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Application Of The Body Shape Questionnaire For The Assessment Of Body Image In Adolescents

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Abstract:
Background: *Adolescence is a critical stage of human development marked by significant biopsychosocial changes that influence body image. Body dissatisfaction is highly prevalent during this period and is associated with adverse mental health outcomes, including eating disorders, anxiety, and depression.*
Objective: *To evaluate body dissatisfaction among adolescents.*
Methods: *This descriptive, observational, cross-sectional, and analytical study was carried out at the Adolescent Medicine Outpatient Clinic of a teaching hospital and at a public state school in southern Brazil. The Body Shape Questionnaire (BSQ) was applicated to assess body dissatisfaction. Sex, age, and nutritional status were also analyzed. Statistical analyses were performed to assess associations between BSQ scores and the variables of interest.*
Results: *A total of 337 BSQ questionnaires were administered, of which 14 (4.1%) were excluded due to incomplete responses. 323 adolescents were included in the analysis, comprising 189 (58.5%) females and 134 (41.5%) males. Age ranking from 14 to 19 years old (average: 15.2 y. o.). Most participants had normal weight: 248 (76.8%), while 53 (16.4%) were overweight and 11 (3.4%) obese. The majority of adolescents showed no body image distortion 198 (61.3%); however, 125 (38.7%) presented level of dissatisfaction, including mild 50 (15.5%), moderate 23 (7.1%), and severe 52 (16.1%) forms. There were association between BSQ and female ($p<0.001$) and between BSQ and excess weight (p 0.008). No significant association was found between BSQ scores and age.*
Conclusion: *Body dissatisfaction was frequent among the adolescents evaluated and was more prevalent among females and those with overweight or obesity. These findings highlight the importance of using screening instruments, such as the BSQ, for the early identification of body dissatisfaction, enabling appropriate referral and the implementation of early interventions aimed at preventing body image-related disorders and promoting mental health in this population.*

Keywords: *Body image; Adolescents; Body mass index; Eating-disorders; Mental health.*

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I. Introduction

Adolescence is a developmental stage characterized by deep biopsychosocial changes, encompassing physical, emotional, cognitive, and social transformations. Within this context, life experiences play a significant role in shaping self-image and body identity. [1]

Body image is a multidimensional construct that encompasses perceptions, thoughts, and feelings related to one's own body and is influenced by both subjective and sociocultural factors. During adolescence, increased social pressures and prevailing beauty standards contribute to greater susceptibility to body dissatisfaction[2], which is recognized as an important risk factor for mental health disorders, particularly those associated with distorted body perception, such as body dysmorphic disorder[3,4]. Furthermore, body dissatisfaction is frequently associated with weight-related concerns and the internalization of unrealistic body ideals.

The assessment of body image perception can be performed using standardized and validated instruments, which are essential for the early identification of alterations in self-perception. Among the most widely used questionnaires are the Body Shape Questionnaire (BSQ), extensively employed to assess body

dissatisfaction and used as a screening tool in the Adolescent Medicine outpatient clinic of the teaching hospital where this study was conducted; the Eating Disorder Inventory (EDI), which includes subscales related to body image; the Multidimensional Body-Self Relations Questionnaire (MBSRQ), which evaluates multiple dimensions of body image; and the Body Image Avoidance Questionnaire (BIAQ), which focuses on behavioral aspects associated with body dissatisfaction[5-8]. Despite the clinical relevance of this topic, studies involving Brazilian adolescents remain limited. Therefore, the present study aimed to evaluate body image among a population of adolescents.

II. Method

This descriptive, observational, cross-sectional, and analytical study carried out at the Adolescent Medicine Outpatient Clinic of a teaching hospital and at a public state school, both located in the municipality of Cascavel, Paraná, Brazil. The study sample comprised adolescents and young adults aged 14 to 24 years who were either regularly enrolled at the participating school or receiving regular follow-up care at the afore mentioned outpatient clinic. Participants were selected by convenience sampling and voluntarily agreed to participate in the study. Written informed consent was obtained from participants aged 18 years or older or from their legal guardians when participants were younger than 18 years. In addition, participants younger than 18 years provided written informed assent. Following the consent process, the Brazilian version of the Body Shape Questionnaire (BSQ), which assesses body dissatisfaction, was applicated. BSQ scores were classified as follows: no body dissatisfaction (<80), mild body dissatisfaction (80–110), moderate body dissatisfaction (111–140), and severe body dissatisfaction (>140). In addition to BSQ scores, the following variables were analyzed: sex, age, and body mass index (BMI). Nutritional status was classified according to BMI-for-age z-scores as follows: severe thinness (< −3 SD), thinness (≥ −3 SD and < −2 SD), normal weight (≥ −2 SD and ≤ +1 SD), overweight (> +1 SD and ≤ +2 SD), obesity (> +2 SD and ≤ +3 SD), and severe obesity (> +3 SD). Body weight was measured using an electronic scale (Líder®, model P-300C, serial number 31403, manufactured in 2014, Brazil), with participants wearing light clothing. Height was measured using a wall-mounted stadiometer (Tonelli Equipamentos Médicos Ltda., model E150A, manufactured in 2014, Brazil), with participants barefoot. Body mass index was calculated using Quetelet's index (weight/height²) and classified according to the World Health Organization (WHO) 2007 Growth Reference Standards.

