, which has a negative effect on body dissatisfaction. The studies by Johnson et al. and De Bruin et al. were conducted with athletes. Therefore, comparisons with the results presented herein should be analyzed with caution.

Although the present study demonstrated interesting and unpublished results for Brazilian literature, it has limitations that should be mentioned. Researchers pointed out that young individuals might not reliably answer the questionnaire. However, Fortes emphasized that in studies with large samples, self-reporting tools can be considered the gold-standard method, as they are easy-to-apply and low-cost tools. Also noteworthy is the use of a doubly indirect method to estimate body fat in adolescents. However, the authors emphasize the difficulty of access to sophisticated equipment and the large financial costs to use this type of equipment. Finally, it is believed that this is the first study to be conducted in Brazil assessing the influence of self-esteem on body dissatisfaction in female adolescents.

The results demonstrated that low self-esteem was associated with body dissatisfaction among female adolescents in Juiz de Fora, MG. Thus, professionals that work in schools should concentrate on organizing events that aim to discuss body-related aspects during adolescence - for instance, the deleterious consequences to psychological health arising from negative comments made by friends in relation to body morphology. In summary, it is recommended that studies with longitudinal design are conducted to verify the cause and effect association of self-esteem and body dissatisfaction in Brazilian female adolescents.
Conflicts of interest

The authors declare no conflicts of interest.

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