Statistical analyses were performed using Stata/SE version 14.1 (StataCorp LLC, College Station, TX, USA). Student's t-test for independent samples was used to compare quantitative variables between two groups. One-way analysis of variance (ANOVA) was used to compare quantitative variables across more than two groups. Associations between categorical variables were assessed using the Chi-square test. A p-value <0.05 was considered statistically significant.

This study was approved by Institutional Review Board from Western Paraná State University, Campus Cascavel, under opinion number 7.669.782/2025.

III. Results

A total of 337 Body Shape Questionnaires (BSQ) were filled, of which 14 (4.15%) were excluded due to incomplete responses. A total of 323 participants were included in the analysis, comprising 189 (58.5%) females and 134 (41.5%) males. Age ranking from 14 to 19 years old (mean age: 15.2 y.o.). Regarding nutritional status, 248 (76.8%) participants were classified as normal weight, 53 (16.4%) as overweight, 11 (3.4%) as obese, nine (2.8%) as thin, and two (0.6%) as severely thin. According to the Body Shape Questionnaire (BSQ) classification, 198 (61.3%) participants presented no body dissatisfaction, 50 (15.5%) had mild body dissatisfaction, 23 (7.1%) had moderate body dissatisfaction, and 52 (16.1%) had severe body dissatisfaction. Table 1 presents the distribution of the study sample according to sex, nutritional status, and BSQ classification, expressed as the number and percentage of participants.

Table 1 – Sample distribution according to sex, BMI, and BSQ score.

Sex	**n**	**Percentage (%)**
Female	189	58.5
Male	134	41.5
Total	323	100
BMI*	**n**	**Percentage (%)**
Severe thinness	2	0.6
Thinness	9	2.8
Normal weight	248	76.8
Overweight	53	16.4
Obesity	11	3.4
Total	323	100
BSQ**	**n**	**Percentage (%)**
Normal	198	61.3
Mild	50	15.5
Moderate	23	7.1
Severe	52	16.1
Total	**323**	**100**

*BMI: Body Mass Index, **BSQ: Body Shape Questionnaire

Table 2 presents the relationship between age and BSQ scores.

Table 2 – Relationship between BSQ and age.

BSQ*	**n**	**Mean**	**Minimum**	**1st quartile**	**Median**	**3rd quartile**	**Maximum**	**SD**	**p value**
Normal	198	15.3	14	14	15	16	19	1.1	
Mild	50	1.0	14	14	15	16	17	1.0	0.315
Moderate	23	15.4	14	14	16	16	17	1.1	
Severe	52	15.3	14	15	15	16	18	1.0	

* BSQ: Body Shape Questionnaire **SD: Standard-deviation; §Significance when p<0.05

Significant association was observed between body mass index (BMI) classification and body dissatisfaction as assessed by the BSQ (p = 0.008), with higher BMI being associated with greater body dissatisfaction (Table 3).

Higher prevalence of body dissatisfaction was observed among female participants, particularly in the mild (20.6%), moderate (10.1%), and severe (23.8%) categories, compared with male participants, who presented substantially lower frequencies in these categories (8.2%, 3.0%, and 5.2%, respectively). In contrast, most male adolescents were classified as having no body dissatisfaction (83.6%), a proportion considerably higher than that observed among females (45.5%). Adolescents with overweight or obesity exhibited a higher frequency of body dissatisfaction, particularly in the mild (21.9%) and severe (29.7%) categories, compared with those with normal weight or thinness. Conversely, the highest proportions of participants classified as having no body dissatisfaction were observed among adolescents with thinness (72.7%) and normal weight (65.3%), suggesting a direct relationship between nutritional status and body dissatisfaction. Furthermore, 13.3% of adolescents classified as having normal weight presented BSQ scores consistent with severe body dissatisfaction.

Table 3 – Relationship between BSQ score, sex, and BMI.

***BSQ**	**Sex**				**p value****
	Female		**Male**		
	n	**%**	**n**	**%**	
Normal	86	45.5	112	83.6	
Mild	39	20.6	11	8.2	
Moderate	19	10.1	4	3.0	< 0.001
Severe	45	23.8	7	5.2	
Total	**189**	**100**	**134**	**100**	

	BMI					
	Thinness/ Severe thinness		**Normal weight**		**Overweight/ Obesity**	
	n	**%**	**n**	**%**	**n**	**%**
Normal	8	72.7	162	65.3	28	43.8
Mild	1	9.1	35	14.1	14	21.9
Moderate	2	18.2	18	7.3	3	4.7
Severe	0	0	33	13.3	19	29.7
Total	**11**	**100**	**248**	**100**	**64**	**100**

0.008

*BSQ: Body Shape Questionnaire. ** Significance when p<0.05

IV. Discussion

Currently, the influence of beauty standards disseminated through the media and by social media significantly contributes to body dissatisfaction among adolescents. Frequent exposure to idealized and often unrealistic images promotes negative social comparisons, leading many young people to develop negative perceptions of their own bodies, particularly among females. Furthermore, recent studies have demonstrated that family-related factors, depressive symptoms, and the need for social validation are also associated with increased body dissatisfaction in this age group, potentially leading to adverse effects on adolescents' mental health and psychosocial development[9,10].

This study demonstrated a high prevalence of body dissatisfaction among adolescents, consistent with findings reported in the literature. Tamrakar *et al*[11]. showed that body dissatisfaction is common during adolescence and is influenced by multiple biopsychosocial factors, further supporting the applicability of the Body Shape Questionnaire (BSQ) as a valid assessment instrument. Similarly, Linhares *et al*[12]. identified significant associations between body dissatisfaction and mental health-related factors, eating behaviors, and sociocultural influences among Brazilian adolescents. Furthermore, Tekola *et al*[13]. reported an association between body dissatisfaction, negative body weight perceptions, and anxiety symptoms in adolescent students, highlighting the complex interplay of psychological and sociocultural factors involved in body dissatisfaction during adolescence.

This study found no association between age and body dissatisfaction, suggesting that age may play a limited role in body dissatisfaction during adolescence. This finding is consistent with the study by Tamrakar *et al* [11]. which demonstrated that age was not an independent factor after adjustment for psychosocial variables. Similarly, Legey *et al*[14]. reported that body dissatisfaction often emerges early in adolescence and may persist throughout this developmental stage, with only minor variations across age groups. Moreover, Fortes *et al*[15]. highlighted that factors such as sex, body mass index, and sociocultural influences have a greater impact on body image than chronological age.

Association was observed between girls and body dissatisfaction, corroborating the findings of Samari *et al*[16]. who reported a higher prevalence of body dissatisfaction among girls, primarily attributed to the internalization of beauty standards and sociocultural pressures. Similarly, Rodgers *et al*[1]. highlighted that female adolescents exhibit greater concerns regarding body weight and appearance, often influenced by thinness ideals and exposure to unrealistic body standards. Fortes *et al*[15]. identified female gender as one of the main risk factors for body dissatisfaction and the development of eating disorders, particularly in contexts characterized by social comparison and body dissatisfaction. In contrast, Nagata *et al*[17]. demonstrated that although body dissatisfaction is also present among boys, it manifests differently, being more frequently associated with concerns related to muscularity and body composition, reinforcing the need for gender-sensitive approaches when addressing body dissatisfaction during adolescence.

This study found an association between body mass index (BMI) and body dissatisfaction, with higher levels of body dissatisfaction observed among adolescents with overweight and obesity. This finding is consistent with the literature, which identifies BMI as one of the main factors associated with body image during adolescence. Carvalho *et al*[18]. demonstrated that adolescents with excess weight are more likely to experience body dissatisfaction and are at greater risk of negative body perceptions. Similarly, Jebeile *et al*[19]. reported that excess weight is consistently associated with higher levels of body dissatisfaction across different cultural contexts, highlighting the role of weight-related stigma and social pressures. In the Brazilian context, increased BMI has also been associated with a greater risk of body dissatisfaction, as well as adverse psychological outcomes, including low self-esteem and depressive symptoms[20,21]. The presence of different levels of severity in BSQ classification, including moderate and severe body dissatisfaction, underscores the clinical relevance of this phenomenon, given its association with adverse mental health outcomes such as anxiety, depression, and eating disorders[14]. Collectively, these findings reinforce the multifactorial nature of body image, which encompasses interrelated biological, psychological, and sociocultural dimensions.

This study had some limitations that should be considered when interpreting its findings. The cross-sectional design precludes the establishment of causal relationships, limiting the conclusions to the identification of associations. In addition, convenience sampling may limit the generalizability of the findings, and the use of a self-administered instrument, such as the Body Shape Questionnaire (BSQ), is subject to response biases, including social desirability bias. Furthermore, potentially relevant psychosocial variables were not assessed. Despite these limitations, this study has several important strengths, including the use of a validated instrument for the Brazilian population, the inclusion of demographic and anthropometric variables such as sex, age, and body mass index, the assessment of associations between these variables and body dissatisfaction, and an adequate sample size comprising adolescents and young adults from both clinical and school-based settings. Collectively, these aspects contribute to the robustness and relevance of the findings.

V. Conclusion

Body dissatisfaction was frequent among the adolescents evaluated, being identified in 38.7% of the sample using the Body Shape Questionnaire (BSQ). A higher prevalence was observed among female adolescents (54.5%) and among those with overweight or obesity (56.3%). These findings underscore the importance of using screening instruments, such as the BSQ, for the early identification of body dissatisfaction, enabling appropriate referral and the implementation of early interventions aimed at preventing body image-related disorders and promoting mental health in this population.

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